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

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Website: www.nerpc.nic.in

No. NERPC/SE (O)/OCC/2020/3361-3397 Dated: September 30, 2020

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. Engineer-in-Chief (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. ED, NERLDC, Dongtieh, Lower Nongrah, Lapalang, Shillong -793 006
24. Chief Engineer, GM Division, Central Electricity Authority, New Delhi – 110066
25. Chief Engineer (NPC), GM Division, Central Electricity Authority, New Delhi – 110066

Sub: Minutes of 170th OCC Meeting.

Sir/Madam,

Please find enclosed herewith the minutes of 170th OCC Meeting held at NERPC's Conference Hall, Shillong on the **11th September, 2020** 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,

बी. लिंगखोइ

बि. लिंगखोइ / B. Lyngkhoi
Member Secretary i/c

Copy to:

1. CGM, AEGCL, Bijuli Bhawan, Guwahati – 781001
2. CGM, APGCL, Bijuli Bhawan, Guwahati – 781001
3. CGM, DISCOM, Bijuli Bhawan, Guwahati – 781001
4. Head of SLDC, MeECL, Lumjingshai, SR Road, Umjarain, Shillong – 793022
5. Head of SLDC, Dept. of Power, Govt. of Arunachal Pradesh, Itanagar – 791111
6. Head of SLDC, Dept. of Power, Govt. of Nagaland, Dimapur – 797103
7. Head of SLDC, MSPCL, Imphal – 795001
8. Head of SLDC, P&E Deptt. Govt. of Mizoram, Aizawl – 796 001
9. Head of SLDC, TSECL, Agartala – 799001
10. Chief Engineer(Elect), Loktak HEP,Vidyut Vihar, Kom Keirap, Manipur- 795124
11. DGM (O&M), OTPC, Badarghat Complex, Agartala, Tripura – 799014
12. Director, NETC, 1st Floor, Corporation Tower, AMBIS Mall Complex, NH-8, Gurgoan – 122001.

वी. लिंगारेड्डि

Member Secretary i/c

North Eastern Regional Power Committee

MINUTES OF THE 170th OPERATION COORDINATION SUB-COMMITTEE MEETING OF NERPC

Date : 11/09/2020 (Friday)

Time : 10:30 hrs

Venue : "NERPC Conference Hall", Shillong.

The List of Participants in the 170th OCC Meeting is attached at **Annexure – I**

Director (Comml), NERPC informed the members that Sh. B. Lyngkhoi, Member Secretary(I/C), NERPC shall be chairing the 170th OCC meeting. Member Secretary i/c welcomed the members to the meeting. He regretfully informed that many regular members of the forum have contracted COVID and wished them speedy recovery on behalf of the forum. Thereafter he informed the following:

a. 30 nos of PSCT license has been issued to the various utilities as part of PDMS project. However additional licenses may be also issued under the project. He requested all the utilities to submit a fresh requisition for PSCT licenses at the earliest.

b. Mapping of NERLDC tripping portal and PDMS tripping portal has been explored by NERLDC, NERPC & M/s PRDC jointly. He requested the forum to deliberate in this regard.

c. The 2nd NERPCTP meeting is scheduled to be held on 25th September,2020. He requested the STUs/SLDCs to send agenda items latest by 18th September, 2020.

d. Poor utilization of PSDF funds is a matter of major concern. He requested all the utilities to submit the requisition at the earliest to avoid fund's lapse.

e. Regarding 100% funding for Reliable Communications scheme in NER, NLDC informed that Hon'ble Power Minister, GoI is scheduled to visit NLDC on 11th September, 2020 and the matter would be taken up for discussion.

Member Secretary i/c, NERPC requested M/s SOLVINA to present the detailed scope of their works under the project to test Primary Frequency Response for generators in NER (presentation attached at **Annexure-II**).

Thereafter Member Secretary i/c requested Executive Engineer, NERPC to take up the agenda items for discussion.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 169th MEETING OF OPERATION COORDINATION SUB-COMMITTEE OF NERPC.

The minutes of 169th meeting of Operation Sub-committee held on 14th August, 2020 at Shillong were circulated vide letter No. NERPC/SE (O)/OCC/2019/2674-2711 dated 28th August, 2020.

The following comment was received from NTPC:

Item D.20: Swapping of units under RSD with on-bar unit:

The following was recorded in the minutes of the 169th OCC meeting.

1. NTPC would write to NERPC with a detailed description of the technical difficulties
2. Thereafter beneficiary states would submit comments
3. Matter would be taken up in the next OCCM for deliberation
4. Present RSD procedure and guidelines as approved by the forum in the 168th OCCM to remain in force till further discussion in next OCCM.

Remarks from NTPC for Amendment:

In 169th OCC meeting GM(O&M)-NTPC highlighted that each swapping entails additional cold startup of the machine, this affects life of the machine.

He requested that Swapping of units may be dropped from the RSD procedure as per prevalent practice in other regions. But due to poor sound quality, NTPC representatives (who were on MS-team) did not hear the point no. **(4)** where it is written that " present RSD procedure and guidelines as approved by the forum in the 168th OCCM to remain in force till further discussion in next OCCM"**.**

CGM of BgTPP has sent a letter to NERPC on 19.08.2018 describing NTPC's reservation on unit swapping.

Deliberation in the 170th OCC forum:

GM, NTPC apprised the forum about the negative aspects of swapping of units under RSD:

a. High thermal stress on units
b. Does not allow sufficient time for preservation of machines
c. Deteriorates the life of the machine.

Further he informed that BgTPP has always demonstrated start-up readiness and will continue to do so in the future.

AGM(O), NTPC stated that swapping of units would affect the commercial of beneficiaries. With 3 additional RSDs in a month and 17 additional RSDs in a year, the increase in tariff would be 6paise/unit.

DM, APDCL opined that since swapping of units affects the life of the machine and increases the per unit tariff, hence requested swapping to be stopped.

DGM, MSPCL stated the following views of MSPDCL:

"MSPDCL has come to the conclusion that frequent swapping of units during RSD may kindly be avoided. Considering the additional cost of the oil to be used in the start-up and shutdown of units, the extra cost as given in the month of August 2020 has increased the ECR by 5.12 paise / kwhr which will increase the already high power purchase cost of BGTPP."

Other beneficiaries of BgTPP also expressed views similar to Assam and Manipur. After detailed deliberation the forum decided the following:

1. Swapping of units under RSD to be dropped from RSD procedure. Rest of the guidelines remain as per procedure approved in the 168th OCCM.
2. Provision for Demonstration of DC (both On-Bar and Off-Bar DC) by CSGS as and when asked by NERLDC in line with Regulation 6.4.19 of IEGC 2010 to be included in RSD procedure.

The Sub-committee confirmed the minutes of 169th OCCM of NERPC with the above modifications as no other comments/observations were received from the constituents.

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

B.1. <u>ACTION TAKEN:</u>

1. <u>IMPLEMENTATION OF PROJECTS FUNDED FROM PSDF</u>:

The status as informed in 170th OCC:

State	R&U scheme	ADMS	Capacitor Installation	SAMAST**	Line Differential Protection
Ar. Pradesh	Package-I (Diagnostic tools) Materials supplied. P-II (for PLCC &	PFMS issues to be addressed and 2nd tranche to be	-	TESG approval awaited	-

	communication) LOA issued. P-III (Substation equipment) NIT by Sep'20 Work delayed due to COVID situation. Station-wise status to be updated	disbursed by Sep'20.			
Nagaland	All completed except for PLCC package. Delayed due to COVID situation Station-wise status to be updated.	Requisition for second tranche of 60% submitted.	-	TESG approval awaited	Lines identified. Under DPR preparation stage.
Mizoram	Completed. 10% remaining claim to be submitted ASAP.	2nd tranche 60% funds disbursed. Final 10% requisition to be submitted immediately.	To reply to TESG queries.	TESG approval awaited.	Lines identified for installation of DPR viz. 132kV Aizawl - Luangmual and 132kV Kawmzawl - Khawiva.
Manipur	Package-II: completed Package-I: WIP Delayed due to COVID situation Station-wise status to be updated.	60% disbursed. Final 10% requisition to be sent immediately.	PSDF approved. NIT to be floated.	TESG approval awaited.	Lines identified. LDP for 132kV Imphal-Imphal and 132kV Jiribm-Jiribam proposed. Under DPR preparation stage.
	33kV System Integration with SLDC	In tendering stage			
	Reliable Communications for grid connectivity	In tendering stage			

Tripura	Work completed. 10% remaining claim to be sent ASAP. Station wise status to be updated.	A/c opened. Requisition sent for 1st tranche.	Study results to be submitted alongwith DPR	TESG approval awaited.	Only single line 132kV 79Tilla to Budhjangn agar. DPR to be prepared.
Assam	LOA issued. WIP, delayed due to COVID situation Station-wise status to be submitted.	1st tranche of funds received.	-	Under finalization stage for LOA.	Lines identified. Under DPR preparation stage.
Meghalaya	MePTCL Completed in all respects** MePGCL – 10% claim to be submitted ASAP. Station-wise status to be updated.	Final tranche of 10% received.	-	Under finalization stage for LOA.	WIP. Delayed due to COVID situation

Deliberation of the sub-Committee:

Member Secretary i/c, NERPC informed the forum that TESG will take up for approval of SAMAST scheme for remaining five states after submission of all the queries raised by TESG. Further, he intimated the forum regarding the decisions of the SAMAST Special Meeting with nodal officers of the states, held on 09th September,2020:

(i) As requested by all NER States during the above special meeting, Common LOA for SAMAST for NER States shall be issued by NERPC.

(ii) Regarding Project Monitoring Committee: Members formed the Project Monitoring Committee and co-opted members to the same.

The forum ratified the decisions taken by the SAMAST Core-group w.r.t. the Common LOA & Project Monitoring Committee.

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

B.2. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING AUGUST, 2020

As per the data made available by NERLDC, the grid performance parameters for August, 2020 are given below:

NER PERFORMANCE DURING AUGUST, 2020

States	Energy Met (MU)		w.r.t. Jul,20 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. Jul,20 % inc (+) /dec (-)	% surplus (+) /shortfall (-) of energy In Aug,20
	Aug-20	Jul-20		Aug-20	Jul-20		
Ar. Pradesh	58.95	56.66	4.04	59.19	57.01	3.82	-0.41
Assam	1060.42	940.12	12.80	1095.42	985.45	11.16	-3.20
Manipur	82.79	83.63	-1.00	83.12	84.06	-1.12	-0.40
Meghalaya	163.46	163.27	0.12	163.46	163.27	0.12	0.00
Mizoram	57.51	56.02	2.66	57.77	56.31	2.59	-0.45
Nagaland	70.84	72.1	-1.75	71.08	72.41	-1.84	-0.34
Tripura	247.17	240.88	2.61	247.31	240.89	2.67	-0.06
Region	**1741.14**	**1612.68**	**7.97**	**1777.35**	**1659.4**	**7.11**	**-2.04**

States	Demand Met (MW)		w.r.t. Jul,20 % inc (+) /dec (-)	Demand in (MW)		w.r.t. Jul'20 % inc (+) /dec (-)	% surplus (+) /shortfall (-) of demand In Jul,20
	Aug-20	Jul-20		Aug-20	Jul-20		
Ar. Pradesh	128	127	0.79	157	155	1.29	-18.47
Assam	1943	1758	10.52	1943	1839	5.66	0.00
Manipur	200	197	1.52	200	225	-11.11	0.00
Meghalaya	320	321	-0.31	320	321	-0.31	0.00
Mizoram	101	102	-0.98	101	102	-0.98	0.00
Nagaland	149	147	1.36	149	147	1.36	0.00
Tripura	301	288	4.51	301	288	4.51	0.00
Region	**3069**	**2828**	**8.52**	**3098**	**2965**	**4.49**	**-0.94**

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

Month---->	Aug-20	Jul-20
Total Generation in NER (Gross)	1821.39	1950.38
Total Central Sector Generation (Gross)	1446.88	1551.66
Total State Sector Generation (Gross)	374.51	398.722
Inter-Regional Energy Exchange		
(a) NER-ER	0.00	11.96
(b) ER-NER	456.26	189.51
(c)NER-NR	471.69	452.59
(d)NR-NER	0.00	0.00
© Net Import	-15.43	-275.04

AVERAGE FREQUENCY (Hz)

Month---->	Jul-20	Jul-20
	% of Time	% of Time
Below 49.9 Hz	1.55	2.75
Between 49.9 to 50.05 Hz	79.10	78.20
Above 50.05 Hz	19.35	19.05
Average	50.01	50.01
Maximum	50.17	50.20
Minimum	49.97	49.96

Deliberation of the sub-Committee:

NER grid performance for the month of August'20 was presented by NERLDC. (Attached at **Annexure-B.2**)

The Sub-Committee noted as above.

C. ITEMS- STATUS REVIEW

C.1 Auto-reclosure issues at Azara:

In 168th OCCM, AEGCL informed that the communication channel mismatch issues still persist. It was decided that shutdown would be availed by AEGCL & NERTS in July'20.

Deliberation of the sub-Committee:

NERTS informed the forum that the carrier signal was found to be satisfactory from Silchar end for Silchar-Azara line when tested on 27th July 2020 during approved shutdown. AEGCL informed that the Auto-reclosure issue is yet to be resolved as OEM vendor is yet to visit the site.

The Sub-Committee noted as above.

Action: AEGCL, NERTS

C.2 Restoration of Assets damaged at Kopili HEP due to failure of Penstock:

As per decisions in previous meeting(s):

(i)Detailed ownership and scope of work finalized in the 168th OCC meeting

(ii)Immediate restoration of one 220kV line, one 132kV line and 160MVA ICT at Kopili S/S via AIS by NERTS.

Deliberation of the sub-Committee:

Director(Comml), NERPC informed that the matter was taken up for deliberation in the 39th CCM of NERPC and CCM has approved the restoration works (as decided in OCC forum) to be booked under PoC mechanism alongwith switchyard portion also.

CGM(AM), NERTS informed the forum that the restoration works as decided in previous 169th OCCM is under execution stage. However, it has been considerably delayed due to lockdown measures. He added that the Khandong-Kopili-Misa link will be completed by November 2020. DGM, NEEPCO re-iterated that the scope of work of NEEPCO shall be restricted to unit bays only which shall have to be synchronized with rest of switchyard. In this regard, BoQ has to be prepared for synchronization with DAS of Kopili HEP. Further, he informed that E/M package tender which is due to be floated shall have to be matched with switchyard SCADA. CGM(AM), NERTS informed that presently temporary restoration of one 2220kV line/one 132kV line and one 220/132kV ICT as decided in OCC forum is being taken up.

After detailed deliberation the forum decided the following:

(i)The kiosk arrangement/hardware which is being presently used and shall also be a part of permanent restoration will be jointly decided by NERTS & NEEPCO.

(ii)Prior to permanent restoration the BoQ shall be shared by NERTS with the forum.

The Sub-Committee noted as above.

Action: NERTS, NEEPCO.

C.3 Status update of important grid elements under prolonged outage impacting system operation:

Sl. No	Element	Owner	Status as informed in the 169th OCCM	Latest status
1	63MVAR Bus Reactor at Byrnihat to replace with 80MVAR Reactor	MePTCL	10% funds received. Tendering in progress.	Tendering under process
2	132kV Dimapur - Imphal	NERTS	Pending works: 2 nos foundation, 2 nos tower erection, 2 span conductor stringing. By 40 days.	Delayed due to ROW clearance issues. Expected to completed by October 20.
3	220kV Sonabil-Samaguri-I	AEGCL	Sep'20	Line is in idle charged condition from Sonabil end. RoW issue at location near Samaguri to be resolved shortly
4	132kV Srikona-Panchgram	AEGCL	Sep'20	Line to be rerouted through HPC Campus.Confirmation awaited.
5	63MVAR L/R for 400kV Palatana-SilcharCkt-I	OTPC	Oct'20	Oct'20
6	132kV Jiribam – Rengpang	MSPCL	Oct'20	Oct'20
7	220KV-Agia-BTPS-I	AEGCL	Aug'20	Line is ready to be charged. **
8	132KV-Pare-Itanagar-1	Arunachal Pradesh	By 15.10.2020	By 15.10.2020
9	132KV-Ranganadi-Itanagar-1	Arunachal Pradesh	By 15.10.2020	By 15.10.2020
10	20MVAR tertiary reactor(s) at Balipara	NERTS	-	Filtration and oil parameter healthiness to be checked by Sep'20.

**DGM, SLDC, AEGCL informed that presently APM is fed from Dhaligaon and 132kV Kokrajhar-Bilasipara is under construction. So, to maintain the loading of 220kV Salakati-BTPS within limits the 220kV Agia-BTPS-I is not being charged. NERLDC requested for a joint system study with SLDC, Assam in this regard.

The Sub-Committee noted as above.

Action: All utilities as above.

C.4 Status of commissioning for Upcoming projects:

As per discussions in the 169th OCCM the status of the following are to be informed:

a. 132kV Surjamaninagar-Surjamaninagar D/C and 132kV P.K.Bari-P.K.Bari D/C to be constructed by TSECL.
b. 400 kV Palatana – Surjamaninagar (Sertlite) and 400 kV Silchar – P.K bari (Sterlite) D/C by NERTS-POWERGRID.

Deliberation of the sub-Committee:

DGM, SLDC, TSECL informed that the in lieu of the lines mentioned at Sl.No.(a) LILO of 132kV Surjamninagar-Budhjangnagar-Ckt-I at Surjamaninagar(ISTS) and LILO of 132kV PKBari-Ambassa at PKBari(ISTS) is being constructed matching with ISTS schedule. The works are being executed by M/s STERLITE.

CGM(AM), NERTS informed that for the lines mentioned at (b) work has been severely impacted by excessive rainfall. The tentative schedule will be Dec'20.

The Sub-Committee noted as above.

Action: TSECL, NERTS.

C.5 Tripping of 220kV BTPS-Salakati D/C on 05.08.2020:

In 169th OCCM, CGM(AM), NERTS informed that re-conductoring of 220kV BTPS-Salakati D/C has to be bundled with some other project. He agreed to revert back with exact details in the next OCCM.

Deliberation of the sub-Committee:

CGM(AM), NERTS informed the forum that the currently cost estimates are being prepared for the project.

The Sub-Committee noted as above.

Action: NERTS.

ADDITIONAL AGENDA:

C.6 Status of PLCC for 132kV Loktak-Ningthoukong and Loktak-Rengpang:

DGM, SLDC, MSPCL informed that the PLCC for the two lines would be commissioned by Dec'20.

The Sub-Committee noted as above.

Action: MSPCL

D. I T E M S FOR DISCUSSION

D.1 Generation Planning (ongoing and planned outages)

a. Present per day MU and projected number of days of operation.

Plants	Reservoirs level in meter	MU content	Present DC (in MU)	No of days as per current generation
Khandong + Kopili stg II	719.6	25	**0**	-
Kopili	-	-	**0**	Will be "0" until further intimation.
Doyang	321.45	27.2	**1.113**	24
Loktak	768.50	250	**2.487**	101

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

Deliberation of the sub-Committee:

NERLDC highlighted that due to unavailability of Kopili HEP and Khandong HEP, constituents should plan for procurement of power for proper portfolio management.

NERLDC also highlighted that proper planning of Hydro Generation needs to be done Based on number of days of water availability.

The Sub-Committee discussed and approved 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:

In 160th OCCM NERLDC presented a report on the shutdown approval timeline(s) followed in OCC of other regions. It was observed that M+2 month's shutdown was

approved in Mth month. For eg. shutdowns from 01.11.2019 to 30.11.2019 is approved in the OCC of September, for which requisition has to be submitted by 5th of September,2019 i.e. 5th day of the Mth Month, M being the month in which OCC Meeting is held. By following this practice there will be no overlapping of shutdown dates as happening at present. Members unanimously agreed to the practice in other RPCs. In order to further ease the process of shutdown planning by the constituents, it was agreed in subsequent OCC meetings that shutdown should be discussed and approved for month of M+1 (instead of M+2) in Mth Month OCC meeting.

Deliberation of the sub-Committee:

Regarding continuous shutdown of 220kV Bus-2 and 220/132kV 100MVA ICT at Dimapur by NERTS, DoP Nagaland requested that progress of works and timeline be shared by NERTS. Further it was requested that the works be expedited so that reliability for Nagaland system is improved.

The sub-Committee discussed and approved the transmission line outages proposed by Constituents for October, 2020 which is available in the website of NERPC.

The Sub-Committee noted as above.

Action: All utilities.

D.3 Estimated Transmission Availability Certificate (TAC) for the month of August,2020:

NETC and POWERGRID have submitted the outage data for the month of August,2020. The attributability of outage of the said elements may be finalized.

Deliberation of the sub-Committee:

GM,NETC enquired about TAC for tripping of Transmission elements due to Natural causes like lightning. NERTS also enquired about the same & requested the forum to give a direction in regard.

NERLDC informed the forum that as per clause 5(i) of Appendix-II (Procedure for Calculation of Transmission System Availability Factor for a Month) of CERC (Terms and Conditions of Tariff) Regulation, 2019, Member Secretary, NERPC is entrusted to verify outages of elements due to '***Acts of God'*** and force majeure events beyond the control of the transmission licensee. Further, NERLDC highlighted the difficulties in determining the occurrence of lightning, based on DR/EL & post- patrolling report. The forum approved the submission of the following additional documents for TAC:

1. **Lightening / thunderstorm:**
   a. DR file
   b. Weather Report (Forecast from IMD, Realtime from third part website viz. weatherbug, accuweather etc.)
   c. Patrolling report
   d. Evidence Photograph.

2. **Vegetation from outside ROW (due to wind / landslide / act of god):**
   a. Evidence Photograph.
   b. DR file
   c. Patrolling report

3. **Vegetation from inside ROW (due to miscreants / jhum or forest fire / militant etc.):**
   a. Evidence Photograph.
   b. DR file
   c. Patrolling report.
   d. FIR in cases related to persons, community or group.

The Sub-Committee noted as above.

D.4 Charging of 132kV Sihhmui S/S and related issues:

Decisions as per deliberation in previous meeting(s):

- Present condition of idle charging from Melriat end as anti-theft measure to remain in place. For charging of 132 kV Bays of Melriat – Sihhmui D/C at Sihhmui Substation, 132 kV Sihhmui Bus and 132/33 KV, 12.5 MVA Transformer at Sihhmui Substation, fresh application is to be applied to NERLDC and approval to be obtained.
- NERTS-POWERGRID to apply afresh for charging clearance/First Time Charging and Trial operation certificate for 132kV Melriat-Sihhmui including bays at both ends after obtaining clarification from NERPCTP, CEA.
- NERTS, P&ED Mizoram to inform about the conclusions of their bilateral discussions regarding tariff.

Deliberation of the sub-Committee:

CGM(AM), NERTS stated that discussions are still ongoing between NERTS and P&ED Mizoram. Sr. EE, P&ED Mizoram informed the following:

(i)Exchange bays work is ongoing and presently only gravelling is left.

(ii) In its bilateral discussions with NERTS it was proposed to defer the DoCO for 132kV Melriat-Sihhmui D/C. However ,the same is yet to be agreed upon.

(iii)Contravening the decisions of the Special Meeting, POWERGRID is sending bills to P&ED Mizoram.

Member Secretary i/c, NERPC viewed seriously non-adherence to the decisions of the Special Meeting. Further, NERTS and P&ED Mizoram were requested to inform the conclusion of bilateral discussions at the earliest. Once the report of bilateral discussion between P&E, Mizoram and NERTS is received, a special meeting may again be convened to discuss the issue.

The Sub-Committee noted as above.

Action: P&ED Mizoram, NERTS.

D.5 RGMO analysis for events dated 11th June, 2020

Decisions as per discussions in previous meetings:

- OTPC- Discussions ongoing with OEM for anomaly in unit response.
- NTPC – All three units tuned in July'20.

Deliberation of the sub-Committee:

Sr. Manager, OTPC informed that discussions are still ongoing with OEM.

The Sub-Committee noted as above.

Action: OTPC.

D.6 Shutdown of OTPC Module-I:

It is proposed to have shutdown of OTPC Palatana Unit-1 in the first week of Oct'20 for 8 days for HRSG-1 license renewal.

In 169th OCCM Sr. Manager, TSECL once again reiterated the request of TSECL to defer the shutdown after Puja if the work cannot be completed in first week of Oct'20 firmly. Sr. Manager, OTPC informed that further consultation would be required with Boiler Inspector. He agreed to revert back in the next OCC meeting.

Deliberation of the sub-Committee:

Sr. Manager, OTPC informed that since license has been renewed, shutdown of Palatana Module-I shall not be required this year. The forum thanked OTPC for the same.

The Sub-Committee noted as above.

Action: OTPC

D.7 Status of NERPSIP, Comprehensive Scheme of Transmission & Distribution System in Arunachal Pradesh & Sikkim and TBCB projects:

The disturbances due to weak connectivity and radial transmission systems of NER grid may be avoided with the completion of various transmission projects which are being

implemented in NER under NERPSIP, Comprehensive Scheme of Transmission & Distribution System in Arunachal Pradesh & Sikkim and TBCB projects. Implementation of these projects may be expedited in order to reduce occurrences of these disturbances.

In 168th OCCM, ED, NERLDC stated that under NERPSIP and Comprehensive Scheme many transmission elements shall be integrated into the grid, so monitoring the status of such projects are essential. He requested POWERGRID-NERPSIP to submit the quarterly status report to NERLDC/NERPC. It was decided that representative(s) from NERPSIP-POWEGRID and respective state utilities (dealing with the project) shall be invited henceforth to OCC meeting for updating the forum about progress of works.

Deliberation of the sub-Committee:

EE(System Protection), MePTCL requested that status of FO works, links and materials be communicated to System Protection Division, MePTCL for better integration into the existing system. Further he informed that progress of works particularly for 132/33kV Mynkre Station is very slow.

Other states in unison deplored the extremely slow progress of works of NERPSIP and Comprehensive Scheme.

ED, NERPSIP informed the forum regarding the progress of projects under NERPSIP:

- Meghalaya: OPGW Stringing work is currently under progress in Phulbari. He also informed that out of eleven 33/11 KV substation; seven are completed while remaining four will be completed by December 2020. In 132/33kV Mynkre S/Sn, due to flash flood there was water stagnation which delayed the works. However, works have resumed now.
- Tripura: 132 KV system will be commissioned by January 2021.
- Assam: Samaguri is already commissioned. Dhaligaon to be commissioned.

ED, NERPSIP also informed the forum that currently progress report is sent to the state utilities every month. He stated that henceforth the compiled report will also be sent to NERPC.

The Sub-Committee noted as above.

Action: POWERGRID.

D.8 Swapping of unit under RSD with on-bar unit:

In 169th OCCM NTPC informed that each swapping entails additional cold startup of the machine, this affects life of the machine which may lead to early

overhauling/replacement of the machine. He requested that Swapping of units may be dropped from the RSD procedure as per prevalent practice in other regions.

The forum also noted the additional cost to the beneficiaries as part of Compensation Mechanism due to additional RSDs.

After detailed deliberation it was decided that(i)NTPC would write to NERPC with a detailed description of the technical difficulties, (ii)Thereafter beneficiary states would submit comments, (iii)matter would be taken up in the next OCCM for deliberation, (iv)present RSD procedure and guidelines as approved by the forum in the 168th OCCM to remain in force till further discussion in next OCCM.

NTPC vide mail dated. 04.09.2020 has informed the following w.r.t. this agenda item:

"This is reference to the guideline issued by NERLDC for taking units under reserve shutdown.In this guideline, NERLDC has also proposed the procedure of swapping of unit under RSD with on-bar unit. However, as a generating station we have few limitations in terms of machine reliability for extra startups.

As per DOP on reserve shut down sl. No. 1.2 thermal plants are designed for around 150 cold start- up.Life of a thermal power plant is considered to be 25 years as per CERC. So six cold start-ups in a year.

Due to planned overhauling & long forced outage (because of BTL or any other capital equipment outage), average cold start-up per year is around 4 numbers. With 4 cold start-ups, life of boiler/turbine can come to 35 years. So we can run power plant beyond 25 years of specified life without any capital investment. NERLDC procedure for swapping of unit RSD in a periodic manner will increase the number of cold start-up and this will reduce the life of thermal power plant even below the specified life of 25 years. Each start-up and shut-down is creating excess thermal stress. Apart from thermal stress, oil consumption is a matter of concern for generator and nation w.r.t environment. Also there will be extra financial burden on beneficiaries.

For each swapping of thermal unit around 60 KL oil is consumed (start-up of one unit & shut down of other unit). Cost of oil for one swapping is around 28 Lakh(Rs46500./KL). For one RSD, generating stations are getting oil compensation of 50 KL of oil. If swapping had been done as per NERLDC procedure there wouldhave been 4 more extra starts and stops of unit in the month of Aug'2020. This 4 swapping would have increased the ECR by 5.12 paise per kWhr in the month of Aug20 (though

actual increase in oil cost is 6.15 paise per unit). This will create extra financial burden on beneficiaries.

Ensuring healthiness of units is the responsibility of generators. There is already laid down procedure by CERC for demonstration of DC by RLDC as per clause 6.4(19) notification no. 3.14 No. L-1/18/2010-CERC dated 28thApril 2010.
Considering the above, NTPC is of view that guideline regarding swapping of coal based units may please be dropped."

Deliberation of the sub-Committee:

Please refer to discussion in item No. A. Confirmation of minutes.

The Sub-Committee noted as above.

Action: NERLDC, NTPC.

D.9 Mapping of NERLDC Tripping portal and PDMS tripping portal:

In 169th OCCM Director(O&P), NERPC informed that as per discussions in the Sub-group meeting held on 10th July,2020 and 11th August, 2020 it has been accepted that a mapping of the existing NERLDC tripping portal and PDMS tripping portal is required. This would enable the full utilization of the PDMS suite and proper audit trail of the analysis/recommendations of all trippings/disturbances in a common database. M/s PRDC representative that as per preliminary discussions with NERLDC API based mapping is being explored with tentative expenditure to the tune of INR 15 lakhs (maximum). NERLDC stated that discussion with M/s Kreate Technologies, who has developed the NERLDC Tripping Portal shall be required to understand requirements from their end. It was agreed that a separate meeting shall be organized between M/s PRDC and M/s Kreate Technologies in presence of NERPC and NERLDC for discussion regarding the requirements and finalizing procedure for implementation of the work.

The forum approved the scheme in-principle and requested NERPC to revert back with the exact details.

Deliberation of the sub-Committee:

NERPC informed that Techno-Commercial offer has been received from M/s PRDC. Following are the activities for integration:

1. Mapping of NERLDC fields to PDMS Tripping incident fields (that are required for PDMS)
2. Identification of RESTful end points for each Create/Update/Delete operation performed in Tripping incident portal
3. Development of RESTful API

4. Setting up an integration with SFTP for attachment association Techno Commercial Proposal for NERPC tripping portal integration
5. Integration & Testing
6. Deployment
7. Acceptance Testing

Member Secretary i/c, NERPC also informed that the quoted amount is INR 12lakhs and the same may be booked under PDMS project subject to PSDF approval. After detailed deliberation the forum approved the same.

The Sub-Committee noted as above.

Action: NERPC.

D.10 Preparation of List of Important Grid Elements:

In the Special Meeting (for improvement of Data Availability) held on 18th August,2020 it was decided that List of Important Grid Elements has to be prepared by NERLDC (for ISTS and important intra-state elements) and by SLDCs (for intra-state elements).

Deliberation of the sub-Committee:

The list of important grid elements as prepared by NERLDC (for ISTS and important intra-state elements) is attached at **Annexure-D.10**. The forum requested all the SLDCs to prepare the same.

NERLDC opined that the list of important grid elements is available in NERLDC website as per direction of Hon'ble CERC in regulation 5.2 (c) of IEGC. But this list is for the operational purpose only and should not be considered for calculation of telemetry availability.

The Sub-Committee noted as above.

Action: all SLDCs.

D.11 Charging of 33kV Khupi-Kimi line at 132kV:

The following were decided in the 54th PCC Meeting held on 22.01.2020 at Guwahati:

1. 132kV Khupi-Kimi line charged at 33kV presently, shall be converted to 132kV.
2. 132kV Seppa bay at Khupi to be used for 132kV Khupi-Kimi (Kameng).
3. Insulator, line inspection to be carried out by DoP, Arunachal Pradesh.

NEEPCO vide mail dated 31.08.2020 has expressed willingness to charge the line at 132kV level.

In this respect in addition to the completion of the above works at Sl.No.(1) to (3) the following are also pre-requisites:

(i) Availability of Distance Protection at both ends

(ii) Healthiness of PLCC system.

Deliberation of the sub-Committee:

AE,SLDC, DoP Ar. Pradesh informed the forum that insulator, line inspection for 132kV Kimi-Khupi line shall be carried out by Oct'20. However, for handing over/taking over, he requested that the matter may be discussed with the highest level of DoP Ar. Pradesh. DGM, NEEPCO stated that NEEPCO is ready for handing over and charging of the line at 132kV level. The forum noted that the following sequence of events may be followed for charging of the line at 132kV level:

(i)Handing over/taking over of the line

(ii) Application for FTC to NERLDC.

The Sub-Committee noted as above.

Action: DoP Ar. Pradesh, NEEPCO.

D.12 SEMs to be Procured

In 169th OCCM NERTS informed that 50 out of the total 100SEMs have been received. The balance SEMs alongwith DCDs to reach Misa by Aug'20.

Deliberation of the sub-Committee:

CGM(AM), NERTS informed that all 100 SEMs and 20 DCDs have been received. He further said that Quantity variation order for procurement of 50 more SEMs has been given to mitigate the requirement of new Sterlite & KMTL projects. NERLDC presented the distribution list in Agenda No. D. 22 & D. 23 below.

The Sub-Committee noted as above.

Action: NERTS.

D.13 SEM time drift:

In 169th OCCM NERLDC informed that present SEMs having time drift cannot be corrected manually and have to be replaced. List of 22 SEMs has been provided to POWERGRID for replacement.

Deliberation of the sub-Committee:

NERTS informed that they would try to replace the SEMs as listed in 169th OCC Meeting by Sep'20 but due to restricted movement, pace of works has been severely hampered. Director (Comml.), NERPC requested NERTS to study and table exhaustive report in the OCC forum for quick resolution of time drift issues.

The Sub-Committee noted as above.

Action: NERTS.

D.14 Integration of SEMs with laptop/PC for data downloading:

In 169th OCCM NEEPCO informed that previously a system was in place at Khandong PS for Single Push Data downloading from all SEMs. This was enabled by connecting all SEMs over RS-485 and a dedicated PC. He requested the forum to implement the same for large stations to enable speedier data collection. After detailed deliberation the forum decided the following:

i. Implementation of RS-485 scheme for data downloading in one station preferably a generating station
ii. If trial operation is successful then the scheme is to be extended to all stations where SEM quantity is greater than 10.

NERTS was requested to implement the trial at AGBPP.

Deliberation of the sub-Committee:

Sr. Manager, OTPC requested that the Trial/Pilot be set up at OTPC-Palatana. The forum approved the same. NERTS informed that as proprietary hardware/software issues are involved, OEM help has been sought.

The Sub-Committee noted as above.

Action: NERTS.

D.15 Processing of Post-OCC shutdown:

POSOCO is in the process of pan India integration of the Shutdown and outage software for which one of the prerequisites is giving D-3 confirmation through the software for all Planned Shutdowns including the shutdowns approved by NERPC after OCC Meeting (Post OCC Shutdown). In line with procedure approved in WRPC forum and being followed in Western Region, it is proposed that in North Eastern Region the following procedure may be followed:

I. Requesting agency shall request for Post OCC shutdown to NERPC with an intimation to NERLDC by 10:00 hrs of D-5 (D being the day of shutdown).
II. RLDC shall perform system studies pertaining to the shutdown and shall provide their comments to NERPC by 18:00 hrs of D-5.
III. NERPC shall approve/reject the shutdown and send the same to NERLDC by 18:00 Hrs of D-4 for further processing of the shutdown.
IV. Thereafter, the requesting agency shall apply D-3 availing request in NERLDC outage software as being done for OCC approved shutdowns.
V. Rest of the timeline shall be same as being followed for OCC approved shutdowns.

Similar timeline shall also be followed while requesting for postponement of an approved shutdown by the requesting agency to NERPC.

The above procedure shall help in alignment of procedure for processing of Post OCC shutdown with the procedure of processing of Planned shutdown approved in OCC Meetings as agreed in 88th OCC Meeting of NERPC Forum.

Deliberation of the sub-Committee:

NERLDC informed the forum about upcoming integration of Outage software with NLDC. NERLDC stated that the timeline followed from D-3 onwards for OCC approved shutdown which was approved in 88th OCCM in 2013, is not being followed for Post OCC shutdown processing which is hampering the performance of system studies related to the post OCC shutdowns. NERLDC proposed above mentioned timeline in line with process being followed in WR which starts from D-5 application of Post OCC Shutdown. This is also one of the pre-requisites for processing of shutdown after integration of Outage Software.

Members from various utilities stated that majority shutdowns are being applied in OCC, only few shutdowns related to construction activities, PSDF works, system improvement etc. are applied post-OCC. All the utilities except Assam opined that the present D-3 arrangement may be continued.

The forum decided that for all approved shutdown (OCC/post-OCC) the requisitioning utility has to apply on D-3 basis.

The Sub-Committee noted as above.

Action: all utilities.

D.16 Immediate restoration of 220kV Bus-Coupler Bay at Samaguri(AEGCL) & keeping both buses in service at 220kV Sub-stations in Assam power system:

Emergency shutdown of both 220 kV buses at Samaguri S/S was availed by AEGCL on 27.08.20 for restoration of 220 kV elements at Samaguri by bypassing bus coupler. Bypassing was done due to problem in 220 kV bus coupler bay.

Single bus operation of 220 kV Samaguri is affecting the safe and secure operation of the NER grid especially Assam Power System.

Also, Single bus operation is observed in other 220 kV substations of Assam Power system like Mariani (AEGCL), Sarusajai etc.

Deliberation of the sub-Committee:

DGM, SLDC, AEGCL informed that double bus is present in all 220kV S/Sn of Assam. However, the exact reason for operation on Single bus would be informed by him at the earliest.

The Sub-Committee noted as above.

Action: AEGCL.

D.17 Renewal of Maintenance and Support Contract for PSS/E user licenses:

During the 159th OCCM of NER, NERLDC informed that Maintenance and Support(M&S) Contract for PSS/E User Licenses used by NLDC/RLDCs/SLDCs had expired in 2018 and requested all SLDCs to give their consent for price negotiation by NLDC with M/s Siemens on their behalf.

Accordingly, consent had been received from the SLDCs and the same had been forwarded to NLDC, POSOCO for taking up with M/s Siemens for the price. The price had been negotiated with M/s Siemens. The same had been communicated with the utilities by NERLDC vide letter NERLDC/SO-II/270 dated 02.07.2020.

POSOCO has already procured for 5 RLDCs and 1 NLDC at the negotiated price and hence the updated versions of PSS/E are available with POSOCO.

SLDCs are requested to mention the status of the plan of procurement so that the updated versions are available for all. This would enable smooth system studies for safe and secure operation of the Grid.

Deliberation of the sub-Committee:

NERLDC informed the forum that only Assam and Meghalaya have taken the initiative for contract procurement. The forum decided to follow the progress in the next OCCM.

The Sub-Committee noted as above.

Action: all STUs, all SLDCs, NERPC.

D.18 Early commissioning of 220kV Balipara-Sonabil-2 line:

Construction of 2nd 220 kV bay at Balipara (PG) for termination of one ckt of Balipara – Sonabil/Samaguri D/C was approved in 6th Standing Committee Meeting of NER dated 03.10.2016.

AEGCL is requested to intimate the latest status. Early commissioning of this line would increase the import transfer capability of NER grid.

Deliberation of the sub-Committee:

DGM,SLDC AEGCL informed the forum that an estimate was prepared for the 2nd ckt 220kV Sonabil-Balipara bay at Balipara end as per PGCIL standard and a letter was sent to the GM, Balipara S/s, NERTS requesting PGCIL's opinion regarding the execution agency of work by DGM, Tezpur T&T Circle AEGCL on 15.11.2019. He stated that observing the urgency of the work, a letter addressed to CGM-AM, NERTS, Shillong submitting the estimate for their scrutiny and seeking approval to allow AEGCL to carry out the work on 24.08.2020.

CGM-AM, NERTS informed that as the work is being carried out by AEGCL with its own investment, no approval is required from NERTS. Further he has also assured the forum that necessary help will be extended to AEGCL for execution of the work. NERLDC informed that commission of this element would enhance the Inter-Regional Transfer capability.

Member Secretary i/c, requested AEGCL to take up the work at the earliest & inform the forum, its completion schedule in the next OCC meeting.

The Sub-Committee noted as above.

Action: AEGCL.

ADDITIONAL AGENDA FROM NERPC:

D.19 Issues related to 132kV Karong-Kohima:

Member Secretary i/c, NERPC stated that as per discussions in the Sub-Group meeting on 10th September, 2020 it was recommended that PLCC has to be installed for 132kV Karong-Kohima. Since 70% of the line is owned by MSPCL, the forum requested MSPCL to kindly take up the commissioning of PLCC for the line. DGM, SLDC, MSPCL agreed to revert back on this matter.

Regarding loading issues and frequent tripping of the line on over-current at Kohima end, MSPCL informed that the over-current settings have been kept at 75% at Karong end(CTR:400/1). The forum requested DoP Nagaland to revise the over-currrent settings at Kohima to 100% (CTR:250/1). Further it was clarified by MSPCL that due to intra-state grid constraints the loading limit has been set on the line using over-current protection.

Regarding metering error at Kohima, SDO, DoP Nagaland informed that on visual inspection connections were found in order. After detailed deliberation the forum

requested DoP Nagaland to confirm whether the SCADA and Meter share the same core or not.

The Sub-Committee noted as above.

Action: MSPCL/DoP Nagaland.

D.20 Financial settlement for SEM, DCD etc.:

Director(Comml.), NERPC stated that as per decisions of the 168th and 169th OCCM bills pertaining to SEM, DCD, laptop has to be cleared by the respective utilities as per the bills submitted by NERTS. He clarified that post FY 2016-17 any expenditure related to SEMs, DCD, laptop and accessories shall be booked to PoC and will not be billed to the individual state utilities. For the issue of laptop repair it was decided that till warranty period NERTS would facilitate maintenance and repair/replacement.

The Sub-Committee noted as above.

Action: all state utilities.

D.21 Requirement of RIO clearance for Shutdown:

GM(SO-II), NERLDC informed that for any shutdown involving configuration change(temporarily/permanently) RIO clearance must be obtained. After detailed deliberation the forum decided the following:

a. For temporary configuration change to facilitate any shutdown, RIO clearance may not be obtained.
b. For elements which were in shutdown/outage for a period greater than 6 months, RIO clearance would have to be obtained before putting the element back into service.
c. For permanent configuration change (where the change would be for a period greater than 6 months) RIO clearance would have to be obtained.

The Sub-Committee noted as above.

ADDITIONAL METERING RELATED AGENDA FROM NERLDC:

In the 39th Commercial Committee Meeting held on 28th Aug'2020, it was decided that metering related issues would be placed in OCC forum. Accordingly following metering related agenda items were discussed:

D.22 Second Meter List for replacement:

NERLDC presented a second list of 29 SEMs (in addition to first list of 22 SEMs approved in 169th OCC Meeting) consisting of 25 Elster make SEMs & 4 defective

SEMs (List available in NERLDC presentation in Annexure-B.2). NERLDC requested to replace all the Elster make SEMs as procurement of same was blacklisted in 2015 and vendor support is not available.

The Sub-Committee noted as above.

Action: NERTS

D.23 New Meter and CMRI requirement:

NERLDC submitted a list of requirements of SEM and CMRI for new locations. It was agreed that meters will be installed in new locations where check/backup meters are not available, and DCD will be provided from the recent procurement. Also, NERTS will give the details of meter requirement for their substation from where they draw power for aux. consumption and will install the meters (as decided in 39th CCM).

The Sub-Committee noted as above.

Action: NERTS

D.24 SEM data collecting Laptop related issues:

NERLDC presented the details collected from sites related to problem faced at sites regarding use of laptops, time drift correction problems with DCD etc.

After detailed discussion, it is decided that Laptops will be used for data collection only and time drift correction provision in the software will be kept disabled for safety of the meters. Time drift correction must be done through DCD. The required new DCD will be procured for the sites.

NERTS will resolve all the issues related to laptops which is under warranty period. The life span of laptop was decided as 5 years from the date of procurement. Post warranty period the maintenance of laptop shall be undertaken by the constituents. NERLDC will provide the details of requirement of new DCD after co-ordinating with the SLDC/Sites.

The Sub-Committee noted as above.

Action: all utilities.

D.25 Procurement of SEM & DCD/Laptop for future requirements:

As per the estimation done by NERLDC, 125 nos. SEMs and 15 nos. CMRIs shall be required for future projects and maintaining spare. List of SEMs and CMRIs was presented by NERLDC.

Regarding procurement of meter, the issue of black listing of M/s Elster was discussed and NERLDC highlighted various problem in Elster make meters. In view of this, the Forum already decided to replace all existing Elster meters. It was also mentioned by all utilities that L&T meters has been working well since numbers of year. There has been a plan to make RS-485 scheme with L&T meters in a location for which meter of one make is preferable. Also, DCD spread over the region are compatible with L&T meters and laptops distributed are loaded with L&T software.

In view of all above, Forum decided that procurement will be done on single tender basis from L&T to synchronize with the existing metering system.

The Sub-Committee noted as above.
Action: NERTS

Date & Venue of next OCC meeting:

It is proposed to hold the 171st OCC meeting of NERPC on second week of October 2020. However, exact date and venue will be intimated in due course.

*****

Annexure-I

List of Participants in the 170th OCC Meeting held on 11.09.2020

SN	Name & Designation	Organization	Contact No.
1	Sh. P.Buchi, AE	Ar. Pradesh (VC)	-
2	Sh. G.Yinyo, JE	Ar. Pradesh (VC)	-
3	Sh. Bimal Borah, DGM (O)(SLDC)	Assam (VC)	-
4	Smti.Toushita Jindung, AGM	Assam (VC)	-
5	Sh. I. Tahbildar, DM, APDCL	Assam (MS Team)	-
6	Smti. Khoisnam Steela, DGM(SLDC),	Manipur (VC)	-
7	Sh. Roshan Oinam, Manager (SLDC)	Manipur (VC)	-
8	Smti. Hanna S. Rangnamei, Mgr. (E) (SLDC)	Manipur (VC)	-
9	Sh. Haobam M. Chanu, Manager, (SLDC)	Manipur (VC)	-
10	Sh. Rokobeito Iralu, SDO	Nagaland (VC)	-
11	Sh. Lengminlal Singson, SDO	Nagaland (MS Team)	-
12	Sh. Asangba Tikhir, EE SLDC	Nagaland (VC)	-
13	Sh. Tia Kava, JE	Nagaland (VC)	-
14	Sh. G. Taka, JE	Nagaland (VC)	-
15	Sh. T. Gidon, EE (SLDC)	Meghalaya (VC)	-
16	Sh. A. Shullai, AEE	Meghalaya (VC)	-
17	Smti. R. Biam, AEE	Meghalaya (VC)	-
18	Sh. B. Nikhla, EE (SP), MePTCL	Meghalaya	09436314163
19	Sh. Benjamin L. Tlumtea, Sr. EE (SLDC)	Mizoram (VC)	-
20	Sh. Jacob Lalrinfela, AE (SLDC)	Mizoram (VC)	-
21	Sh. L. Sailo, JE	Mizoram (VC)	-
22	Sh. Anil Debbarma, DGM (SLDC)	Tripura (MS Team)	09612589250
23	Sh. R. Sutradhar, CGM	NERLDC (VC)	-
24	Sh. S.C. De, Sr.GM	NERLDC (VC)	09436335369
25	Sh. Sourav Mandal, Dy. Mgr (SO-I)	NERLDC (VC)	09402102354
26	Sh. Jerin Jacob, Dy. Manager	NERLDC (VC)	-

27	Sh. Kritika Debnath, Engineer	NERLDC (VC)	09436930830
28	Sh. Palash Jyoti Borah, Dy. Manager	NERLDC (VC)	08761093397
29	Sh. Chitra Thapa, SO-II	NERLDC (VC)	-
30	Smti. Namrata Pathak, Engineer	NERLDC (VC)	-
31	Smti. Sangita Das, Engineer	NERLDC (VC)	-
32	Sh. U. Kataki, CGM	PGCIL	09435505418
33	Sh. Devaprasad Paul, Ch.Mgr. (AM)	PGCIL	09435382360
34	Sh. Pinak Nandi, Mgr. (RTAMC)	PGCIL	09436335227
35	Sh. Joypal Roy, DGM	NEEPCO	08837200069
36	Sh. Narendra Kumar Gupta, Sr. Manager (O)	OTPC (MS Team))	09774233426
37	Sh. Kangkan Paul, DM (EEMG)	NTPC (MS Team)	-
38	Sh. P.R. Jena, AGM	NTPC (MS Team)	-
39	Sh. Thallapeli Ravinder, GM	NTPC (MS Team)	-
40	Sh. C.L. Khayuingam, Sr. Mgr. (Elect)	NHPC (MS Team)	-
41	Sh. Ratan Singh Basnet, Sr. Mgr.	NETC (MS Team)	-
42	Sh. Alok Prasad	SOLVINA (MS Team)	-
43	Sh. Rajiv Kumar, ED	NERPSIP (MS Team)	-
44	Sh. Saurabh Bhargava,	SOLVINA (MS Team)	-
45	Sh. Deepesh Yadav	SOLVINA (MS Team)	-
46	Sh. Vivek Karthikeyan, Manager	STERLITE (MS Team)	08966903034
47	Sh. Ashish Kumar,	KMTL (MS Team)	-
48	Sh. B. Lyngkhoi, Member Secretary i/c	NERPC	09436163419
49	Sh. S.M. Aimol, Director (Comml.)	NERPC	-
50	Sh. S. Mukherjee, Dy. Director	NERPC	08794277306
51	Sh. Rajib Das, AE	NERPC	-
52	Sh. S. Chatturvedi, AE	NERPC	-

Annexure-II

TESTING OF PRIMARY FREQUENCY RESPONSE OF GENERATORS AS PER IEGC CLAUSE 5.2(g)

Presentation to NERLDC & NERPC

2020-09-11

Solvina India Pvt. Ltd.

Solvina

Agenda

1. **Introduction**
   About Solvina & Services
2. **PFR Testing and Importance**
3. **Scope of Work**
4. **PFR Test Method and Methodology**
5. **Model Validation**
6. **Test Program**
7. **Test Schedule**

About Solvina

- Swedish owned Engineering consultancy company
- Founded in 1997
- Offices in Gothenburg and Delhi
- High Education Profile: Masters, Ph.D.

Solvina's expert areas

1. **Island Operation**
2. **Grid code compliance**
3. **Analysis and tuning of integrated steam, power and control systems**
4. **Simulation tools**
5. **Safety and Quality demonstration I&C**
6. **Configuration Managment & Traceability**

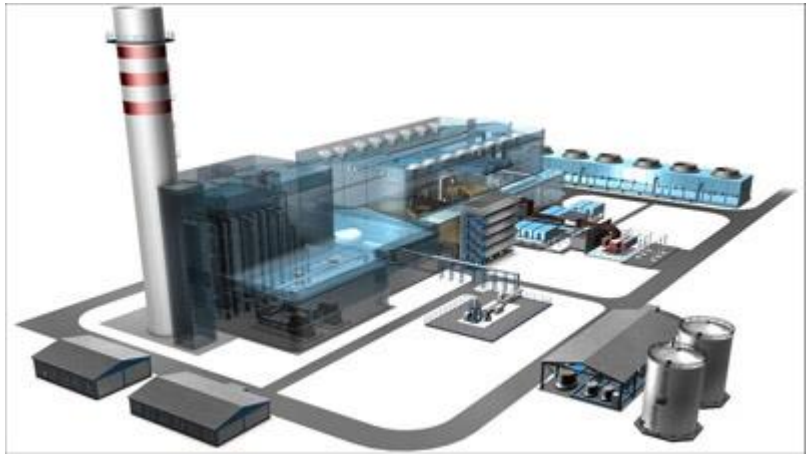
Power Plant Testing

Solvina

Power plant test for verification of grid code compliance with custom made test programs

Overall tests

- Load rejection
- House Load operation
- Over/under frequency
- Over/under voltage
- Fault ride through
- Cold start & startups
- Black start
- Reliability
- Power quality



Excitation & generator tests

- Excitation response
- Excitation limiters
- **PSS performance**
  - On/off tests
  - Frequency response
- Voltage and reactive power control
- Reactive capability
- Generator data verification

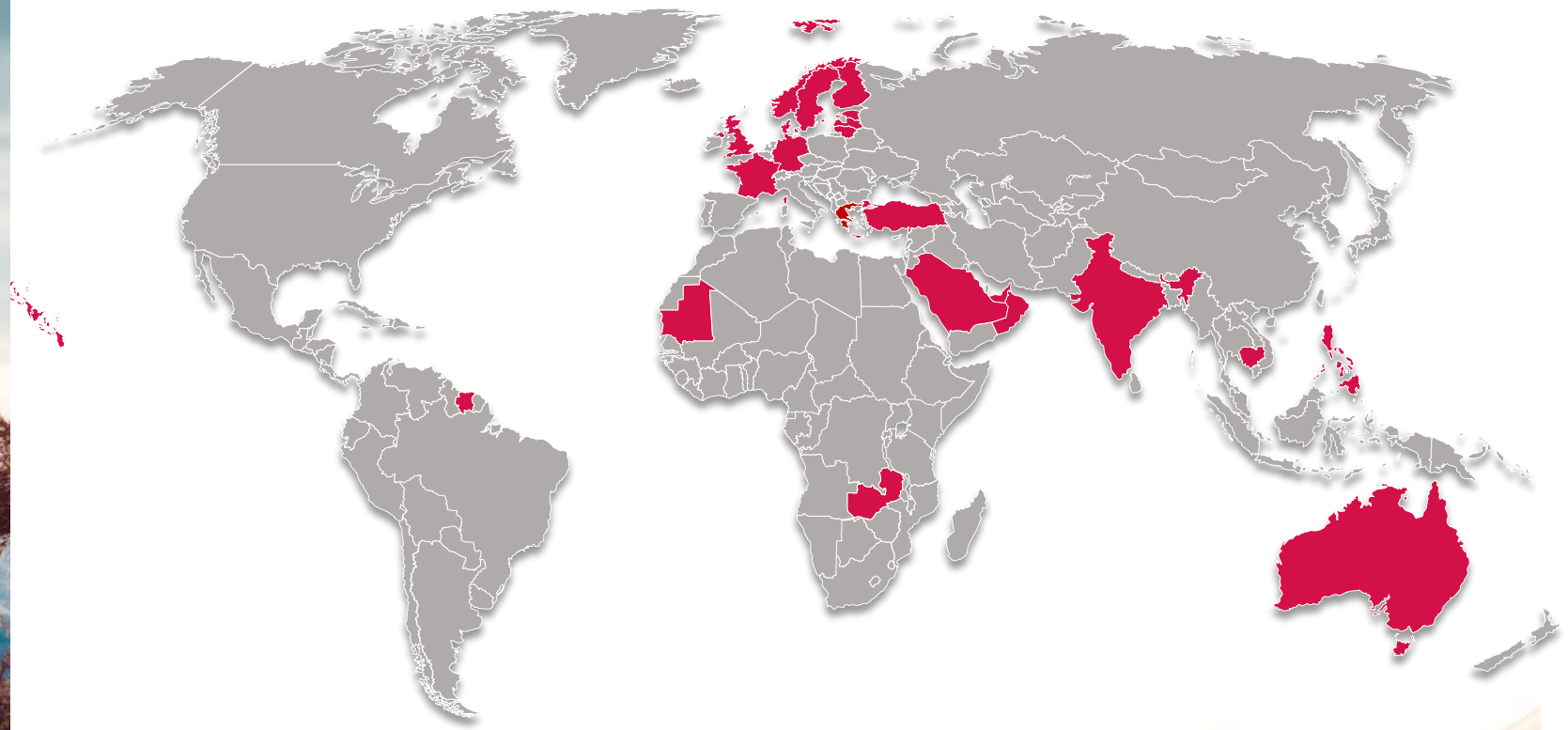
Governor & prime mover tests

- Power capability
- Power control
- Primary frequency response
- Frequency control
  - Idle operation
  - Simulated island operation
- Efficiency

Solvina

SOLVINA'S BUSINESS

Our customers



Sweden -	45%	**Europe** Nordic countries, Germany, Great Britain, France, etc.	25%	**South & East Asia** India, Indonesia, etc.	15%
The Middle East United Arab-Emirates, Saudi Arabia & Oman	5%	**Australia** -	5%	**AMERICA, AFRICA** Hawaii, Surinam, Zambia & Mauretania.	5%

SOLVINA'S CUSTOMERS

– Our focus is on these industries

Nuclear Power

Pulp & Paper

Electrical Grid Operators

Electricity production

Steel & Mining

Refineries & Petrochemical

Infrastructure

Organisations with high demand on Safety and Quality

Global Customers

Solvina

ZESCO
EGA
Jämtkraft
preem
TRAFIKVERKET
eka
JÖNKÖPING ENERGI
SKELLEFTEÅ kraft
TVO
AKZO NOBEL
ENERGINET.DK
SÖDRA
WÄRTSILÄ
VALE
ALPIQ
ENGIE Tihama Power
LKAB
Statnett
VATTENFALL
BILLERUD
Fortum
metso power
SSAB
VOLVO
BOREALIS
Göteborg Energi
STORAENSO
Westinghouse
Celanese Emulsion Polymers
MetsäBoard
HOLMEN PAPER
Svenska Kraftnät
WAPP EEEOA West African Power Pool
ENIM IMAGINER ET AGIR
Munksjö
IGGESUND PAPERBOARD A MEMBER OF THE HOLMEN GROUP
Eesti Energia
JACOBS
okg ett företag i E.ON koncernen

Indian Customers

Solvina

पावर सिस्टम ऑपरेशन
POSOCO

पावरग्रिड

CAIRN

Reliance
Industries Limited

vedanta
transforming elements

TATA
TATA POWER

balco

TATA STEEL
WeAlsoMakeTomorrow

IFFCO

adani
Electricity

PROJECT BACKGROUND

TESTING OF PRIMARY FREQUENCY RESPONSE OF GENERATORS AS PER IEGC CLAUSE 5.2(g)

- Solvina has been selected as an independent agency through Global Competitive bidding process conducted by POSOCO.
- Solvina has been awarded testing of 200 generators (coal, gas & hydro) across India & will be carrying out major part of this project.
- Project is a part of Regulators and System Operators long term work of increasing reliability and stability of the Indian power grid.
- We seek cooperation & support from all RPC, RLDC, generator units, independent power producers to make this effort successful.
- Tests are scheduled for 2020-2022.

Agenda

1. **Introduction**
   About Solvina & Services

2. PFR Testing and Importance

3. **Scope Of Work**
4. **Test method and methodology**
5. **Model validation**
6. **Test Program**
7. **Test schedule**

Why PFR testing?

Primary frequency response testing and Importance

The **Primary Frequency Control** (PFC), an important way to maintain **frequency** stability, balances the power generation and load consumption in the grid. - PFC immediately activates when the Grid **frequency** is not in set ripple filter limits.

➢Testing of primary response help:

- In determining and ascertaining the present response time of the TG system. i.e. rise time, settling time, etc.
- To ensure the response as per the droop characteristics.

Why PFR testing?

Primary frequency response testing and Importance

Solvina

- To ensure that ripple filter follows the norms pertaining to grid code of RGMO/FGMO.
- To find out the unusual behaviors of control valves, if present.
- To find out delays in control loop and non-linearities at different load levels.
- To create a database and set references for model validation and future studies.

Why PFR testing?

Primary frequency response testing and Importance

Solvina

- To ensure that any other facilities/ limiters present with in governor not suppressing FGMO/RGMO operation (as per the requirement of grid code 5.2(g))

The Indian Electricity Grid Code, Regulation 2010 (Fifth Amendment) Regulations, 2017 [regulation 5.2 (f), (g), & (h)] of Central Electricity Regulatory Commission (The Electricity Regulator at Central level) mandates that *'All Coal/lignite based thermal generating units of 200 MW and above, Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each and all hydro units of 25 MW and above", which are synchronized with the grid, irrespective of their ownership, shall have their governors in operation at all time.'*

The following proviso has been added at the end of Regulation 5.2 (g) of Part 5 of the Principal Regulations:

"Provided that periodic checkups by third party should be conducted at regular interval once in two years through independent agencies selected by RLDCs or SLDCs as the case may be. The cost of such tests shall be recovered by the RLDCs or SLDCs from the Generators. If deemed necessary by RLDCs/SLDCs, the test may be conducted more than once in two years."

Primary Response Testing POSOCO

Testing of Primary Response of Generating Units

490 MW thermal unit at Dadri NCTPS
210 MW thermal unit at Dadri NCTPS
216 MW gas turbine unit at Bawana GPS
180 MW hydro unit at Chamera-I HPS
250 MW hydro unit at Tehri HPS

- Year: **2014**
- Customer: **Power Grid/POSOCO**
- Country: **India**
- Scope: After the severe blackout in India in 2012, Solvina was given order to **test primary response** and **island operation** capability of 5 units in India, 2 thermal, 2 hydro and 1 gas plant.

  The need for testing was demonstrated as well as the capability of the units and necessity to make the whole plant respond well to disturbances.

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Scope of Work

Solvina

As per the TOR (Tender) issued by POSOCO following scope of work is requested:

1. Conducts tests to record and verify the following capabilities on the specified generating units:
   a) Primary frequency response in normal operation under restricted governor mode (RGMO) as well as in Free Governor mode (FGMO) as specified in regulation 5.2(f) of Indian Electricity Grid code.
   b) Response of machines to a simulated frequency signal.
   c) Test should be performed while units are in synchronism with grid.

2. Tests to be conducted on list of units distributed by POSOCO.

Scope of Work

3. It also include all preparation and execution of all tests, Site visits, identification of parameters to be measured and analysis of test results. After completion of tests initial settings shall be restored.

4. Dynamic governor and turbine model validation.

5. Submit report for each tested unit to POSOCO and generating plant (in hard copy as well as soft copy).

Agenda

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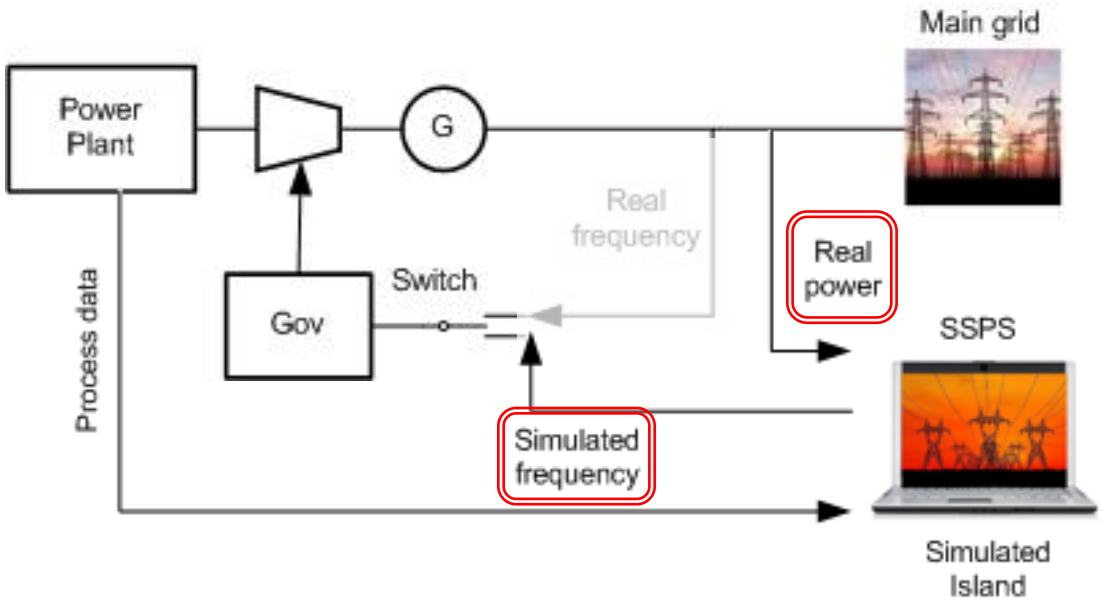
Primary frequency response – Test Method



- Connected to Main grid all the time during tests
- Never disconnected!
- But the Governor ”sees” the simulated frequency in the testing.
- Steps will be injected in governor to check system response.
- Main grid can handle the real power changes

Simulated frequency: 50 [Hz]

-Δf +Δf *fixed*

Real Power [MW]

SSPS

Primary frequency response – Test Method

Solvina

The following 3 steps process will be executed during testing:

1. **Signal check**

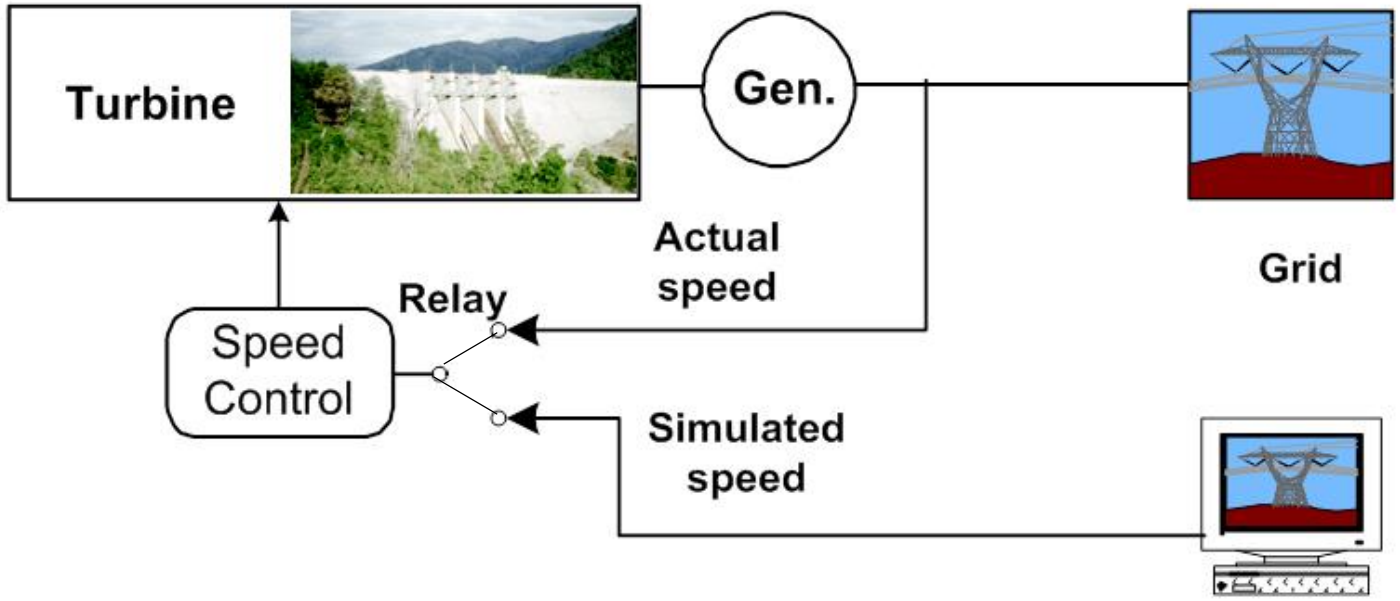
   - As per the signal list issued to generator owner, they will prepare list of signals up to the terminal block.
     (**as mentioned in responsibilities from generator owner's side in the TOR document)*

   - Various signals like voltage, real and reactive power, governor output, valves positions, steam pressures, drum level, etc. will be cross check from the main control room

Primary frequency response – Test Method

2. Function check

- The switching between actual and simulated frequency will be tested several times to verify that the transition is bump less.
- The simulated frequency will follow the actual frequency during the switching.
- At the same time, internal safety functions of SSPS will be tested.



1. Steady state, Normal operation
2.Tracking, Simulated = Actual
3.Tracking, Relay Switched, Simulated = Actual

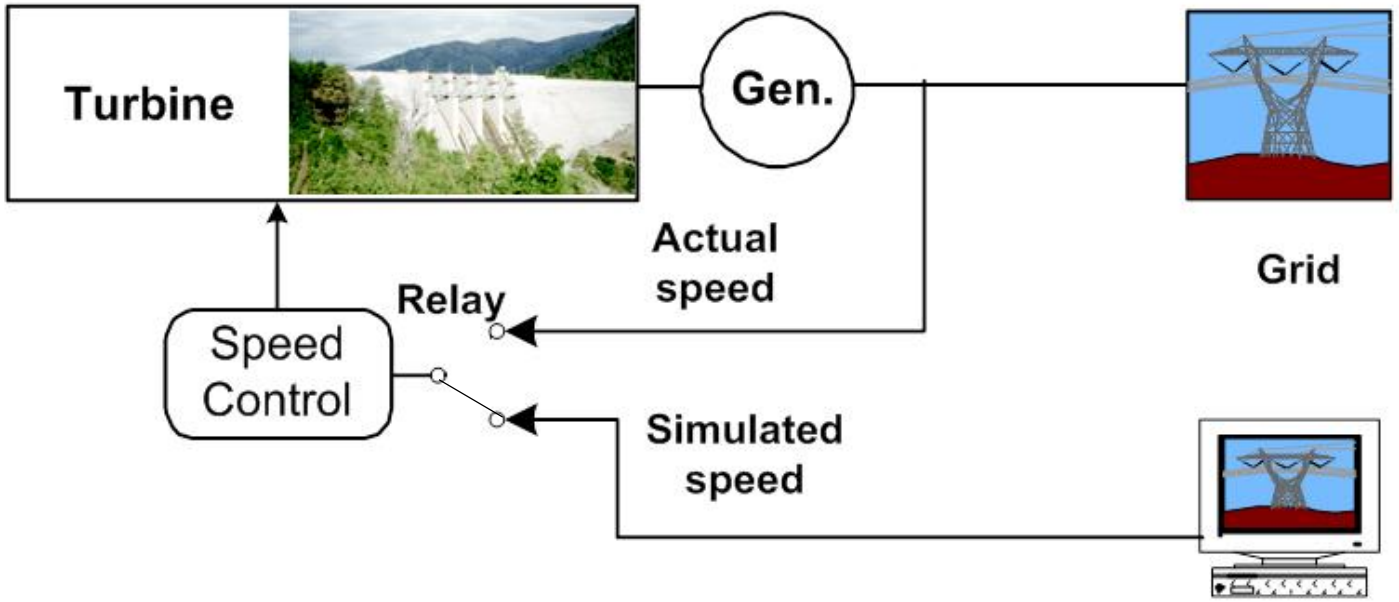
Primary frequency response – Test Method

Solvina

3. Step test:

The frequency step is calculated from droop setting to produce the desired output change, maximum 5%

- We start with smaller steps.
- Test will be conducted at three different load levels.
- Run in RGMO/FGMO mode.

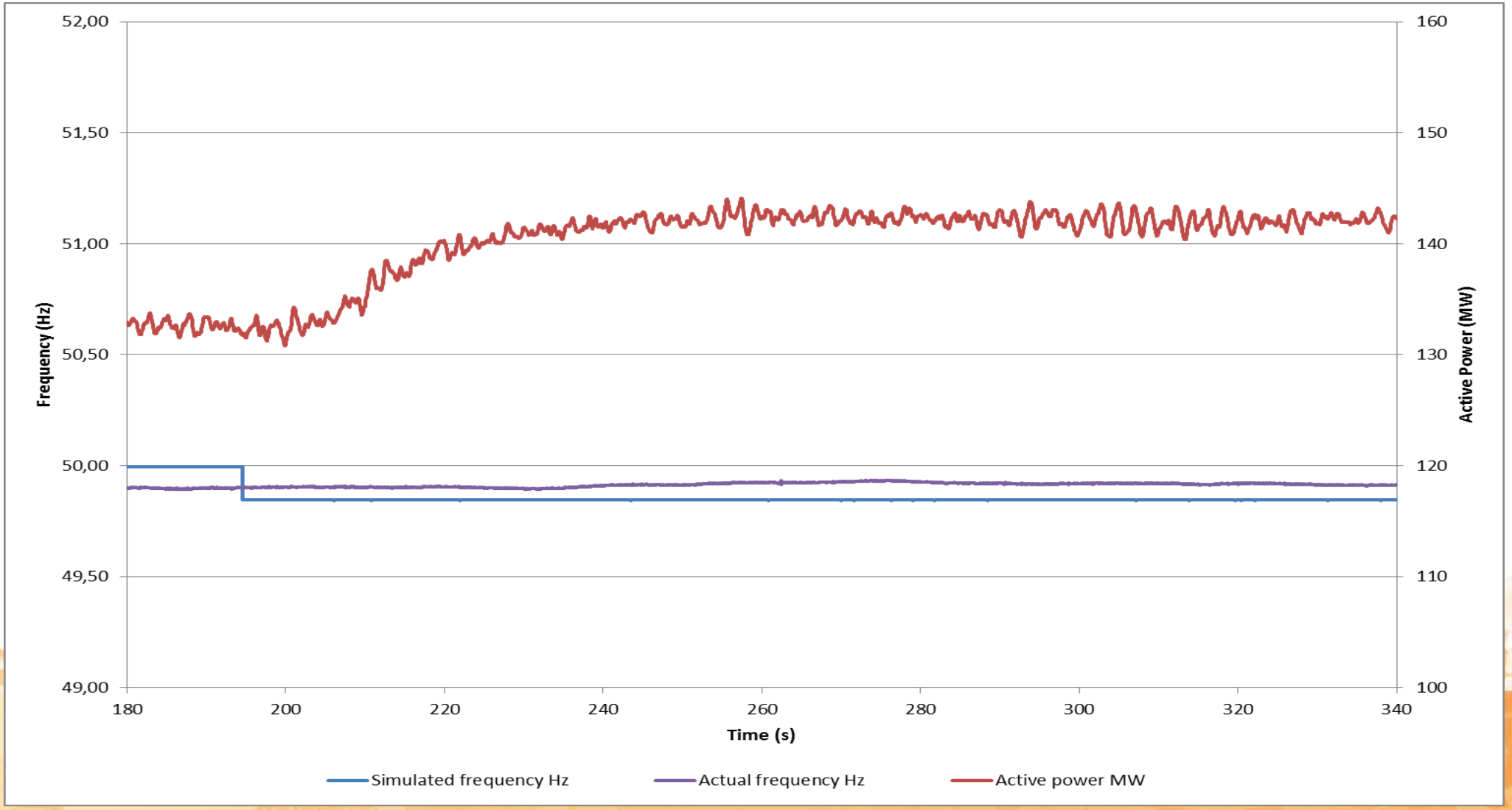


1. Steady state, Normal operation
2. Tracking, Simulated = Actual
3. Tracking, Relay Switched, Simulated = Actual
4. Lock simulated frequency to 50 Hz, Apply steps

Frequency step – Example NHPC Chamera

Solvina

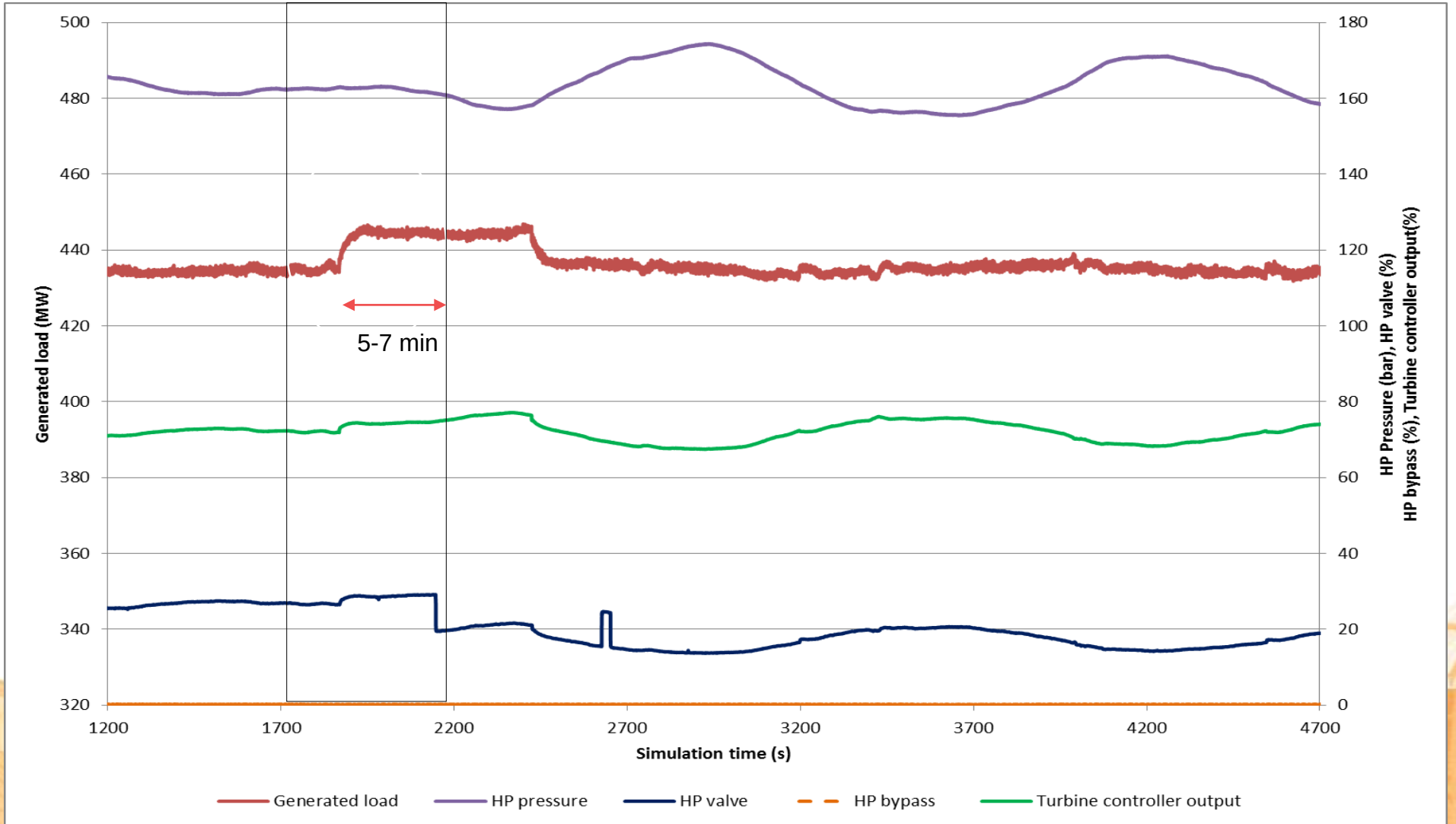
Step change in the frequency is injected to governor and following responses was observed



Parameters monitoring – Example NTPC Dadri

Solvina

Step change in active power is shown also other parameters are monitored along to check if they are within limits.



Test methodology

As per the tender document issued by POSOCO, features of test methodology are as follows:

1. Prior to commencement of the test, permission from the concerned RLDC shall be obtained.

2. POSOCO will assign its representative from RLDC/NLDC for witnessing the testing procedure at site as well as for smooth coordination between parties involved.

3. All test results will be recorded in a format specified in TOR (Tender document), and will be signed by all involved parties on completion of tests.

Test methodology

4. Critical parameters like drum level, steam pressure etc. will be measured to keep ensuring that these parameters are in proper limits.

5. All protection system shall be active during testing

6. Test can be aborted anytime if the plant operating conditions indicate abnormal behaviour.

7. Plant owner shall also have the authority to abort the test, in case plant or grid demand so.

8. After the completion of tests, the initial settings (before the tests) will be restored.

Test methodology

- Safety functions during tests
  - Simulation fault protection – stops simulation frequency injection and resets the relay
  - Red push button: stops frequency injection and simulation

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7. **Test schedule**

Model validation

- After completing primary response tests at the respective units, dynamic model will be developed in a suitable software (SIMPOW – a power system tool).
- Model will be based on the data received from the generating plant.
- The developed model of governor and turbine will be validated against step response results obtained at site.
- Validation will be performed at three defined load levels.

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Test Program

Solvina

Tests will be conducted at three load levels

Load level (% of MCR)	Coal based units	Gas based units	Hydro based units	Comment
Load A	100%	100%	100%	100% MCR
Load B	80%	80%	60%	Intermediate
Load C	65%	65%	20%	Above technical minimum

Note1: All load levels shall be agreed with plant owners.
Note2: Forbidden zones shall be noted and avoided.

Test Program

Solvina

1. Primary Frequency Response test of unit in RGMO mode

Tests are to be conducted at three defined load levels:

Load A

- Test 1: Test of Ripple filter as per IEGC grid code
- Test 2: Test of primary frequency response of units below 50 Hz as per IEGC.
- Test 3: Test of primary frequency response of units above 50 Hz as per IEGC.

Load B

- Test 2: Test of primary frequency response of units below 50 Hz as per IEGC.
- Test 3: Test of primary frequency response of units above 50 Hz as per IEGC.

Load C

- Test 2: Test of primary frequency response of units below 50 Hz as per IEGC.
- Test 3: Test of primary frequency response of units above 50 Hz as per IEGC.

Note: Ripple filter can be tested at any load level and therefore shall be tested at first scheduled load level.

Test Program

Test 1: Test of ripple filter as per IEGC grid code

- **As per Indian Electricity Grid Code (IEGC 5.2(f)-ii-b)**
  This test is based on IEGC 5.2(f)-ii-b, which states that "*Ripple filter of +/- 0.03 Hz. shall be provided so that small changes in frequency are ignored for load correction, in order to prevent governor hunting.*"

- **Test Conditions**
  - Unit is in stable operation at the defined load level*.
  - The governor will be operating in RGMO mode.

- **Success Criteria**
  The expected result of the test is to check no response from the governor on frequency deviations within ripple filter limits.

- **Recorded signals**
  As per the **signal list** provided and any other signals that the client considers important.
  Sampling frequency 10 Hz.

*Note: To be agreed with plant operations

Test Program

Test 1: Test of ripple filter as per IEGC grid code

Test No.	Signal type	Step value change	Maximum Hold time	Power change [MW]
1	Step	50 to 49.99 Hz	30 seconds	0
	Step	49.99 to 50 Hz	30 seconds	0
2	Step	50 to 49.98 Hz	30 seconds	0
	Step	49.98 to 50 Hz	30 seconds	0
3	Step	50 to 49.97 Hz	30 seconds	0
	Step	49.97 to 50 Hz	30 seconds	0
4	Step	50 to 50.01 Hz	30 seconds	0
	Step	50.01 to 50 Hz	30 seconds	0
5	Step	50 to 50.02 Hz	30 seconds	0
	Step	50.02 to 50 Hz	30 seconds	0
6	Step	50 to 50.03 Hz	30 seconds	0
	Step	50.03 to 50 Hz	30 seconds	0

Test Program

Solvina

Test 2: Test of primary frequency response of units below 50 Hz as per IEGC grid code (IEGC 5.2(f)-ii-a & 5.2 (h))

- **Test Conditions**
  - Unit is in stable operation at the three defined load levels*.
  - The governor will be operating in RGMO mode.

- **Success Criteria**
  - For negative steps below 50 Hz, generation from the unit should increase as per the generator droop (between 3% to 6%) up to a maximum of 5% of the generation subjected to ceiling limit of 105 % of the MCR of the unit having regard to machine capability. Droop will be calculated at maximum MW correction. After reaching increased power output level, power output may not be reduced by more than 1%/min.
  - For positive steps below 50 Hz, there should be no response obtained from the units as per (IEGC 5.2(f)-ii-a).

- **Recorded signals**

  As per the **signal list** provided and any other signals that the client considers important.
  Sampling frequency 10 Hz.

*Note: To be agreed with plant operations

Test Program

Test 2: Test of primary frequency response of units below 50 Hz as per IEGC grid code (IEGC 5.2(f)-ii-a & 5.2 (h))

Test No.	Signal type	Value	Maximum Hold time**	Power change [MW]
1	Step	50 to 49.96 Hz	3-5 Minutes	As per droop
	Step	49.96 to 50 Hz	3-5 Minutes	No response
2	Step	50 to 49.95 Hz	3-5 Minutes	As per droop
	Step	49.95 to 50 Hz	3-5 Minutes	No response
3	Step	50 to 49.94 Hz	3-5 Minutes	As per droop
	Step	49.94 to 50 Hz	3-5 Minutes	No response
4	Step	50 to 49.92 Hz	3-5 Minutes	As per droop
	Step	49.92 to 50 Hz	3-5 Minutes	No response
5	Step	50 to 49.90 Hz	3-5 Minutes	As per droop
	Step	49.90 to 50 Hz	3-5 Minutes	No response
6	Step	50 to 49.87 Hz	3-5 Minutes	As per droop
	Step	49.87 to 50 Hz	3-5 Minutes	No response
7*	Step	50 to 49.85 Hz	3-5 Minutes	As per droop
	Step	49.85 to 50 Hz	3-5 Minutes	No response

*Larger steps will be decided based upon, whether 5% load change is achieved or not

**Actual time will depend upon unit response

- Solvina will record the output for a period of 5 minutes after stabilization of output. Presently, in IEGC there is no requirement for duration of sustaining of primary response, however the clause 5.2(h) mentions "*After an increase in generation as above, a generating unit may ramp back to the original level at a rate of about one percent (1%) per minute, in case continued operation at the increased level is not sustainable*." This clause shall be used for testing sustainability of response of unit output.

- Also, as per recommendations of Expert Group constituted by CERC to review IEGC has mentioned in the definition of Primary Response as "*Primary Response means the maximum quantum of power which will immediately come into service through governor action of the generator in the event of sudden change in frequency. This reserve response shall start instantaneously and attain its peak in less than 30 seconds and shall sustain up to 5 minutes*." Therefore, measuring the output for a period of 5 minutes after stabilization is required for performance testing.

Test Program

Test 3: Test of primary frequency response of units above 50 Hz (IEGC 5.2(f)-ii-c)

- **Test Conditions**
  - Unit is in stable operation at the three defined load levels*.
  - The governor will be operating in RGMO mode.

- **Success Criteria**

  The expected results of the tests are as follows:
  - For positive and negative steps above 50 Hz, change in generation should follow the droop settings.
  - Droop which should lie between 3% and 6% will be calculated at maximum MW correction.

- **Recorded signals**

  As per the **signal list** provided and any other signals that the client considers important.
  Sampling frequency 10 Hz.

*To be agreed with plant operations

Test Program

Test 3: Test of primary frequency response of units above 50 Hz (IEGC 5.2(f)-ii-c)

Test No.	Signal type	Value	Maximum Hold time**	Power change [MW]
1	Step	50 to 50.04 Hz	3-5 Minutes	As per droop
	Step	50.04 to 50 Hz	3-5 Minutes	As per droop
2	Step	50 to 50.05 Hz	3-5 Minutes	As per droop
	Step	50.05 to 50 Hz	3-5 Minutes	As per droop
3	Step	50 to 50.06 Hz	3-5 Minutes	As per droop
	Step	50.06 to 50 Hz	3-5 Minutes	As per droop
4	Step	50 to 50.08 Hz	3-5 Minutes	As per droop
	Step	50.08 to 50 Hz	3-5 Minutes	As per droop
5	Step	50 to 50.10 Hz	3-5 Minutes	As per droop
	Step	50.10 to 50 Hz	3-5 Minutes	As per droop
6	Step	50 to 50.13 Hz	3-5 Minutes	As per droop
	Step	50.13 to 50 Hz	3-5 Minutes	As per droop
7*	Step	50 to 50.15 Hz	3-5 Minutes	As per droop
	Step	50.15 to 50 Hz	3-5 Minutes	As per droop

*Larger steps will be decided based upon, whether 5% load change is achieved or not

**Actual time will depend upon unit response

- Solvina will record the output for a period of 5 minutes after stabilization of output. Presently, in IEGC there is no requirement for duration of sustaining of primary response, however the clause 5.2(h) mentions "*After an increase in generation as above, a generating unit may ramp back to the original level at a rate of about one percent (1%) per minute, in case continued operation at the increased level is not sustainable*." This clause shall be used for testing sustainability of response of unit output.

- Also, as per recommendations of Expert Group constituted by CERC to review IEGC has mentioned in the definition of Primary Response as "*Primary Response means the maximum quantum of power which will immediately come into service through governor action of the generator in the event of sudden change in frequency. This reserve response shall start instantaneously and attain its peak in less than 30 seconds and shall sustain up to 5 minutes*." Therefore, measuring the output for a period of 5 minutes after stabilization is required for performance testing.

Test Program

Solvina

Primary Frequency Response test of unit in FGMO mode at three defined load levels

- **As per Indian Electricity grid code**

  There are no such strict guidelines in grid code for tests conducted in FGMO mode, however from IEGC 5.2(f)-ii-b & c following conditions remains valid for governor operation

  "Ripple filter of +/- 0.03 Hz. shall be provided so that small changes in frequency are ignored for load correction, to prevent governor hunting."

  "All governors shall have a droop setting of between 3% and 6%."

- **Test Conditions**
  - Unit is in stable operation at the three defined load levels.
  - The governor will be operating in FGMO mode**.**

- **Success Criteria**
  - Governor should follow ripple filter of ±0.03 Hz.
  - For positive and negative steps, change in generation should follow the droop settings.
  - Droop which should lie between 3% to 6% will be calculated at maximum MW response.

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Test Schedule

Solvina

Day 1

- 10:00-11:00 : Arrival, setting up equipment at agreed location.
- 11:00-12:00 : Brief start meeting about testing activity & safety functions.
- 12:00-13:00 : Equipment connection.
- 13:00-14:00 : Lunch break.
- 14:00-16:00 : Signal check & Function check.
- 16:00-19:00 : Frequency step response tests – At 65 % load level (in RGMO mode).

Test Schedule

Solvina

Day 2

- 09:00-10:00 : Brief start meeting, schedule presented.
- 10:00-13:00 : Frequency step response tests – At 80 % load level (in RGMO mode).
- 13:00-14:00 : Lunch break.
- 14:00-17:00 : Frequency step response tests – At 100 % load level (in RGMO mode).
- 17:00-18:00 : Equipment disconnection & report submission

Thank you for listening!

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Annexure-B.2

उ.पू.क्षे ग्रिड प्रदर्शन

NER GRID PERFORMANCE

For the month August 2020

North Eastern Regional Load Despatch Centre

POSOCO, Shillong

Highlights of the Month

Frequency Profile

Voltage Related Issues

Transmission Element Issues

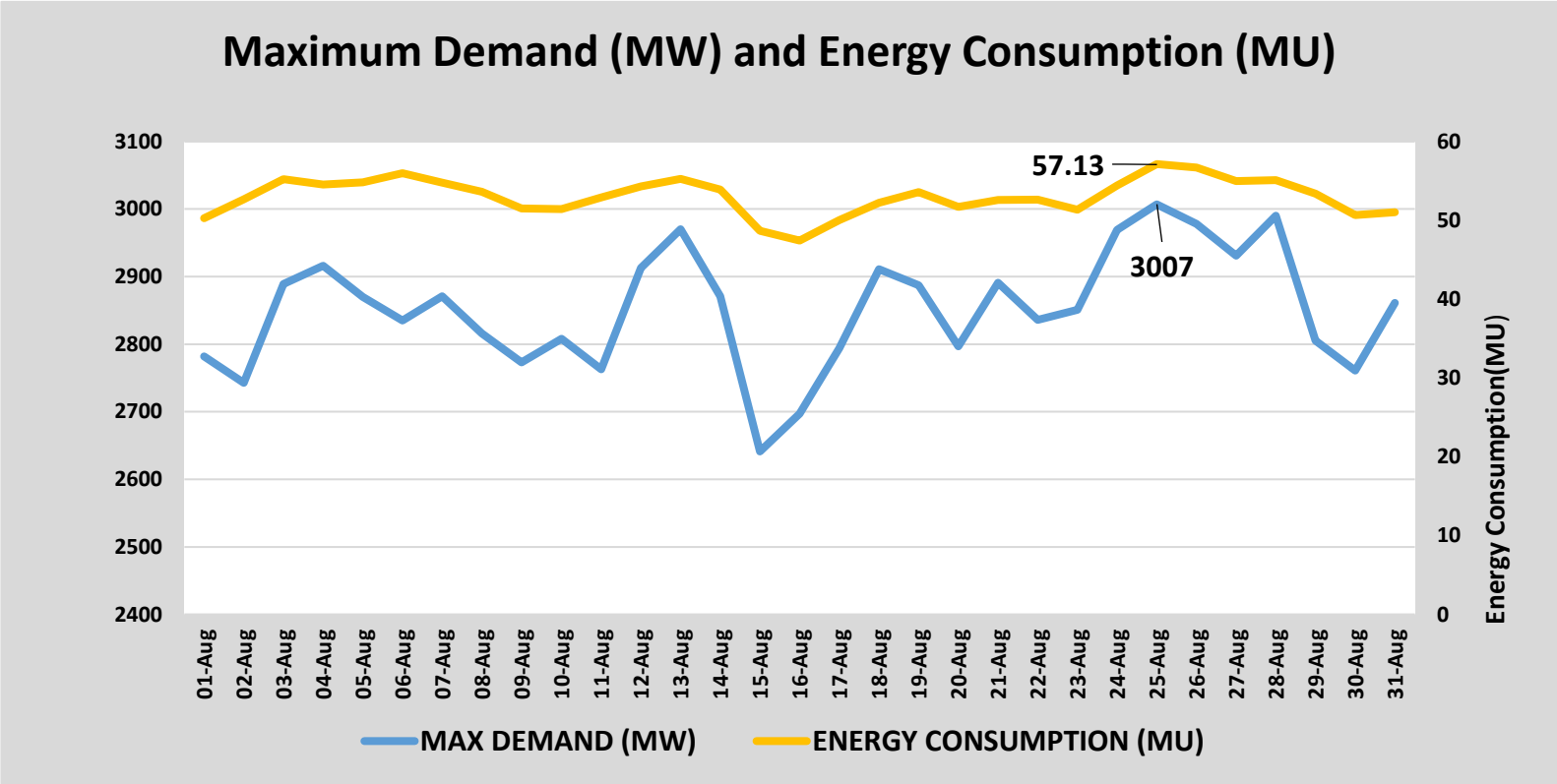
Operational Issues

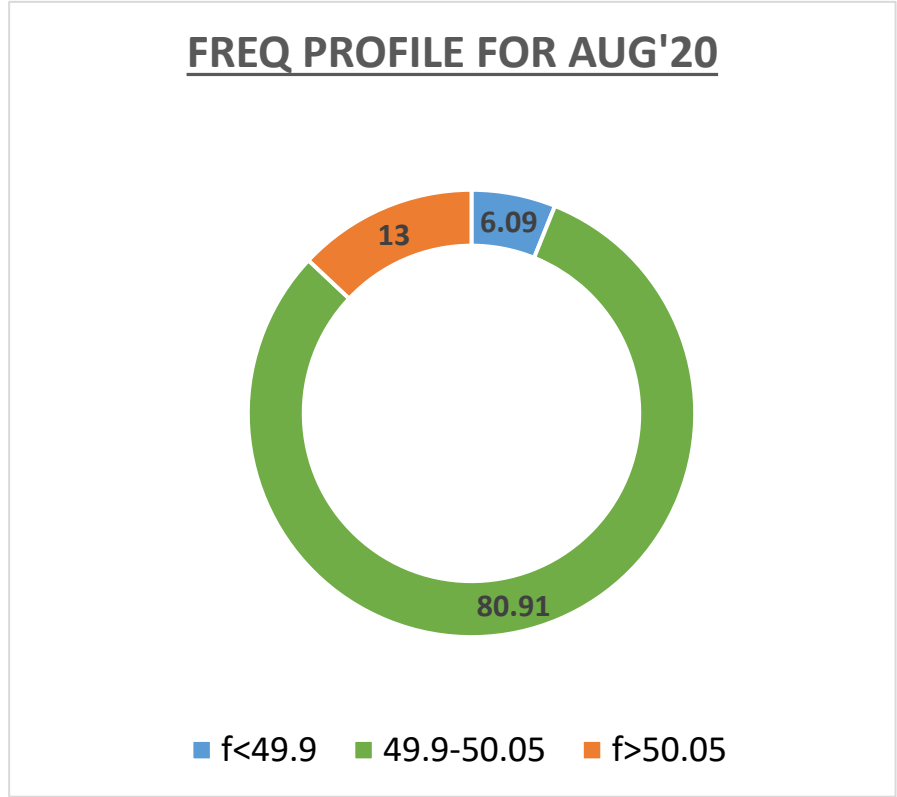
Hydro Reservoir Levels

Metering Status Review

Telemetry Availability Status

Highlights of the Month: August 2020





No. of GD	21
No. of GI	13

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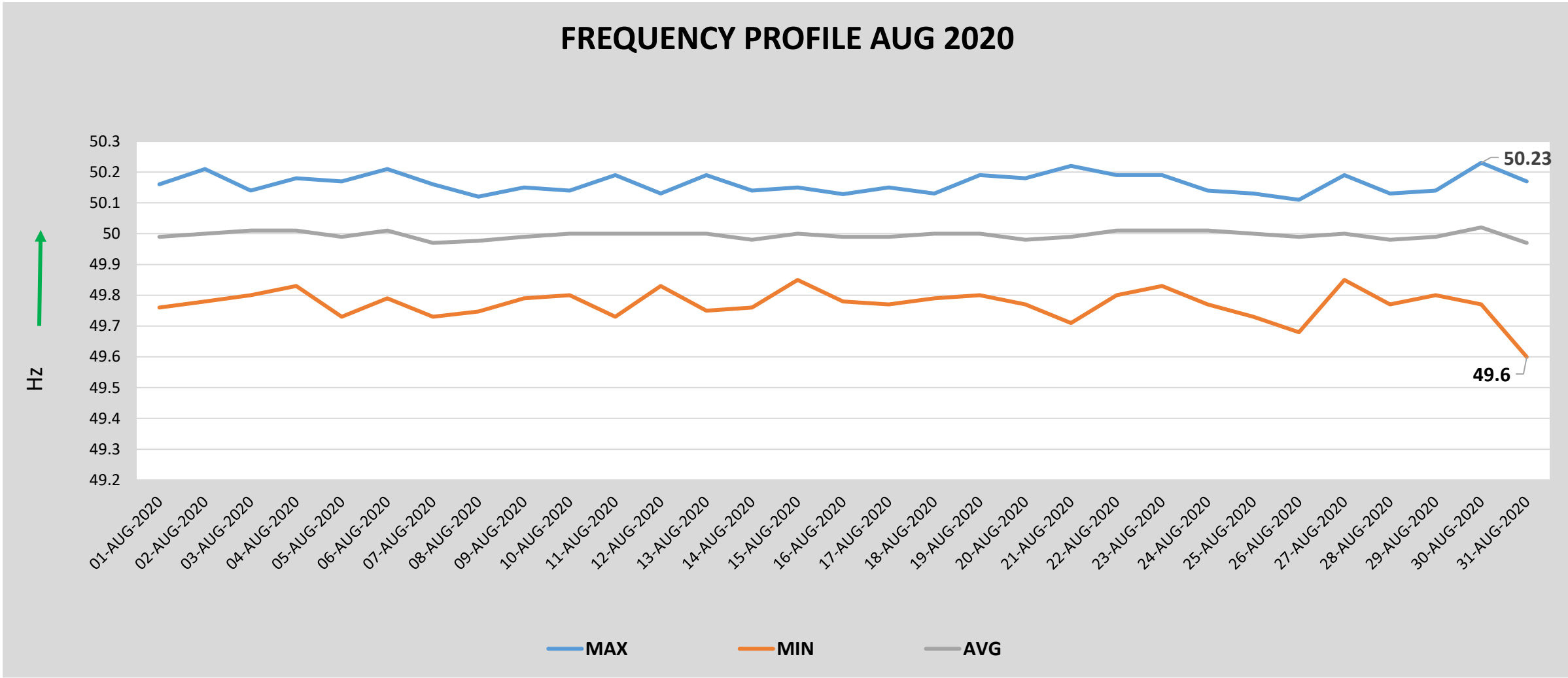
Frequency Profile



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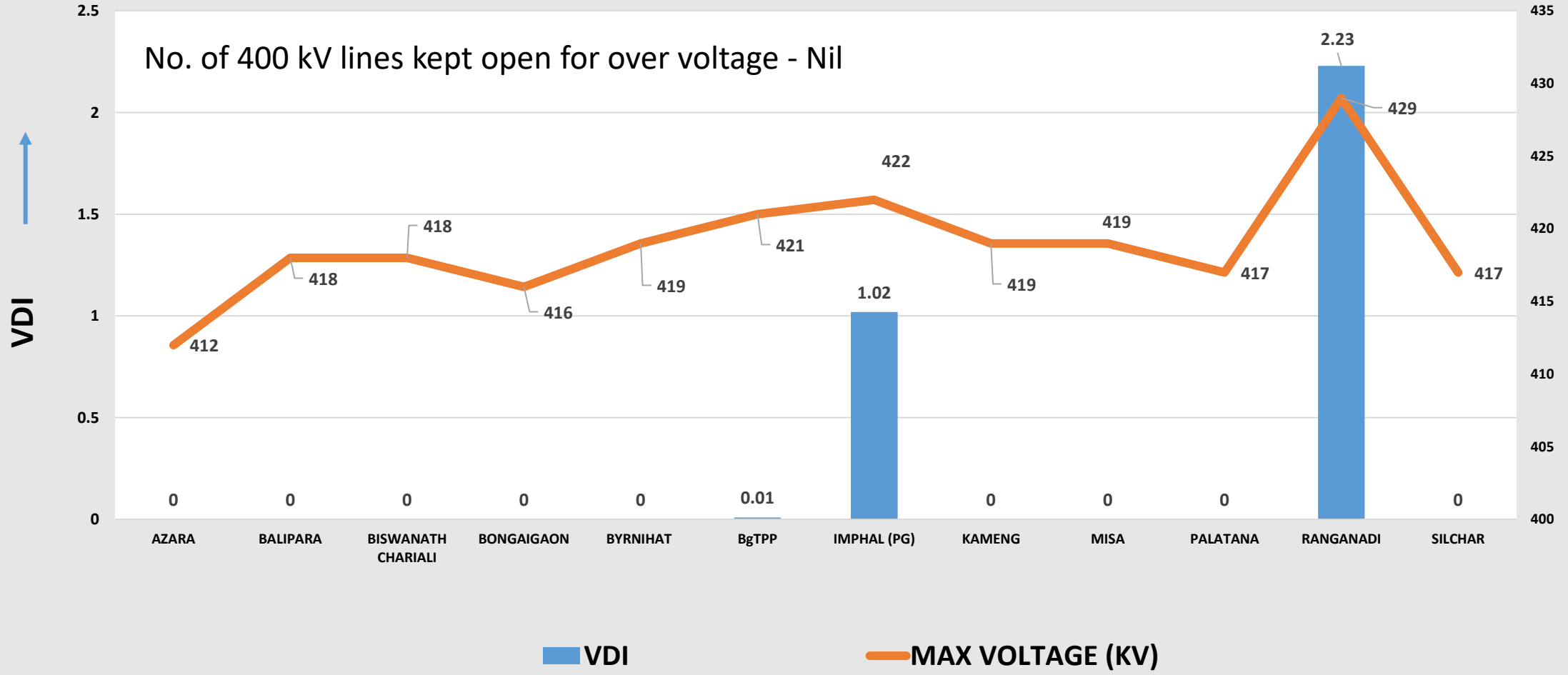
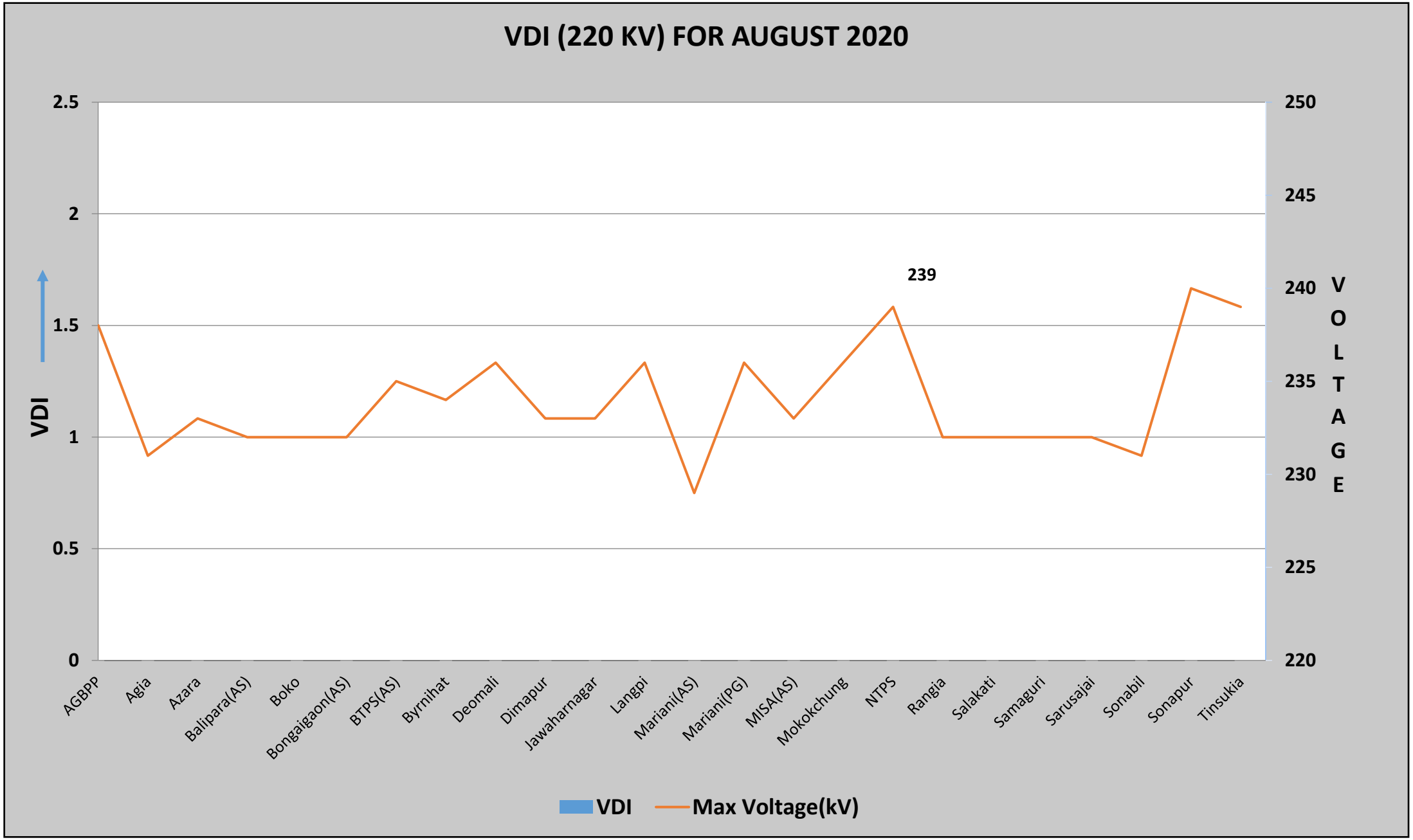
VDI (400 KV) FOR AUGUST 2020




VDI (220 KV) FOR AUGUST 2020
2.5
2
1.5
1
0.5
0
VDI
250
245
240
235
230
225
220
VOLTAGE
239
AGBPP
Agia
Azara
Balipara(AS)
Boko
Bongaigaon(AS)
BTPS(AS)
Byrnihat
Deomali
Dimapur
Jawaharnagar
Langpi
Mariani(AS)
Mariani(PG)
MISA(AS)
Mokokchung
NTPS
Rangia
Salakati
Samaguri
Sarusajai
Sonabil
Sonapur
Tinsukia
VDI
Max Voltage(kV)

Voltage Issues

C.3. Status update of important Reactors under prolonged outage:

- 63MVAR Reactor at Byrnihat to replace with 80MVAR Reactor- By MePTCL
- 63MVAR L/R for 400kV Palatana-Silchar Ckt-I (Out since Apr'19) – by OTPC *~Target mentioned in 169TH OCCM –OCT'2020*
- 25 MVAR Tertiary Reactor 1, 2 & 4 and Bay at BALIPARA (Out since 10.08.2020) – by NERTS

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Transmission Elements Issues

C.1. Auto-reclosure issues at Azara:

- In 169th OCCM, it was decided that by Aug'20, checking of PLCC panels wiring at 400 kV Azara S/S, investigating reasons for channel 1 for 400kV Silchar going into disabled mode at time , and thorough testing of carrier communication channel end-to-end for 400kV Silchar-Azara shall be completed. – *Status by Assam/NERTS*

C.3. Status update of important grid elements under prolonged outage impacting system operation

Sl. No	Element	Owner	Remarks	Status updated in 169th OCCM
1	132kV Dimapur - Imphal	NERTS	Out since 25.07.2018	By 40 days.
2	220kV Sonabil-Samaguri-I	AEGCL	Out since 14.01.2019	By Sept'20
3	132kV Srikona-Panchgram	AEGCL	Out since 14.01.2019	By Sept'20
4	132kV Jiribam – Rengpang	MSPCL		By Oct.'20
5	220KV-Agia-BTPS-I	AEGCL	Out since 15.03.2020	By Aug.'20
6	132KV-Pare-Itanagar-1	Arunachal Pradesh	Out since 12.07.2020	By 15.10.2020
7	132KV-Ranganadi-Itanagar-1	Arunachal Pradesh	Out since 12.07.2020	By 15.10.2020

Transmission Elements Issues

D.7. Status of NERPSIP, Comprehensive Scheme of Transmission & Distribution System in Arunachal Pradesh & Sikkim and TBCB projects:

- Status update from representatives from POWERGRID-NERPSIP- As discussed in 169th OCCM

C.4. Status of commissioning for Upcoming projects:

- **For effective utilization of 400 kV PK Bari (Sterlite)- SM Nagar (Sterlite) Line**
  - 132kV SM Nagar (Sterlite)-SM Nagar (TSECL)
  - 132kV PK Bari (Sterlite)-PK Bari (TSECL)
  - 400 KV Connectivity between Palatana-SM Nagar(Sterlite)
  - Diverting the present Silchar - P.K Bari (TSECL) to P.K Bari (Sterlite) and charging it in 400 kV
- **For effective utilization of 400 kV Imphal-New Kohima-New Mariani (KPTL) Line**
  - New Kohima (400/220 kV TBCB) – New Kohima (220/132kV - Nagaland) 220 kV D/c – Status update by Nagaland
  - 2 no. 400 kV line bays at New Mariani S/s for termination of New Kohima – New Mariani 400 kV D/C line- Status update by NERTS
  - Up-gradation of New Mariani substation to 400/220 kV with 2x500 MVA transformer along with associated bays - Status update by NERTS

Transmission Elements Issues

D.16 Immediate restoration of 220 kV Bus Coupler bay at Samaguri (AEGCL) & keeping both buses in service at 220 kV substations in Assam power system:

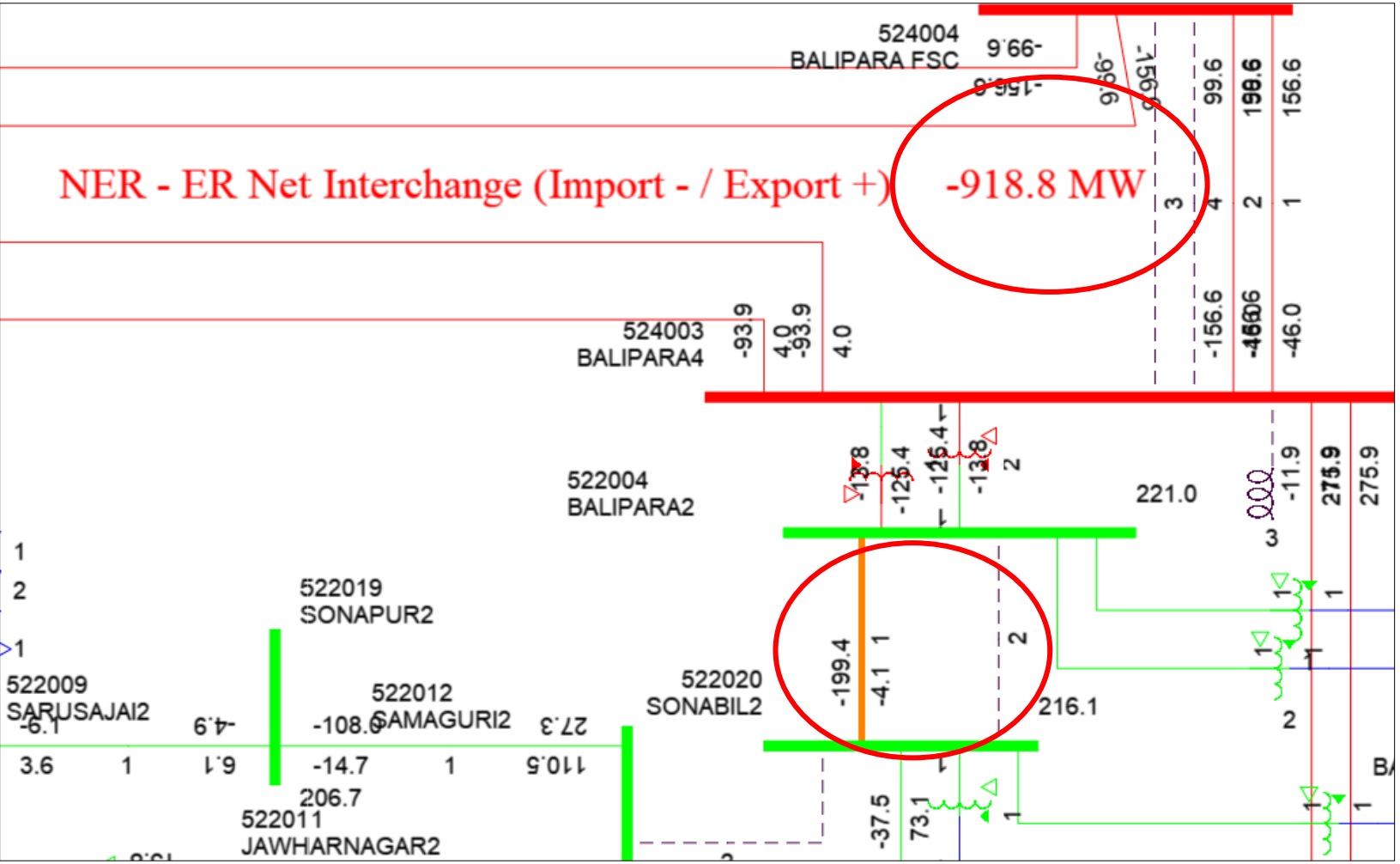
- On 27.08.2020, Assam required Emergency shutdown for Bus 1 at Samaguri
- But due to problem in Bus Coupler shutdown of Both 220 Buses was availed for around 1 hour for offline transfer of all elements to Bus 2
- This could have been avoided by online transfer of all lines, if Bus Coupler was in healthy condition – Outage of all 220 kV Lines from 220 kV Sonabil could have been avoided.
- Single bus operation of 220 kV Samaguri is affecting the safe and secure operation of the NER grid especially Assam Power System.
- Single bus operation is observed in other 220 kV substations of Assam Power system by keeping Bus-Coupler in open condition:

1. Sarusajai
2. Jawaharnagar
3. Sonabil
4. Mariani
5. Namrup
6. Tinsukia
7. Samaguri
8. Sonapur

D.18. Early commissioning of 220 kV Balipara – Sonabil 2 line:

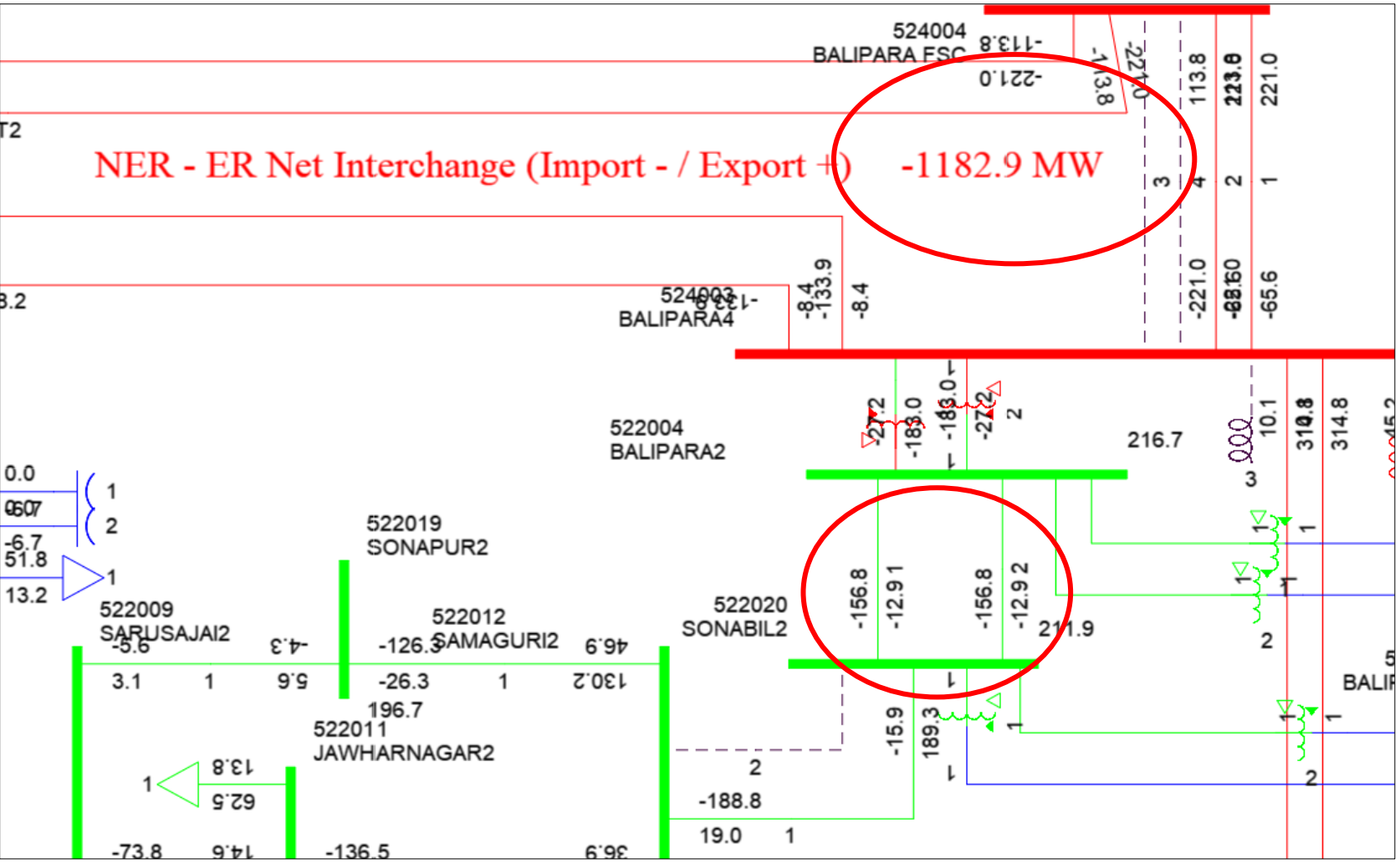
220 kV Bays were Approved in 6th Standing committee meeting of NER on 03.10.2016 – Status by Assam

Effect of availability of 220 kV Balipara – Sonabil II on NER-ER TTC



It is seen that with availability of 1 ckt of 220 kV Balipara – Sonabil D/C, the NER-ER Import TTC is about 920 MW

The constraint observed is in 220 kV Sonabil – Balipara I (220 MW)



It is seen that when both 220 kV Balipara – Sonabil D/C are available, the NER-ER Import TTC is about 1180 MW (an increase of about 260 MW)

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Operational Issues

C.5. Tripping of 220kV BTPS-Salakati D/C on 05.08.2020:

- 220 kV BTPS – Salakati 2 line tripped due to unbalance current at 20:33 Hrs on 05.08.20. Subsequently, 220 kV BTPS – Salakati1 line tripped on over current.
- AEGCL is requested to intimate the status of SPS related over loading of 220 kV BTPS – Salakati D/C
- Reconductoring of BTPS- Salakati 220kV D/c line with HTLS conductor along with requisite modification in bay equipment at both ends was agreed in 2nd NERSCT. Status of this project may be updated.

D.10. Preparation of list of Important Grid Elements:

- As per direction of Hon'ble CERC through Regulation 5.2 (c) of IEGC 2010, NERLDC has been preparing and uploading "List of Important Grid Elements of NER Region" in our official website and the same is updated on Yearly basis.
- Link: https://nerldc.org/wp-content/uploads/List-of-Important-Grid-Elements-of-NER-2020-21-WP.pdf
- Whereas, telemetry and data availability is important for all elements, even for elements which are not available in the above list:
- For example:
- 132kV Agartala-SM Nagar D/C is not included in List of important Grid elements but is very important connectivity

Operational Issues

D.15. Processing of Post OCC Shutdown:

- POSOCO is in the process of pan India integration of the Shutdown and outage software for which one of the prerequisites is giving D-3 confirmation through the software for all Planned Shutdowns including the shutdowns approved by NERPC after OCC Meeting (Post OCC Shutdown).
- Proposed procedure for Post OCC Shutdown as per procedure followed in Western Region:

10:00 Hrs of D-5	18:00 Hrs of D-5	18:00 Hrs of D-4	10:00 Hrs of D-3	10:00 Hrs of D-2	12:00 Hrs of D-1
• Requesting agency sends Post OCC S/D requests to NERPC with copy to NERLDC	• NERLDC shall provide study reports/comments to NERPC	• NERPC shall approve/reject and send the same via email to NERLDC and requesting/affecting agency	• Requesting agency shall apply D-3 availing request for Post OCC and OCC approved S/D	• NERLDC sends shutdowns details to NLDC for comments (For all elements under NLDC purview)	• NERLDC shall send D-1 approved list along with Post OCC and OCC approved S/D

- Similar timeline shall also be followed while requesting for postponement of an approved shutdown by the requesting agency to NERPC.
- The above procedure shall help in alignment of procedure for processing of Post OCC shutdown with the procedure of processing of Planned shutdown approved in OCC Meetings as agreed in 88th OCC Meeting of NERPC Forum.

Operational Issues

D.17. Renewal of Maintenance and Support Contract for PSS/E user Licenses:

- Consent for price negotiation given by all SLDCs in 159th OCCM for renewal of Maintenance & Support Contract with M/s Siemens
- Negotiated price from M/s Siemens was communicated to SLDCs vide letter NERLDC/SO-II/270 dated 02.07.2020.
- POSOCO has procured at negotiated price for 5 RLDCs and NLDC at negotiated price and hence updated version of PSS/E is available with POSOCO
- SLDCs may please mention plant of procurement at their end.

Operational Issues

Accurate Load forecasting by SLDCs as per IEGC c1.5.3 for better system operation:

- RMSE for actual data in comparison to that forecasted data by the states for the month of July'20 are as follows:

Day	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura
Median	17	8	10	8	11	13	12

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Number of Days as per Current Hydro Generation

Plants	Reservoir Level in meters (as on 08/09/2020)	MU Content	Present DC (MU)	No of days as per current Generation
Khandong + Kopili STG II	719.6	25	0	-
Kopili	-	-	-	-
Doyang	321.45	27.2	1.113	24
Loktak	768.50	250	2.487	101

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METER RELATED AGENDA

170TH OCCM as on 11-09-2020

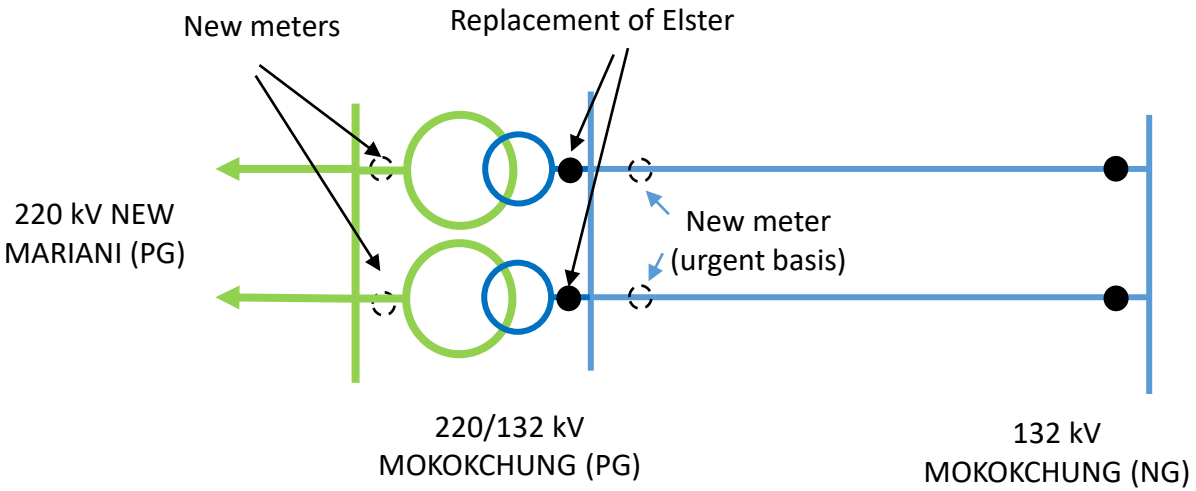
Ref	Agenda Description	Completed	Remarks
169th OCC	SEMs to be Procured	In 169th OCC Meeting, NERTS informed that 50 out of the total 100 SEMs have been received. The balance SEMs along with DCDs to reach Misa by Aug'20	Status and progress may be discussed
169th OCC	SEM time drift and replacement of Meters	In 169th OCCM, NERLDC informed that present SEMs having time drift cannot be corrected manually and must be replaced. List of 22 SEMs has been provided to POWERGRID for replacement	Status of replacement of Meters may be furnished

New Agenda 1. Second Meter List for replacement:

After non-satisfactory performance from Elster make SEMs, procurement of the same had been stopped since 2015. As such there is no support from the vendor. So, the Elster make SEMs currently located at few locations are decided to be removed

S.N.	LOCATION	METER No.	FEEDER NAME	REMARKS
1	BALIPARA	NP-8655-A	BALIPARA END OF 400kV BONGAIGAON FDR -1	ELSTER
2	BALIPARA	NP-8653-A	BALIPARA END OF 400kV BONGAIGAON FDR -2	ELSTER
3	BALIPARA	NP-8654-A	BALIPARA END OF 400kV BONGAIGAON FDR -3	ELSTER
4	BALIPARA	NP-8585-A	BALIPARA END OF 400kV BONGAIGAON FDR -4	ELSTER
5	BALIPARA	NP-8594-A	BALIPARA END OF MISA FDR-1	ELSTER
6	MARIANI	NP-4524-A	MARIANI(PG) END OF 220 KV MOKOKCHANG-1	ELSTER
7	MARIANI	NP-4509-A	MARIANI(PG) END OF 220 KV MOKOKCHANG-2	ELSTER
8	MARIANI	NP-8591-A	MARIANI(PG) END OF 220kV MISA FDR	ELSTER
9	MISA	NP-8608-A	MISA END OF 220kV MARIANI(PG) FDR	ELSTER
10	MISA	NP-8643-A	MISA END OF 220kV DIMAPUR FDR -1	ELSTER
11	MISA	NP-8640-A	MISA END OF 220kV DIMAPUR FDR -2	ELSTER
12	MISA	NP-8599-A	MISA 400/220kV 315MVA ICT-I (LV SIDE)	ELSTER
13	MISA	NP-8638-A	MISA 400/220kV 315MVA ICT-II (LV SIDE)	ELSTER
14	SILCHAR	NP-8661-A	SILCHAR END OF 132 KV MELRIAT-I	ELSTER
15	SILCHAR	NP-8561-A	SILCHAR END OF 132 KV MELRIAT-II	ELSTER

S.N.	LOCATION	METER No.	FEEDER NAME	REMARKS
16	SILCHAR	NP-8571-A	SILCHAR(PG) END OF 400 KV IMPHAL-1	ELSTER
17	SILCHAR	NP-8570-A	SILCHAR(PG) END OF 400 KV IMPHAL-2	ELSTER
18	SILCHAR	NP-8659-A	SILCHAR(PG) END OF 400kV PALATANA FDR -1	ELSTER
19	SILCHAR	NP-8660-A	SILCHAR(PG) END OF 400kV PALATANA FDR -2	ELSTER
20	SILCHAR	NP-8662-A	SILCHAR(PG) END OF 132 KV BADARPUR-1	ELSTER
21	SILCHAR	NP-8663-A	SILCHAR(PG) END OF 132 KV BADARPUR-2	ELSTER
22	MOKOKCHUNG	NP-4518-A	220/132 KV, 30 MVA ICT-1 AT MOKOKCHANG LV SIDE	ELSTER
23	MOKOKCHUNG	NP-4515-A	220/132 KV, 30 MVA ICT-2 AT MOKOKCHANG LV SIDE	ELSTER
24	MOKOKCHUNG	NP-4510-A	MOKOKCHANG END OF 220 KV MARIANI(NEW)-1	ELSTER
25	MOKOKCHUNG	NP-4516-A	MOKOKCHANG END OF 220 KV MARIANI(NEW)-2	ELSTER
26	NINGTHOUKHONG	NP-9521-A	NINGTHOUKHONG END OF IMPHAL(PG)	ERRATIC READING
27	PALATANA	NP-8382-A	PALATANA ICT-HV SIDE	DAMAGED
28	PALATANA	NP-7602-A	PALATANA ST-1	DAMAGED
29	PALATANA	NP-7584-A	PALATANA ST-2	DAMAGED



New Agenda 1. Second Meter List for replacement:

Elster make SEMs (S.N 23 & 24) present at LV side of 220/132 kV ICT I & II of Mokokchung (PG) end are to be replaced and new SEMs (4 nos.) are to be installed at

i. Mokokchung (PG) end of 132 kV Mokokchung (NG) I & II feeder (urgent basis)

ii. HV side of 220/132 kV ICT I & II of Mokokchung (PG)

New Agenda 2. SEM data collecting Laptop related issues :

As discussed in 166th OCCM, most of the SLDCs had sent laptop related issues at all the locations under their domain.

Details submitted by SLDCs are given **Annexure (Laptop)**

The SLDC who hasn't submitted yet are requested to submit their details

S.N	STATION	LAPTOP RECEIVED (Y/N)	CABLE ISSUE (Y/N)	SOFTWARE ISSUE (Y/N)	REMARKS (ISSUES LIKE DCD OR ANY OTHERS)
ARUNACHAL					
1	NIRJULI	Yes	Yes	Yes	NO ISSUE
2	CHIMPU	Yes	Yes	Yes	NO ISSUE
3	LEKHI	Yes	NO	NO	DCD REQUIRED
4	DEOMALI				DOES NOT SEND DATA
ASSAM					
1	AGIA	Yes	No	No	DCD is old, Cable damage, New DCD is required for Time Drift Correction
2	AZARA	Yes	Yes	Yes	DCD is Old, New DCD is Required for Time Drift Correction, Time drift of both the meter is more then 5 min.
3	BTPS(Salakati)	Yes	Yes	No	DCD required., Laptop & optical cable issued but Vinplus software & licence key is not provided
4	SARUSAJAI	Yes	No	No	DCD is old, Need replacement, New DCD is Required for Time Drift Correction, One no. of SEM meter is out of order, Time drift is more.
5	KAHILIPARA	Yes	No	No	DCD is not working, New DCD is required.
6	RANGIA	No	No	No	No DCD is available at Rangia. Data collected by Power Grid
7	SONABIL	Yes	No	No	New SANDs make DCD is provided from Balipara PG, SEM out of order.
8	GOHPUR	Yes	Yes	Yes	New DCD is required for Time Drift Correction, No CMRI available, Data collect through Laptop.
9	SAMAGURI	Yes	Yes	Yes	NO ISSUE (New SANDs make DCD is provided from Misa PG)
10	TINSUKIA	Yes	No	No	DCD is not working
11	MARIANI ASSAM	Yes	No	No	DCD is old, Cable damage, New DCD is required for Time Drift Correction, Time Drift of SEMs more then 5min.
12	PAILAPOOL	No	No	No	DCD is old, Cable damage, New DCD is required for Time Drift Correction
13	DULLAVCHERA	No	No	No	DCD is not working, Cable damage, New DCD is required for Time Drift Correction, Time drift of SEM is more then 5 min.
14	PAVOI	Yes	No	No	New DCD is required for Time Drift Correction
15	UMRANGSHOO	Yes	No	No	Cable damage, New DCD is required for Time Drift Correction
16	SRIKONA	No	No	No	DCD not available, New DCD is required for Time Drift Correction
17	HAILAKANDI	No	No	No	DCD is old, Cable damage, New DCD is required for Time Drift Correction
18	PANCHGRAM	No	No	No	DCD is required for Time Drift Correction
19	BOKAJAN	Yes	No	No	New DCD required, Old DCD not working, Time drift of the meter is +6minute

S.N	STATION	LAPTOP RECEIVED (Y/N)	CABLE ISSUE (Y/N)	SOFTWARE ISSUE (Y/N)	REMARKS (ISSUES LIKE DCD OR ANY OTHERS)
MANIPUR					
1	JIRIBAM	NO	NO	NO	
2	YUREMBAM	YES	NO	YES	DCD(Analogics MAKE) has battery and charger issue
3	KARONG	YES	NO	NO	Laptop Processer too slow
4	RENGPANG	YES	NO	NO	
5	NINGTHOUKHONG	YES	NO	NO	
6	TIPAIMUKH	YES	NO	NO	DCD & SOFTWARE (Elster and Secure) NOT AVAILABLE
7	SLDC	YES	NO	NO	
MEGHALAYA					
1	MENDIPATHAR	Yes	NO	NO	No issues
2	KILLING	Yes	NO	NO	No issues, repairment of cable done.
3	UMTRU	Yes	NO	NO	Laptop screen damaged
4	KHLIERIAT	Yes	Yes	Yes	No software and DCD are available. No SEM data collection is carried out
5	LUMSHNONG	Yes	NO	Yes	DCD problem, no software is available. Meter data is weekly downloaded by PG official
MIZORAM					
1	KOLASIB	Yes	Yes	Yes	NO ISSUE
NAGALAND					
1	DIMAPUR STATE	YES	NO	NO	DCD DAMAGED, NEW DCD REQUIRED
2	KOHIMA	YES	NO	NO	
3	MOKOKCHUNG STATE				
4	WOKHA (SANIS)				DOES NOT SEND DATA
5	SLDC	YES	NO	NO	
TRIPURA					
1	AGARTALA	YES	NO	YES	NO COMMENT RECEIVED
2	DHARMANAGAR	YES	NO	NO	NO COMMENT RECEIVED
3	SM NAGAR	YES	NO	YES	NO COMMENT RECEIVED
4	UDAIPUR	YES	NO	YES	NO COMMENT RECEIVED
5	PK BARI	YES	NO	NO	NO COMMENT RECEIVED

New Agenda 2. SEM data collecting Laptop related issues :

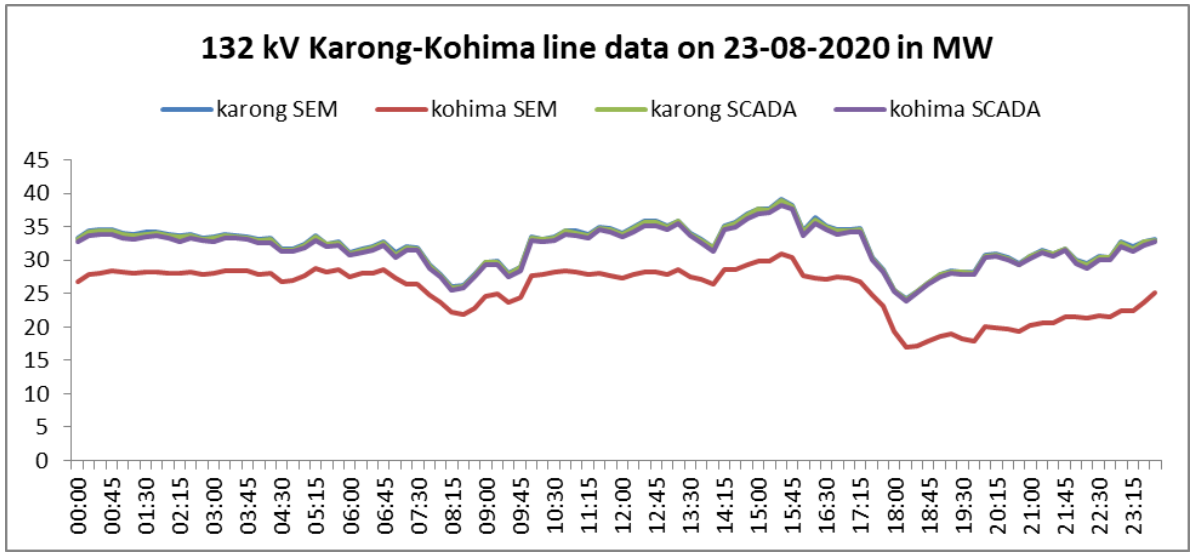
From the submission it has been observed that most of the laptops are not being used due to the following reasons:

1. Non availability of data downloading cables
2. Unavailability of required installed software
3. Non-functioning of software

New Agenda 3. New Meter and CMRI requirement:

Other than the requirements provided by SLDCs, few more locations has been identified by NERLDC where SEMs and CMRI are required

Substation	Element Name	SEM	CMRI	Remarks
Khupi/ Tenga	Tenga end of 132 kV Balipara	1	1	New location
Nirjuli (PG)	Nirjuli (PG) TRF I & II	2		Standby meters (HV side)
Kahilipara	Kahilipara end of 132 kV Umtru I & II		1	1 DCD reqd
Sonabil	Sonabil end of 220 kV Balipara	1		SEM out of order (as intimated by SLDC)
Haflong (AS)	Haflong (AS) end of 132 kV Haflong	1	1	New location
Jiribam (PG)	Jiribam (PG) TRF for manipur consumption	1		Standby meters (HV side)
Imphal (PG)	Imphal (PG) TRF for manipur consumption	2		Standby meters (HV side)
UMTRU			1	Laptop damaged & No DCD (as intimated by SLDC)
Zemabawk	Zemabawk end of 132 kV Melriat	1	1	New location
Laungmal	Laungmal end of 132 kV Aizwal	1	1	New location
Mokokchung (PG)	Mokokchung (PG) end of 132 kV Mokokchung (NG) I & II	2		New location
Mokokchung (PG)	220/132 kV Mokokchung (PG) ICT I & II	2		New location in HV side
Bongaigaon (PG)	400/ 220 kV, SS Aux Consumption			As decided in 39th CCM, SEM has to be installed for accounting of Drawal by Aux. TRF (on behalf of Assam). Number of SEMs required to be ascertained.
Balipara (PG)	400/ 220 kV, SS Aux Consumption			
Silchar (PG)	400/ 132 kV, SS Aux Consumption			
Misa (PG)	400/ 220 kV, SS Aux Consumption			
	Total	**14**	**6**	



New Agenda
4. 132 kV Karong – Kohima SEM data mismatch

Meter reading recorded at Karong end and Kohima end of the line, is showing appx. 20% mismatch.

Comparing both end SEM reading and SCADA reading (absolute value used), Kohima was found faulty. Also, sign reversal is there at both the ends (verified based on SCADA data)

New Agenda 5. Procurement of SEM & DCD/Laptop for future requirements :

125 nos of SEMs and 15 nos of DCD/Laptop to be procured to take care of future requirement and to maintain spares

Sl. No.	Name of the Transmission Line	No. of SEMs
1	LILO of one circuit of 220 kV Alipurduar – Bongaigaon D/C at Agamoni	2
2	220 kV Misa - Shankardeb Nagar D/C	4
3	Termination of one of 220 kV Samaguri – Mariani 2xS/C at Mariani(PG)	2
4	LILO of 220 kV Samaguri – Mariani(PG) 2xS/C at Khumtai	4
5	220 kV Mariani(PG) – Mariani(AEGCL) D/C (High Capacity Conductor)	4
6	LILO of both circuits of 400 kV Balipara-Bongaigaon D/C 1 (Twin Moose Conductor) at Rangia	4
7	LILO of 400 kV Silchar-Byrnihat at Sonapur	2
8	LILO OF 400 kV Silchar – Azara at New Shillong Township	2
9	132 kV Loktak DS – Ningthoukhong D/C	2
10	132 kV Loktak DS – Rengpang D/C	2
11	400 kV Imphal (PG) - Thoubal 400 kV D/C	4
12	LILO of one circuit of 400 kV Silchar- ImphalD/C at Thoubal	2
13	LILO of 132 kV Jiribam - Aizawal line at Tuirial	2
14	132 kV Pare – North Lakhimpur D/C (ACSR Zebra Conductor)	4
15	LILO of one circuit of 132 kV Pare - North Lakhimpur D/C at Nirjuli	2
16	400 kV Dinchang – Rangia D/C (Quad Conductor)	4
17	LILO of Bongaigaon – Balipara 400kV D/c (quad) line at Bornagar	4
18	Bornagar - Parbotipur (in Bangladesh) – Katihar 765 kV D/C line (initially op. at 400 kV)	4
19	LILO of 132 kV Agia - Nangalbibra at Mendi ckt 2	2
20	220 kV Balipara- sonabil ckt 2	2
21	132 kV Roing - Chapakhowa DC line	4
22	500 MW HVDC 400 kV Surjamaninagar - North Comilla DC line	2
23	220 kV S/C line on D/C tower from Sonabil to Biswanath Chariali	2
24	2 no. 220 kV bays at Misa for their Misa-Shankardeb Nagar 220 kV D/C line	4
25	Up-gradation of New Mariani substation to 400/220 kV with 2x500 MVA transformer along with associated bays	4
	Total	**74**

SL NO	NAME OF THE SUBSTATION	VOLTAGE IN KV	NO. OF SEMS
1	Mokokchung (PG) GIS	220/132KV,30MVA, 3rd ICT	2
2	Rangia	2x 500 MVA	4
3	Sonapur	2X500 MVA	4
4	Misa	1X500 MVA	2
5	Mariani (PG).	2X500 MVA	4
9	Khumtai	220/132kV, 2x160MVA	4
		Total	**20**

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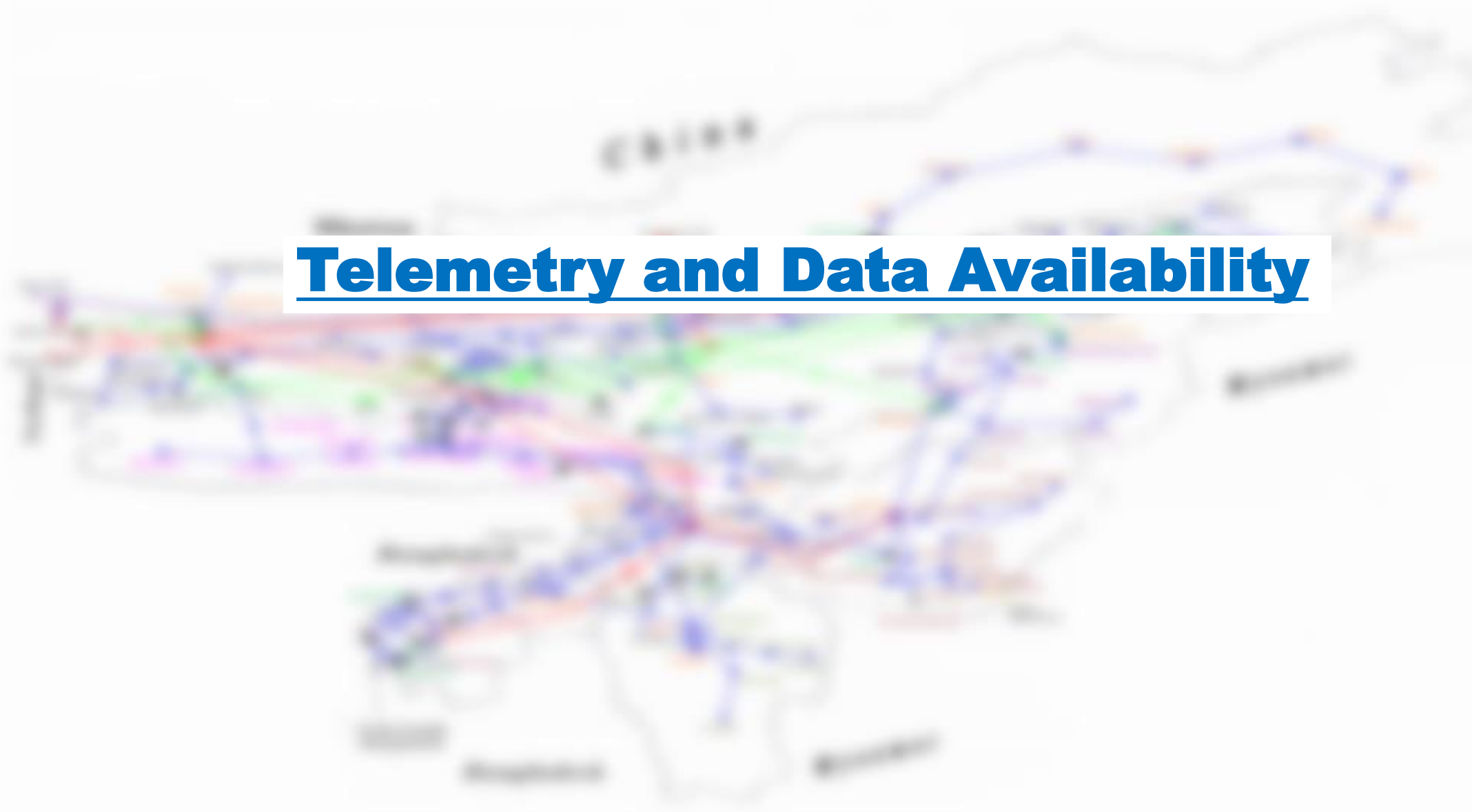
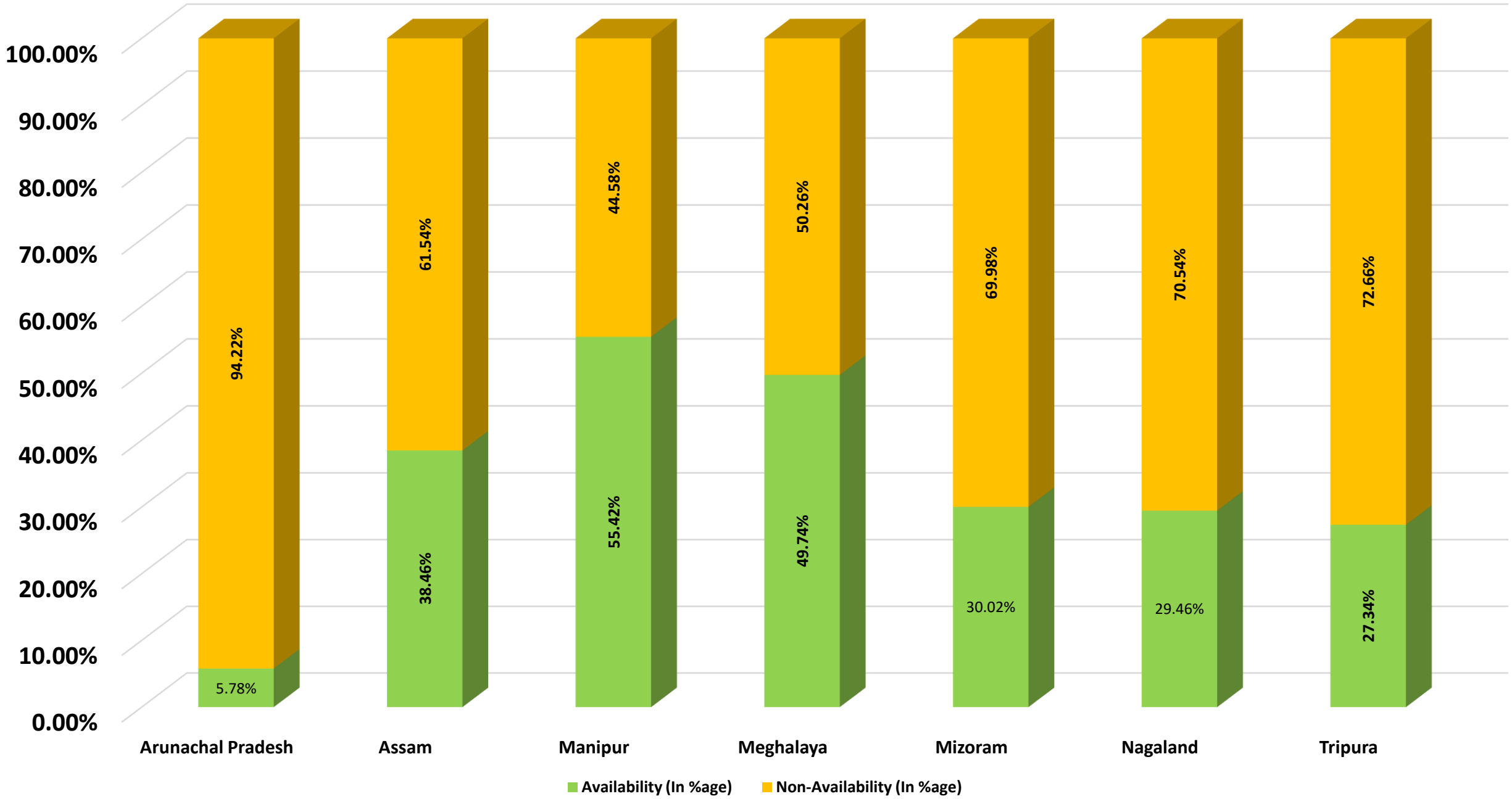
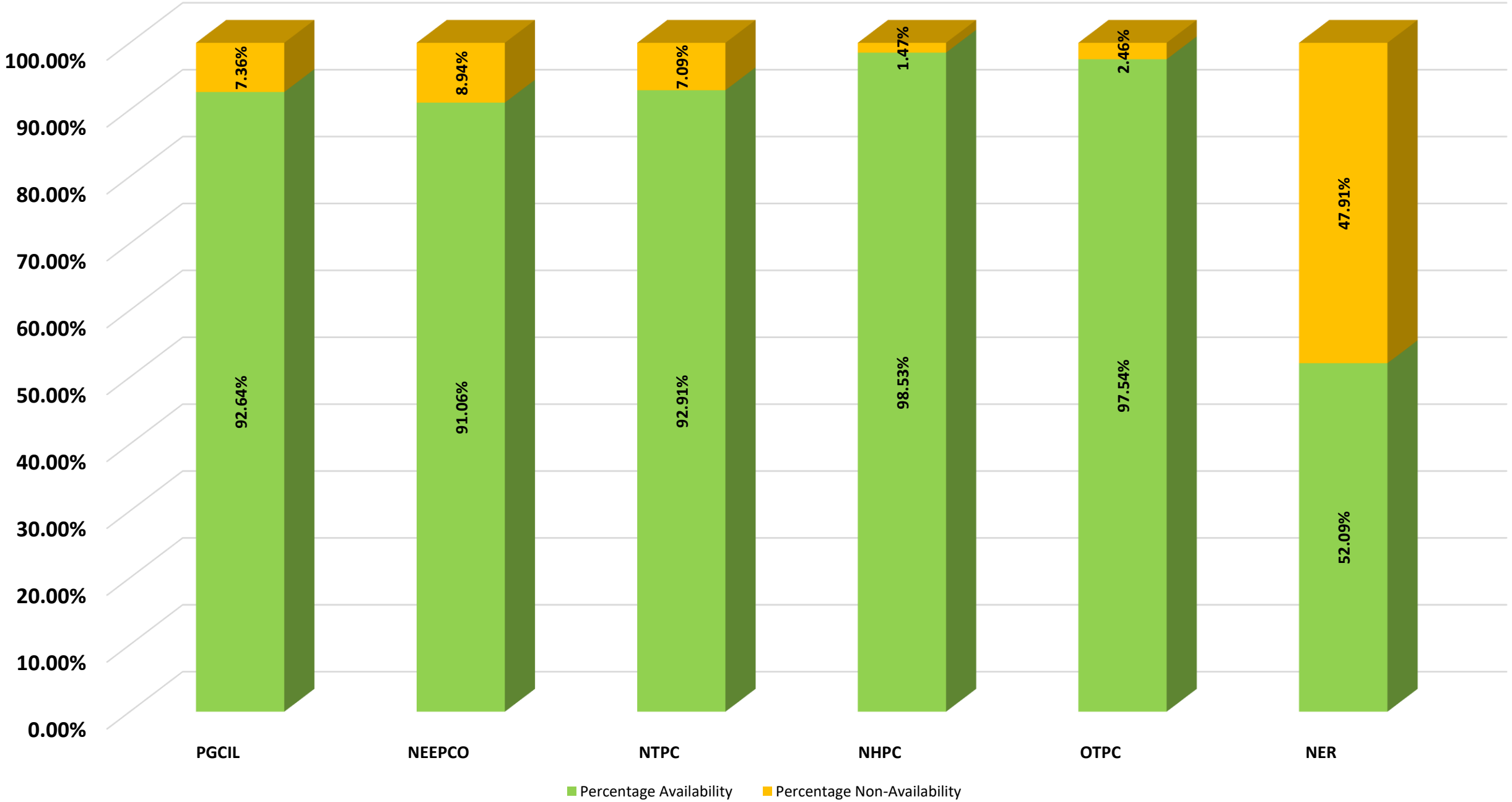
Telemetry and Data Availability



Telemetry Statistics for NER States (Average availability of data for the Month of August'20)



Telemetry Statistics for Central Sector of NER (Average availability of data for the Month of August'20)



Thank You

पूर्वोत्तर क्षेत्र की महत्वपूर्ण ग्रिड तत्वों की सूची

[भारतीय विद्युत ग्रिड संहिता के विनियम 5.1 (फ) के अनुपालन में]

List of Important Grid Elements of North Eastern Region

[In compliance with Regulation 5.2 (c) Indian Electricity Grid Code]

मई / May 2020

Rev 0

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड(भारत सरकार का उद्यम)

Power System Operation Corporation Limited (POSOCO)

(A Government of India Enterprise)

उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र

North Eastern Regional Load Despatch Centre (NERLDC)

Lower Nongrah, Dongtieh, Lapalang, Shillong – 793006

Phone No: 0364-2537470/2536934, Fax No : 0364-24235809

पूर्वोत्तर क्षेत्र की महत्वपूर्ण ग्रिड तत्वों की सूची
List of Important Grid Elements of North Eastern Region

जारी करने की तिथि / Date of Issue	संशोधन संख्या / Revision No
29.05.20	00

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परिचय / Introduction

Important Grid Elements of North Eastern Regional Grid

1.0. Document on List of Important Grid Elements of North Eastern Region (NER) was last updated on May'19 and after that numbers of transmission elements and generators were added in the NER power system.

1.1. This updated document supersedes the earlier document on List of Important Grid Elements of North Eastern Region May'19.

1.2. List of Important Grid Elements of North Eastern Regional Grid has been issued in compliance with IEGC 5.2 (c)

1.3. The criterion that has been adopted for including a transmission line in this list is as follows:

a) All HVDC Transmission Lines

b) All 400 kV & 220 kV AC Transmission Lines

c) All 132 kV AC Transmission lines belonging to POWERGRID & Generating Stations

d) All 132 kV & 66 kV AC Transmission line from the territory of one State Control Area to other State Control Areas (Tie Lines)

e) All 132 kV Lines affecting system security or forming part of Islanding Scheme or reduction of generation

f) All Inter Regional Transmission Lines

g) All Trans National Transmission Lines

1.4. The transmission lines in the above context means a grid element from bus-bar to busbar and includes all equipment such as associated CBs (Circuit Breakers), Line Reactors, Isolators, CVTs (Capacitive Voltage Transformers) , CTs (Current Transformers), LAs (Lightning Arrestors) etc.

1.5. The criterion that has been adopted for including a generating unit is as follows:

a) All Units owned by central & state sectors connected to the NER Grid

1.6. Outage or the intention to take under outage, of any major component/sub-system, which would reduce security/ redundancy level of the above element, shall be precisely intimated to NERLDC along with the likely time and status regarding revival.

1.7. Shutdown of any bus at Sub-Stations needs the approval of NERLDC.

1.8. In respect of 400 kV Sub-Station/ Power Station Switchyard having breaker and a half switching scheme, outage within the substation (say main or tie circuit breaker) not affecting power flow on any line/ICT can be availed by the constituents under intimation to NERLDC. However, while availing such shutdowns or carrying out switching operations it must be ensured by the substation that at least two dias are complete even after such outage from the view point of network reliability. Any outage not fulfilling the above condition needs the approval of NERLDC.

1.9. Shutdown of any important bus-coupler bays needs prior approval of NERLDC. For example, Bus coupler bay of 132 kV Gohpur substation of AEGCL.

1.10. Hot line maintenance of any lines among list of important elements of NER needs prior approval from NERLDC. Work related to offline & online Relay testing can done after getting approval from NERLDC. Keeping of auto reclosure scheme in non-auto mode needs prior approval from NERLDC.

1.11. For switching operation of any element under List of Important Grid Elements, Operation Code will be taken from NERLDC. Validity of operation code required for opening & closing of any element under List of Important Grid Elements will be 20 (twenty) minutes and beyond that period fresh operation code for switching operation of the element is to be obtained from NERLDC.

Voltagewise & Constituentwise total ckt kms of Transmission Lines in NER

Sl. No.	Name of Constituent	+/- 800 kV HVDC		400 kV		220 kV		132 kV		66 kV	
		in kms	Total no. of Lines	in kms	Total no. of Lines	in kms	Total no. of Lines	in kms	Total no. of Lines	in kms	Total number of Lines
1	POWERGRID	3456	2	2766	20	1394	19	2781	55	-	-
2	NETC	0	0	1333	6	0	0	0	0	-	-
3	ENICL	0	0	212	2	0	0	0	0	-	-
4	DoP, Arunachal Pradesh	0	0	0	0	19	1	303	10	-	-
5	AEGCL	0	0	428	2	2258	34	3414	112	383	11
6	MePTCL	0	0	421	2	227	2	950	69	-	-
7	MSPCL	0	0	0	0	0	0	598	23	-	-
8	P&ED, Mizoram	0	0	0	0	0	0	266	8	-	-
9	DoP, Nagaland	0	0	0	0	0	0	383	11	370	11
10	TSECL	0	0	0	0	0	0	543	24	343	14
Total		**3456**	**2**	**5160**	**28**	**3898**	**56**	**9238**	**273**	**1096**	**36**

Voltage transformation wise & Constituentwise total MVA capacity of Transformers in NER

Sl. No.	Name of Constituent	400/220/33 kV		400/132/33 kV		220/132 kV		220/33 kV		132/33 kV		132/66 kV		132/11 kV		66/33	
		in MVA	Total no. of Transformers	in MVA	Total no. of Transformers	in MVA	Total no. of Transformers	in MVA	Total no. of Transformers	in MVA	Total no. of Transformers	in MVA	Total number of Transformers	in MVA	Total no. of Transformers	in MVA	Total number of Transformers
1	POWERGRID	2575	7	1745	7	680	8			305	11	-	0	-	0	-	0
2	NEEPCO	-	-	840	3	110	2			-	-	-	-	-	-	-	-
3	NTPC	630	2	-	-	-	-			-	-	-	-	-	-	-	-
4	OTPC	-	-	250	2	-	-			-	-	-	-	-	-	-	-
5	AEGCL	630	2	-	-	2470	25	100	2	3533.5	134	60	3	37	3	52	4
6	MePTCL	630	2	-	-	420	3			610	35	-	-	-	4	-	-
7	MSPCL	-	-	-	-	-	-			598	33	-	-	-	-	-	-
8	P&ED, Mizoram	-		-		-				228	19	12.5	1	-	-	-	-
9	DoP, Nagaland	-		-		-				41	5	180	6			40	3
10	TSECL					-				403	22	110	6	125	9	-	-
11	DoP, Arunachal Pradesh	-		-		100	3			251	12					-	-
Total		**4465**	**13**	**2835**	**12**	**3780**	**41**	**100**	**2**	**5969**	**271**	**363**	**16**	**162**	**16**	**92**	**7**

Voltagewise & Constituentwise total MVAR capacity of Reactors in NER

Sl. No.	Name of Constituent	420 kV				245 kV				145 kV		Tertiary Reactor	
		Bus		Line		Bus		Line		Bus		36 kV	
		in MVAR	Total number of Reactors	in MVAR	Total number of Reactors	in MVAR	Total number of Reactors	in MVAR	Total number of Reactors	in MVAR	Total number of Reactors	in MVAR	Total number of Reactors
1	POWERGRID	1181	15	1106		31.5	1	100	2	175	9	250	10
2	NEEPCO	80	1	100	2	-	-	20	1	-	-	-	-
3	OTPC	80	1	126	2	-	-	-	-	-	-	-	-
4	AEGCL	63	1	63	1	50	4	-		-		-	
5	MePTCL	63	1	50	1	-	-	-	-	-	-	-	-
7	MSPCL	-	-	-	-	-	-	-	-	-	-	-	-
8	P&ED, Mizoram	-	-	-	-	-	-	-	-	-	-	-	-
9	DoP, Nagaland	-	-	-	-	-	-	-	-	-	-	-	-
10	TSECL	-	-	-	-	-	-	-	-	4	2	-	-
11	DoP, Arunachal Pradesh	-	-	-	-	-	-	-	-	-	-	-	-

Power Stationwise Installed Capacity in MW (NER)

Sl. No.	Name of Power Station	Name of Owner	Total Installed Capacity in MW	Total number of units
1	AGBPP	NEEPCO	291	9
2	AGTCCPP	NEEPCO	135	6
3	Doyang	NEEPCO	75	3
4	Kopili	NEEPCO	200	4
5	Khandong	NEEPCO	50	2
6	Kopili Stg II	NEEPCO	25	1
7	Ranganadi	NEEPCO	405	3
8	Pare	NEEPCO	110	2
9	Loktak	NHPC	105	3
10	Palatana	OTPC	726	4
11	BgTPP	NTPC	750	3
12	Tuirial	m	60	2
13	Monarchak	TPGL	101	2
14	Monarchak Solar PV	TPGL	5	1
15	Champavati	APGCL	4	2
16	Karbi Langpi	APGCL	100	2
17	LTPS	APGCL	97.2	4
18	LRPP	APGCL	70	7
19	Myntreng	APGCL	3	2
20	NTPS	APGCL	99.5	5
21	Baskandi (IPP-DLF)	Assam Private	9	4
22	Adamtila (IPP-DLF)	Assam Private	15.5	3
23	Suryatap	APGCL	5	1
24	Myndtu Leskha	MePGCL	126	3
25	New Umtru	MePGCL	40	2
26	Umiam Stg I	MePGCL	36	4
27	Umiam Stg II	MePGCL	20	2
28	Umiam Stg III	MePGCL	60	2
29	Umiam Stg IV	MePGCL	60	2
30	Umtru	MePGCL	11.2	4
31	Adhunik	Meghalaya	25	1
32	MPL	Meghalaya	51.15	2
33	Maithon Alloy Ltd	Meghalaya	15	1
34	Sonapani	Meghalaya	1.5	1
35	Shyam Century	Meghalaya Private	13.8	1
36	Bairabi	P &ED, Mizoram	22.92	4
37	Serlui B	P &ED, Mizoram	12	3
38	Micro Hydel	P &ED, Mizoram	17.85	11
39	Likimro	DoP, Nagaland	24	3
40	Baramura	TPGL	58.5	5
41	Gumti	TPGL	15	3
42	Rokhia	TPGL	111	9
42	Dikshi	Devi Energy	24	3
	Total		**4186**	**141**

Sourcewise Installed Capacity in MW (NER)

Sl. No.	Source	Total Installed Capacity in MW	Total number of Units
1	Thermal	2592	67
2	Hydro	1584	66
3	Solar	10	2
	Total	**4186**	**135**

Shunt Capacitors

SL No.	Utility	Voltage Level				Total	
		145 kV		36 kV			
		in MVAR	Total no. of Capacitors	in MVAR	Total no.of Capacitors	in MVAR	Total no.of Capacitors
1	AEGCL	-	0	263.04	41	263.04	41
2	MePTCL	62.5	3	30	2	92.5	5
	NER Total	**62.5**	**3**	**293.04**	**43**	**355.54**	**46**

Sl. No.	Name of Substation	Voltage Level	Geographical Co-ordination		Type of Scheme		
			Latitude	Longitude	400 kV	220 kV	132 kV
POWERGRID							
1	Balipara	400/220/33 kV	$26^0$52'22	$92^0$46'0.8"	1 & 1/2 Circuit Breaker(I-type)	Double Main Cum Transfer	Main and Transfer Bus
2	Biswanath Chariali	400/132 kV	$26^0$44'39.6"	$93^0$13'11.3"	1 & 1/2 Circuit Breaker (D-type-2 bays on both side)	-	Main and Transfer Bus
3	Bongaigaon	400/220/33 kV	$26^0$30'0"	90°22'25.9"	1 & 1/2 Circuit Breaker(D-type)	Double Main (GIS)	-
4	Misa	400/220/33 kV	26008'51.3"	92°46'53.7"	1 & 1/2 Circuit Breaker(I-type)	Double Main Cum Transfer	-
5	Silchar	400/132/33 kV	24049'41"	92°43'14"	1 & 1/2 Circuit Breaker(I-type)	-	Main and Transfer Bus
6	Imphal	400/132/33 kV	24046'59.3"	93°52'13.6"	1 & 1/2 Circuit Breaker(I-type)	-	Main and Transfer Bus
7	Dimapur	220/132 kV	25053'7.4"	93°44'35"	-	Double Main Cum Transfer	Main and Transfer Bus
8	Mokokchung	220/132 kV	26016'37.8"	94°28'35.9"	-	Double Main Bus	Single Main Bus
9	Mariani (PG)	220 kV	26037'18.3"	94°19'43.6"	-	Double Main Cum Transfer	-
10	Salakati	220/132 kV	26027'56.3"	90°22'14.4"	-	Double Main and Transfer	Main and Transfer Bus
11	Aizawl	132 kV	23044'56.6"	92°40'46.5"	-	-	Main and Transfer Bus
12	Badarpur	132 kV	24052'8.1"	92°35'0"	-	-	Single Main and Transfer Bus
13	Haflong	132 kV	25011'59.3"	93°01'3.8"	-	-	Main and Transfer Bus
14	Khliehriat	132 kV	25020'44.3"	92°22'15.6"	-	-	Main and Transfer Bus
15	Kumarghat	132/33 kV	24008'44.9"	92°01'19"	-	-	Main and Transfer Bus
16	Jiribam	132/33 kV	24047'26"	93°07'42"	-	-	Main and Transfer Bus
17	Melriat	132 kV	23046'12.1"	93°39'32.7"	-	-	Single Main Bus
18	Namsai	132/33 kV	27041'34.0"	95°53'56.3"	-	-	Main and Transfer Bus
19	Nirjuli	132/33 kV	27007'35.3"	93°45'3.6"	-	-	Main and Transfer Bus
20	Roing	132/33 kV	27°55'52.7"	96°11'11.0"	-	-	Main and Transfer Bus
21	Tezu	132/33 kV	28°09'17.6"	95°49'58.1"	-	-	Main and Transfer Bus
22	Ziro	132/33 kV	27032'1.37"	93°50'99.3"	-	-	Main and Transfer Bus

Sl. No.	Name of Substation	Voltage Level	Geographical Co-ordination		Type of Scheme		
			Latitude	Longitude	400 kV	220 kV	132 kV
NEEPCO							
1	Ranganadi	400/132 kV	27º20' N	93º45'E	Double Main Bus	-	Double Main Bus
2	Kameng	400/132 kV	27º17'54"N	90º37'39" E			
2	AGBPP	220 kV	27º24'27"N	95º05'27" E	-	Double Main Bus	-
3	Kopili	220/132 kV	25º32'N	92º41'E	-	-	Single Main Bus
4	AGTCCPP	132 kV	23º52'35" N	91º22'20"E	-	-	Double Main Bus
5	Doyang	132 kV	26º13'47"N	94º15'58"E	-	-	Double Main Bus
6	Khandong	132 kV	25º32'N	92º41'E	-	-	Double Main Bus
7	Kopili Stg II	132 kV	25º32'N	92º41'E	-	-	Main and Transfer Bus
8	Khupi	132/33 kV	26º12'54.2"	92º40'50.4"	-	-	-
9	Monarchak	132 kV	23º26'26" N	91º17'00"E	-	-	Double Main Bus
10	Turial	132 kV	24º21.5' N	92º53.2' E	-	-	Double Main Bus
11	Pare	132 kV	27º12'46" N	93º48'30"E	-	-	Double Main Bus
NHPC							
1	Loktak	132 kV	28º9’17.6”	$95^0$49’58.1”	-	-	Main and Transfer Bus
OTPC							
1	Palatana	400/132 kV	23 º 29 ’ 42 ”	91º26’26.8 ”	1 and 1/2 Circuit Breaker (I-type)	-	Main and Transfer Bus
NTPC							
1	BgTPP	400/220 kV	26º 51'28"	90º 54'93"	Double Main and Transfer Bus	-	-
DoP, Arunachal Pradesh							
1	Along	132/33 kV	28°07'38.9" N	94°48'08.9" E	-	-	Main and Transfer Bus
2	Bhalukphong	132/33 kV	27°01'29.27" N	92°36'57.97" E	-	-	Main and Transfer Bus
3	Chimpu(Itanagar)	132/33 kV	27°04'26.15" N	93°36'40.36" E	-	-	Main and Transfer Bus
4	Daporizo	132/33 kV	27°59'09.96" N	94°13'18.119" E	-	-	Main and Transfer Bus
5	Deomali	220/132/33 kV	27°12'58.9" N	95°28'25.9" E	-	Double Main Bus	-
6	Lekhi	132/33 kV	27°06'55.2" N	93°32'42" E	-	-	Main and Transfer Bus
7	Pasighat	132/66/33 kV	28° 05’48’’ N	95° 17’38.2’’ E	-	-	Main and Transfer Bus

Sl. No.	Name of Substation	Voltage Level	Geographical Co-ordination		Type of Scheme		
			Latitude	Longitude	400 kV	220 kV	132 kV
AEGCL							
1	Azara	400/220 kV	N26 06.438	E91 33.738	1 & 1/2 Circuit Breaker	Double Main and Transfer Bus	Main and Transfer Bus
2	Agia	220/132/66/33 kV	N26 05.688	E90 33.929	-	Double Main Bus	Main and Transfer Bus
3	Boko	220/132/33 kV	N26 00.988	E91 10.981	-	Double Main Cum Transfer Bus	Main and Transfer Bus
4	BTPS	P&ED,Mizoram	N26 26.276	E90 21.530	-	Double Main and Transfer Bus	Double Main and Transfer Bus
5	Mariani	220/132/66/33 kV	N26 37.879	E94 20.130	-		Main and Transfer Bus
6	Samaguri	220/132/33 kV	N26 24.320	E92 50.426	-	Double Main Cum Transfer Bus	Single Main Bus
7	Jawhar Nagar	220/33 kV	N26 07.095	E91 49.254	-	Main and Transfer Bus	Main and Transfer Bus
8	Sarusajai	220/132/33 kV	N26 06.935	E91 45.220	-	Double Main Bus	Main and Transfer Bus
4	Sonabil	220/132 kV	N26 48.172	E92 49.436	-	Double Main Cum Transfer Bus	Main and Transfer Bus
10	Sonapur	220/132 kV	N26 07.904	E91 59.941	-	Main and Transfer Bus	Main and Transfer Bus
11	Tinsukia	220/132/66/33 kV	N27 28.947	E95 22.683	-	Double Main Cum Transfer Bus	Main and Transfer Bus
13	APM (Jogighopa)	132/33 kV	N26 14.982	E90 33.574	-	-	Main and Transfer Bus
14	Behiating	132/33 kV	N27 25.295	E94 55.211	-	-	Main and Transfer Bus
15	Baghjap	132/33 kV	N26 10.157	E92 13.479	-	-	Main and Transfer Bus
16	Bilasipara	132/33 kV	N26 15.791	E90 14.469	-	-	Main and Transfer Bus
17	Bokakhat	132/33 kV	N26 37.413	E93 39.371	-	-	Main and Transfer Bus
18	Bokajan	132/66/33 kV	N26 01.256	E93 45.682	-	-	Main and Transfer Bus
19	Bordubi	132/33 kV			-	-	
20	Bornagar	132/33 kV	N26 29.574	E90 54.308	-	-	Main and Transfer Bus
21	Depota (Tezpur)	132/33 kV	N26 40.170	E92 45.024	-	-	Main and Transfer Bus
22	Dhaligaon	132/33 kV	N26 30.601	E90 31.559	-	-	Main and Transfer Bus
23	Dhekiajuli	132/33 kV			-	-	Main and Transfer Bus
24	Dhemaji	132/33 kV	N27 26.356	E94 31.853	-	-	Main and Transfer Bus
25	Dibrugarh	132/33 kV	N27 28.527	E94 56.211	-	-	Main and Transfer Bus
26	Diphu	132/33 kV	N25 51.944	E93 26.452	-	-	Main and Transfer Bus
27	Dispur	132/11 kV	N26 08.676	E91 47.257	-	-	Single Main Bus
28	Dullavcherra	132/33 kV	N24 28.878	E93 26.397	-	-	Single Main Bus
29	Gauripur	132/33 kV	N26 05.704	E89 59.142	-	-	Main and Transfer Bus
30	Ghoramari	132/33 kV	26.8212° N	93.1968° E	-	-	Main and Transfer Bus
31	Gohpur	132/33 kV	N26 52.139	E93 35.366	-	-	Main and Transfer Bus
32	Golaghat	132/33 kV	N26 29.177	E93 58.528	-	-	Main and Transfer Bus
33	Gossaigaon	132/33 kV	N26 28.193	E90 00.628	-	-	Main and Transfer Bus
34	Haflong	132/33 kV	N25 11.956	E93 01.013	-	-	Main and Transfer Bus
35	Hailakandi	132/66/33 kV	N24 41.868	E92 31.434	-	-	Single Main Bus
36	Jorhat (West)	132/33 kV	N26 44.560	E94 14.671	-	-	Main and Transfer Bus
37	Jorhat (Garmur)	132/33 kV	N26 44.560	E94 14.671	-	-	Main and Transfer Bus

Sl. No.	Name of Substation	Voltage Level	Geographical Co-ordination		Type of Scheme		
			Latitude	Longitude	400 kV	220 kV	132 kV
38	Kamalpur	132/33 kV	N26 21.162	E91 42.900	-	-	Main and Transfer Bus
39	Kamakhya	132/33 kV			-	-	Main and Transfer Bus
40	Kahilipara	132/33 kV	N26 08.418	E91 45.541	-	-	Double Main Bus
41	Khaloigaon	132/33 kV			-	-	Main and Transfer Bus
42	Khumtai	132/66/33 kV			-	-	Main and Transfer Bus
43	Kokrajhar	132/33 kV	N26 23.607	E90 18.085	-	-	Main and Transfer Bus
44	Lanka (Sankardev Nagar)	132/33 kV	N25 59.273	E92 55.500	-	-	Main and Transfer Bus
45	Majuli	132/33 kV	N26 59.141	E94 10.154	-	-	Main and Transfer Bus
46	Margherita	132/33 kV	N27 17.706	E95 43.804	-	-	Main and Transfer Bus
47	Moran	132/33 kV	N27 08.662	E94 53.581	-	-	Main and Transfer Bus
48	Nalbari	132/33 kV	N26 28.042	E91 25.683	-	-	Main and Transfer Bus
49	Narengi	132/33 kV	N26 10.919	E91 49.522	-	-	Main and Transfer Bus
50	Nazira (Gargaon)	132/33 kV	N26 56.250	E94 44.693	-	-	Main and Transfer Bus
51	North Lakhimpur	132/33 kV	27.2253° N	94.1053° E	-	-	Main and Transfer Bus
52	Panchgram	132/33 kV	N24 52.343	E92 35.636	-	-	Main and Transfer Bus
53	Pailapool	132/33 kV	N24 50.790	E93 01.444	-	-	Double Main and Transfer
54	Pavoi	132/33 kV	26.7267° N	93.1479° E	-	-	Main and Transfer Bus
55	Rangia	132/33 kV	N26 27.161	E91 38.299	-	-	Main and Transfer Bus
56	Rowta	132/33 kV	N26 43.335	E92 11.438	-	-	Single Main Bus
57	Rupai(Doomdooma)	132/33 kV	N27 35.830	E95 34.039	-	-	Single Main Bus
58	Sibsagar	132/33 kV	N27 01.270	E94 40.331	-	-	Main and Transfer Bus
59	Sipajhar	132/33 kV	N26 25.302	E91 59.478	-	-	Main and Transfer Bus
60	Sisugram(Amingaon)	132/33 kV	N26 11.832	E91 41.952	-	-	Main and Transfer Bus
61	Sonari	132/33 kV	N27 01.829	E95 03.193	-	-	Main and Transfer Bus
62	Srikona	132/33 kV	N24 49.853	E92 43.904	-	-	Main and Transfer Bus
63	Umrangshu	132/33 kV	N25 30.845	E92 44.104	-	-	Main and Transfer Bus

APGCL

1	Langpi HEP	220 kV	N25 57.317	E92 31.031	-		Double Main Bus
2	Namrup TPS	220/132/66/33 kV	N27 11.088	E95 22.622	-	Double Main Cum Transfer Bus	Main and Transfer Bus
3	Lakwa TPS	132/33 kV	N26 59.198	E94 55.948	-		Main and Transfer Bus

Sl. No.	Name of Substation	Voltage Level	Geographical Co-ordination		Type of Scheme		
			Latitude	Longitude	400 kV	220 kV	132 kV
MSPCL							
1	Churachandpur (Kheljang)	132/33 kV	24^0 05’15”N	93^0 10’30”E	-	-	Main and Transfer Bus
1	Chandel	132/33 kV			-	-	Main and Transfer Bus
3	Elangkanpokpi	132/33 kV	24º26'21.51"N	93º55'59.54"E	-	-	Main and Transfer Bus
4	Imphal (Yurembam)	132/33 kV	24^0 47’ 13”N	93^0 51’ 23”E	-	-	Main and Transfer Bus
5	Hunding	132/33 kV	25^0 03’ 51” N	94^0 20’ 46” E	-	-	Main and Transfer Bus
6	Jiribam	132/33/11 kV	24^0 48’00”N	93^{0}06’00”E	-	-	Main and Transfer Bus
7	Kakching	132/33 kV	24^0 28’ 41”N	94^0 00’45”E	-	-	Main and Transfer Bus
8	Karong	132/33 kV	25^0 18’16”N	94^{0}09’40”E	-	-	Main and Transfer Bus
9	Kongba	132/33 kV	24^0 46’ 41”N	93^0 58’ 13”E	-	-	Main and Transfer Bus
10	Ningthoukhong	132/33 kV	24°34'02"N	93°45'46"E	-	-	Main and Transfer Bus
11	New Moreh	132/33 kV			-	-	Main and Transfer Bus
12	Rengpang	132/33/11 kV	24^0 45’00”N	93^0 25’00”E	-	-	Main and Transfer Bus
13	Thanlon	132/33 kV			-	-	Main and Transfer Bus
14	Thoubal	132/33 kV					Main and Transfer Bus
15	Tipaimukh	132/33 kV			-	-	Main and Transfer Bus
16	Yaingangpokpi	132/33 kV	24^0 54’40”N	94^{0}07’34”E	-	-	Main and Transfer Bus
MePTCL							
1	Byrnihat (Killing)	400/220/132 kV	26°-03'-57" N	92°-16'-128" E	-	Double Main and Transfer Bus	Main and Transfer Bus
2	Cherrapunjee	132/33 kV	25° - 15' - 15" N	91° - 42' - 30" E	-	-	Single Main Bus
3	EPIP I	132/33 kV	26°- 26.0237 " N	91° - 14.762" E	-	-	Single Main Bus
4	EPIP II (Norbong)	132/33 kV	25° - 27.513" N	91° - 42.332" E	-	-	Single Main Bus
5	Khliehriat	132/33 kV	25° - 22' - 15.52" N	92°-22'-26.29" E	-	-	Single Main Bus
6	Lumshnong	132/33/11 kV	25° - 10' - 33.7" N	92° - 23' - 38.6" E	-	-	Single Main Bus
7	Mendipather	132/33 kV	25°898 N	90°647 E	-	-	Main and Transfer Bus
8	Mustem	132/33 kV	25°24'22.69" N	92°11'53.69" E	-	-	Single Main Bus
9	Nangalbibra	132/33 kV	25°30.795 N	90°12.759 E	-	-	Single Main Bus
10	NEHU	132/33 kV	25° - 34' - 51" N	91° - 53' - 15" E	-	-	Main and Transfer Bus
11	NEIGRIHMS	132/33 kV	25° - 35' - 32" N	91° - 56' - 28" E	-	-	Single Main Bus
12	Nongstoin	132/33 kV	25° - 30.560" N	91° - 14.762" E	-	-	Single Main Bus
13	Mawlai	132/33/11 kV	25° - 35' - 26" N	91° - 51' - 51" E	-	-	Single Main Bus
14	Mawlyndep	132/33/11 kV	-	-	-	-	Single Main Bus
15	Mwangap(Mawphlang)	132/33 kV	25° - 27.769" N	91° - 45.601" E	-	-	-
16	Tura	132/33 kV	25°32.852 N	90°13.923 E	-	-	Single Main Bus

Sl. No.	Name of Substation	Voltage Level	Geographical Co-ordination		Type of Scheme		
			Latitude	Longitude	400 kV	220 kV	132 kV
MePGCL							
1	Myntdu Leshka	132 kV	25° - 17'	92° - 30'	-	-	Double Main Bus
2	Umiam	132/33 kV	25° - 40.054" N	91° - 54.597" E	-	-	Single Main Bus
3	Umiam Stg I	132 kV	25° - 42' - 2" N	91° - 52' - 20" E	-	-	Main and Transfer Bus
4	Umiam Stg II	132 kV	25° - 42' - 47" N	91° - 51' - 30" E	-	-	Main and Transfer Bus
5	Umiam Stg III	132 kV	25° - 47' - 5" N	91° - 47' - 22" E	-	-	Main and Transfer Bus
6	Umiam Stg IV	132 kV	25° - 50' - 19" N	91° - 44' - 40" E	-	-	Main and Transfer Bus
7	Umtru	132/33 kV	26° - 50' - 55" N	91° - 49' - 15" E	-	-	Main and Transfer Bus
8	New Umtru	132/33 kV	26° - 50' - 19" N	91° - 49' - 10" E		-	Main and Transfer Bus
Meghalaya Captive Power Plants							
1	Adhunik Cement	132 kV	25° - 11' - 21.3" N	92° - 21' - 49" E	-	-	
2	CMCL	132 kV	25°10'35.95" N	92°23'31.83" E	-	-	
3	Hill Cement	132 kV	25°13'36.47" N	92°23'12.58" E	-	-	
4	JUD Cement	132 kV	25°11'13.78" N	92°23'58.4" E	-	-	
5	Maithan	132 kV	26°1'14.38" N	91°50'42.1" E	-	-	
6	MCL	132 kV	25°12'11.8" N	92°23'10.0" E	-	-	
7	MPL	132 kV	25°10'36.00" N	92°23'50.40" E	-	-	
8	Nalari	132 kV	26°1'0.24" N	91°49'51.20" E	-	-	
9	Sai Prakash	132 kV	26°3'4.09" N	91°52'4.42" E	-	-	
10	Shyam Century	132 kV	26°1'42.36" N	91°50'57.00" E	-	-	
P&ED, Mizoram							
1	Bairabi	132/33 kV	24°11’53.9’N	92°32’35.2”E	-	-	Main and Transfer Bus
2	Champai	132/33 kV	23°44’54’N	93°17’80”E	-	-	
3	Khazawl	132/33 kV	23°30’01.1”N	93°11’55.5”E	-	-	Single Main Bus
4	Kolasib (Bawklang)	132/66/33 kV	24°14’24.6”N	92°41’41.3”E	-	-	Main and Double Transfer Bus
5	Longmol	132/33/11 kV	23°44’39.6”N	92°41’00.5”E	-	-	Single Main Bus
6	Lunglei	132/33 kV	22°55’06”N	92°46’58.4”E	-	-	Main and Transfer Bus
7	Saitual	132/33/11 kV	23°39’29.1”N	92°57’30.3”E	-	-	Single Main Bus
8	Serchip	132/33 kV	23°21’22.0’N	92°50’20.8’E	-	-	Main and Transfer Bus
9	Sinhmui	132/33 kV			-	-	Main and Double Transfer Bus
10	Zungtui (Zemabawk)	132/33/11 kV	23°45’05.6”N	92°44’25.9”E	-	-	Main and Transfer Bus

Sl. No.	Name of Substation	Voltage Level	Geographical Co-ordination		Type of Scheme		
			Latitude	Longitude	400 kV	220 kV	132 kV
DoP, Nagaland							
1	Dimapur	132/66/33/11 kV	25°88'40.8"N	93°73'80.04"E	-	-	Main and Transfer Bus
2	Kiphire	132/66/33 kV	25°88'14.75"N	94°77'83.72"E	-	-	Single Main Bus
3	Kohima	132/33/11 kV	25°65'51.75"N	94°09'41.89"E	-	-	Main and Transfer Bus
4	Meluri	132/33 kV	25°68'29.19"N	94°26'98.05"	-	-	Single Main Bus
5	Mokokchung	132/66/33 kV	26°17'07.59"N	94°28'44.94"	-	-	Main and Transfer Bus
6	Sanis	132/33 kV			-	-	Main and Transfer Bus
7	Wokha	132/33 kV	26°07'54.40"N	94°26'18.2"E	-	-	Single Main Bus
TSECL							
1	Agartala (79 Tilla)	132/33/11 kV	23° 51' 59.1"	091°17' 48.9"	-	-	Main and Transfer Bus
2	Ambasa	132/33/11 kV	23° 55' 16.6"	091°50' 16.6"	-	-	Single Main Bus
3	Bodhjungnagar	132/33 kV	23° 45' 09.5"	091°18' 10.0"	-	-	Main and Transfer Bus
4	Dhalabil	132/33/11 kV	24° 03' 07.8"	091°34' 45.0"	-	-	Main and Transfer Bus
5	Dharmanagar (Mission Tilla)	132/33/11 kV	24° 21' 43.8"	092°11' 32.2"	-	-	Main and Transfer Bus
6	Jirania	132/33/11 kV	23° 49' 09.9"	91°25' 55.2"	-	-	Single Main Bus
7	Kamalpur	132/11 kV	24° 10' 23.3"	91°48' 52.5"	-	-	Main and Transfer Bus
8	Kailasohar	132/33/11 kV	24° 27' 34.0"	92°01' 55.7"	-	-	Main and Transfer Bus
9	P K Bari	132/33/11 kV	24° 08' 11.4"	92°00' 38.4"	-	-	Main and Transfer Bus
10	Rabindranagar	132/66/33/11 kV	24° 08' 11.4"	92°00' 38.4"	-	-	Single Main Bus
11	Surajmani Nagar	132/33 kV	23° 45' 09.5"	092°18' 10.0"	-	-	Double Main and Transfer Bus
12	Teliamura (Gamaitilla)	132/66/33/11 kV	N-23.49.602'	E- 91.38.480'	-	-	
13	Udaipur (Banduar)	132/66/33/11 kV	23° 31' 54.1"	091°30' 59.9"	-	-	Main and Transfer Bus
TPGL							
1	Baramura	132/66 kV	23°48'36.4"	91°33'88.2"	-	-	Main and Transfer Bus
2	Rokhia	132/66 kV	23° 27' 30.5"	91°16' 18.8"	-	-	Main and Transfer Bus

List of Lines in North Eastern Regional Grid

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
A. International Lines																					
a. 400 kV Lines (Charged at 132 kV)																					
1	South Comilla (Bangladesh) - Surajmani Nagar	1	D/C	Vertical	PGCB	TSECL	47.0	ACSR Twin Moose(India) and twin finch (Bangladesh)	POWERGRID & PGCB	141	3(India)	61(India)	NA	Porcelain		0	OPGW	61	273	4	Drawl Capability of South Comilla Area of Bangladesh
2	South Comilla (Bangladesh) - Surajmani Nagar	2	D/C	Vertical	PGCB	TSECL	47.0	ACSR Twin Moose(India) and twin finch (Bangladesh)	POWERGRID & PGCB	141	3(India)	61(India)	NA	Porcelain		0	Ground Wire	61	273	4	
b. 132 kV Line																					
1	Gelyphu (Bhutan) - Salakati	1	S/C		BPCL	POWERGRID	49.2		POWERGRID	156				Polymer	90KN & 70KN	9.84	OPGW	48	79	3	Injection Capability of Kurichu/ Drawl Capability of Eastern Bhutan
2	Motonga (Bhutan) - Rangia	1	S/C		BPCL	AEGCL	49.0	ACSR Panther	POWERGRID					Porcelain		9.8	partly OPGW partly Ground Wire	48	79	2	
c. 11 kV Line																					
1	Moreh - Tamu (Myanmar)	1	S/C		MSPCL	ESE, Myanmar	5.3	ACSR Rabbit Conductor	MSPDCL & ESE, Myanmar					Porcelain		3 (Owned by Manipur)					Black out of Part of Myanmar
B. +/- 800 kV HVDC Lines																					
1	Agra - Biswanath Chariali	Pole 1	D/C	Vertical	POWERGRID	POWERGRID	1728.0	Hexa Lapwing	POWERGRID	122	53	69		Antifog Porcelain	420/ 210	0	Ground Wire	-	6073	-	Simultaneous TTC of NR-NER & NER-ER corridor
2	Agra - Biswanath Chariali	Pole 2	D/C	Vertical	POWERGRID	POWERGRID	1728.0	Hexa Lapwing	POWERGRID	122	53	69		Antifog Porcelain	420/ 210	0	OPGW	-	6073	-	

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
C. 400 kV Lines																					
1	Azara - Bongaigaon	1	D/C		AEGCL	POWERGRID	162.9	ACSR Twin Moose	NETC(1.8%) & AEGCL (98.2%)								Ground Wire	560	826	98	TTC of NER- ER Corridor
2	Azara - Silchar	1	D/C		AEGCL	POWERGRID	256.0	ACSR Twin Moose	NETC(37.5%) & AEGCL(62.5%)								Ground Wire	560	826	154	TTC of NER- ER Corridor and Southern part of NER, Injection capability of Palatana, Loktak & AGTCCPP
3	Balipara - Biswanath Chariali	1	D/C	Vertical	POWERGRID	POWERGRID	60.0	ACSR Twin Moose	POWERGRID	74	39	35		Porcelain	160/ 120	0	Ground Wire	560	826	36	Reliability of NER Grid
4	Balipara - Biswanath Chariali	2	D/C	Vertical	POWERGRID	POWERGRID	60.0	ACSR Twin Moose	POWERGRID	74	39	35		Porcelain	160/ 120	0		560	826	36	
5	Balipara - Biswanath Chariali	3	D/C	Vertical	POWERGRID	POWERGRID	57.1	ACSR Twin Moose	POWERGRID	66	31	35		Porcelain	160/ 120	0		560	826	34	
6	Balipara - Biswanath Chariali	4	D/C	Vertical	POWERGRID	POWERGRID	57.1	ACSR Twin Moose	POWERGRID	66	31	35		Porcelain	160/ 120	0		560	826	34	
7	Balipara - Bongaigaon	1	D/C		POWERGRID	POWERGRID	289.7	ACSR Twin Moose	POWERGRID	777				Porcelain	160KN&90KN	0	Ground Wire	560	826	174	
8	Balipara - Bongaigaon	2	D/C		POWERGRID	POWERGRID	289.7	ACSR Twin Moose	POWERGRID	777				Porcelain	160KN&90KN	0	OPGW	560	826	174	Reliability of NER Grid
9	Balipara - Bongaigaon	3	D/C		POWERGRID	POWERGRID	304.6	ACSR Quad Moose	POWERGRID	835				Porcelain	160KN&90KN	3	OPGW	681	1653	223	
10	Balipara - Bongaigaon	4	D/C		POWERGRID	POWERGRID	304.6	ACSR Quad Moose	POWERGRID	835				Porcelain	160KN&90KN	3		681	1653	223	

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
C. 400 kV Lines																					
11	Balipara - Misa	1	D/C		POWERGRID	POWERGRID	95.9	ACSR Twin Moose	POWERGRID	256	177	79	NA	Porcelain	160 & 120 KN	0	OPGW	560	826	58	TTC of NER- ER Corridor
12	Balipara - Misa	2	D/C		POWERGRID	POWERGRID	95.9	ACSR Twin Moose	POWERGRID	256	177	79	NA	Porcelain	160 & 120 KN	0	OPGW	560	826	58	
13	Biswanath Chariali - Ranganadi	1	D/C	Vertical	POWERGRID	NEEPCO	131.0	ACSR Twin Moose	POWERGRID	172	108	64		Porcelain	160/ 120	10	OPGW	560	826	79	Reliability of Ranganadi System, Ziro & Capital Areas of Arunachal Pradesh & Gohpur area of Assam
14	Biswanath Chariali - Ranganadi	2	D/C	Vertical	POWERGRID	NEEPCO	131.0	ACSR Twin Moose	POWERGRID	172	108	64		Porcelain	160/ 120	10	Ground Wire	560	826	79	
15	Bongaigaon - Byrnihat	1	D/C		POWERGRID	MePTCL	203.5	ACSR Twin Moose	NETC(97.91 %) & MePTCL(2.09%)							0		560	826	123	TTC of NER- ER Corridor
16	New Siliguri - Bongaigaon	1	D/C		POWERGRID	POWERGRID	218.0	ACSR Twin Moose	POWERGRID							0		560	826	131	Reliability of NER Grid
17	New Siliguri- Bongaigaon	2	D/C		POWERGRID	POWERGRID	218.0	ACSR Twin Moose	POWERGRID							0		560	826	131	
18	Alipurduar - Bongaigaon	1	D/C		POWERGRID	POWERGRID	106.0	ACSR Quad Moose	ENICL							0		681	1653	78	
19	Alipurduar - Bongaigaon	2	D/C		POWERGRID	POWERGRID	106.0	ACSR Quad Moose	ENICL							0		681	1653	78	
20	BgTPP - Bongaigaon	1	D/C		NTPC	POWERGRID	3.1	ACSR Twin Moose	POWERGRID	11	0	11		Polymer Long Rod	160KN& 90KN	0	OPGW	560	826	2	Reliability of BgTPP System
21	BgTPP - Bongaigaon	2	D/C		NTPC	POWERGRID	3.1	ACSR Twin Moose	POWERGRID	11	0	11		Polymer Long Rod	160KN& 90KN	0	Ground Wire	560	826	2	
22	Byrnihat - Silchar	1	D/C		MePTCL	POWERGRID	217.0	ACSR Twin Moose	NETC(98.06%)& MePTCL(1.94%)							0		560	826	131	TTC of NER- ER Corridor and Southern part of NER, Injection capability of Palatana, Loktak & AGTCCPP
23	Pallatana - Silchar	1	D/C		OTPC	POWERGRID	247.0	ACSR Twin Moose	NETC					Porcelain disc insulator		-		560	826	149	Reliability of Palatana System
24	Pallatana - Silchar	2	D/C		OTPC	POWERGRID	247.0	ACSR Twin Moose	NETC					Porcelain disc insulator		-		560	826	149	

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
D. 400 kV Lines (Charged at 220 kV)																					
25	Imphal - Silchar	1	D/C		POWERGRID	POWERGRID	166.5	ACSR Twin Moose	POWERGRID	104.0	3.0	101.0	No	Porcelain	160KN	133.2	OPGW	560	826	100	Reliability of Manipur system
26	Imphal - Silchar	2	D/C		POWERGRID	POWERGRID	166.5	ACSR Twin Moose	POWERGRID	104.0	3.0	101.0	No	Porcelain	160KN	133.2	Ground Wire	560	826	100	
27	Balipara - Kameng	1	D/C		POWERGRID	NEEPCO	57.2	ACSR Twin Moose	POWERGRID												Reliability of Kameng system
28	Balipara - Kameng	2	D/C		POWERGRID	NEEPCO	57.2	ACSR Twin Moose	POWERGRID												
1	AGBPP - Mariani	1	D/C		POWERGRID	POWERGRID	48.8	ACSR Zebra	POWERGRID	161.0	1.0	160.0	Nil	Porcelain	120 KN	48.8	OPGW	131	202	7	Reliability of AGBPP System
2	AGBPP - Mariani(PG)	2	D/C		POWERGRID	POWERGRID	48.8	ACSR Zebra	POWERGRID	161.0	1.0	160.0	Nil	Porcelain	120 KN	48.8	OPGW	131	202	7	
3	Mariani - Misa	1	S/C		AEGCL	POWERGRID	220.0	ACSR Twin Moose	POWERGRID	452.0	235.0	217.0	NA	Porcelain	160 & 120 KN	66.0	Ground Wire	169	454	40	
4	Mariani (PG) - Misa	1	S/C		POWERGRID	POWERGRID	222.7	ACSR Twin Moose	POWERGRID	452.0	235.0	217.0	NA	Porcelain	160 & 120 KN	66.8	Ground Wire	169	454	41	
E. 400 kV Lines (Charged at 132 kV)																					
1	Silchar-Melriat	1	D/C		POWERGRID	POWERGRID	143.0	ACSR Twin Moose	POWERGRID	438.0	67.0	371.0	NA	Porcelain	160 kN	95.3	OPGW				Reliability of Melriat area of Mizoram
2	Silchar-Melriat	2	D/C		POWERGRID	POWERGRID	143.0	ACSR Twin Moose	POWERGRID	438.0	67.0	371.0	NA	Porcelain	160 kN	95.3	Ground Wire				
3	P K Bari - Silchar	1	D/C		TSECL	POWERGRID	127.2	ACSR Twin Moose	POWERGRID	215.0	96.0	119.0		Porcelain			Ground Wire	61	273	8	Reliability of Tripura system
4	P K Bari - Silchar	2	D/C		TSECL	POWERGRID	127.2	ACSR Twin Moose	POWERGRID					Porcelain			Ground Wire	61	273	8	
5	Palatana - Surjamaninagar	1	D/C	Vertical	OTPC	TSECL	37.2	ACSR - TWIN MOOSE	POWERGRID	115.0	25.0	90.0	NA	Porcelain disc insulator		7.4	Ground Wire	66	79	2	Reliability of Comilla Area of Bangladesh
1	AGBPP - Deomali	1	S/C		NEEPCO	DoP,Arunachal Pradesh	19.0	ACSR Zebra	DoP, Arunachal Pradesh									131	202	3	Blackout of Deomali Area of Arunachal Pradesh
2	AGBPP - Tinsukia	1	S/C		NEEPCO	AEGCL	24.6	AAAC Zebra	AEGCL							-	Ground Wire	131	201	3	Reliability of Upper Assam Area
3	AGBPP - Tinsukia	2	S/C		NEEPCO	AEGCL	24.6	AAAC Zebra	AEGCL							-	Ground Wire	131	201	3	
4	Agia - Azara	1	D/C		AEGCL	AEGCL	107.0	AAAC Zebra	AEGCL							-	OPGW	131	201	15	Reliability of Capital area of Assam & Mendipathar area of Meghalaya

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
F. 220 kV Lines																					
5	Agia - Boko	1	D/C		AEGCL	AEGCL	70.0	AAAC Zebra	AEGCL							-	OPGW	131	201	10	
6	Agia - BTPS	1	D/C		AEGCL	AEGCL	62.5	AAAC Zebra	AEGCL							-	OPGW	131	201	9	
7	Agia - BTPS	2	D/C		AEGCL	AEGCL	62.5	AAAC Zebra	AEGCL							-	OPGW	131	201	9	
8	Azara - Boko	1	D/C		AEGCL	AEGCL	38.0	AAAC Zebra	AEGCL							-	OPGW	131	201	5	
9	Azara - Sarusajai	1	D/C		AEGCL	AEGCL	24.0	AAAC Zebra	AEGCL							-	OPGW	131	201	3	
F. 220 kV Lines																					
10	Azara - Sarusajai	2	D/C		AEGCL	AEGCL	24.0	AAAC Zebra	AEGCL							-	OPGW	131	201	3	
11	Alipurduar - Salakati	1	D/C		POWERGRID	POWERGRID	106.0	ACSR Zebra	POWERGRID									131	202	15	Reliability of NER Grid
12	Alipurduar - Salakati	2	D/C		POWERGRID	POWERGRID	106.0	ACSR Zebra	POWERGRID									131	202	15	
13	Balipara - Sonabil	1	S/C		POWERGRID	AEGCL	10.0	ACSR Zebra	AEGCL					Porcelain		0.0	Ground Wire	131	202	1	TTC of NER- ER Corridor
14	Bongaigaon-Salakati	1	D/C		POWERGRID	POWERGRID	0.6	ACSR Twin Moose	POWERGRID	2.0	0.0	2.0			160KN				516	13	Reliability of NER Grid
15	Bongaigaon-Salakati	2	D/C		POWERGRID	POWERGRID	0.6	ACSR Twin Moose	POWERGRID	2.0	0.0	2.0			160KN				516	13	
16	BTPS - Rangia	1	D/C	Vertical	AEGCL	AEGCL	163.2	AAAC Zebra	AEGCL	508.0	242.0	266.0	No	Porcelain	120 kN,90 kN	NA	Ground Wire				Reliability of NER Grid
17	BTPS - Rangia	2	D/C	Vertical	AEGCL	AEGCL	163.2	AAAC Zebra	AEGCL	508.0	242.0	266.0	No	Porcelain	120 kN,90 kN	NA	Ground Wire				
18	BTPS - Salakati	1	D/C		AEGCL	POWERGRID	2.7	ACSR Zebra	POWERGRID	15.0	5.0	10.0		Polymer Long Rod	120KN&90KN	0.0	Ground Wire	131	202	11	Reliability of Capital area & Dhaligaon area of Assam & Mendipathar area of Meghalaya
19	BTPS - Salakati	2	D/C		AEGCL	POWERGRID	2.7	ACSR Zebra	POWERGRID	15.0	5.0	10.0		Polymer Long Rod	120KN&90KN	0.0	Ground Wire	131	202	11	
20	Dimapur - Misa	1	D/C		POWERGRID	POWERGRID	123.5	ACSR Zebra	POWERGRID	382.0	167.0	215.0		Porcelain		61.8	OPGW	131	202	17	Reliability of Nagaland System
21	Dimapur - Misa	2	D/C		POWERGRID	POWERGRID	123.5	ACSR Zebra	POWERGRID	382.0	167.0	215.0		Porcelain		61.8	OPGW	131	202	17	
22	Jawaharnagar - Samaguri	1	D/C		AEGCL	AEGCL	119.0	AAAC Zebra	AEGCL					NA			OPGW	131	201	17	Reliability of Capital Area of Assam

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
F. 220 kV Lines																					
23	Jawaharnagar - Sarusajai	1	D/C		AEGCL	AEGCL	11.0	AAAC Zebra	AEGCL					NA			OPGW	131	201	2	
24	Karbi Langpi - Sarusajai	1	S/C		APGCL	AEGCL	108.0	AAAC Zebra	AEGCL					NA			Ground Wire	131	201	15	Reliability of Karbi Langpi System
25	Karbi Langpi - Sarusajai	2	S/C		APGCL	AEGCL	108.0	AAAC Zebra	AEGCL					NA			Ground Wire	131	201	15	
26	Byrnihat - Misa	1	S/C		MePTCL	POWERGRID	113.4	ACSR Zebra	MePTCL									131	202	16	Reliability of Meghalaya system
27	Byrnihat - Misa	2	S/C		MePTCL	POWERGRID	113.4	ACSR Zebra	MePTCL									131	202	16	
28	Kopili - Misa	1	D/C		NEEPCO	POWERGRID	73.0	ACSR Zebra	POWERGRID	214.0	169.0	45.0		Porcelain		29.2	OPGW	131	202	10	Reliability of Southern part of NER Grid, Kopili & Khandong systems
29	Kopili - Misa	2	D/C		NEEPCO	POWERGRID	73.0	ACSR Zebra	POWERGRID	214.0	169.0	45.0		Porcelain		29.2	OPGW	131	202	10	
30	Kopili - Misa	3	S/C		NEEPCO	POWERGRID	75.8	ACSR Zebra	POWERGRID	228.0	154.0	74.0		Porcelain		30.3	Ground Wire	131	202	11	
31	Mariani (AEGCL) - Samaguri	1	S/C		AEGCL	AEGCL	168.0	ACSR Deer	AEGCL								OPGW	131	202	24	Reliability of Samaguri Area of Assam
32	Mariani (PG) - Mokokchung (PG)	1	D/C		POWERGRID	POWERGRID	48.8	ACSR Zebra	POWERGRID					Porcelain		48.8	OPGW	131	202	7	Reliability of DoP, Nagaland System
33	Mariani (PG) - Mokokchung (PG)	2	D/C		POWERGRID	POWERGRID	48.8	ACSR Zebra	POWERGRID					Porcelain		48.8	OPGW	131	202	7	
34	Misa - Samaguri	1	D/C		POWERGRID	AEGCL	34.4	ACSR Zebra	POWERGRID	110.0	78.0	32.0		Porcelain		0.0	OPGW	131	202	5	Reliability of Capital Area & Samaguri Area, Assam
35	Misa - Samaguri	2	D/C		POWERGRID	AEGCL	34.4	ACSR Zebra	POWERGRID	110.0	78.0	32.0		Porcelain		0.0	OPGW	76	202	5	
36	NTPS - Tinsukia	1	D/C		AEGCL	AEGCL	39.8	ACSR Zebra	AEGCL								OPGW	76	202	6	Reliability of NTPS System
37	NTPS - Tinsukia	2	D/C		AEGCL	AEGCL	39.8	ACSR Zebra	AEGCL								OPGW	76	202	6	
38	Samaguri - Sonapur	1	D/C		AEGCL	AEGCL	143.0	AAAC Zebra	AEGCL								OPGW	76	201	20	Reliability of Capital Area of Assam
39	Sarusajai-Sonapur	1	D/C		AEGCL	AEGCL	108.0	AAAC Zebra	AEGCL												

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
F. 220 kV Lines																					
40	Samaguri - Sonabil	1	S/C		AEGCL	AEGCL	56.0	ACSR Zebra	AEGCL								OPGW	76	202	8	Reliability of Capital Area & Samaguri Area, Assam
41	Samaguri - Sonabil	2	S/C		AEGCL	AEGCL	56.0	ACSR Zebra	AEGCL								OPGW	76	202	8	
G. 132 kV Lines																					
1	Agartala - AGTCCPP	1	D/C	Vertical	TSECL	NEEPCO	8.4	HTLS Panther	POWERGRID	30.0	7.0	23.0	NA	Polymer		0.0	OPGW	66	103	0	Reliability of AGTCCPP System
2	Agartala - AGTCCPP	2	D/C	Vertical	TSECL	NEEPCO	8.4	HTLS Panther	POWERGRID	30.0	7.0	23.0	NA	Polymer		0.0	OPGW	66	103	0	
3	Agartala - Bodhjannagar	1	S/C		TSECL	TSECL	8.0	AAAC Panther	TSECL					120 KN Porcelain ball & socket type Disc Insulator		0.0	Ground wire 7/3.15 mm	66	103	0	Reliability in Tripura system
4	Agartala - Dhalabil	1	S/C		TSECL	TSECL	45.0	AAAC Panther	TSECL					121 KN Porcelain ball & socket type Disc Insulator		13.5	Ground wire 7/3.15 mm	66	103	2	
5	Agartala - Rokhia	1	D/C		TSECL	TSECL	35.0	ACSR Panther	TSECL					122 KN Porcelain ball & socket type Disc Insulator		3.5	Ground wire 7/3.15 mm	66	79	2	Reliability of Rokhia System
6	Agartala - Rokhia		D/C		TSECL	TSECL	35.0	ACSR Panther	TSECL					123 KN Porcelain ball & socket type Disc Insulator		3.5	Ground wire 7/3.15 mm	66	79	2	
7	Agia - Mendipathar	1	S/C		AEGCL	MePTCL	31.3	ACSR Panther	MePTCL									66	79	2	Reliability of Mendipathar Area of Meghalaya
8	AGTCCPP - Kumarghat	1	S/C		NEEPCO	POWERGRID	7.8	ACSR Panther	POWERGRID					Porcelain		6.2	OPGW	66	79	0	Reliability of AGTCCPP System

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G. 132 kV Lines																					
9	Aizawl - Tipaimukh	1	S/C	Horizontal	POWERGRID	MSPCL	95.6	ACSR Panther	POWERGRID & MSPCL	216.0	0.0	216.0	37 nos. of TLSA, Make-Oblum	Polymer Long Rod	90 KN	95.6	Ground Wire	66	79	5	
10	Aizawl - Kolasib	1	S/C	Horizontal	POWERGRID	P&ED, Mizoram	66.1	AAAC Panther	POWERGRID	185.0	1.0	184.0	09 nos. of TLSA, Make-Oblum	Polymer Long Rod	Tension Tower-90 KN, Suspension Tower- 70 KN	66.1	OPGW	66	79	3	Reliability of P&ED, Mizoram system
11	Aizawl - Kumarghat	1	S/C	Horizontal	POWERGRID	POWERGRID	132.9	ACSR Panther	POWERGRID	208.0	10.0	198.0	30 nos. of TLSA, Make-Oblum	Polymer Long Rod	Tension Tower-90 KN, Suspension Tower- 70 KN	132.9	OPGW	66	79	7	
12	Aizawl - Luangmual	1	S/C	Horizontal	POWERGRID	P&ED, Mizoram	0.8	ACSR Panther	P&ED, Mizoram	5.0	0.0	5.0	0.0	Porcelain	90 KN	0.8	Ground Wire	66	79	0	Blackout of Luangmual Area of P&ED, Mizoram
13	Aizawl - Melriat(PG)	1	S/C		POWERGRID	POWERGRID	6.7	ACSR Panther	POWERGRID	23	0	23		Porcelain	90 kN	6.7	OPGW				Reliability of P&ED, Mizoram System
14	Ambasa - Gamaitila	1	S/C		TSECL	TSECL	25.0	AAAC Panther	TSECL					124 KN Porcelain ball & socket type Disc Insulator		22.5	Ground wire 7/3.15 mm	66	103	1	
15	Ambasa - Kamalpur	1	S/C		TSECL	TSECL	31.0	ACSR Panther	TSECL					125 KN Porcelain ball & socket type Disc Insulator		9.3	Ground wire 7/3.15 mm	66	79	2	Reliability in Tripura system
16	Ambasa - P K Bari	1	S/C		TSECL	TSECL	45.0	AAAC Panther	TSECL					126 KN Porcelain ball & socket type Disc Insulator		42.8	Ground wire 7/3.15mm	66	103	2	

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
17	Azara-Mirza	1	S/C on D/C Tower		AEGCL	AEGCL	5.6 KM	AAAC	AEGCL	29.0	1.0	28.0		Porceline	90KN/70KN		Ground wire				
18	Badarpur - Jiribam	1	S/C		POWERGRID	POWERGRID	67.2	AAAC Panther	POWERGRID					Porcelain		13.4	OPGW	66	103	3	Reliabity of South Part of NER Grid
19	Badarpur - Kolasib	1	S/C		POWERGRID	P&ED, Mizoram	107.2	AAAC Panther	POWERGRID	358.0	124.0	234.0		Polymer Long Rod		29.233 Km	OPGW	66	103	5	Reliabilty of Mizoram system
20	Badarpur - Kumarghat	1	S/C		POWERGRID	POWERGRID	118.5	AAAC Panther	POWERGRID	245.0	158.0	87.0		Porcelain		14.034 Km	OPGW	66	103	6	Reliability of AGTCCPP System & Tripura System
21	Badarpur - Panchgram	1	S/C		POWERGRID	AEGCL	1.0	AAAC Panther	POWERGRID	6.0	0.0	6.0		Polymer Long Rod		1.023Km	OPGW	66	103	0	Reliabity of South Assam Area
22	Badarpur - Silchar	1	D/C		POWERGRID	POWERGRID	19.2	ACSR Panther	POWERGRID					Porcelain		1.9	OPGW under installation	66	79	1	
23	Badarpur - Silchar	2	D/C		POWERGRID	POWERGRID	19.2	ACSR Panther	POWERGRID					Porcelain		1.9	OPGW under installation	66	79	1	
24	Balipara-Tenga	1	SC-51.5 DC-21.5	VERTICAL	NEPCO SC	DEPL DC	73.0	PANTHER & SPECIAL DEER	NEPCO(SC) DEPL(DC)	SC-170 DC-59	DC-59	NIL		POLYMER	120kN	73.0	SC-GW DC-OPGW			4	
28	Baramura - Gamaitilla	1	S/C		TSECL	TSECL	14.0	AAAC Panther	TSECL					127 KN Porcelain ball & socket type Disc Insulator		7.5	Ground wire 7/3.15 mm	66	103	1	Reliability in Tripura system
29	Baramura - Jirania	1	S/C		TSECL	TSECL	12.6	AAAC Panther	TSECL					128 KN Porcelain ball & socket type Disc Insulator		7.5	Ground wire 7/3.15 mm	66	103	1	
30	Bhalukpong - Khupi	1	S/C		DoP, Arunachal Pradesh	NEEPCO	67.0	ACSR Panther	NEEPCO & DoP, Arunachal Pradesh										79	3	Blackout of Khupi Area of Arunachal Pradesh
31	Biswanath Chariali - Pavoi	1	D/C	Vertical	POWERGRID	AEGCL	12.9	ACSR Panther	POWERGRID	55.0	14.0	41.0		Porcelain	90/ 70	0.0	Ground Wire	66	79	1	Reliability of Pavoi Area of Assam

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
32	Biswanath Chariali - Pavoi	2	D/C	Vertical	POWERGRID	AEGCL	12.9	ACSR Panther	POWERGRID	55.0	14.0	41.0		Porcelain	90/ 70	0.0	Ground Wire	66	79	1	
33	Pavoi - Sonabil	1	S/C		AEGCL	AEGCL	39.0	ACSR Panther	AEGCL									66	79	2	Reliability of Pavoi area of Assam
34	Bodhjannagar - Jirania	1	S/C		TSECL	TSECL	13.5	AAAC Panther	TSECL					129 KN Porcelain ball & socket type Disc Insulator			Ground wire 7/3.15mm	66	103	1	Reliability in Tripura system
35	Bokajan - Dimapur	1	S/C		AEGCL	POWERGRID	26.4	ACSR Panther	AEGCL								Ground Wire	66	79	1	Reliability of Nagaland system
36	Bokajan - Golaghat	1	S/C		AEGCL	AEGCL	15.0	ACSR Panther	AEGCL								Ground Wire	66	79	1	
37	BTPS - Dhaligaon	1	D/C		AEGCL	AEGCL	21.5	ACSR Panther	AEGCL								OPGW	66	79	1	Reliability of Dhaligaon Area of Assam
38	BTPS - Dhaligaon	2	D/C		AEGCL	AEGCL	21.5	ACSR Panther	AEGCL								OPGW	66	79	1	
39	Budhjangnagar - Surjamaninagar	1	D/C		TSECL	TSECL	18.3	ACSR Panther	TSECL					130 KN Porcelain ball & socket type Disc Insulator			Ground wire 7/3.15 mm	66	79	1	Reliability in Tripura system
40	Budhjangnagar - Surjamaninagar	2	D/C		TSECL	TSECL	18.3	ACSR Panther	TSECL					131 KN Porcelain ball & socket type Disc Insulator			Ground wire 7/3.15 mm	66	79	1	
41	Dhalabil - Kamalpur	1	S/C		TSECL	TSECL	32.0	ACSR Panther	TSECL					132 KN Porcelain ball & socket type Disc Insulator		19.2	Ground wire 7/3.15 mm	66	79	2	Reliability of Tripura system
42	Dharmanagar - Dullavcherra	1	S/C		TSECL	AEGCL	29.0	ACSR Panther	AEGCL					133 KN Porcelain ball & socket type Disc Insulator		2.0	Ground wire 7/3.15 mm	66	79	1	Reliability of Dullavcherra area of Assam

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
43	Dullavcherra - Hailakandi	1	S/C		AEGCL	AEGCL	33.8	ACSR Panther	AEGCL								NA	66	79	2	
44	Dharmanagar - P K Bari	1	S/C		TSECL	TSECL	36.5	AAAC Panther	TSECL					134 KN Porcelain ball & socket type Disc Insulator		23.7	Ground wire 7/3.15 mm	66	103	2	Reliability of P K Bari area of Tripura
45	Dimapur - Doyang	1	D/C		POWERGRID	NEEPCO	92.5	ACSR Panther	POWERGRID	294.0	144.0	150.0		Porcelain		92.5	OPGW	66	79	5	Reliability of Doyang system
46	Dimapur - Doyang	2	D/C		POWERGRID	NEEPCO	92.5	ACSR Panther	POWERGRID	294.0	144.0	150.0		Porcelain		92.5	OPGW	66	79	5	
47	Dimapur - Imphal	1	S/C		POWERGRID	POWERGRID	168.9	ACSR Panther	POWERGRID	243.0	35.0	208.0		Polymer Long Rod		168.9	OPGW	66	79	9	Reliability of Manipur system
48	Dimapur (PG) - Dimapur (DoP, Nagaland)	1	S/C		POWERGRID	DoP, Nagaland	0.5	ACSR Panther	DoP, Nagaland					90 kN, Porcelain		0.5	Ground Wire	66	79	0	Reliability of Dimapur Area of Nagaland
49	Dimapur (PG) - Dimapur (DoP, Nagaland)	2	S/C		POWERGRID	DoP, Nagaland	0.5	ACSR Panther	DoP, Nagaland					90 kN, Porcelain		0.5	OPGW	66	79	0	
50	Dimapur (PG) - Kohima	1	S/C		POWERGRID	DoP, Nagaland	44.5	ACSR Panther	DoP, Nagaland					90 kN, Porcelain		31.0	Ground Wire	66	79	2	Reliability of Kohima Area of Nagaland
51	Doyang - Mokokchung (DoP, Nagaland)	1	S/C		NEEPCO	DoP, Nagaland	30.1	ACSR Panther	DoP, Nagaland					90 kN, Porcelain		30.1	Ground Wire	66	79	2	Reliability of Mokokchung Area of Nagaland
52	Doyang-Sanis	1	S/C		NEEPCO	DoP, Nagaland	6.4	ACSR Panther	DoP, Nagaland									66	79	0	Reliability of Doyang system

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
53	Hailakandi - Silchar	1	S/C		AEGCL	POWERGRID	33.8	ACSR Panther	POWERGRID								NA	66	79	2	Reliability of Dullavcherra area of Assam
54	Hailakandi - Silchar	2	S/C		AEGCL	POWERGRID	33.8	ACSR Panther	POWERGRID								NA	66	79	2	
55	EPIP II - Byrnihat	1	D/C		MePTCL	MePTCL	10.3	ACSR Panther	MePTCL									66	79	1	Reliability of Byrnihat Area of Meghalaya
56	EPIP II - Byrnihat	2	D/C		MePTCL	MePTCL	10.3	ACSR Panther	MePTCL									66	79	1	
57	EPIP II - Umtru	1	D/C		MePTCL	MePTCL	0.7	ACSR Panther	MePTCL									66	79	0	
58	EPIP II - Umtru	2	D/C		MePTCL	MePTCL	0.7	ACSR Panther	MePTCL									66	79	0	
59	Gohpur - Pavoi	1	S/C		AEGCL	AEGCL	51.0	ACSR Panther	AEGCL								Ground Wire	66	79	3	Blackout of Gohpur Area of Assam
60	Gohpur - Nirjuli	1	S/C	Vertical/Delta	AEGCL	POWERGRID	42.5	ACSR Panther	POWERGRID	138.0	61.0	77.0	Not Installed	Porcelain	90 KN, 70 KN	12.8	Partly OPGW	66	79	2	Reliability of Pavoi Area of Assam
61	Golaghat - Mariani (AEGCL)	1	S/C		AEGCL	AEGCL	45.0	ACSR Panther	AEGCL								Ground Wire	66	79	2	Reliability of Nagaland system
62	Haflong - Jiribam	1	S/C		POWERGRID	POWERGRID	100.6	ACSR Panther	POWERGRID	153.0	68.0	85.0	No	Polymer Long Rod	90KN & 70 KN	100.6	Ground Wire	66	79	5	Reliability of Southern Part of NER Grid
63	Haflong - Umranshu	1	S/C		AEGCL	POWERGRID	8.2	ACSR Panther	AEGCL					Porcelain		8.2	OPGW under installation	66	79	0	
64	Imphal (MSPCL) - Imphal (PG)	1	S/C		MSPCL	POWERGRID	1.5	ACSR Panther	POWERGRID					Porcelain		0.0	Ground Wire	66	79	0	Reliability of Capital Area of Manipur
65	Imphal (MSPCL) - Imphal (PG)	2	S/C		MSPCL	POWERGRID	2.3	ACSR Panther	POWERGRID & MSPCL					Porcelain		0.0	Ground Wire	66	79	0	
66	Imphal(PG)-Imphal(MA) III	3	D/C	VERTICAL	PGCIL	MSPCL	0.98	PANTHER		5.0	0.0	5.0		PORCELAIN	12OkN	NA	Ground wire	50 MW	70MW		Reliability of Capital Area of Manipur
67	Imphal (MSPCL) - Karong	1	S/C		MSPCL	MSPCL	60.0	ACSR Panther	MSPCL					Porcelain		36.0		66	79	3	Reliability of Karong Area of Manipur
68	Imphal (PG) - Ningthoukong	1	S/C		POWERGRID	MSPCL	27.5	ACSR Panther	MSPCL					Porcelain		0.0		66	79	1	Injection capability of Loktak & Reliability of Ningthoukhong Area of Manipur
69	Imphal (PG) - Loktak	1	S/C		POWERGRID	NHPC	35.0	ACSR Panther	POWERGRID					Porcelain		35.0	Ground Wire	66	79	2	Injection capability of Loktak
69	Itanagar-Lekhi	1	S/C		DoP, Arunachal Pradesh	DoP, Arunachal Pradesh	14.0	ACSR Panther													Reliability of Capital Area of AP

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
70	Jiribam - Loktak	2	S/C		POWERGRID	NHPC	82.4	ACSR Panther	POWERGRID	165.0	0.0	165.0	No	Polymer Long Rod	120KN	82.4	Ground Wire	66	79	4	Injection capability of Loktak
71	Jiribam - Pailapool	1	S/C		POWERGRID	AEGCL	15.0	ACSR Panther	AEGCL/ MSPCL					Porcelain				66	79	1	Reliability of South Assam Area of Assam
72	Jiribam(PG) - Jiribam(MA)	1	S/C		POWERGRID	MSPCL	0.4	ACSR Panther	MSPCL					Porcelain		0.0		0	0		Reliability of Jiribam Area of Manipur
73	Jiribam-Tipaimukh	1	S/C		POWERGRID	MSPCL	76.7	ACSR Panther	POWERGRID & MSPCL	249.0	52.0	197.0	No	Polymer Long Rod	90KN & 70 KN	76.7	Ground Wire				
74	Jorhat - Mariani	1	S/C		AEGCL	AEGCL	19.5	ACSR Panther	AEGCL							0.0	Ground Wire	66	79	1	Reliability of Upper Assam Area
75	Jorhat - Mariani	2	S/C		AEGCL	AEGCL	19.5	ACSR Panther	AEGCL							0.0	Ground Wire	66	79	1	
76	Jorhat - Nazira	1	S/C		AEGCL	AEGCL	69.0	ACSR Panther	AEGCL								Ground Wire	66	79	4	
77	Kahilipara - Kamalpur	1	S/C		AEGCL	AEGCL	57.0	ACSR Panther	AEGCL							0.0	Ground Wire	66	79	3	Reliability of Dhaligaon Area of Assam & Eastern Bhutan
78	Kahilipara - Sarusajai	1	D/C		AEGCL	AEGCL	3.5	ACSR Panther	AEGCL							0.0	OPGW	66	79	0	
79	Kahilipara - Sarusajai	2	D/C		AEGCL	AEGCL	3.5	ACSR Panther	AEGCL							0.0	OPGW	66	79	0	
80	Kahilipara - Sarusajai	3	D/C		AEGCL	AEGCL	3.9	ACSR Panther	AEGCL							0.0	OPGW	66	79	0	
81	Kamakhya-Sarusajai	1	D/C		AEGCL	AEGCL		ACSR Panther	AEGCL							0.0	Ground Wire	66	79	0	
82	Kamakhya-Sishugram	1	S/C		AEGCL	AEGCL		ACSR Panther	AEGCL												
83	Kahilipara - Umtru	1	D/C		AEGCL	MePTCL	11.0	ACSR Panther	MePTCL							0.0		66	79	1	Reliability of Meghalaya system
84	Kahilipara - Umtru	2	D/C		AEGCL	MePTCL	11.0	ACSR Panther	MePTCL							0.0		66	79	1	
85	Kamalpur - P K Bari	1	S/C		TSECL	TSECL	31.0	ACSR Panther	TSECL					135 KN Porcelain ball & socket type Disc Insulator		21.7	Ground wire 7/3.15 mm	66	79	2	Reliability of Tripura system
86	Karong - Kohima	1	S/C		DoP, Nagaland	MSPCL	50.0	ACSR Panther	MSPCL (65.3%) / DoP, Nagaland (34.7%)					90 kN, Porcelain		50.0		66	79	3	Reliability of Karong Area of Manipur
87	Khandong - Khliehriat	1	S/C		NEEPCO	POWERGRID	42.5	ACSR Panther	POWERGRID	136.0	85.0	51.0	in 16 towers	POLYMER	70 and 90	42.5	Ground Wire	66	79	2	Reliability of South Assam Area

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
88	Khandong - Khliehriat	2	S/C		NEEPCO	POWERGRID	40.9	ACSR Panther	POWERGRID	132.0	25.0	107.0	100% TOWERS (Make-Oblum & Raychem)	POLYMER	70 and 90	40.9	OPGW	66	79	2	
89	Khandong - Kopili	1	S/C		NEEPCO	NEEPCO	10.9	ACSR Panther	POWERGRID	37.0	15.0	22.0	NIL	Porcelain	70 and 90	10.9	Ground Wire	66	79	1	
90	Khandong - Kopili	2	S/C		NEEPCO	NEEPCO	11.6	ACSR Zebra	POWERGRID	43.0	0.0	43.0	NIL	Porcelain	90.0	11.6	OPGW	66	121	1	
91	Khandong - Umranshu	1	S/C		NEEPCO	AEGCL	11.4	ACSR Panther	POWERGRID & AEGCL					Porcelain		11.4	OPGW under installation	66	79	1	
92	Khliehriat - Badarpur	1	S/C		POWERGRID	POWERGRID	73.2	AAAC Panther	POWERGRID	219.0	73.0	146.0	in 12 towers	POLYMER	70 and 90	73.2	OPGW	66	103	4	Reliability of Khliehriat area of Meghalaya
93	Khliehriat - Mustem	1	S/C		MePTCL	MePTCL	15.7	ACSR Panther	MePTCL									66	79	1	
94	132 kV Khupi-Tenga	2	SC 15.5 DC-21.5	VERTICAL	NEPCO SC	DEPL DC	37.0	PANTHER & SPECIAL DEER	NEPCO(SC) DEPL(DC)	SC-35 DC-59	DC-59	NIL		POLYMER	120kN	37.0	SC-GW DC-OPGW			1	
95	Mustem - NEHU line	1	S/C		MePTCL	MePTCL	41.9	ACSR Panther	MePTCL									66	79	2	
96	Khliehriat (MePTCL) - Khliehriat (PG)	1	S/C		MePTCL	POWERGRID	7.8	ACSR Panther	POWERGRID	29.0	6.0	23.0	NIL	Porcelain	70 and 90	7.8	OPGW	66	79	0	
97	Khliehriat (MePTCL) - Khliehriat (PG)	2	S/C		MePTCL	POWERGRID	5.4	ACSR Panther	MePTCL									66	79	0	
98	Khliehriat- NEIGRIHMS	1	S/C		MePTCL	POWERGRID	62.8	ACSR Panther	MePTCL									66	79	3	
99	Kumarghat - P K Bari	1	S/C		POWERGRID	TSECL	1.0	ACSR Panther	TSECL					136 KN Porcelain ball & socket type Disc Insulator		0.8	OPGW	66	79	0	Reliability of Tripura System

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
100	Lekhi - Nirjuli	1	S/C	Vertical/Delta	DoP, Arunachal Pradesh	POWERGRID	9.5	ACSR Panther	DoP, Arunachal Pradesh & POWERGRID	35.0	13.0	22.0	Not Installed	Porcelain	90 KN,70 KN	9.5	OPGW under installation	66	79		Reliability of Capital Area & Nirjuli Area of Arunachal Pradesh & Gohpur Area of Assam
101	Lekhi - Pare	1	S/C	Vertical/Delta	DoP, Arunachal Pradesh	NEEPCO	17.0	ACSR Panther	DoP, Arunachal Pradesh & POWERGRID	43.0	9.0	34.0	Not Installed	Porcelain	90 KN,70 KN	17.0	OPGW under installation	66	79		
102	Loktak - Ningthoukhong	1	S/C		NHPC	MSPCL	10.5	ACSR Panther	MSPCL									66	79	1	Injection Capability of Loktak & Reliability of Ningthoukhong Area of Manipur
103	Loktak - Rengpang	1	S/C		NHPC	MSPCL	39.8	ACSR Panther	MSPCL									66	79	2	Reliability of Rengpang Area of Manipur
104	LTPS - Mariani	1	S/C		AEGCL	AEGCL	80.0	ACSR Panther	AEGCL							0.0	OPGW	66	79	4	Reliability of Upper Assam Area
105	LTPS - Moran	1	S/C		AEGCL	AEGCL	39.0	ACSR Panther	AEGCL							0.0	Ground Wire	66	79	2	
106	LTPS - Nazira	1	D/C		AEGCL	AEGCL	22.0	ACSR Panther	AEGCL								Ground Wire	66	79	1	
107	LTPS - Nazira	2	D/C		AEGCL	AEGCL	22.0	ACSR Panther	AEGCL								Ground Wire	0	0	0	
108	LTPS - NTPS	1	D/C		AEGCL	AEGCL	60.0	ACSR Panther	AEGCL								OPGW	66	79	3	
109	LTPS - Sonari	1	D/C		AEGCL	AEGCL	30.0	ACSR Panther	AEGCL								Ground Wire	66	79	2	
110	Mariani (AEGCL) - Mokokchung (DoP, Nagaland)	1	S/C		AEGCL	ED, DoP, Nagaland	50.0	ACSR Panther	AEGCL(40%)/ DoP, Nagaland(60%)								Ground Wire	66	79	3	Reliability of Mokokchung Area of Nagaland
111	NEHU - Mawlai	1	S/C		MePTCL	MePTCL	7.9	ACSR Panther	MePTCL									66	79	0	Reliability of Meghalaya system
112	Mawlai - Umiam Stage I	2	S/C		MePTCL	MePTCL	12.1	ACSR Panther	MePTCL									66	79	1	
113	Mawphlang - Nongstoin	1	S/C		MePTCL	AEGCL	56.3	ACSR Panther	MePTCL									66	79	3	
114	Mawphlang - Umiam Stg I	1	D/C		MePTCL	MePTCL	33.1	ACSR Panther	MePTCL									66	79	2	
115	Mawphlang - Umiam Stg I	2	D/C		MePTCL	MePTCL	33.1	ACSR Panther	MePTCL									66	79	2	
116	Mawphlang- Mawlai	1	S/C		MePTCL	MePTCL	20.9	ACSR Panther	MePTCL									66	79	1	
117	Melriat(PG) - Zuangtui	1	S/C		POWERGRID	P&ED, Mizoram	10.2	ACSR Panther	POWERGRID					Porcelain	90KN	10.2	OPGW	66	79		Reliabilty of Mizoram system
118	Mendipathar - Nangalbibra	1	S/C		MePTCL	MePTCL	65.2	ACSR Panther	MePTCL									66	79	3	Reliability of Meghalaya system

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
119	Mokokchung (PG) - Mokokchung (DoP, Nagaland)	1	D/C		POWERGRID	DoP,Nagaland	1.4	ACSR Zebra	POWERGRID	11.0	0.0	11.0	Nil	Porcelain	120 KN	1.4	OPGW	66	121	0	Reliability of Mokokchung Area of Nagaland
120	Mokokchung (PG) - Mokokchung (DoP, Nagaland)	2	D/C		POWERGRID	DoP,Nagaland	1.4	ACSR Zebra	POWERGRID	11.0	0.0	11.0	Nil	Porcelain	120 KN	1.4	OPGW	66	121	0	
121	Monarchak - Rokhia	1	S/C		NEEPCO	TSECL	29.0	ACSR Panther	TSECL					137 KN Porcelain ball & socket type Disc Insulator		17.4	Ground wire 7/3.15 mm	66	79	1	Injection capability of Monarchak
122	Monarchak - Udaipur	1	S/C		NEEPCO	TSECL	41.5	ACSR Panther	TSECL					138 KN Porcelain ball & socket type Disc Insulator		24.5	Ground wire 7/3.15 mm	66	79	2	
123	Myntdu Leshka - Khleihriat	1	D/C		MePTCL	MePTCL	26.5	ACSR Panther	MePTCL									66	79	1	Injection capability of Leshka
124	Myntdu Leshka - Khleihriat	2	D/C		MePTCL	MePTCL	26.5	ACSR Panther	MePTCL									66	79	1	
125	Namsai-Tezu	1	S/C	Vertical	POWERGRID	POWERGRID	95.2	ACSR Panther	POWERGRID	258.0	91.0	167.0	NO	Porecleain	90KN,70KN	25	Ground Wire	66	79		Reliability of Namsai Area Arunachal Pradesh
126	Nangalbibra - Nongstoin	1	S/C		MePTCL	MePTCL	57.1	ACSR Panther	MePTCL									66	79	3	Reliability of Mendipathar area of Meghalaya
127	NEHU - NEIGRIHMS	1	S/C		MePTCL	MePTCL	6.7	ACSR Panther	MePTCL									66	79	0	Reliability of Meghalaya system
128	NEHU - Umiam	1	D/C		MePTCL	MePTCL	6.2	ACSR Panther	MePTCL					Porcelain disc insulator				66	79	0	
129	NTPS - Tinsukia	1	S/C		AEGCL	AEGCL	43.0	ACSR Panther	AEGCL									66	79	2	Reliability of Upper Assam Area
130	NTPS - Sonari	1	D/C		AEGCL	AEGCL	30.0	ACSR Panther	AEGCL									66	79	2	
131	Pailapool - Srikona	1	D/C		AEGCL	AEGCL	34.5	ACSR Panther	AEGCL									66	0	2	Reliability of South Assam Area
132	Palatana - Udaipur	1	S/C		TSECL	TSECL	11.1	ACSR Panther	TSECL					139 KN Porcelain ball & socket type Disc Insulator			Ground wire 7/3.15 mm	66	79	1	Reliability of Tripura System
133	Panchgram - Srikona	1	S/C		AEGCL	AEGCL	19.1	ACSR Panther	AEGCL									66	79	1	Reliability of South Assam Area

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact
G. 132 kV Lines																					
134	Pare- Itanagar	1	S/C		NEEPCO	DoP, Arunachal Pradesh	30.6	ACSR Panther	DoP, Arunachal Pradesh & NEEPCO												Reliability of Cappitak Area of Arunachal Pradesh
135	Ranganadi- Itanagar I	1	S/C		POWERGRID	DoP, Arunachal Pradesh	31.8	ACSR Panther	DoP, Arunachal Pradesh												Reliability of Pare Area of Arunachal Pradesh
136	Ranganadi - Pare	1	D/C	Vertical	NEEPCO	NEEPCO	9.0	ACSR Panther	POWERGRID	36.0	2.0	34.0	Not Installed	Porcelain	90KN,70KN			66	79		Reliability of Pare Area of Arunachal Pradesh
137	Ranganadi - Pare	2	D/C		NEEPCO	NEEPCO	6.2	ACSR Panther	DoP, Arunachal Pradesh & NEEPCO												
138	Ranganadi - Ziro	1	S/C	Verticle	NEEPCO	POWERGRID	44.5	ACSR Panther	POWERGRID	115.0	0.0	115.0	03 nos, make: OBLUM	Porcelain	90KN	44.5	OPGW	66	79	2	Reliability of Ziro Area of Arunachal Pradesh
139	Roing - Pasighat	1	S/C	Vertical	POWERGRID	POWERGRID	102.8	ACSR Panther	POWERGRID	117.0	63.0	54.0	NO	Porcelain	90KN,70KN	0.0	Ground Wire	66	79.0		Reliability of Roing Area of Arunachal Pradesh
140	Roing - Tezu	1	S/C	Vertical	POWERGRID	POWERGRID	73.0	ACSR Panther	POWERGRID	141.0	50.0	91.0	NO	Porcelain	90KN,70KN	0.0	Ground Wire	66	79.0		
141	Sarusajai - Umtru	1	D/C		AEGCL	MePTCL	37.0	ACSR Panther	MePTCL									66	79	2	Reliability of Byrnihat area of Meghalaya
142	Sarusajai - Umtru	2	D/C		AEGCL	MePTCL	37.0	ACSR Panther	MePTCL									66	79	2	
143	Silchar - Srikona	1	D/C		POWERGRID	AEGCL	1.2	ACSR Panther	POWERGRID					Porcelain		1.2	OPGW	66	79	0	Reliability of South Assam Area
144	Silchar - Srikona	2	D/C		POWERGRID	AEGCL	1.2	ACSR Panther	POWERGRID					Porcelain		1.2	OPGW	66	79	0	
145	Umiam - Umiam St I	1	S/C		MePTCL	MePTCL	5.1	ACSR Panther	MePTCL									66	79	0	Reliability of Byrnihat area of Meghalaya
146	Umiam St I - Umiam St II	1	S/C		MePTCL	MePTCL	3.0	ACSR Panther	MePTCL									66	79	0	
147	Umiam St I - Umiam St III	1	D/C		MePTCL	MePTCL	17.5	ACSR Panther	MePTCL									66	79	1	
148	Umiam St I - Umiam St III	2	D/C		MePTCL	MePTCL	17.5	ACSR Panther	MePTCL									66	79	1	
149	Umiam St III - Umiam St IV	1	D/C		MePTCL	MePTCL	8.0	ACSR Panther	MePTCL									66	79	0	
150	Umiam St III – Umiam St IV	2	D/C		MePTCL	MePTCL	9.7	ACSR Panther	MePTCL									66	79	0	
151	Umiam St III - Umtru	1	D/C		MePTCL	MePTCL	41.1	ACSR Panther	MePTCL									66	79	2	
152	Umiam St III - Umtru	2	D/C		MePTCL	MePTCL	41.1	ACSR Panther	MePTCL									66	79	2	
153	Umtru - Umiam St IV	1	D/C		MePTCL	MePTCL	29.9	ACSR Panther	MePTCL									66	79	2	
154	Umtru - Umiam St IV	2	D/C		MePTCL	MePTCL	29.9	ACSR Panther	MePTCL									66	79	2	

Sl No	Name of Element (Emanating - Terminating)	Ckt ID	Tower Type (S/C or D/C)	Tower Configuration(Horizontal/Vertical)	Agency at End 1	Agency at End 2	Line Length in km	Type of Conductor	Name of Owners	Total no of Tower	Total no of Suspenstion Towers	Total no of Tension Towers	TLSA	Types of Insulator (Porcelain, Glass, Polymer)	Types of Strength of Insulator (210 kN, 120 kN, 90 kN, 70 kN)	Line Length in Km (Hill Area)	OPGW/ Ground Wire	SIL	Thermal loading in MW with 0.95 pf	Charging MVAR	Impact

Lines expected to be commissioned during 2020-21 (After commissioning of these elements, they will be considered as important elements of NER)

A. 400 kV Lines

1	New Kohima - New Mariani	1	D/C		POWERGRID	POWERGRID			Kalpataru												
2	New Kohima - New Mariani	2	D/C		POWERGRID	POWERGRID			Kalpataru												
3	Silchar-Misa	1	D/C		POWERGRID	POWERGRID	178.4		Sterlite Power												
4	Silchar-Misa	2	D/C		POWERGRID	POWERGRID	178.4		Sterlite Power												
5	Surajmaninagar(NER II) - P.K.Bari(NER II)	1	D/C		Sterlite Power	POWERGRID	77.3		Sterlite Power												
6	Surajmaninagar(NER II) - P.K.Bari(NER II)	2	D/C		Sterlite Power	POWERGRID	77.3		Sterlite Power												

C. 132 kV Lines

1	AGTPP-P.K. Bari	1			NEEPCO	TSECL	83.5		Sterlite Power												
2	AGTPP-P.K. Bari	2			NEEPCO	TSECL	83.5		Sterlite Power												
3	Biswanath chariyalli- Itanagar	1			POWERGRID	Dop , AP	67.9		Sterlite Power												
4	Biswanath chariyalli- Gophur	1			POWERGRID	AEGCL	53.6		Sterlite Power												
5	Monarchak - Surajmaninagar	1	D/C		NEEPCO	TSECL	21.2	ACSR Panther	TSECL												
6	Monarchak - Surajmaninagar	2	D/C		NEEPCO	TSECL	21.2	ACSR Panther	TSECL												
7	Itanagar - Gophur	1			Dop , AP	AEGCL	31.3		Sterlite Power												
8	Palatana- Surajmaninagar	2	D/C		OTPC	TSECL			POWERGRID												

List of Important ICTs in North Eastern Regional Grid

Sl No	*Name of Node*	*ID*	Capacity in MVA	Configuration	Make	AIS/ GIS	Vector Group	Cooling Type	Cooling Medium	Ambient Temp in °C	Winding Connection	Neutral Connection	Owner	Impact	Percentage Impedance
A. 400/220/33 kV															
1	Azara	1	315	Three Phase	EMCO	AIS							AEGCL	Reliability of Capital Area of Assam	
2	Azara	2	315	Three Phase	EMCO	AIS							AEGCL		
3	Balipara	1	3x105	Single Phase	TELK	AIS							POWERGRID	TTC of NER-ER Corridor	
4	Balipara	2	315	Single Phase	TOSHIBA	AIS	ÝNa0d11						POWERGRID		HV-LV=12.5%,HV LV=60%,IV-LV=45%
5	Bongaigaon	1	3x105	Single Phase	TELK	AIS	YNa0d11	OFAF	Oil	35	Star-Delta	Star	POWERGRID		HV-LV=12.5%
6	Bongaigaon	2	315	Three Phase	GE	AIS	YNa0d11	OFAF	OIL	50	HV: star, IV: star, LV: delta.	solidly grounded	POWERGRID		HV-IV:12.54% HV-LV: 62.08% IV-LV:48.15%
7	Byrnihat	1	315	Three Phase	ABT	GIS							MePTCL	Reliability of Byrnihat Area, Meghalaya	
8	Byrnihat	2	315	Three Phase	ABT	GIS							MePTCL		
9	Misa	1	500	Three Phase	TBEA	AIS	ÝNa0d11	OFAF	Oil		HV-Star/IV-Star/LV-Delta	HV&IV Grounded/LV-Ungrounded	POWERGRID	There is no change TTC value of NER-ER corridorafter commissioning of Misa ICT 3	P643/MICOM
10	Misa	2	315	Three Phase	CGL	AIS	ÝNa0d11	OFAF	Oil		HV-Star/IV-Star/LV-Delta	HV&IV Grounded/LV-Ungrounded	POWERGRID		P633/MICOM
11	Misa	3	500	Three Phase	TBEA	AIS	Yna0d11	OFAF	OIL/AIR	28	HV: Star IV: Star LV: Delta	Solidly Grounded	PG		HV-IV=11.64 HV-LV=60.7 IV-LV=70.08
12	BgTPP (NTPC)	1	315	3 phase	BHEL	AIS	YNa0d11	ONAN/ONAF/OFAF(40%/60%/100%)	Oil	-	YNa0d11	Solid grounded	NTPC Ltd		12.5% ± 7.5%
13	BgTPP (NTPC)	2	315	Three Phase	BHEL	AIS							NTPC		
B. 400/132 kV															
1	Biswanath Chariali	1	200	Three Phase	ABB	AIS							POWERGRID	Reliability of Pavoi Area of Assam	
2	Biswanath Chariali	2	200	Three Phase	ABB	AIS							POWERGRID		
3	Palatana	1	125	Three Phase	BHEL	AIS							OTPC	Reliability of Comilla area of Bangladesh & Tripura System	

List of Important ICTs in North Eastern Regional Grid

Sl No	*Name of Node*	*ID*	Capacity in MVA	Configuration	Make	AIS/ GIS	Vector Group	Cooling Type	Cooling Medium	Ambient Temp in °C	Winding Connection	Neutral Connection	Owner	Impact	Percentage Impedance
B. 400/132 kV															
4	Palatana	2	125	Three Phase	ALSTOM	AIS							OTPC	Reliability of Comilla area of Bangladesh & Tripura System	
5	Silchar	1	200	Three Phase	CGL	AIS							POWERGRID	TTC of NER-ER Corridor, Reliability of Southern part of NER Grid	
6	Silchar	2	200	Three Phase	CGL	AIS							POWERGRID		
7	Silchar	3	315	Three Phase	CGL	AIS							POWERGRID		

List of Important ICTs in North Eastern Regional Grid

Sl No	*Name of Node*	*ID*	Capacity in MVA	Configuration	Make	AIS/ GIS	Vector Group	Cooling Type	Cooling Medium	Ambient Temp in °C	Winding Connection	Neutral Connection	Owner	Impact	Percentage Impedance
B. 400/132 kV															
8	Imphal	1	315	Three Phase	TBEA	AIS	YNa0d11	OFAF	Oil and Air	30	YYD	Solid Grounded	POWERGRID	Reliability of Capital area of Manipur	HV-IV=10.3; HV-LV=40.06; IV-LV=30.82
9	Imphal	2	315	Three Phase	TBEA	AIS	YNa0d11	OFAF	Oil and Air	30	YYD	Solid Grounded	POWERGRID		HV-IV=10.3; HV-LV=40.06; IV-LV=30.82
10	Ranganadi	1	3x120	Single Phase	BHEL	AIS							NEEPCO	Reliability of Ziro area, Capital area, Lekhi Area of Arunachal Pradesh & Gohpur Area of Assam & Injection capabillity of Ranganadi	
11	Ranganadi	2	3x120	Single Phase	BHEL	AIS							NEEPCO		
12	Kameng	1	3x40	Single Phase	BHEL	AIS	YNa0d11	ODWF		50°C	HV-Star,IV-Star,LV-Delta	HV-Grounded,IV-Grounded,LV-Ungrounded	NEEPCO	Reliability of Kameng HEP Evacuation	
C. 220/132 kV															
1	Agia	2	100	Three Phase	Crompton Greaves	AIS							MePTCL	Reliability of Capital Area of Assam & Mendipathar Area of Meghalaya	
2	Agia	1	50	Three Phase	CGL	AIS							AEGCL		
3	Azara	1	50			AIS							AEGCL	Reliability of Capital Area of Assam	
4	Azara	2	50			AIS							AEGCL		
5	Balipara	2	160	Three Phase	BHEL	AIS							POWERGRID	Reliability of Khupi Area of Arunachal Pradesh & Gohpur, Depota Area of Assam	
7	Balipara	1	160	Three Phase	CGL	AIS	Yd11	OFAF	OIL	30	Star-Star-Delta	Solid Earth	PG		11.45
8	Boko	1	100										AEGCL	Reliability of Dhaligaon Area of Assam	
9	Boko	2	50										AEGCL		
10	BTPS	1	100	Three Phase	BHEL	AIS							AEGCL	Reliability of Dhaligaon Area of Assam	
11	BTPS	2	160	Three Phase	EMCO	AIS							AEGCL		
12	Deomali	1	3x33.3	Single Phase	ALSTOM	AIS							DoP, Arunachal Pradesh	Blackout of Deomali area of Arunachal Pradesh	
13	Dimapur	1	3x33.3	Single Phase	TELK	AIS		ONAN OFAF					POWERGRID	Reliability of Nagaland system	
14	Dimapur	2	100	Three Phase	Bharat Bijlee	GIS		ONAN OFAF					POWERGRID		
15	Byrnihat	1	160	Three Phase	Bharat Bijlee	AIS							MePTCL	Reliability of Byrnihat Area of Meghalaya	
16	Byrnihat	2	160	Three Phase	Bharat Bijlee	AIS							MePTCL		

List of Important ICTs in North Eastern Regional Grid

Sl No	*Name of Node*	*ID*	Capacity in MVA	Configuration	Make	AIS/ GIS	Vector Group	Cooling Type	Cooling Medium	Ambient Temp in °C	Winding Connection	Neutral Connection	Owner	Impact	Percentage Impedance
C. 220/132 kV															
17	Kopili	1	3x20	Single Phase	Hack-Bridge Hewatic Easun Ltd	AIS							NEEPCO	Reliability of Southern Part of NER Grid	
18	Kopili	2	160	Three Phase	Bharat Bijlee	AIS	YNa0	OFAF	Oil		HV-Star/IV-Star	HV&LV Grounded/	POWERGRID		HV-LV=10.61%
19	Mariani	1	100	Three Phase	BHEL	AIS							AEGCL	Reliability of Upper Assam Area	
20	Mariani	2	100	Three Phase	BHEL	AIS							AEGCL		
21	Mokokchung	1	3x10	Single Phase	Vijay Electrical	GIS	YNa0	ONAN/ONAF	OIL	23	HV -Star Auto, LV-Star Auto	Grounded	POWERGRID	Reliability of Mokokchung area of Nagaland	R-10.20, Y-10.18, B-10.17
22	Mokokchung	2	3x10	Single Phase	Vijay Electrical	GIS	YNa0	ONAN/ONAF	OIL	23	HV -Star Auto, LV-Star Auto	Grounded	POWERGRID		R-10.20, Y-10.23, B-10.17
23	NTPS	1	50	Three Phase	CGL	AIS							AEGCL	Reliability of Upper Assam Area	
24	Rangia	1	100	Three Phase	TNR	AIS	YNyn0	OFAF	OIL		Star-Star	Solid Grounded	AEGCL		
25	Rangia	2	100	Three Phase	TNR	AIS	YNyn0	OFAF	OIL		Star-Star	Solid Grounded	AEGCL		
26	Salakati	1	50	Three Phase	Bharat Bijlee	AIS							POWERGRID	Reliability of Eastern Bhutan System	
27	Salakati	2	50	Three Phase	CGL	AIS							POWERGRID		
28	Samaguri	1	100	Three Phase	CGL	AIS							AEGCL	Reliability of Samaguri Area of Assam	
29	Samaguri	2	160	Three Phase	CGL	AIS							AEGCL		
30	Sarusajai	1	100	Three Phase	ALSTOM	AIS							AEGCL	Reliability of Capital Area of Assam	
31	Sarusajai	2	100	Three Phase	BHEL	AIS							AEGCL		
32	Sarusajai	3	100	Three Phase	BHEL	AIS							AEGCL		
33	Sarusajai	4	200	Three Phase	BHEL	AIS							AEGCL		
34	Tinsukia	1	100	Three Phase	CGL	AIS							AEGCL	Reliability of Upper Assam Area	
35	Tinsukia	2	100	Three Phase	CGL	AIS							AEGCL		
36	Sonabil	1	100	Three Phase	CGL	AIS							AEGCL	Reliability of Sonabil Area of Assam	
37	Sonabil	2	100	Three Phase	CGL	AIS							AEGCL		
38	Sonapur	1	100	Three Phase	CGL	AIS							AEGCL	Reliability of Sonapur Area of Assam	
39	Sonapur	2	100	Three Phase	CGL	AIS							AEGCL		

List of Important ICTs in North Eastern Regional Grid

Sl No	*Name of Node*	*ID*	Capacity in MVA	Configuration	Make	AIS/ GIS	Vector Group	Cooling Type	Cooling Medium	Ambient Temp in °C	Winding Connection	Neutral Connection	Owner	Impact	Percentage Impedance
D. 132/33 kV															
1	Imphal	1	50	Three Phase	Vijay Electrical	AIS	YNyn0	OFAF	Oil and Air	30	YY	Solid Grounded	POWERGRID	Reliability of Capital area of Manipur	10
2	Imphal	2	50	Three Phase	Vijay Electrical	AIS	YNyn0	OFAF	Oil and Air	30	YY	Solid Grounded	POWERGRID		10
3	Nirjuli	1	50	Three Phase	TOSHIBA	AIS	YNyn0	ONAF	Oil	50	3 phase	Solidly Ground	POWERGRID	Reliability of Capital area of Arunachal Pradesh	0.0966
4	Nirjuli	2	50	Three Phase	TOSHIBA	AIS	YNyn0	ONAF	Oil	50	3 phase	Solidly Ground	POWERGRID		0.0961
5	Namsai	1	3x5	Single Phase	Vijai Electricals	AIS	Star	Napthanic	Oil	31	YES	YES	POWERGRID	Blackout of Namsai area of Arunachal Pradesh	
		2	3x5	Single Phase	Vijai Electricals	AIS	Star	Napthanic	Oil	32	YES	YES	POWERGRID		

List of Important ICTs in North Eastern Regional Grid

Sl No	*Name of Node*	*ID*	Capacity in MVA	Configuration	Make	AIS/ GIS	Vector Group	Cooling Type	Cooling Medium	Ambient Temp in °C	Winding Connection	Neutral Connection	Owner	Impact	Percentage Impedance
D. 132/33 kV															
5	Ziro	1	15	Three Phase	ALSTOM	AIS	YNyn0	ONAN	Air	25	star	star	POWERGRID	Blackout of Ziro area of Arunachal Pradesh	10.23
6	Roing	1	3x5	Single Phase	Vijai Electricals	AIS	Star	parafinic	Oil	30	YES	YES	POWERGRID	Blackout of Roing area of Arunachal Pradesh	
		2	3x5	Single Phase	Vijai Electricals	AIS	Star	parafinic	Oil	30	YES	YES	POWERGRID		
7	Tezu	1	3x5	Single Phase	Vijai Electricals	AIS	Star	Napthanic	Oil	31	YES	YES	POWERGRID	Blackout of Tezu area of Arunachal Pradesh	
		2	3x5	Single Phase	Vijai Electricals	AIS	Star	Napthanic	Oil	32	YES	YES	POWERGRID		
E. 400/34.5 kV (Tie Transformer)															
1	BgTPP (NTPC)	1	100	Three Phase	BHEL	AIS							NTPC	Reliability of BgTPP system	
2	BgTPP (NTPC)	2	100	Three Phase	BHEL	AIS							NTPC		

ICTs expected to be commissioned during 2020-21(After commissioning of these elements, they will be considered as important elements of NER)

A. 400/220 kV															
1	P K Bari	1	315	Three Phase									Sterlite Power		
2	P K Bari	2	315	Three Phase									Sterlite Power		
3	Surajmaninagar	1	315	Three Phase									Sterlite Power		
4	Surajmaninagar	2	315	Three Phase									Sterlite Power		
C. 220/132 kV															
1	Azara	1	50	Three Phase	BHEL	AIS							AEGCL	Reliability of Azara area of Assam	
2	Azara	2	50	Three Phase	BHEL	AIS							AEGCL		
3	Kumarghat	1	5	Three Phase	Bharat Bijlee	AIS	YNyn0	ONAN	OIL&AIR	28	YNyn0	YNyn0	POWERGRID	Station Load	6.14

List of Bus Reactors in North Eastern Region

Sl No.	*Name of Node*	*ID*	Capacity in MVAR	Owner	Make	Switchable (Yes/No)	Winding Connection (3 phase)	Neutral Connection	Ambient Temperature in °C	Cooling medium	Tan delta of winding	CSD	*Protection Details*			
													Back Up	Differential	REF	Buchholz
													Model & Make	Model & Make	Model & Make	Model & Make
A. 400 kV																
1	Azara	1	63	AEGCL	BHEL							YES	YES	YES	YES	YES
2	Balipara	1	50	POWERGRID	BHEL											
3	Balipara	2	80	POWERGRID	BHEL											
4	Balipara	3	125	POWERGRID	BHEL											
5	Biswanath Chariali	1	80	POWERGRID	BHEL											
6	Biswanath Chariali	2	80	POWERGRID	BHEL											
7	Bongaigaon	1	50	POWERGRID	BHEL	No	3 Phase	Solid Earthed	35	ONAN	Ok	Installed	Micom P442	CAG English Electric	CAG English Electric	Atvus
8	Bongaigaon	2	50	POWERGRID	BHEL	No	3 Phase	Solid Earthed	35	ONAN	Ok	Installed	Micom P441	Micom P643 Bdiff & CAG Diff	CAG English Electric	Atvus
9	Bongaigaon	3	80	POWERGRID	CGL	No	3 Phase	Solid Earthed	35	ONAN	Ok	Installed	Micom P441	CAG Areva	CAG Areva	Atvus
10	Bongaigaon	4	80	POWERGRID	BHEL	No	3 Phase	Solid Earthed	35	ONAN	Ok	Installed	Micom P441	CAG Areva	CAG Areva	Atvus
11	Bongaigaon	5	125	POWERGRID	BHEL	No	3 Phase	Solid Earthed	35	ONAN	Ok	Installed	Micom P40 Agile P442	Micom P40 Agile 643	Micom P40 Agile 643	Atvus
12	Byrnihat	1	63	MePTCL	Crompton Greaves			Star								
A. 400 kV																
1	Misa	1	50	POWERGRID	BHEL	No	Star	Grounded		OFAF	0.00255(16.03.2017)	Yes	MICOM/P442	CAG34AF71A/ENGLISH ELECTRIC	CAG14AF12A/ENGLISH ELECTRIC	
2	Palatana	1	80	OTPC	BHEL											
3	Silchar	1	63	POWERGRID	CGL											
4	Silchar	2	63	POWERGRID	CGL											
5	Silchar	3	125	POWERGRID	CGL											
6	Imphal	1	80	POWERGRID	CGL	Yes	Star	Grounded through NGR	30 deg	ONAN	0.0028	Yes/ SYNC INTELLECT	P442/Alstom	P643/Alstom	P141/Alstom	SUKRUT
7	Kameng	1	80	NEEPCO	CGL											
B. 220 kV																
1	Mokokchung	1	31.5	POWERGRID	CGL	Yes	Star with neutral brought out	GROUNDED	23	Oil	0.0043	PWC600	REL670, ABB	RET670,ABB	RET670,ABB	SUKRUT
2	Mariani	1	12.5	AEGCL	CGL							NO	YES	YES	YES	YES
3	Mariani	2	12.5	AEGCL	CGL							NO	YES	YES	YES	YES
4	Samaguri	1	12.5	AEGCL	CGL	Not in Operation										
5	Samaguri	2	12.5	AEGCL	CGL	Not in Operation										
C. 132 kV																
1	Aizawl	1	20	POWERGRID	CGL	No	YES	YES	30	ONAN	YES		8ZLV-F3F-2C02H8QNL(ZIV)	CAG 34(ALSTOM)	CAG 14(ALSTOM)	CGL
2	Dharmanagar	1	2	TSECL	Heavy Electricals Ltd.	Not in Operation										
3	Dharmanagar	2	2	TSECL	Heavy Electricals Ltd.	Not in Operation										
4	Imphal	1	20	POWERGRID	CGL	Yes	Y	Grounded through NGR	30 deg	ONAN	0.0029	No	P633/ Schneider			EMP, Germany
5	Kumarghat	1	20	POWERGRID	CGL	No	3 Phase & Neutral	Yes	28	OIL	0.00459	NA	NA	CAG & ALSTOM	CAG & ALSTOM	ATVUS
6	Mariani (PG)	1	20	POWERGRID	CGL	Yes	3 ph	Grounded		ONAN	0.002	No	NA	P632, Micom	P141, Micom	EE3MG, SUKRUT
7	Namsai	1	20	POWERGRID	CGL	Yes	Single Phase, STAR	YES	30	OIL, ONAN	OK		P141 Schneider	P632& Schneider	P141 &Schneider	2M & Viat instrument PVT.India
8	Ziro	1	20	POWERGRID	SIEMENS	Yes	STAR	STAR	25	AIR	OK		P442/Schneider Electric	P632/Schneider Electric	P632/Schneider Electric	P632/Schneider Electric
9	Roing	1	20	POWERGRID	CGL	Yes	Star	YES	30	OIL	OK		P141 Schneider	P632& Schneider	P141 &Schneider	2M & Viat instrument PVT.India

Sl No.	Name of Node	ID	Capacity in MVAR	Owner	Make	Switchable (Yes/No)	Winding Connection (3 phase)	Neutral Connection	Ambient Temperature in °C	Cooling medium	Tan delta of winding	CSD	Protection Details			
													Back Up	Differential	REF	Buchholz
													Model & Make	Model & Make	Model & Make	Model & Make
C. 132 kV																
10	Tezu	1	20	POWERGRID	CGL	Yes	Star	YES	31	OIL	OK		P141 Schneider	P632& Schneider	P141 &Schneider	2M & Viat instrument PVT.India
11	Melriat (PG)	1	15	POWERGRID	CGL	Yes	3	Yes		Air	Yes	NA	Micom, P442	Micom P643	Micom, Areva	Sukrut

List of Tertiary Reactors in North Eastern Region

Sl No.	Name of Node	ID	Capacity in MVAR	Owner	Make	Switchable (Yes/No)	Winding Connection (3 phase)	Neutral Connection	Ambient Temperature in °C	Cooling medium	Tan delta of winding	CSD	Protection Details			
													Back Up	Differential	REF	Buchholz
													Model & Make	Model & Make	Model & Make	Model & Make
A. 33 kV																
1	Balipara	1	25	POWERGRID	BHEL											
2	Balipara	2	25	POWERGRID	BHEL											
3	Balipara	3	25	POWERGRID	BHEL											
4	Balipara	4	25	POWERGRID	BHEL											
5	Bongaigaon	1	25	POWERGRID	BHEL	No	3 Phase	Solid Earthed	35	ONAN	Ok	Not Installed	Not Installed	CAG	CAG	Atvus
6	Bongaigaon	2	25	POWERGRID	BHEL	No	3 Phase	Solid Earthed	35	ONAN	Ok	Not Installed	Not Installed	CAG	CAG	Atvus
7	Misa	1	25	POWERGRID	BHEL	Yes		Ungrounded		ONAN		No		CAG34AF71A/English Electric		BHEL
8	Misa	2	25	POWERGRID	BHEL	Yes		Ungrounded		ONAN		No		CAG34AF71A/English Electric		BHEL
9	Misa	3	25	POWERGRID	BHEL	Yes		Ungrounded		ONAN		No		CAG34AF71A/English Electric		BHEL
10	Misa	4	25	POWERGRID	BHEL	Yes		Ungrounded		ONAN		No		CAG34AF71A/English Electric		BHEL

Bus Reactor expected to be commissioned during 2020-21(After commissioning of these elements, they will be considered as important elements of NER)

Sl No.	Name of Node	ID	Capacity in MVAR	Owner	Make	Switchable (Yes/No)	Winding Connection (3 phase)	Neutral Connection	Ambient Temperature in °C	Cooling medium	Tan delta of winding	CSD	Protection Details			
													Back Up	Differential	REF	Buchholz
													Model & Make	Model & Make	Model & Make	Model & Make
A. 400 kV																
1	P.K. Bari	1	125	Sterlite Power												
2	P.K. Bari	2	125	Sterlite Power												
3	Surajmaninagar	1	125	Sterlite Power												
4	Surajmaninagar	2	125	Sterlite Power												

List of Line Reactors in North Eastern Region

Sl No.	Name of Line	ID	End 1				End 2				Convertable (Yes/No)		Switchable		Controlled Switching Device (CSD)	Protection Details (End 1)						Protection Details (End 1)					
			Name of Node	MVAR Rating	Make	Owner	Name of Node	MVAR Rating	Make	Owner	End 1	End 2				Back Up	Differential	REF	Buchholz	WTI & OTI	LBB	Back Up	Differential	REF	Buchholz	WTI & OTI	LBB
																Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make
A. 400 kV																											
1	Balipara - Biswanath Chariali	1	Balipara	50	BHEL	POWERGRID	Biswanath Chariali	No Reactor	NA	NA	Yes	No	No	No													
2	Balipara - Biswanath Chariali	2	Balipara	50	BHEL	POWERGRID	Biswanath Chariali	No Reactor	NA	NA	Yes	No	No	No													
3	Biswanath Chariali - Ranganadi	1	Biswanath Chariali	No Reactor	NA	NA	Ranganadi	50	BHEL	NEEPCO	No	Yes	No	No								Micom P442	SGNH163/ Areva	SGNH164/AREVA	VAA33 ZG8314 FCH/A REVA	VAA33 ZG8314 FCH/A REVA	MCTI40 F1AB10 01A/Areva
4	Biswanath Chariali - Ranganadi	2	Biswanath Chariali	No Reactor	NA	NA	Ranganadi	50	BHEL	NEEPCO	No	Yes	No	No								Micom P442	SGNH163/Areva	SGNH164/AREVA	VAA33 ZG8314 FCH/A REVA	VAA33 ZG8314 FCH/A REVA	MCTI40 F1AB10 01A/Areva
5	Bongaigaon - Azara	1	Bongaigaon	63	BHEL	POWERGRID	Azara	No Reactor	NA	NA	Yes	No	No	No	Installed	Micom P441	CAG Areva	CAG Areva	Atvus	Preimeasure	Not Installed						
6	Bongaigaon - Balipara	1	Bongaigaon	50	BHEL	POWERGRID	Balipara	63	CGL	POWERGRID	Yes	No	No	No	Installed	Micom P442	CAG English	CAG English	Atvus	Preimeasure	Not Installed						
7	Bongaigaon - Balipara	2	Bongaigaon	50	BHEL	POWERGRID	Balipara	63	Alstom	POWERGRID	Yes	No	No	No	Installed	Micom P442	CAG English Electric	CAG English Electric	Atvus	Preimeasure	Not Installed						
8	Bongaigaon - Balipara	3	Bongaigaon	63	BHEL	POWERGRID	Balipara	63	BHEL	POWERGRID	Yes	Yes	No	No	Installed	Micom P441	CAG Areva	CAG Areva	Atvus	Preimeasure	Not Installed						
9	Bongaigaon - Balipara	4	Bongaigaon	63	BHEL	POWERGRID	Balipara	63	BHEL	POWERGRID	Yes	Yes	No	No	Installed	Micom P441	CAG Areva	CAG Areva	Atvus	Preimeasure	Not Installed						
10	Bongaigaon- New Siliguri	1	Bongaigaon	63	CGL	POWERGRID	New Siliguri	No Reactor	NA	NA	No	No	No	No	Installed	Micom P442	CAG English Electric	CAG English Electric	Atvus	Preimeasure	Not Installed						
11	Bongaigaon- New Siliguri	2	Bongaigaon	63	BHEL	POWERGRID	New Siliguri	No Reactor	NA	NA	No	No	No	No	Installed	Micom P442	CAG English Electric	CAG English Electric	Atvus	Preimeasure	Not Installed						
12	Bongaigaon-Alipurduar	1	Bongaigaon	No Reactor	NA	NA	New Siliguri	63		POWERGRID	No	No	No	No													
13	Bongaigaon-Alipurduar	2	Bongaigaon	No Reactor	NA	NA	New Siliguri	63		POWERGRID	No	No	No	No													
14	Bongaigaon - Byrnihat	1	Bongaigaon	63	CGL	POWERGRID	Byrnihat	No Reactor	NA	NA	Yes	No	No	No	Installed	Micom P441	CAG Areva	CAG Areva	Atvus	Preimeasure	Not Installed						
15	Palatana - Silchar	1	Palatana	63	BHEL	OTPC	Silchar	50	CGL	POWERGRID	Yes	Yes	Yes	Yes													
16	Palatana - Silchar	2	Palatana	63	BHEL	OTPC	Silchar	50	CGL	POWERGRID	Yes	Yes	Yes	Yes													
17	Silchar - Azara	1	Silchar	63	CGL	POWERGRID	Azara	63	BHEL	AEGCL	Yes	No	Yes	Yes													
18	Silchar - Byrnihat	1	Silchar	63	CGL	POWERGRID	Byrnihat	50		MePTCL	Yes	No	Yes	Yes													
19	Misa-Balipara	1	Misa	50	BHEL	POWERGRID	Balipara	No Reactor	NA	NA	Yes	No	Yes	Yes													
20	Misa-Balipara	2	Misa	50	BHEL	POWERGRID	Balipara	No Reactor	NA	NA	Yes	No	Yes	Yes													
21	Biswanath Chariali - Subansiri	1	Biswanath Chariali	63		POWERGRID	Subansiri	No Reactor	NA	NA	Used as Bus Reactor		Yes	Yes													
22	Biswanath Chariali - Subansiri	2	Biswanath Chariali	63		POWERGRID	Subansiri	No Reactor	NA	NA			Yes	Yes													

List of Line Reactors in North Eastern Region

Sl No.	Name of Line	ID	End 1				End 2				Convertable (Yes/No)		Switchable		Controlled Switching Device (CSD)	Protection Details (End 1)						Protection Details (End 1)					
			Name of Node	MVAR Rating	Make	Owner	Name of Node	MVAR Rating	Make	Owner	End 1	End 2				Back Up	Differential	REF	Buchholz	WTI & OTI	LBB	Back Up	Differential	REF	Buchholz	WTI & OTI	LBB
																Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make	Model & Make
B. 220 kV Line																											
1	AGBPP - Mariani (PG)	1	AGBPP	20	CGL	NEEPCO	Mariani (PG)	No Reactor	NA	NA	Yes	No	No	No		Model: P442, Make: Schneider	Model: P642, Make: Schneider	Model: P141, Make: Schneider,Settings:16 A	Model: AR111X2, Make: ERL (EASUN REYROLLE LTD, HOSUR)	Model: AR111X2, Make: ERL (EASUN REYROLLE LTD, HOSUR)	N/A							

Line Reactors expected to be commissioned during 2020-21 (After commissioning of these elements, they will be considered as important elements of NER)

B. 400 kV Line (Charged at 220 kV)																											
1	Misa - Mariani (PG)	1	Misa	50	BHEL	POWERGRID	Mariani (PG)	No Reactor	NA	NA	No	No	No	No	No	MICOM/P442	CAG34AF71A/ENGLISH ELECTRIC	CAG14AF12A/ENGLISH ELECTRIC		1005APS/PRECIEMEASURE	N/A							
2	Misa - Kathalguri	1	Misa	50	BHEL	POWERGRID	Kathalguri	No Reactor	NA	NA	No	No	No	No	No	MICOM/P442	CAG34AF71A/ENGLISH ELECTRIC	CAG14AF12A/ENGLISH ELECTRIC		1005APS/PRECIEMEASURE	N/A							

Details of Shunt Capacitors in NER as on 31.05.2020 is as below:

Sl No	Name of Utility	Name of Location	Designed Voltage in kV	Operating Voltage in kV	Total Number	Capacity (in MVAR)	Total Capacity (in MVAR)
1	MeECL	Mawlai	145	132	1	12.5	12.5
2	MeECL	EPIP I	145	132	2	20	40
3	MeECL	EPIP II	36	33	2	15	30
4	AEGCL	Baghjab	36	33	2	6.63	13.26
5	AEGCL	Baranagar	36	33	2	5	10
6	AEGCL	Chandrapur			1	5	5
7	AEGCL	Depota	36	33	2	5	10
8	AEGCL	Dibrugarh	36	33	2	10	20
9	AEGCL	Diphu	36	33	2	5	10
10	AEGCL	Dullavchera	36	33	1	5	5
11	AEGCL	Gohpur			2	6.63	13.26
12	AEGCL	Garmur			2	10	20
13	AEGCL	Gargaon			2	5	10
14	AEGCL	Gauripur	36	33	1	10	10
15	AEGCL	Gosaigaon	36	33	1	5	5
16	AEGCL	Kahelipara	36	33	3	5	15
17	AEGCL	Margerita	36	33	2	5	10
18	AEGCL	Nalbari			2	5	
19	AEGCL	N.Lakhimpur	36	33	1	5	5
20	AEGCL	Rangia	36	33	2	10	20
21	AEGCL	Rowta	36	33	1	15	15
22	AEGCL	Rupai	36	33	2	5	10
23	AEGCL	Sankardev Nagar	36	33	2	5	10
24	AEGCL	Sarusajai	36	33	2	10	20
25	AEGCL	Srikona	36	33	2	13.26	26.52
26	AEGCL	Sishugram			2	10	
A	**MeECL**				**5**		**82.5**
B	**AEGCL**				**41**		**263.04**
C	**Total**				**46**		**345.5**

List of Units belonging to NEEPCO

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	AGBPP	1	Gas	33.5	33.5	Assam	Mitsubishi	
2	AGBPP	2	Gas	33.5	33.5			
3	AGBPP	3	Gas	33.5	33.5			
4	AGBPP	4	Gas	33.5	33.5			
5	AGBPP	5	Gas	33.5	33.5		BHEL	
6	AGBPP	6	Gas	33.5	33.5			
7	AGBPP	7	Steam	30	30			
8	AGBPP	8	Steam	30	30			
9	AGBPP	9	Steam	30	30			
10	AGTCCPP	1	Gas	21	21	Tripura	BHEL	
11	AGTCCPP	2	Gas	21	21			
12	AGTCCPP	3	Gas	21	21			
13	AGTCCPP	4	Gas	21	21			
14	AGTCCPP	5	Steam	25.5	25.5			
15	AGTCCPP	6	Steam	25.5	25.5			
16	Doyang	1	Hydro	25	25	Nagaland	BHEL	
17	Doyang	2	Hydro	25	25			
18	Doyang	3	Hydro	25	25			
19	Khandong	1	Hydro	25	25	Assam	BHEL	
20	Khandong	2	Hydro	25	25			
21	Kopili	1	Hydro	50	50		BHEL	
22	Kopili	2	Hydro	50	50			
23	Kopili	3	Hydro	50	50			
24	Kopili	4	Hydro	50	50			
25	Kopili St II	1	Hydro	25	25		BHEL	
26	Tuirial	1	Hydro	30	30	Mizoram	BHEL	
27	Tuirial	2	Hydro	30	30			
28	Monarchak	GT	Gas	65.42	65.42	Tripura	BHEL(GE)	
29	Monarchak	ST	Gas	35.58	35.5		BHEL	
30	Monarchak	1	Solar	5	5		BHEL	
31	Ranganadi	1	Hydro	135	135	Arunachal Pradesh	BHEL	
32	Ranganadi	2	Hydro	135	135			
33	Ranganadi	3	Hydro	135	135			
34	Pare	1	Hydro	55	55	Arunachal Pradesh	ANDRITZ HYDRO	
35	Pare	2	Hydro	55	55			

List of Units belonging to NHPC

Sl No.	Station	*Unit No*	Source	Installed Capacity in MW	Effected Capacity in MW	Geographical Location	Make	Remarks
1	Loktak	1	Hydro	35	35	Manipur	ELECTROSILA (USSR)	
2	Loktak	2	Hydro	35	35		BHEL	
3	Loktak	3	Hydro	35	35		BHEL	

List of Units belonging to OTPC

Sl No	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	Palatana	GT-I	Gas	232.39	232.39	Tripura	BHEL	
2	Palatana	ST-I	Steam	130.91	130.91			
3	Palatana	GT-II	Gas	232.39	232.39			
4	Palatana	ST-II	Steam	130.91	130.91			

List of Units belonging to NTPC

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	BgTPP	1	Coal	250	250	Assam	BHEL	
2	BgTPP	2	Coal	250	250	Assam		
3	BgTPP	3	Coal	250	250	Assam		

List of Units belonging to APGCL

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	Langpi	1	Hydro	50	50	Assam	FIJI ELECTRIC CO LTD	
2	Langpi	2	Hydro	50	50	Assam	FIJI ELECTRIC CO LTD	
3	LTPS	1	Gas	15	15	Assam	WESTINGHOUSE, CANADA	De-commissioned
4	LTPS	2	Gas	15	15	Assam	WESTINGHOUSE, CANADA	
5	LTPS	3	Gas	15	15	Assam	WESTINGHOUSE, CANADA	
6	LTPS	4	Gas	15	15	Assam	MITSUBISHI, JAPAN	De-commissioned
7	LTPS	5	Gas	20	20	Assam	BHEL	
8	LTPS	6	Gas	20	20	Assam	BHEL	
9	LTPS	7	Gas	20	20	Assam	BHEL	
10	LTPS	8	Steam	37.2	37.2	Assam	BHEL	
11	LRPP	1	Gas	10	10	Assam		
12	LRPP	2	Gas	10	10	Assam		
13	LRPP	3	Gas	10	10	Assam		
14	LRPP	4	Gas	10	10	Assam		
15	LRPP	5	Gas	10	10	Assam		
16	LRPP	6	Gas	10	10	Assam		
17	LRPP	7	Gas	10	10	Assam		
14	NTPS	1	Gas	20	20	Assam	WESTINGHOUSE , USA	De commissioned
15	NTPS	2	Gas	21	21	Assam	WESTINGHOUSE , USA	
16	NTPS	3	Gas	21	21	Assam	WESTINGHOUSE , USA	
17	NTPS	4	Gas	11	11	Assam	WESTINGHOUSE , USA	
18	NTPS	5	Gas	24	24	Assam	BHEL	
19	NTPS	6	Gas	22.5	22.5	Assam	BHEL	
20	Champavati	1	Hydro	2	2	Assam	B Fouress Ltd, Bangalore	
21	Champavati	2	Hydro	2	2	Assam	B Fouress Ltd, Bangalore	
22	Myntriang	1	Hydro	1.5	1.5	Assam	HITZINGGER	
23	Myntriang	2	Hydro	1.5	1.5	Assam	HITZINGGER	
24	Suryataap	1	Solar	5	5	Assam	Hareonsolar	

List of Units belonging to MePGCL

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	Umiam St I	1	Hydro	9	9	Meghalaya	Toshiba ,Japan	
2	Umiam St I	2	Hydro	9	9	Meghalaya		
3	Umiam St I	3	Hydro	9	9	Meghalaya		
4	Umiam St I	4	Hydro	9	9	Meghalaya		
5	Umiam St II	1	Hydro	10	10	Meghalaya		
6	Umiam St II	2	Hydro	10	10	Meghalaya		
7	Umiam St III	1	Hydro	30	30	Meghalaya	BHEL	
8	Umiam St III	2	Hydro	30	30	Meghalaya		
9	Umiam St IV	1	Hydro	30	30	Meghalaya		
10	Umiam St IV	2	Hydro	30	30	Meghalaya		
11	Umtru	1	Hydro	2.8	2.8	Meghalaya	GE, Canada	
12	Umtru	2	Hydro	2.8	2.8	Meghalaya		
13	Umtru	3	Hydro	2.8	2.8	Meghalaya		
14	Umtru	4	Hydro	2.8	2.8	Meghalaya		
15	New Umtru	1	Hydro	20	20	Meghalaya	ANDRITZ HYDRO BHOPAL	
16	New Umtru	2	Hydro	20	20	Meghalaya		
17	Myndtu Leshka	1	Hydro	42	42	Meghalaya	ANDRITZ HYDRO BHOPAL	
18	Myndtu Leshka	2	Hydro	42	42	Meghalaya		
19	Myndtu Leshka	3	Hydro	42	42	Meghalaya		

List of Units belonging to TPGL

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	Gumti	1	Hydro	5	5	Tripura	BHEL	Not in Operation
2	Gumti	2	Hydro	5	5	Tripura		
3	Gumti	3	Hydro	5	5	Tripura		
4	Baramura	1	Gas	5	5	Tripura	BHEL	Not in Operation
5	Baramura	2	Gas	5	5	Tripura		Not in Operation
6	Baramura	3	Gas	6.5	6.5	Tripura		Not in Operation
7	Baramura	4	Gas	21	21	Tripura		
8	Baramura	5	Gas	21	21	Tripura		
9	Rokhia	1	Gas	8	8	Tripura	BHEL	Not in Operation
10	Rokhia	2	Gas	8	8	Tripura		Not in Operation
11	Rokhia	3	Gas	8	8	Tripura		Not in Operation
12	Rokhia	4	Gas	8	8	Tripura		Not in Operation
13	Rokhia	5	Gas	8	8	Tripura		Not in Operation
14	Rokhia	6	Gas	8	8	Tripura		Not in Operation
15	Rokhia	7	Gas	21	21	Tripura		
16	Rokhia	8	Gas	21	21	Tripura		
17	Rokhia	9	Gas	21	21	Tripura		

List of Units belonging to DoP, Nagaland

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	Likimro	1	Hydro	8	8	Nagaland	GEC Alstom	
2	Likimro	2	Hydro	8	8	Nagaland	GEC Alstom	
3	Likimro	3	Hydro	8	8	Nagaland	GEC Alstom	

List of Units belonging to P&ED, Mizoram

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	Serlui B	1	Hydro	4	4	Mizoram	BHEL	
2	Serlui B	2	Hydro	4	4	Mizoram	BHEL	
3	Serlui B	3	Hydro	4	4	Mizoram	BHEL	
4	Bairabi	1	HSD	5.7	5.7	Mizoram	BHEL	Not in operation
5	Bairabi	2	HSD	5.7	5.7	Mizoram	BHEL	Not in operation
6	Bairabi	3	HSD	5.7	5.7	Mizoram	BHEL	Not in operation
7	Bairabi	4	HSD	5.7	5.7	Mizoram	BHEL	Not in operation

List of Units belonging to DoP, AP

Sl No.	Station	*Unit No*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Make	Remarks
1	Dikshi	1	Hydro	8	8	Arunachal Pradesh	TDPS	Governor make -Toshiba
2	Dikshi	2	Hydro	8	8	Arunachal Pradesh	TDPS	Governor make -Toshiba
3	Dikshi	3	Hydro	8	8	Arunachal Pradesh	TDPS	Governor make -Toshiba

Units expected to be commissioned during 2020-21 (After commissioning of these elements, these will be considered as important elements of NER)

Sl No.	Station	*Unit/ Modul*	Source	Installed Capacity in	Effected Capacity in	Geographical Location	Owner	Remarks
1	Kameng	1	Hydro	150	150	Arunachal Pradesh	NEEPCO	
2	Kameng	2	Hydro	150	150	Arunachal Pradesh	NEEPCO	
3	Kameng	3	Hydro	150	150	Arunachal Pradesh	NEEPCO	
4	Kameng	4	Hydro	150	150	Arunachal Pradesh	NEEPCO	

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
POWERGRID				
1	Balipara	400	1 & 1/2 Circuit Breaker(I-type)	Main Bus I
				Main Bus II
		220	Double Main Cum Transfer	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Biswanath Chariali	400	1 & 1/2 Circuit Breaker (D-type-2 bays on both side)	Main Bus 1A
				Main Bus 1B
				Main Bus 2A
				Main Bus 2B
		132	Main and Transfer Bus	Main Bus I
				Main Bus II
3	Bongaigaon	400	1 & 1/2 Circuit Breaker(D-type)	Main Bus I
				Main Bus II
		220	Double Main Bus	Main Bus I
				Main Bus II
4	Misa	400	1 & 1/2 Circuit Breaker(I-type) , GIS	Main Bus I
				Main Bus II
		220	Double Main Cum Transfer	Main Bus I
				Main Bus II
				Transfer Bus I
5	Silchar	400	1 & 1/2 Circuit Breaker(I-type)	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
6	Imphal	400	1 & 1/2 Circuit Breaker(I-type)	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
7	Dimapur	220	Double Main Cum Transfer	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
8	Mariani(PG)	220	Double Main Cum Transfer	Main Bus I
				Main Bus II
9	Mokokchung	220	Double Main Cum Transfer	Main Bus I
				Main Bus II
		132	Single Main Bus	Main Bus I
10	Salakati	220	Double Main and Transfer	Main Bus I
				Main Bus II
				Transfer Bus
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
11	Aizawl	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
12	Badarpur	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
13	Haflong	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
14	Jiribam	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
15	Khliehriat	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
16	Kumarghat	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
17	Melriat	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
18	Namsai	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
19	Nirjuli	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
20	Roing	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
21	Tezu	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
22	Ziro	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
NEEPCO				
1	Ranganadi	400	Double Main Bus	Main Bus I
				Main Bus I
		132	Double Main Bus	Main Bus I
				Main Bus II
2	Kameng	400	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
3	Kopili	220	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
		132	Single Main Bus	Main Bus I
4	AGBPP	220	Double Main Bus	Main Bus I
				Main Bus II
5	AGTCCPP	132	Double Main Bus	Main Bus I
				Main Bus II
6	Doyang	132	Double Main Bus	Main Bus I
				Main Bus II
7	Khandong	132	Double Main Bus	Main Bus I
				Main Bus II
8	Khupi	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
9	Kopili Stg II	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
10	Monarchak	132	Double Main Bus	Main Bus I
				Main Bus II
11	Pare	132	Double Main Bus	Main Bus I
				Main Bus II

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
NHPC				
1	Loktak	132	Main and Transfer Bus	Main Bus I
				Main Bus II
OTPC				
1	Palatana	400	1 and 1/2 Circuit Breaker (I-type)	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Main Bus II
				Main Bus III
NTPC				
1	BgTPP	400	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
DoP, Arunachal Pradesh				
1	Along	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Bhalukpong	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
3	Chimpu	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
4	Daporijo	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
5	Deomali	220	Double Main Bus	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
6	Lekhi	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
AEGCL				
1	Azara	400	Double Main Bus	Main Bus I
				Main Bus II
		220	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Agia	220	Double Main Cum Transfer Bus	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
3	Boko	220	Double Main Cum Transfer Bus	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
4	BTPS	220	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
		132	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
5	Salakati	220	Double Main and Transfer	Main Bus I
				Main Bus II
				Transfer Bus I
		132	Double Main and Transfer	Main Bus I
				Main Bus II
				Transfer Bus I
6	Samaguri	220	Double Main Bus	Main Bus I
				Main Bus II
		132	Single Main Bus	Main Bus I
7	Sarusajai	220	Double Main Bus	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
8	Sonabil	220	Double Main Cum Transfer Bus	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
AEGCL				
9	Sonapur	220	Double Main Bus	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
10	Tinsukia	220	Double Main Cum Transfer Bus	Main Bus I
				Main Bus II
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
11	Ashok Paper Mill	132	Single Main Bus	Main Bus I
12	Bihiating	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
13	Baghjap	132	Single Main Bus	Main Bus I
14	Bornagar	132	Single Main Bus	Main Bus I
15	Bokakhat	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
16	Bokajan	132	Single Main Bus	Main Bus I
17	Depota	132	Single Main Bus	Main Bus I
18	Dhaligaon	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
19	Dhemaji	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
20	Dibrugarh	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
21	Dispur	132	Single Main Bus	Main Bus I
22	Diphu	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
23	Durlavcherra	132	Single Main Bus	Main Bus I
24	Gauripur	132	Single Main Bus	Main Bus I
25	Gohpur	132	Single Main Bus	Main Bus I
26	Golaghat	132	Single Main Bus	Main Bus I
27	Gossaigaon	132	Single Main Bus	Main Bus I
28	Haflong	132	Single Main Bus	Main Bus I
29	Jorhat	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
30	Kahilipara	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
31	Lanka	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
32	Majuli	132	Single Main Bus	Main Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
AEGCL				
33	Margherita	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
34	Moran	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
35	Nalbari	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
36	Narengi	132	Single Main Bus	Main Bus I
37	Nazira	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
38	North Lakhimpur	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
39	Pailapool	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
40	Panchgram	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
41	Pavoi	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
42	Rangia	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
43	Rowta	132	Single Main Bus	Main Bus I
44	Sibsagar	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
45	Sipajhar	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
46	Sisugram	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
47	Srikona	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
48	Umrangshu	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
APGCL				
49	Karbilangpi HEP	220	Double Main Bus	Main Bus I Main Bus II
50	Namrup(NTPS)	220	Double Main Cum Transfer Bus	Main Bus I Main Bus II
		132	Main and Transfer Bus	Main Bus I Transfer Bus I
51	Lakwa Replacement Power Project(LRPP)	132	Main and Transfer Bus	Main Bus I Transfer Bus I
52	Lakwa(LTPS)	132	Main and Transfer Bus	Main Bus I Transfer Bus I
MSPCL				
1	Churachandpur	132	Main and Transfer Bus	Main Bus I Transfer Bus I
2	Chandel	132	Main and Transfer Bus	Main Bus I Transfer Bus I
3	Elangkanpokpi	132	Main and Transfer Bus	Main Bus I Transfer Bus I
4	Imphal (Yurembam)	132	Main and Transfer Bus	Main Bus I Transfer Bus I
5	Hunding	132	Main and Transfer Bus	Main Bus I Transfer Bus I
6	Jiribam	132	Main and Transfer Bus	Main Bus I Transfer Bus I
7	Kakching	132	Main and Transfer Bus	Main Bus I Transfer Bus I
8	Karong	132	Main and Transfer Bus	Main Bus I Transfer Bus I
9	Kongba	132	Main and Transfer Bus	Main Bus I Transfer Bus I
10	Ningthoukhong	132	Main and Transfer Bus	Main Bus I Transfer Bus I
11	New Moreh	132	Main and Transfer Bus	Main Bus I Transfer Bus I
12	Rengpang	132	Main and Transfer Bus	Main Bus I Transfer Bus I
13	Thanlon	132	Main and Transfer Bus	Main Bus I Transfer Bus I
14	Thoubal	132	Main and Transfer Bus	Main Bus I Transfer Bus I
15	Tipaimukh	132	Main and Transfer Bus	Main Bus I Transfer Bus I
16	Yaingangpokpi	132	Main and Transfer Bus	Main Bus I Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
MePTCL				
1	Byrnihat	220	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
		132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Cherra	132	Single Main Bus	Main Bus I
3	EPIP I	132	Single Main Bus	Main Bus I
4	EPIP II	132	Single Main Bus	Main Bus I
5	Khliehriat	132	Single Main Bus	Main Bus I
7	Lumshong	132	Single Main Bus	Main Bus I
8	Mawlai	132	Single Main Bus	Main Bus I
9	Mendipather	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
10	Nangalbibra	132	Single Main Bus	Main Bus I
11	NEHU	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
12	NEIGRIHMS	132	Single Main Bus	Main Bus I
13	Nongstoin	132	Single Main Bus	Main Bus I
14	Tura	132	Single Main Bus	Main Bus I
MePGCL				
1	Leskha	132	Double Main Bus	Main Bus I
				Main Bus II
2	Umiam	132	Single Main Bus	Main Bus I
3	Umiam Stage 2	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
4	Umiam Stage 3	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
5	Umiam Stage 4	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
6	Umtru	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
P&ED, Mizoram				
1	Bairabi	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Khawzawl	132	Single Main Bus	Main Bus I
3	Kolasib	132	Main and Double Transfer Bus	Main Bus I
				Transfer Bus I
				Transfer Bus II
4	Luangmual	132	Single Main Bus	Main Bus I
5	Lunglei	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
6	Saitual	132	Single Main Bus	Main Bus I
7	Serchip	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
8	Sinhmui	132	Main and Double Transfer Bus	Main Bus I
				Transfer Bus I
				Transfer Bus II
9	Zuangtui	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
DoP, Nagaland				
1	Dimapur	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Kiphire	132	Single Main Bus	Main Bus I
3	Meluri	132	Single Main Bus	Main Bus I
4	Kohima	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
5	Mokokchung	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
6	Wokha	132	Single Main Bus	Main Bus I
7	Sanis	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bus(s) in North Eastern Regional Grid

Sl. No.	Name of Sub-Station/ Power Station	Voltage Level (in kV)	Bus Arrangement Scheme	Name of Bus
TSECL				
1	Agartala	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Ambassa	132	Single Main Bus	Main Bus I
3	Bodhjungnagar	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
4	Dhalabil	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
5	Dharmanagar	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
6	Jirania	132	Single Main Bus	Main Bus I
7	Kamalpur	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
8	Kailasohar	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
9	P K Bari	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
10	Rabindranagar	132	Single Main Bus	Main Bus I
11	Surajmaninagar	132	Double Main and Transfer Bus	Main Bus I
				Main Bus II
				Transfer Bus I
12	Udaipur	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
TPGL				
1	Baramura	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I
2	Rokhia	132	Main and Transfer Bus	Main Bus I
				Transfer Bus I

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner

1. Line Bay

POWERGRID

1	400/220/132 kV Balipara	400 kV Bongaigaon 1 Main Bay (with 63 MVAR Line Reactor) (413)	POWERGRID
		400 kV Bongaigaon 2 Main Bay(with 63 MVAR Line Reactor) (416)	POWERGRID
		400 kV Bongaigaon 3 Main Bay(with 63 MVAR Line Reactor) (419)	POWERGRID
		400 kV Bongaigaon 4 Main Bay(with 63 MVAR Line Reactor) (422)	POWERGRID
		400 kV Biswanath Chariali 1 Main Bay(with 50 MVAR Line Reactor) (412)	POWERGRID
		400 kV Biswanath Chariali 2 Main Bay(with 50 MVAR Line Reactor)(407)	POWERGRID
		400 kV Biswanath Chariali 3 Main Bay (415)	POWERGRID
		400 kV Biswanath Chariali 4 Main Bay (418)	POWERGRID
		400 kV Misa 1 Main Bay (410)	POWERGRID
		400 kV Misa 2 Main Bay (409)	POWERGRID
		220 kV Sonabil Bay (203)	POWERGRID
		132 kV Tenga/Khupi Bay (128)	NEEPCO
		132 kV Sonabil Bay (129)	AEGCL
		132 kV Depota Bay (130)	POWERGRID
2	+/- 800 kV HVDC Biswanath Chariali	400 kV Balipara 1 Bay	POWERGRID
		400 kV Balipara 2 Bay	POWERGRID
		400 kV Balipara 3 Bay	POWERGRID
		400 kV Balipara 4 Bay	POWERGRID
		400 kV Ranganadi 1 Bay	POWERGRID
		400 kV Ranganadi 2 Bay	POWERGRID
3	400/220/33kV Bongaigaon	400 kV Balipara 1 Bay(with 63 MVAR Line Reactor) (413)	POWERGRID
		400 kV Balipara 2 Bay (with 63 MVAR Line Reactor) (412)	POWERGRID
		400 kV Balipara 3 Bay (with 63 MVAR Line Reactor) (418)	POWERGRID
		400 kV Balipara 4 Bay (with 63 MVAR Line Reactor)	POWERGRID
		400 kV New Siliguri 1 Bay (with 63 MVAR Line Reactor) (406)	POWERGRID
		400 kV New Siliguri 2 Bay(with 63 MVAR Line Reactor) (407)	POWERGRID
		400 kV Alipurduar 1 Bay (415)	POWERGRID
		400 kV Alipurduar 2 Bay (416)	POWERGRID
		400 kV BgTPP 1 Bay	POWERGRID
		400 kV BgTPP 2 Bay	POWERGRID
		400 kV Azara Bay	POWERGRID
		400 kV Byrnihat Bay	POWERGRID

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
4	400/220/33kV Misa	400 kV Balipara 1 Bay (404)	POWERGRID
		400 kV Balipara 2 Bay (403)	POWERGRID
		220 kV Samaguri 1 Bay (211)	POWERGRID
		220 kV Samaguri 2 Bay (210)	POWERGRID
		220 kV Byrnihat (Killing) 1 Bay (223)	MeECL
		220 kV Byrnihat (Killing) 2 Bay (224)	MeECL
		220 kV Dimapur 1 Bay (217)	POWERGRID
		220 kV Dimapur 2 Bay (216)	POWERGRID
		220 kV Kopili 1 Bay (212)	POWERGRID
		220 kV Kopili 2 Bay (213)	POWERGRID
		220 kV Kopili 3 Bay (214)	POWERGRID
		220 kV Mariani(PG) Main Bay (with 50 MVAR Line Reactor) (207)	POWERGRID
		220 kV AGBPP Main Bay (with 50 MVAR Line Reactor) (206)	POWERGRID
5	400/132/33 kV Silchar	400 kV Palatana 1 Main Bay(With 50 MVAR Line Reactor) (412)	POWERGRID
		400 kV Palatana 2 Main Bay(With 50 MVAR Line Reactor) (409)	POWERGRID
		400 kV Byrnihat Main Bay (with 63 MVAR Line Reactor) (403)	POWERGRID
		400 kV Azara Main Bay (with 63 MVAR Line Reactor) (406)	POWERGRID
		132 kV Srikona 1 Bay (102)	POWERGRID
		132 kV Srikona 2 Bay(101)	POWERGRID
		132 kV Badarpur 1 Bay (115)	POWERGRID
		132 kV Badarpur 2 Bay (116)	POWERGRID
		132 kV Imphal 1 Bay (104)	POWERGRID
		132 kV Imphal 2 Bay (103)	POWERGRID
		132 kV Hailakandi 1 Bay (114)	POWERGRID
		132 kV Hailakandi 2 Bay(113)	POWERGRID
		132 kV P K Bari 1 Bay (109)	POWERGRID
6	220/132 kV Dimapur(PG)	220 kV Misa 1 Bay (201)	POWERGRID
		220 kV Misa 2 Bay (202)	POWERGRID
		132 kV Bokajan Bay (104)	POWERGRID
		132 kV Doyang 1 Bay (101)	POWERGRID
		132 kV Doyang 2 Bay (102)	POWERGRID
		132 kV Dimapur (DoP, Nagaland) 1 Bay (105)	POWERGRID
		132 kV Dimapur (DoP, Nagaland) 2 Bay (111)	POWERGRID
		132 kV Kohima Bay (109)	POWERGRID
		132 kV Imphal Bay (103)	POWERGRID
7	220kV Mariani(PG)	220 kV AGBPP (Kathalguri) Bay	POWERGRID
		220 kV Mokokchung 1 Bay	POWERGRID
		220 kV Mokokchung 1 Bay	POWERGRID
		220 kV Misa Bay	POWERGRID

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
8	220 kV Mokokchung(PG)	220 kV New Mariani 1 Bay (201)	POWERGRID
		220 kV New Mariani 2 Bay (204)	POWERGRID
		132 kV Mokokchung(NG) 1 Bay (101)	POWERGRID
		132 kV Mokokchung(NG) 2 Bay (103)	POWERGRID
9	220/132kV Salakati	220 kV Alipurduar 1 Bay (203)	POWERGRID
		220 kV Alipurduar 2 Bay (204)	POWERGRID
		220 kV BTPS (AEGCL) 1 Bay (208)	POWERGRID
		220 kV BTPS (AEGCL) 2 Bay (207)	POWERGRID
		132 kV Gelephu Bay (110)	POWERGRID
10	132 kV Aizawl	132 kV Jiribam Bay(101)	POWERGRID
		132 kV Kumarghat Bay(102)	POWERGRID
		132 kV Kolasib Bay(106)	POWERGRID
		132 kV Luangmual Bay(103)	P&ED, Mizoram
		132 kV Melriat Bay(107)	POWERGRID
11	132 kV Badarpur	132 kV Khliehriat Bay(101)	POWERGRID
		132 kV Kumarghat Bay(104)	POWERGRID
		132 kV Jiribam Bay(108)	POWERGRID
		132 kV Kolasib Bay (106)	POWERGRID
		132 kV Silchar 1 Bay(103)	POWERGRID
		132 kV Silchar 2 Bay (102)	POWERGRID
		132 kV Panchgram Bay (105)	POWERGRID
12	132 kV Haflong(PG)	132 kV Haflong (AS) Bay(103)	POWERGRID
		132 kV Umrangshu Bay(102)	POWERGRID
		132 kV Jiribam Bay(101)	POWERGRID
13	132 kV Imphal(PG)	132 kV Imphal (MA) 1 Bay(102)	POWERGRID
		132 kV Imphal (MA) 2 Bay(112)	POWERGRID
		132 kV Ningthoukhong Bay (101)	POWERGRID
		132 kV Loktak 1 Bay (105)	POWERGRID
		132 kV Silchar 1 Bay (116)	POWERGRID
		132 kV Silchar 2 Bay(118)	POWERGRID
		132 kV Dimapur (PG) Bay(103)	POWERGRID
14	132/33 kV Jiribam(PG)	132 kV Badarpur Bay	POWERGRID
		132 kV Aizawl Bay	POWERGRID
		132 kV Loktak Bay	POWERGRID
		132 kV Jiribam (MA) Bay	POWERGRID
		132 kV Haflong Bay	POWERGRID
		132 kV Pailapool Bay	POWERGRID
15	132 kV Khliehriat(PG)	132 kV Badarpur Bay (104)	POWERGRID
		132 kV Khliehriat 1 Bay (101)	POWERGRID
		132 kV Khliehriat 2 Bay(106)	MeECL
		132 kV Khandong 1 Bay (102)	POWERGRID
		132 kV Khandong 2 Bay (103)	POWERGRID
16	132/33 kV Kumarghat	132 kV Badarpur Bay (107)	POWERGRID
		132 kV Aizawl Bay (103)	POWERGRID
		132 kV R C Nagar (AGTCCPP) Bay (102)	POWERGRID
		132 kV P K Bari Bay (104)	POWERGRID
17	132/33 kV Nirjuli	132 kV Lekhi Bay (05)	POWERGRID
		132 kV Gohpur Bay (18)	POWERGRID

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
18	132/33 kV Ziro	132 kV Ranganadi Bay	POWERGRID
		132 kV Daporizo Bay	POWERGRID
19	132/33 kV Roing	132 kV Pasighat Bay	POWERGRID
		132 kV Tezu Bay	POWERGRID
20	132/33 kV Tezu	132 kV Namsai Bay	POWERGRID
		132 kV Roing	POWERGRID
21	132 kV Melriat	132 kV Aizawl Bay	POWERGRID
		132 kV Zuangtui	POWERGRID
22	132/33 kV Namsai	132 kV Tezu Bay	POWERGRID

NEEPCO

1	400/132 kV Ranganadi	400 kV Balipara 1 Main Bay(With 50 MVAR Line Reactor)	NEEPCO
		400 kV Balipara 2 Main Bay(With 50 MVAR Line Reactor)	NEEPCO
		132 kV Pare Bay	NEEPCO
		132 kV Itanagar I Bay	NEEPCO
		132 kV Itanagar 2 Bay	NEEPCO
		132 kV Ziro Bay	NEEPCO
2	400/132 kV Kameng	400 kV Balipara 1 Main Bay	NEEPCO
		400 kV Balipara 2 Main Bay	NEEPCO
3	220/132 kV AGBPP	220 kV Misa Bay	NEEPCO
		220 kV New Mariani Bay	NEEPCO
		220 kV Tinsukia 1 Bay	NEEPCO
		220 kV Tinsukia 2 Bay	NEEPCO
		220 kV Deomali Bay	NEEPCO
4	220/132 kV Kopili	220 kV Misa 1 Bay	NEEPCO
		220 kV Misa 2 Bay	NEEPCO
		220 kV Misa 3 Bay	NEEPCO
		132 kV Khandong 1 Bay	POWERGRID
		132 kV Khandong 2 Bay	POWERGRID
5	132 kV AGTCCPP	132 kV Agartala 1 Bay	NEEPCO
		132 kV Agartala 2 Bay	NEEPCO
		132 kV Kumarghat Bay	NEEPCO
6	132 kV Doyang	132 kV Dimapur 1 Bay	NEEPCO
		132 kV Dimapur 2 Bay	NEEPCO
		132 kV Mokokchung Bay	NEEPCO
		132 kV Sanis Bay	NEEPCO
6	132/33 kV Khandong	132 kV Kopili 1 Bay	NEEPCO
		132 kV Kopili 2 Bay	POWERGRID
		132 kV Khliehriat 1 Bay	NEEPCO
		132 kV Khliehriat 2 Bay	POWERGRID
		132 kV Umrangshu Bay	NEEPCO
7	132 kV Monarchak	132 kV Rokhia	NEEPCO
		132 kV Udaipur	NEEPCO
8	132 kV Tuirial	132 kV Kolasib	NEEPCO
9	132 kV Pare	132 kV Ranganadi	NEEPCO
		132 kV Lekhi	NEEPCO
		132 kV Itangar	DOP , AP

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
NHPC			
1	132kV Loktak	132 kV Imphal 1 Bay	NHPC
		132 kV Imphal 2 Bay	NHPC
		132 kV Jiribam(PG)(Rengpang) Bay	NHPC
		132 kV Jiribam(MA) Bay	NHPC
OTPC			
1	400/132 kV Palatana	400 kV Silchar 1 Bay(with 63 MVAR Line Reactor) (406)	OTPC
		400 kV Silchar 2 Bay(with 63 MVAR Line Reactor) (409)	OTPC
		132 kV Udaipur Bay	OTPC
		132 kV Surajmani Nagar 1 (Charged at 132 kV) Bay	OTPC
		132 kV Surajmani Nagar 2 (Charged at 132 kV) Bay	OTPC
NTPC			
1	400/220 kV BgTPP	400 kV Bongaigaon 1 Bay (401)	NTPC
		400 kV Bongaigaon 2 Bay (402)	NTPC
DoP, Arunachal Pradesh			
1	132/33 kV Along	132 kV Daporizo Bay (01)	DoP, Arunachal Pradesh
		132 kV Pasighat Bay (02)	DoP, Arunachal Pradesh
2	132/33 kV Bhalukpong	132 kV Balipara Bay	DoP, Arunachal Pradesh
		132 kV Kimi Bay	DoP, Arunachal Pradesh
3	132/33 kV Daporijo	132 kV Along Bay	DoP, Arunachal Pradesh
		132 kV Ziro Bay	DoP, Arunachal Pradesh
4	220/132/33 kV Deomali	220 kV AGBPP (Kathalguri) Bay (Bay No. L2)	DoP, Arunachal Pradesh
		132 kV Khonsa Bay (Bay No.1)	DoP, Arunachal Pradesh
5	132 kV Lekhi	132 kV Pare Bay	DoP, Arunachal Pradesh
		132 kV Nirjuli Bay	DoP, Arunachal Pradesh
		132 kV Itanagar Bay	DoP, Arunachal Pradesh

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
AEGCL			
1	400/220 Azara	400 kV Silchar 1 Main Bay(with 63 MVAR Line Reactor) (410)	AEGCL
		400 kV Bongaigaon 1 Main Bay (407)	AEGCL
		220 kV Sarusajai 1 Main Bay (208)	AEGCL
		220 kV Sarusajai 1 Main Bay (209)	AEGCL
		220 kV Agia Main Bay (210)	AEGCL
		220 kV Boko Main Bay (211)	AEGCL
2	220/132/66/33 kV Agia	220 kV Boko Bay	AEGCL
		220 kV BTPS 1 Bay	AEGCL
		220 kV BTPS 2 Bay	AEGCL
		220 kV AzaraBay	AEGCL
		132 kV Mendipather Bay	AEGCL
		132 kV Dudhnoi Bay	AEGCL
3	220/132/33kV Boko	220 kV Agia Bay	AEGCL
		220 kV Azara Bay	AEGCL
4	220/132/33 kV BTPS	220 kV Salakati 1 Bay	AEGCL
		220 kV Salakati 2 Bay	AEGCL
		220 kV Rangia 1 Bay	AEGCL
		220 kV Rangia 2 Bay	AEGCL
		220 kV Agia I Bay	AEGCL
		220 kV Agia I Bay	AEGCL
		132 kV Dhaligaon 1 Bay	AEGCL
		132 kV Dhaligaon 2 Bay	AEGCL
		132 kV Jogighopa	AEGCL
		132 kV Kokrajhar Bay	AEGCL
5	220/33 kV Jawaharnagar	220 kV Samaguri Main Bay	AEGCL
		220 kV Sarusajai Main Bay	AEGCL
6	220 kV Langpi HEP	220 kV Sarusajai 1 Bay	AEGCL
		220 kV Sarusajai 2 Bay	AEGCL
7	220/132/66/33 kV Mariani	220 kV Misa Bay	POWERGRID
		220 kV AGBPP Bay	POWERGRID
		220 kV Samaguri Bay	AEGCL
		132 kV Jorhat 1 Bay	AEGCL
		132 kV Jorhat 2 Bay	AEGCL
		132 kV Golaghat Bay	AEGCL
		132 kV Mokokchung (NG) Bay 3	AEGCL
8	220/132/66/33 kV Namrup TPS	220 kV Tinsukia 1 Bay	AEGCL
		220 kV Tinsukia 2 Bay	AEGCL
		220 kV Mariani Bay	AEGCL
		132 kV Tinsukia Bay	AEGCL
		132 kV LTPS 1 Bay	AEGCL
		132 kV Sonari Bay	AEGCL
		132kV Bordubi	AEGCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
9	220/132/33 kV Samaguri	220 kV Jawaharnagar Bay	AEGCL
		220 kV Sonapur Bay	AEGCL
		220 kV Sonabil 1 Bay	AEGCL
		220 kV Sonabil 2 Bay	AEGCL
		220 kV Misa 1 Bay	POWERGRID
		220 kV Misa 2 Bay	POWERGRID
		220 kV Mariani (AS) Bay	AEGCL
		220 kV Mariani (PG) Bay	AEGCL
		132 kV Khaloigaon Bay	AEGCL
		132 kV Sankardev Nagar 1 Bay	AEGCL
		132 kV Sankardev Nagar 2 Bay	AEGCL
10	220/132/33 kV Sarusajai	220 kV Mirza 1 Bay	AEGCL
		220 kV Langpi 1 Bay	AEGCL
		220 kV Langpi 2 Bay	AEGCL
		220 kV Mirza 2 Bay	AEGCL
		220 kV Jawaharnagar Bay	AEGCL
		220 kV Sonapur Bay	AEGCL
		132 kV Kahilipara 1 Bay	AEGCL
		132 kV Kahilipara 2 Bay	AEGCL
		132 kV Kahilipara 3 Bay	AEGCL
		132 kV Kamakhya Bay	AEGCL
		132 kV Umtru 1 Bay	AEGCL
		132 kV Umtru 2 Bay	AEGCL
11	220/132/33 kV Sonabil	220 kV Balipara 1 Bay	AEGCL
		220 kV Samaguri 1 Bay	AEGCL
		220 kV Samaguri 2 Bay	AEGCL
		132 kV Gohpur Bay	AEGCL
		132 kV Pavoi Bay	AEGCL
		132 kV Depota Bay	AEGCL
		132 kV Balipara Bay	AEGCL
12	220/132 kV Sonapur GIS	220 kV Samaguri Bay	AEGCL
		220 kV Sarusajai Bay	AEGCL
		132 kV Baghjap 1 Bay	AEGCL
		132 kV Baghjap 2 Bay	AEGCL
		132 kV Chandrapur Bay	AEGCL
		132 kV Narengi Bay	AEGCL
13	220/11 kV Star Cement	T of 220 kV Langpi - Sarusajai at Sonapur Bay	AEGCL
14	220/132/66/33 kV Tinsukia	220 kV NTPS 1 Bay	AEGCL
		220 kV NTPS 2 Bay	AEGCL
		220 kV AGBPP 1 Bay	AEGCL
		220 kV AGBPP 2 Bay	AEGCL
		132 kV Ledo Bay	AEGCL
		132 kV Dibrugarh Bay	AEGCL
		132 kV Rupai Bay	AEGCL
		132 kV NTPS Bay	AEGCL
15	132/33 kV APM	132 kV Dhaligaon Bay	AEGCL
16	132/33 kV Behiating	132 kV Dibrugarh Main Bay	AEGCL
		132 kV Moran Main bay	AEGCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
17	132 kV Bilashipara	132 kV Gauripur Bay	AEGCL
		132 kV Kokrajhar Bay	AEGCL
18	132/66/33 kV Bokajan	132 kV Dimapur (PG) Bay	AEGCL
19	132/33 kV Bokakhat	132 kV Jorhat Bay	AEGCL
20	132/33 kV Bornagar	132 kV Dhaligaon Bay	AEGCL
		132 kV Rangia Bay	AEGCL
21	132/11 kV BRPL	132 kV Dhaligaon Bay	AEGCL
22	132/33 kV CTPS	132 kV Narengi Bay	AEGCL
		132 kV Baghjap Bay	AEGCL
		132 kV Dispur Bay	AEGCL
23	132/33 kV Depota	132 kV Rowta 1 Bay	AEGCL
		132 kV Rowta 2 Bay	AEGCL
		132 kV Gohpur Bay	AEGCL
		132 kV Balipara Bay	AEGCL
24	132/33 kV Dhaligaon	132 kV Gossaigaon Bay	AEGCL
		132 kV BRPL Bay	AEGCL
		132 kV APM Bay	AEGCL
		132 kV Rangia Bay	AEGCL
		132 kV BTPS 1 Bay	AEGCL
		132 kV BTPS 2 Bay	AEGCL
		132 kV Bornagar Bay	AEGCL
25	132/33 kV Dhemaji	132 kV North Lakhimpur Bay	AEGCL
26	132/33 kV Dibrugarh	132 kV Tinsukia Bay	AEGCL
		132 kV Bihiating Bay	AEGCL
27	132/66/33 kV Diphu	132 kV Sankardev Nagar Bay	AEGCL
28	132/11 kV Dispur	132 kV Kahilipara Bay	AEGCL
		132 kV CTPS Bay	AEGCL
29	132/33 kV Dullavcherra	132 kV Dharmanagar Bay	AEGCL
		132 kV Panchgram Bay	AEGCL
30	132/33 kV Gauripur	132 kV Bilasipara	AEGCL
		132 kV Gossaigaon Bay	AEGCL
31	132/33 kV Ghoramari	T of 132 kV Balipara - Depota Bay	AEGCL
32	132/33 kV Gohpur	132 kV Depota Bay	AEGCL
		132 kV Nirjuli Bay	POWERGRID
		132 kV North Lakhimpur 1 Bay	AEGCL
		132 kV North Lakhimpur 2 Bay	AEGCL
		132 kV Balipara Bay	AEGCL
33	132/33 kV Golaghat	132 kV Mariani Bay	AEGCL
		132 kV Bokajan Bay	AEGCL
34	132/33 kV Gossaigaon	132 kV Gauripur Bay	AEGCL
		132 kV Dhaligaon Bay	AEGCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
35	132/33 kV Haflong	132 kV Haflong (PG) Bay	AEGCL
36	132/11 kV HPC Jagiroad	132 kV Baghjap Bay	AEGCL
37	132/11 kV HPC Panchgram	132 kV Panchgram Bay	AEGCL
38	132/33 kV Jagiroad	132 kV CTPS Bay	AEGCL
		132 kV HPC, J Bay	AEGCL
		132kV Sonapur 1 Bay	AEGCL
		132 kV Sonapur 2 Bay	AEGCL
39	132/33 kV Jorhat	132 kV Mariani 1 Bay	AEGCL
		132 kV Mariani 2 Bay	AEGCL
		132 kV Nazira Bay	AEGCL
		132 kV Bokakhat Bay	AEGCL
40	132/66/11 kV Kahilipara	132 kV Umtru 1 Bay	AEGCL
		132 kV Umtru 2 Bay	AEGCL
		132 kV Sarusajai 1 Bay	AEGCL
		132 kV Sarusajai 2 Bay	AEGCL
		132 kV Sarusajai 3 Bay	AEGCL
		132 kV Kamalpur Bay	AEGCL
		132 kV Sishugram Bay	AEGCL
		132 kV Narengi Bay	AEGCL
		132 kV Dispur Bay	AEGCL
		132 kV Rangia Bay	AEGCL
41	132 kV Kokrajhar	132 kV Bilashipara Bay	AEGCL
		132 kV BTPS	AEGCL
42	132 kV Kamalpur	132 kV Rangia 1 Bay	AEGCL
		132 kV Rangia 2 Bay	AEGCL
		132 kV Kahilipara Bay	AEGCL
		132 kV Sishugram Bay	AEGCL
43	132/33 kV Lakwa TPS	132 kV NTPS Bay	AEGCL
		132 kV Sonari Bay	AEGCL
		132 kV Moran Bay	AEGCL
		132 kV Mariani Bay	AEGCL
		132 kV Nazira 1 Bay	AEGCL
		132 kV Nazira 2 Bay	AEGCL
44	132/33 kV Ledo	132 kV Tinsukia Bay	AEGCL
		132 kV Rupai Bay	AEGCL
45	132/33 kV Majuli	132 kV North Lakhimpur Bay	AEGCL
46	132/33 kV Moran	132 kV LTPS Bay	AEGCL
		132 kV Bihiating Bay	AEGCL
47	132/33 kV Nalbari	132 kV Dhaligaon Bay	AEGCL
		132 kV Rangia Bay	AEGCL
48	132/32 kV Narengi	132 kV Kahilipara Bay	AEGCL
		132 kV CTPS Bay	AEGCL
49	132/33 kV Nazira	132 kV LTPS 1 Bay	AEGCL
		132 kV LTPS 2 Bay	AEGCL
		132 kV Jorhat Bay	AEGCL
		132 kV Sibsagar Bay	AEGCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
50	132/33 kV North Lakhimpur	132 kV Gohpur 1 Bay	AEGCL
		132 kV Gohpur 2 Bay	AEGCL
		132 kV Dhemaji Bay	AEGCL
		132 kV Majuli Bay	AEGCL
51	132/33 kV Pailapool	132 kV Jiribam (PG) Bay	AEGCL
		132 kV Srikona Bay	AEGCL
52	132/33 kV Panchgram	132 kV Khliehriat Bay	AEGCL
		132 kV Badapur Bay	POWERGRID
		132 kV Srikona Bay	AEGCL
53	132/33 kV Pavoi	132 kV Gohpur Bay	AEGCL
		132 kV Biswanath Chariali 1 Bay	AEGCL
		132 kV Biswanath Chariali 2 Bay	AEGCL
		132 kV Sonabil Bay	AEGCL
54	132/11 kV Prag Basumi	132 kV Sishugram Bay	AEGCL
55	132/33 kV Rangia	132 kV Kahilipara Bay	AEGCL
		132 kV Bornagar Bay	AEGCL
		132 kV Sipajhar Bay	AEGCL
		132 kV Sishugram Bay	AEGCL
		132 kV Rowta Bay	AEGCL
		132 kV Nalbari Bay	AEGCL
		132 kV Motonga Bay	AEGCL
56	132/33 kV Rowta	132 kV Sipajhar Bay	AEGCL
		132 kV Rangia Bay	AEGCL
		132 kV Depota 1 Bay	AEGCL
		132 kV Depota 2 Bay	AEGCL
57	132/33 kV Sankardev Nagar	132 kV Samaguri 1 Bay	AEGCL
		132 kV Samaguri 2 Bay	AEGCL
		132 kV Calcom	AEGCL
		132 kV Diphu Bay	AEGCL
58	132/33 kV Sibsagar	132 kV Nazira Bay	AEGCL
59	132/33 kV Sipajhar	132 kV Rangia Bay	AEGCL
		132 kV Rowta Bay	AEGCL
60	132/33 kV Sisugram	132 kV Kamalpur Bay	AEGCL
		132 kV Kamakhya Bay	AEGCL
61	132/33 kV Srikona	132 kV Silchar 1 Bay	POWERGRID
		132 kV Silchar 2 Bay	POWERGRID
		132 kV Panchgram Bay	AEGCL
		132 kV Pailapool Bay	AEGCL
62	132/11 kV Telcom	132 kV Sankardev Nagar Bay	AEGCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
MSPCL			
1	132/33 kV Churachandpur	132 kV Ningthoukhong 1 Bay	MSPCL
		132 kV Ningthoukhong 2 Bay	MSPCL
		132 kV Thanlon Bay	MSPCL
		132 kV Elangkhangpokpi 1 Bay	MSPCL
		132 kV Elangkhangpokpi 2 Bay	MSPCL
2	132/33 kV Imphal	132 kV Imphal 1 Bay	MSPCL
		132 kV Imphal 2 Bay	MSPCL
		132 kV Yaingangpokpi 1 Bay	MSPCL
		132 kV Yaingangpokpi 2 Bay	MSPCL
		132 kV Karong Bay	MSPCL
3	132/33 kV Jiribam	132 kV Jiribam(PG) Bay	MSPCL
		132 kV Rengpang Bay	MSPCL
4	132/33 kV Kakching	132 kV Kongba Bay	MSPCL
		132kV Elangkhangpokpi Bay	MSPCL
		132kV Elangkhangpokpi Bay	MSPCL
		132 kV Moreh Bay	MSPCL
		132 kV Chandel Bay	MSPCL
5	132/33 kV Karong	132 kV Kohima Bay	MSPCL
		132 kV Imphal (MA) Bay	MSPCL
6	132/33 kV Kongba	132 kV Kakching Bay	MSPCL
		132 kV Yaingangpokpi Bay	MSPCL
7	132/33 kV Ningthoukhong	132 kV Churachandpur 1 Bay	MSPCL
		132 kV Churachandpur 2 Bay	MSPCL
		132 kV Loktak Bay	MSPCL
		132 kV Imphal (PG) Bay	MSPCL
8	132/33 kV Rengpang	132 kV Loktak Bay	MSPCL
		132 kV Jiribam (PG) Bay	MSPCL
9	132/33 kV Yaingangpokpi	132 kV Kakching Bay	MSPCL
		132 kV Yurembam 1 Bay	MSPCL
		132 kV Yurembam 2 Bay	MSPCL
		132kV Hundung Bay	MSPCL
10	132/33kV Elangkhangpokpi	132 kV Churachandpur 1 Bay	MSPCL
		132 kV Kakching Bay	MSPCL

MePTCL

1	400/220/132 kV Byrnihat	400 kV Silchar Bay(With 50 MVAR Line Reactor)	POWERGRID
		400 kV Bongaigaon Main Bay	POWERGRID
		220 kV Misa 1 Bay	MePTCL
		200 kV Misa 2 Bay	MePTCL
		132 kV EPIP II 1 Bay	MePTCL
		132 kV EPIP II 2 Bay	MePTCL
		132 kV EPIP I 1 Bay	MePTCL
		132 kV EPIP I 2 Bay	MePTCL
2	132/33 kV Cherapunjee	132 kV Mawlai Bay	MePTCL
3	132/33 kV EPIP I	132 kV EPIP II (Norbong) 1 Bay	MePTCL
		132 kV EPIP II (Norbong) 2 Bay	MePTCL
		132 kV Shyam Century Bay	MePTCL
		132 kV Greystone Bay	MePTCL
		132 kV Sai Prakash Bay	MePTCL
		132 kV Maithan Bay	MePTCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
4	132/33 kV EPIP II	132 kV EPIP I (Raja Bagan) 1 Bay	MePTCL
		132 kV EPIP I (Raja Bagan) 2 Bay	MePTCL
		132 kV Umtru 1 Bay	MePTCL
		132 kV Umtru 2 Bay	MePTCL
		132 kV Killing 1 Bay	MePTCL
		132 kV Killing 2 Bay	MePTCL
		132 kV Trishul Bay	MePTCL
		132 kV Nalari Bay	MePTCL
5	132/33 kV Khliehriat	132 kV Khliehriat (PG) 1 Bay	POWERGRID
		132 kV Khliehriat (PG) 2 Bay	POWERGRID
		132 kV Myntdu Leshka 1 Bay	MePTCL
		132 kV Myntdu Leshka 2 Bay	MePTCL
		132 kV NEHU Bay	MePTCL
		132 kV NEIGRIHMS Bay	MePTCL
		132 kV Lumnsnong Bay	MePTCL
6	132/33/11 kV Lumsnong	132 kV Adhunik Cement Bay	MePTCL
		132 kV Khliehriat Bay	MePTCL
		132 kV JUD Cement Bay	MePTCL
		132 kV Panchgram Bay	MePTCL
		132 kV CMCL Bay	MePTCL
		132 kV MCL Bay	MePTCL
		132 kV Hill Cement Bay	MePTCL
7	132/11 kV Mawlai	132 kV Sumer Bay	MePTCL
		132 kV Mawngap Bay	MePTCL
		132 kV Cherrapunjee (Sohra) Bay	MePTCL
		132 kV NEHU Bay	MePTCL
8	132/33 kV Mwangap	132 kV Umiam Stg I - 1 Bay	MePTCL
		132 kV Umiam Stg II - 2 Bay	MePTCL
		132 kV Mawlai Bay	MePTCL
		132 kV Nongstoin Bay	MePTCL
9	132 kV Myntdu Leshka	132 kV Khliehriat 1 Bay	MePTCL
		132 kV Khliehriat 2 Bay	MePTCL
10	132/33 kV Nangalbibra	132 kV Tura Bay	MePTCL
		132 kV Agia Bay	MePTCL
		132 kV Mawlai Bay	MePTCL
11	132/33 kV NEHU	132 kV NEIGRIHMS Bay	MePTCL
		132 kV Khliehriat Bay	MePTCL
		132 kV Mawlai Bay	MePTCL
		132 kV Sumer Bay	MePTCL
12	132/33 kV NEIGRIHMS	132 kV Khliehriat Bay	MePTCL
		132 kV NEHU Bay	MePTCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
13	New Umtru	132 kV EPIP II Bay	MePTCL
		132 kV Umtru1 Bay	MePTCL
14	132/33 kV Nongstoin	132 kV Mawphlang Bay	MePTCL
		132 kV Nangalbibra Bay	MePTCL
15	132/33 kV Umiam	132 kV NEHU Bay	MePTCL
		132 kV Umiam Stg I Bay	MePTCL
16	132 kV Umiam Stg I	132 kV Umiam Stg III 1 Bay	MePTCL
		132 kV Umiam Stg III 2 Bay	MePTCL
		132 kV Mawngap 1 Bay	MePTCL
		132 kV Mawngap 2 Bay	MePTCL
		132 kV Umiam Stg II Bay	MePTCL
		132 kV Mawlai Bay	MePTCL
		132 kV Umiam Bay	MePTCL
17	132 kV Umiam Stg II	132 kV Umiam Stg I Bay	MePTCL
18	132 kV Umiam Stg III	132 kV Umiam Stg I 1 Bay	MePTCL
		132 kV Umiam Stg II 1 Bay	MePTCL
		132 kV Umiam Stg IV 1 Bay	MePTCL
		132 kV Umiam Stg IV 2 Bay.	MePTCL
		132 kV Umtru 1 Bay	MePTCL
		132 kV Umtru 2 Bay	MePTCL
19	132 kV Umiam Stg IV	132 kV Umiam Stg III 1 Bay	MePTCL
		132 kV Umiam Stg III 2 Bay	MePTCL
		132 kV Umtru 1 Bay	MePTCL
		132 kV Umtru 2 Bay	MePTCL
20	132 kV Umtru	132 kV Umiam Stg IV 1 Bay	MePTCL
		132 kV Umiam Stg IV 2 Bay	MePTCL
		132 kV EPIP II (Norbong) 1 Bay	MePTCL
		132 kV EPIP II (Norbong) 2 Bay	MePTCL
		132 kV Umiam Stg III 1 Bay	MePTCL
		132 kV Umiam Stg III 2 Bay	MePTCL
		132 kV Sarusajai 1 Bay	MePTCL
		132 kV Sarusajai 2 Bay	MePTCL
		132 kV Kahilipara 1 Bay	MePTCL
		132 kV Kahilipara 2 Bay	MePTCL
21	132/33/11 kV Tura	132 kV Nangalbibra Bay	MePTCL

MePTCL Private Power Utilities

1	132 kV Adhunik Cement	132 kV Lumsnong Bay	MePTCL
2	132 kV CMCL	132 kV Lumsnong Bay	MePTCL
3	132 kV Greystone	132 kV EPIP I Bay	MePTCL
4	132 kV Hill Cement	132 kV Lumsnong Bay	MePTCL
5	132 kV JUD Cement	132 kV Lumsnong Bay	MePTCL
6	132 kV Maithan	132 kV EPIP I Bay	MePTCL
7	132 kV MCL	132 kV Lumsnong Bay	MePTCL
8	132 kV MPL	132 kV Lumsnong Bay	MePTCL
9	132 kV Nalari	132 kV EPIP II Bay	MePTCL
10	132 kV Sai Prakash	132 kV EPIP I Bay	MePTCL
11	132 kV Shyam Century	132 kV EPIP I Bay	MePTCL
12	132 kV Trishul	132 kV EPIP II Bay	MePTCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
P&ED, Mizoram			
1	132/33 kV Bairabi	132 kV Kolasib Bay	P&ED, Mizoram
2	132/66/33 kV Kolasib	132 kV Aizawl (PG) Bay	POWERGRID
		132 kV Turial Bay	NEEPCO
		132 kV Badarpur Bay	POWERGRID
		132 kV Bairabi Bay	P&ED, Mizoram
3	132/33 kV Khawzawl	132 kV Ngopa Bay	P&ED, Mizoram
		132 kV Saitual Bay	P&ED, Mizoram
		132 kV E.Lungdar	P&ED, Mizoram
		132 kV Champhai	P&ED, Mizoram
4	132/33 kV Longmol	132 kV Aizawl (PG) Bay	P&ED, Mizoram
5	132/33 kV Lunglei	132 kV Serchip Bay	P&ED, Mizoram
6	132/33 kV Saitual	132 kV Zuangtui Bay	P&ED, Mizoram
7	132/33 kV Serchip	132 kV Khawiva Bay	P&ED, Mizoram
		132 kV Zuangtui Bay	P&ED, Mizoram
8	132/33 kV Sinhmui	132 kV Kolasib Bay	P&ED, Mizoram
		132 kV Turial 1 Bay	P&ED, Mizoram
		132 kV Turial 2 Bay	P&ED, Mizoram
		132 kV Turial 3 Bay	P&ED, Mizoram
		132 kV Luangmual Bay	P&ED, Mizoram
		132 kV Melriat Bay	P&ED, Mizoram
9	132/33 kV Zuangtui	132 kV Bukpui Bay	P&ED, Mizoram
		132 kV Saitual Bay	P&ED, Mizoram
		132 kV Aizawl (PG) Bay	P&ED, Mizoram
DoP, Nagaland			
1	132/66 kV Dimapur	132 kV Dimapur (PG) 1 Bay	DoP, Nagaland
		132 kV Dimapur (PG) 2 Bay	DoP, Nagaland
		132 kV Kohima Bay	DoP, Nagaland
2	132/66/33 kV Kiphire	132 kV Meluri Bay	DoP, Nagaland
3	132/33 kV Kohima	132 kV Wokha Bay	DoP, Nagaland
		132 kV Dimapur (PG) Bay	DoP, Nagaland
		132 kV Karong Bay	DoP, Nagaland
		132 kV Meluri Bay	DoP, Nagaland
4	132/33 kV Meluri	132 kV Kiphire Bay	DoP, Nagaland
		132 kV Kohima Bay	DoP, Nagaland
5	132/66/33 kV Mokokchung	132 kV Doyang Bay	DoP, Nagaland
		132 kV Mariani (AEGCL) Bay	AEGCL
6	132/33 kV Wokha	132 kV Sanis Bay	DoP, Nagaland
		132 kV Kohima Bay	DoP, Nagaland
7	132/33 kV Sanis	132 kV Doyang Bay	DoP, Nagaland
		132 kV Wokha Bay	DoP, Nagaland

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
TSECL			
1	132/33/11 kV Ambasa	132 kV Kamalpur Bay	TSECL
		132 kV P K Bari Bay	TSECL
		132 kV Teliamura Bay	TSECL
2	132/33/11 kV Agartala	132 kV Rokhia 1 Bay	TSECL
		132 kV Rokhia 2 Bay	TSECL
		132 kV AGTCCPP 1 Bay	POWERGRID
		132 kV AGTCCPP 2 Bay	POWERGRID
		132 kV Dhalabil Bay	TSECL
		132 kV Bodhjungnagar Bay	TSECL
		132 kV Surajmaninagar 1 Bay	TSECL
		132 kV Surajmaninagar 2 Bay	TSECL
3	132/66 kV Baramura	132 kV Teliamura Bay	TSECL
		132 kV Jirania Bay	TSECL
4	132/33 kV Bodhjungnagar	132 kV Agartala Bay	TSECL
		132 kV Jirania Bay	TSECL
		132 kV Surjamaninagar 1 Bay	TSECL
		132 kV Surjamaninagar 2 Bay	TSECL
5	132/11 kV Dhalabil	132 kV Kamalpur Bay	TSECL
		132 kV Agartala Bay	TSECL
		132 kV Teliamura	TSECL
6	132/33/11 kV Dharmanagar	132 kV P K Bari Bay	TSECL
		132 kV Dullavcherra Bay	TSECL
7	132/33/11 kV Jirania	132 kV Baramura Bay	TSECL
		132 kV Bodhjungnagar Bay	TSECL
8	132/11 kV Kamalpur	132 kV Dhalabil Bay	TSECL
		132 kV Ambassa Bay	TSECL
		132 kV P K Bari Bay	TSECL
9	132/33/11 kV Kailashor	132 kV P K Bari Bay	TSECL
10	132/33/11 kV P K Bari	132 kV Ambassa Bay	TSECL
		132 kV Kamalpur Bay	TSECL
		132 kV Kumarghat Bay	TSECL
		132 kV Kailashor Bay	TSECL
		132 kV Dharmanagar Bay	TSECL
11	132/66 kV Rokhia	132 kV Udaipur Bay	TSECL
		132 kV 79 Tilla 1 Bay	TSECL
		132 kV 79 Tilla 2 Bay	TSECL
12	132/33 kV Surajmani Nagar	132 kV Palatana 1 Bay	TSECL
		132 kV Palatana 2 Bay	TSECL
		132 kV Bodhjungnagar 1 Bay	TSECL
		132 kV Bodhjungnagar 2 Bay	TSECL
13	132/66/33/11 kV Teliamura	132 kV Baramura Bay	TSECL
		132 kV Ambassa Bay	TSECL
14	132/66/33/11 kV Udaipur	132 kV Palatana Bay	TSECL
		132 kV Monarchak Bay	TSECL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner

2. Transformer /ICT Bay

POWERGRID

1	400/220/33kV Balipara	400 kV, 315 MVA ICT Main Bay	POWERGRID
		220 kV, 315 MVA ICT Bay	POWERGRID
		33 kV, 315 MVA ICT Bay	POWERGRID
		220 kV, 160 MVA ICT 1 Bay	POWERGRID
		132 kV, 160 MVA ICT 1 Bay	POWERGRID
		220 kV, 50 MVA ICT 2 Bay	NEEPCO
		132 kV, 50 MVA ICT 2 Bay	NEEPCO
2	400/220/33kV Bongaigaon	400 kV, 315 MVA ICT Main Bay	POWERGRID
		220 kV, 315 MVA ICT Main Bay	POWERGRID
		33 kV, 315 MVA ICT Main Bay	POWERGRID
3	400/220/33kV Misa	400 kV, 500 MVA ICT 1 Bay	POWERGRID
		220 kV, 500 MVA ICT 1 Bay	POWERGRID
		33 kV, 500 MVA ICT 1 Bay	POWERGRID
		400 kV, 315 MVA ICT 2 Bay	POWERGRID
		220 kV, 315 MVA ICT 2 Bay	POWERGRID
		33 kV, 315 MVA ICT 2 Bay	POWERGRID
4	400/132/33 kV Silchar	400 kV, 200 MVA ICT 1 Main Bay	POWERGRID
		132 kV, 200 MVA ICT 2 Bay	POWERGRID
		400 kV, 200 MVA ICT 2 Main Bay	POWERGRID
		132 kV, 200 MVA ICT 2 Bay	POWERGRID
		400 kV, 315 MVA ICT 3 Main Bay	POWERGRID
		132 kV, 315 MVA ICT 3 Bay	POWERGRID
5	220/132 kV Dimapur	220 kV, 100 MVA ICT 1 Bay	POWERGRID
		132 kV, 100 MVA ICT 1 Bay	POWERGRID
		220 kV, 100 MVA ICT 2 Bay	POWERGRID
		132 kV, 100 MVA ICT 2 Bay	POWERGRID
6	220/132kV Salakati	220 kV, 50 MVA ICT 1 Bay	POWERGRID
		132 kV, 50 MVA ICT 1 Bay	POWERGRID
		220 kV, 50 MVA ICT 2 Bay	POWERGRID
		132 kV, 50 MVA ICT 2 Bay	POWERGRID
7	132 kV Imphal	132 kV, 50 MVA Transformer 1 Bay	POWERGRID
		33 kV, 50 MVA Transformer 1 Bay	POWERGRID
		132 kV, 50 MVA Transformer 2 Bay	POWERGRID
		33 kV, 50 MVA Transformer 2 Bay	POWERGRID
8	132/33 kV Nirjuli	132 kV, 50 MVA Transformer 1 Bay	POWERGRID
		33 kV, 50 MVA Transformer 1 Bay	POWERGRID
		132 kV, 50 MVA Transformer 2 Bay	POWERGRID
		33 kV, 50 MVA Transformer 2 Bay	POWERGRID
9	132/33 kV Ziro	132 kV, 15 MVA Transformer Bay	POWERGRID
		33 kV, 15 MVA Transformer Bay	POWERGRID
10	132/33 kV Roing	132 kV, 15 MVA Transformer 1 Bay	POWERGRID
		33 kV, 15 MVA Transformer 1 Bay	POWERGRID
		132 kV, 15 MVA Transformer 2 Bay	POWERGRID
		33 kV, 15 MVA Transformer 2 Bay	POWERGRID

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A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
11	132/33 kV Tezu	132 kV, 15 MVA Transformer 1 Bay	POWERGRID
		33 kV, 15 MVA Transformer 1 Bay	POWERGRID
		132 kV, 15 MVA Transformer 2 Bay	POWERGRID
		33 kV, 15 MVA Transformer 2 Bay	POWERGRID
12	132/33 kV Namsai	132 kV, 15 MVA Transformer 1 Bay	POWERGRID
		33 kV, 15 MVA Transformer 1 Bay	POWERGRID
		132 kV, 15 MVA Transformer 2 Bay	POWERGRID
		33 kV, 15 MVA Transformer 2 Bay	POWERGRID

NEEPCO

1	400/132 kV Ranganadi	400 kV, 360 MVA ICT 1 Bay	NEEPCO
		132 kV, 360 MVA ICT 1 Bay	NEEPCO
		400 kV, 360 MVA ICT 2 Bay	NEEPCO
		132 kV, 360 MVA ICT 2 Bay	NEEPCO
2	400/132 kV Kameng	400 kV, 120 MVA ICT 1 Bay	NEEPCO
		132 kV, 120 MVA ICT 1 Bay	NEEPCO
2	220/132 kV Kopili	220 kV, 60 MVA ICT 1 Bay	NEEPCO
		132 kV, 60 MVA ICT 1 Bay	NEEPCO
		220 kV, 160 MVA ICT 2 Bay	POWERGRID
		132 kV, 160 MVA ICT 2 Bay	POWERGRID
3	132 kV Doyang	132kV,28.5 MVA ICT 1Bay	NEEPCO
		132kV,28.5 MVA ICT 1Bay	NEEPCO

OTPC

1	400/132 kV Palatana	400 kV, 125 MVA ICT Bay	OTPC
		132 kV, 125 MVA ICT Bay	OTPC

NTPC

1	400/220 kV BgTPP	400 kV,315 MVA ICT Bay	NTPC
		220 kV,315 MVA ICT Bay	NTPC

DoP, Arunachal Pradesh

1	132/33 kV Daporijo	132 kV, 5 MVA Transformer 1 Bay	DoP, Arunachal Pradesh
		33 kV, 5 MVA Transformer 1 Bay	DoP, Arunachal Pradesh
		132 kV, 5 MVA Transformer 2 Bay	DoP, Arunachal Pradesh
		33 kV, 5 MVA Transformer 2 Bay	DoP, Arunachal Pradesh
2	220/132/33 kV Deomali	220 kV, 100 MVA ICT Bay	DoP, Arunachal Pradesh
		132 kV, 100 MVA ICT Bay	DoP, Arunachal Pradesh
		132 kV, 16 MVA Transformer 1	DoP, Arunachal Pradesh
		33 kV, 16 MVA Transformer Bay	DoP, Arunachal Pradesh
3	132/33 kV Naharlagun	132 kV, 15 MVA Transformer Bay	DoP, Arunachal Pradesh
		33 kV, 15 MVA Transformer Bay	DoP, Arunachal Pradesh
		132 kV, 15 MVA Transformer Bay	DoP, Arunachal Pradesh
		33 kV, 15 MVA Transformer Bay	DoP, Arunachal Pradesh

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A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
AEGCL			
1	400/220/33 kV Azara	400 kV Side, 315 MVA ICT 1 Bay	AEGCL
		220 kV Side,315 MVA ICT 1 Bay	AEGCL
		400 kV Side, 315 MVA ICT 2 Bay	AEGCL
		220 kV Side,315 MVA ICT 2 Bay	AEGCL
		220 kV Side, 100 MVA ICT 1 Bay	AEGCL
		132kV Side, 100 MVA ICT 1 Bay	AEGCL
		220 kV Side, 100 MVA ICT 2 Bay	AEGCL
		132kV Side, 100 MVA ICT 2 Bay	AEGCL
2	220/132/66/33 kV Agia	220 kV, 50 MVA ICT 1 Bay	AEGCL
		132 kV, 50 MVA ICT 1 Bay	AEGCL
		220 kV, 50 MVA ICT 2 Bay	AEGCL
		132 kV, 50 MVA ICT 2 Bay	AEGCL
		132 kV, 40 MVA Transformer 1 Bay	AEGCL
		33 kV, 40 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
3	220/132/33V kV Boko	220 kV, 50 MVA ICT Bay	AEGCL
		132 kV, 50 MVA ICT Bay	AEGCL
		220 kV, 100 MVA ICT Bay	AEGCL
		132 kV, 100 MVA ICT Bay	AEGCL
		132 kV, 40 MVA Transformer 1 Bay	AEGCL
		33 kV, 40 MVA Transformer 1 Bay	AEGCL
		132 kV, 40 MVA Transformer 2 Bay	AEGCL
		33 kV, 40 MVA Transformer 2 Bay	AEGCL
4	220/132/33 kV BTPS	220 kV, 100 MVA ICT 1 Bay	AEGCL
		132 kV, 100 MVA ICT 1 Bay	AEGCL
		220 kV, 160 MVA ICT 2 Bay	AEGCL
		132 kV, 160 MVA ICT 2 Bay	AEGCL
		132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL

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A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
5	220/132/66/33 kV Mariani	220 kV, 100 MVA ICT 1 Bay	AEGCL
		132 kV, 100 MVA ICT 1 Bay	AEGCL
		220 kV, 100 MVA ICT 2 Bay	AEGCL
		132 kV, 100 MVA ICT 2 Bay	AEGCL
		132 kV, 20 MVA ICT 1 Bay	AEGCL
		66 kV, 20 MVA ICT 1 Bay	AEGCL
		132 kV, 20 MVA ICT 2 Bay	AEGCL
		66 kV, 20 MVA ICT 2 Bay	AEGCL
		66 kV, 16 MVA Transformer 1	AEGCL
		33 kV, 16 MVA Transformer 1	AEGCL
		66 kV, 16 MVA Transformer 2	AEGCL
		33 kV, 16 MVA Transformer 2	AEGCL
6	220/132/66/33 kV Namrup TPS	220 kV, 50 ICT 1 Bay	AEGCL
		132 kV, 50 ICT 1 Bay	AEGCL
		220 kV, 50 ICT 2 Bay	AEGCL
		132 kV, 50 ICT 2 Bay	AEGCL
		132 kV, 25 MVA ICT 1 Bay	AEGCL
		66 kV, 25 MVA ICT 1 Bay	AEGCL
		132 kV, 25 MVA ICT 2 Bay	AEGCL
		66 kV, 25 MVA ICT 2 Bay	AEGCL
		132 kV, 20 MVA ICT 3 Bay	AEGCL
		66 kV, 20 MVA ICT 3 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		66 kV, 10 MVA Transformer 1 Bay	AEGCL
		33 kV, 10 MVA Transformer 1 Bay	AEGCL
		66 kV, 10 MVA Transformer 2 Bay	AEGCL
		33 kV, 10 MVA Transformer 2 Bay	AEGCL
		66 kV, 10 MVA Transformer 3 Bay	AEGCL
		33 kV, 10 MVA Transformer 3 Bay	AEGCL
7	220/132/33 kV Samaguri	220 kV, 100 MVA ICT 1 Bay	AEGCL
		132 kV, 50 MVA ICT 1 Bay	AEGCL
		220 kV, 50 MVA ICT 2 Bay	AEGCL
		132 kV, 100 MVA ICT 2 Bay	AEGCL
		220 kV, 50 MVA ICT 3 Bay	AEGCL
		132 kV, 50 MVA ICT 3 Bay	AEGCL
		132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
		132 kV, 16 MVA Transformer Bay	AEGCL
		33 kV, 16 MVA Transformer Bay	AEGCL

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A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
8	220/132/33 kV Sarusajai	220 kV, 100 MVA Transformer 1 Bay	AEGCL
		132 kV, 100 MVA Transformer 1 Bay	AEGCL
		220 kV, 100 MVA Transformer 2 Bay	AEGCL
		132 kV, 100 MVA Transformer 2 Bay	AEGCL
		220 kV, 100 MVA Transformer 3 Bay	AEGCL
		132 kV, 100 MVA Transformer 3 Bay	AEGCL
		220 kV, 200 MVA Transformer 4 Bay	AEGCL
		132 kV, 200 MVA Transformer 4 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 2 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 2 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 3 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 3 Bay	AEGCL
9	220/132/66/33 kV Tinsukia	220 kV, 100 MVA ICT 1 Bay	AEGCL
		132 kV, 100 MVA ICT 1 Bay	AEGCL
		220 kV, 100 MVA ICT 2 Bay	AEGCL
		132 kV, 100 MVA ICT 2 Bay	AEGCL
		132 kV, 20 MVA ICT 1 Bay	AEGCL
		66 kV, 20 MVA ICT 1 Bay	AEGCL
		132 kV, 20 MVA ICT 2 Bay	AEGCL
		66 kV, 20 MVA ICT 2 Bay	AEGCL
		132 kV, 20 MVA ICT 3 Bay	AEGCL
		66 kV, 20 MVA ICT 3 Bay	AEGCL
		132 kV, 40 MVA ICT 3 Bay	AEGCL
		33 kV, 40 MVA ICT 3 Bay	AEGCL
		132 kV, 40 MVA ICT 3 Bay	AEGCL
		66 kV, 40 MVA ICT 3 Bay	AEGCL
		66 kV, 20 MVA Transformer 1 Bay	AEGCL
		33 kV, 20 MVA Transformer 1 Bay	AEGCL
		66 kV, 20 MVA Transformer 2 Bay	AEGCL
		33 kV, 20 MVA Transformer 2 Bay	AEGCL
		66 kV, 20 MVA Transformer 3 Bay	AEGCL
		33 kV, 20 MVA Transformer 3 Bay	AEGCL
10	132/33 kV APM	132 kV, 12.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 12.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
11	132/33 kV Bokajan	132 kV, 16 MVA Transformer Bay	AEGCL
		33 kV, 16 MVA Transformer Bay	AEGCL
		132 kV, 16 MVA Transformer Bay	AEGCL
		33 kV, 16 MVA Transformer Bay	AEGCL
		66 kV, 5 MVA Transformer 2 Bay	AEGCL
		33 kV, 5 MVA Transformer 2 Bay	AEGCL
		66 kV, 5 MVA Transformer 3 Bay	AEGCL
		33 kV, 5 MVA Transformer 3 Bay	AEGCL
12	132/33 kV Bornagar	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL

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Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
13	132/33 kV Bokakhat	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
14	132/33 kV CTPS	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 30 MVA Transformer 2 Bay	AEGCL
		33 kV, 30 MVA Transformer 2 Bay	AEGCL
15	132/33 kV Depota	132 kV,31.5 MVA Transformer 1 Bay	AEGCL
		33 kV,31.5 MVA Transformer 1 Bay	AEGCL
		132 kV,31.5 MVA Transformer 2 Bay	AEGCL
		33 kV,31.5 MVA Transformer 2 Bay	AEGCL
16	132/33 kV Dhaligaon	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
17	132/33 kV Dhemaji	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
18	132/33 kV Dibrugarh	132 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 2 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 2 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 1 Bay	AEGCL
19	132/11 kV Diphu	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		11 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		11 kV,16 MVA Transformer 2 Bay	AEGCL
20	132/11 kV Dispur	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
21	132/33 kV Dullavcherra	132 kV, 3.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 3.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 3.5 MVA Transformer 2 Bay	AEGCL
		33 kV, 3.5 MVA Transformer 2 Bay	AEGCL
		132 kV, 3.5 MVA Transformer 3 Bay	AEGCL
		33 kV, 3.5 MVA Transformer 3 Bay	AEGCL
		132 kV,16 MVA Transformer 4 Bay	AEGCL
		33 kV, 16 MVA Transformer 4 Bay	AEGCL
22	132/33 kV Gauripur	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
		132 kV, 16 MVA Transformer 1 Bay	AEGCL

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Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
23	132/33 kV Ghoramari	132 kV, 16 MVA Transformer Bay	AEGCL
		33 kV, 16 MVA Transformer Bay	AEGCL
24	132/33 kV Golaghat	132 kV, 25 Transformer 1 Bay	AEGCL
		33 kV, 25 Transformer 1 Bay	AEGCL
		132 kV, 25 Transformer 2 Bay	AEGCL
		33 kV, 25 Transformer 2 Bay	AEGCL
25	132/33 kV Gohpur	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 10 MVA Transformer 2 Bay	AEGCL
		33 kV, 10 MVA Transformer 2 Bay	AEGCL
26	132/33 kV Gossaigaon	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
27	132/33 kV Haflong	132 kV, 10 MVA Transformer 1 Bay	AEGCL
		33 kV, 10 MVA Transformer 1 Bay	AEGCL
		132 kV, 10 MVA Transformer 2 Bay	AEGCL
		33 kV, 10 MVA Transformer 2 Bay	AEGCL
28	132/33 kV Jagiroad	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
29	132/33 kV Jorhat	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
		132 kV, 25 MVA Transformer 3 Bay	AEGCL
		33 kV, 25 MVA Transformer 3 Bay	AEGCL
30	132/66/11 kV Kahilipara	132 kV, 40 MVA Transformer 1 Bay	AEGCL
		33 kV, 40 MVA Transformer 1 Bay	AEGCL
		132 kV, 40 MVA Transformer 2 Bay	AEGCL
		33 kV, 40 MVA Transformer 2 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 30 MVA Transformer 2 Bay	AEGCL
		33 kV, 30 MVA Transformer 2 Bay	AEGCL
		132 kV, 30 MVA Transformer 3 Bay	AEGCL
		33 kV, 30 MVA Transformer 3 Bay	AEGCL

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Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
31	132/33 kV Lakwa TPS	132 kV, 7.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 7.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 7.5 MVA Transformer 2 Bay	AEGCL
		33 kV, 7.5 MVA Transformer 2 Bay	AEGCL
32	132/33 kV Ledo	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
33	132/33 kV Majuli	132 kV, 5.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 5.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 5.5 MVA Transformer 2 Bay	AEGCL
		33 kV, 5.5 MVA Transformer 2 Bay	AEGCL
		132 kV, 5.5 MVA Transformer 3 Bay	AEGCL
		33 kV, 5.5 MVA Transformer 3 Bay	AEGCL
34	132/33 kV Moran	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
35	132/33 kV Nalbari	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 40 MVA Transformer 2 Bay	AEGCL
		33 kV, 40 MVA Transformer 2 Bay	AEGCL
36	132/32 kV Narengi	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL

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Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
37	132/33 kV Nazira	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
38	132/33 kV North Lakhimpur	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
39	132/33 kV Pailapool	132 kV, 10 MVA Transformer 1 Bay	AEGCL
		33 kV, 10 MVA Transformer 1 Bay	AEGCL
		132 kV, 10 MVA Transformer 2 Bay	AEGCL
		33 kV, 10 MVA Transformer 2 Bay	AEGCL
		132 kV, 16 MVA Transformer 3 Bay	AEGCL
		33 kV, 16 MVA Transformer 3 Bay	AEGCL
40	132/33 kV Panchgram New	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
41	132/33 kV Pavoi	132 kV, 40 MVA Transformer 1 Bay	AEGCL
		33 kV, 40 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
42	132/33 kV Rangia	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
43	132/33 kV Rowta	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL
44	132/33 kV Sankardev Nagar	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
45	132/33 kV Sibsagar	132 kV, 16 MVA Transformer 1 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
46	132/33 kV Sipajhar	132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 1 Bay	AEGCL
		132 kV, 16 MVA Transformer 2 Bay	AEGCL
		33 kV, 16 MVA Transformer 2 Bay	AEGCL
47	132/33 kV Sisugram	132 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 1 Bay	AEGCL
		132 kV, 31.5 MVA Transformer 2 Bay	AEGCL
		33 kV, 31.5 MVA Transformer 2 Bay	AEGCL
		132 kV, 40 MVA Transformer 3 Bay	AEGCL
		33 kV, 40 MVA Transformer 3 Bay	AEGCL
48	132/33 kV Srikona	132 kV, 25 MVA Transformer 1 Bay	AEGCL
		33 kV, 25 MVA Transformer 1 Bay	AEGCL
		132 kV, 25 MVA Transformer 2 Bay	AEGCL
		33 kV, 25 MVA Transformer 2 Bay	AEGCL

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Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
MSPCL			
1	132/33 kV Churachandpur	132 kV, 20 MVA Transformer 1 Bay	MSPCL
		33 kV, 20 MVA Transformer 1 Bay	MSPCL
		132 kV, 20 MVA Transformer 2 Bay	MSPCL
		33 kV, 20 MVA Transformer 2 Bay	MSPCL
2	132/33 kV Chandel	132 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		132 kV, 12.5 MVA Transformer 2 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 2 Bay	MSPCL
3	132/33 kV Elangkanpokpi	132 kV, 20 MVA Transformer 1 Bay	MSPCL
		33 kV, 20 MVA Transformer 1 Bay	MSPCL
		132 kV, 20 MVA Transformer 2 Bay	MSPCL
		33 kV, 20 MVA Transformer 2 Bay	MSPCL
4	132/33 kV Imphal	132 kV, 31.5 MVA Transformer 1 Bay	MSPCL
		33 kV, 31.5 MVA Transformer 1 Bay	MSPCL
		132 kV, 31.5 MVA Transformer 2 Bay	MSPCL
		33 kV, 31.5 MVA Transformer 2 Bay	MSPCL
		132 kV, 31.5 MVA Transformer 3 Bay	MSPCL
		33 kV, 31.5 MVA Transformer 3 Bay	MSPCL
5	132/33 kV Hunding	132 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		132 kV, 12.5 MVA Transformer 2 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 2 Bay	MSPCL
6	132/33 kV Jiribam	132 kV, 20 MVA Transformer Bay	MSPCL
		33 kV, 20 MVA Transformer Bay	MSPCL
7	132/33 kV Kakching	132 kV, 20 MVA Transformer 1 Bay	MSPCL
		33 kV, 20 MVA Transformer 1 Bay	MSPCL
		132 kV, 20 MVA Transformer 2 Bay	MSPCL
		33 kV, 20 MVA Transformer 2 Bay	MSPCL
8	132/33 kV Karong	132 kV, 20 MVA Transformer 1 Bay	MSPCL
		33 kV, 20 MVA Transformer 1 Bay	MSPCL
		132 kV, 20 MVA Transformer 2 Bay	MSPCL
		33 kV, 20 MVA Transformer 2 Bay	MSPCL
9	132/33 kV Kongba	132 kV, 20 MVA Transformer 1 Bay	MSPCL
		33 kV, 20 MVA Transformer 1 Bay	MSPCL
		132 kV, 20 MVA Transformer 2 Bay	MSPCL
		33 kV, 20 MVA Transformer 2 Bay	MSPCL
10	132/33 kV Ningthoukhong	132 kV, 20 MVA Transformer 1 Bay	MSPCL
		33 kV, 20 MVA Transformer 1 Bay	MSPCL
11	132/33 kV New Moreh	132 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		132 kV, 12.5 MVA Transformer 2 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 2 Bay	MSPCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
12	132/33 kV Rengpang	132 kV, 12.5 MVA Transformer Bay	MSPCL
		33 kV, 12.5 MVA Transformer Bay	MSPCL
13	132/33 kV Thanlon	132 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		132 kV, 12.5 MVA Transformer 2 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 2 Bay	MSPCL
14	132/33 kV Thoubal	132 kV, 20 MVA Transformer 1 Bay	MSPCL
		33 kV, 20 MVA Transformer 1 Bay	MSPCL
		132 kV, 20 MVA Transformer 2 Bay	MSPCL
		33 kV, 20 MVA Transformer 2 Bay	MSPCL
15	132/33 kV Tipaimukh	132 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 1 Bay	MSPCL
		132 kV, 12.5 MVA Transformer 2 Bay	MSPCL
		33 kV, 12.5 MVA Transformer 2 Bay	MSPCL
16	132/33 kV Yaingangpokpi	132 kV, 20 MVA Transformer Bay	MSPCL
		33 kV, 20 MVA Transformer Bay	MSPCL
		132 kV, 20 MVA Transformer Bay	MSPCL
		33 kV, 20 MVA Transformer Bay	MSPCL

MePTCL

1	400/220/132 kV Byrnihat	400 kV, 315 MVA ICT 1 Bay	MePTCL
		132 kV, 315 MVA ICT 1 Bay	MePTCL
		400 kV, 315 MVA ICT 2 Bay	MePTCL
		132 kV, 315 MVA ICT 2 Bay	MePTCL
		220 kV, 160 MVA ICT 1 Bay	MePTCL
		132 kV, 160 MVA ICT 1 Bay	MePTCL
		220 kV, 160 MVA ICT 2 Bay	MePTCL
		132 kV, 160 MVA ICT 2 Bay	MePTCL
2	132/33 kV Cherapunjee	132 kV, 12.5 MVA Transformer Bay	MePTCL
		33 kV, 12.5 MVA Transformer Bay	MePTCL
3	132/33 kV EPIP I	132 kV, 20 MVA Transformer 1 Bay	MePTCL
		33 kV, 20 MVA Transformer 1 Bay	MePTCL
		132 kV, 20 MVA Transformer 2 Bay	MePTCL
		33 kV, 20 MVA Transformer 2 Bay	MePTCL
4	132/33 kV EPIP II	132 kV, 50 MVA Transformer 1 Bay	MePTCL
		33 kV, 50 MVA Transformer 1 Bay	MePTCL
5	132/33 kV Khliehriat	132 kV, 20 MVA Transformer 1 Bay	MePTCL
		33 kV, 20 MVA Transformer 1 Bay	MePTCL
		132 kV, 20 MVA Transformer 2 Bay	MePTCL
		33 kV, 20 MVA Transformer 2 Bay	MePTCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
6	132/33/11 kV Lumsnong	132 kV, 5 MVA Transformer Bay	MePTCL
		33 kV, 5 MVA Transformer Bay	MePTCL
		132 kV, 5 MVA Transformer Bay	MePTCL
		33 kV, 5 MVA Transformer Bay	MePTCL
7	132/11 kV Mawlai	132 kV, 20 MVA Transformer 1 Bay	MePTCL
		33 kV, 20 MVA Transformer 1 Bay	MePTCL
		132 kV, 20 MVA Transformer 2 Bay	MePTCL
		33 kV, 20 MVA Transformer 2 Bay	MePTCL
		132 kV, 20 MVA Transformer 3 Bay	MePTCL
		33 kV, 20 MVA Transformer 3 Bay	MePTCL
8	132/33 kV Mwangap	132 kV, 20 MVA Transformer Bay	MePTCL
		33 kV, 20 MVA Transformer Bay	MePTCL
		132 kV, 20 MVA Transformer 1 Bay	MePTCL
		33 kV, 20 MVA Transformer 1 Bay	MePTCL
9	132/33 kV Nangalbibra	132 kV, 12.5 MVA Transformer 1 Bay	MePTCL
		33 kV, 12.5 MVA Transformer 1 Bay	MePTCL
		132 kV, 12.5 MVA Transformer 2 Bay	MePTCL
		33 kV, 12.5 MVA Transformer 2 Bay	MePTCL
10	132/33 kV NEHU	132 kV, 20 MVA Transformer 1 Bay	MePTCL
		33 kV, 20 MVA Transformer 1 Bay	MePTCL
		132 kV, 20 MVA Transformer 2 Bay	MePTCL
		33 kV, 20 MVA Transformer 2 Bay	MePTCL
11	132/33 kV NEIGRIHMS	132 kV, 10 MVA Transformer 1 Bay	MePTCL
		33 kV, 10 MVA Transformer 1 Bay	MePTCL
		132 kV, 10 MVA Transformer 2 Bay	MePTCL
		33 kV, 10 MVA Transformer 2 Bay	MePTCL
12	132/33 kV Nongstoin	132 kV, 12.5 MVA Transformer Bay	MePTCL
		33 kV, 12.5 MVA Transformer Bay	MePTCL
13	132/33 kV Umiam	132 kV, 20 MVA Transformer 1 Bay	MePTCL
		33 kV, 20 MVA Transformer 1 Bay	MePTCL
		132 kV, 20 MVA Transformer 2 Bay	MePTCL
		33 kV, 20 MVA Transformer 2 Bay	MePTCL
14	132/33/11 kV Tura	132 kV, 20 MVA Transformer 1 Bay	MePTCL
		33 kV, 20 MVA Transformer 1 Bay	MePTCL
		132 kV, 20 MVA Transformer 2 Bay	MePTCL
		33 kV, 20 MVA Transformer 2 Bay	MePTCL
		132 kV, 5 MVA Transformer 3 Bay	MePTCL
		33 kV, 5 MVA Transformer 3 Bay	MePTCL
		132 kV, 5 MVA Transformer 4 Bay	MePTCL
		33 kV, 5 MVA Transformer 4 Bay	MePTCL
		132 kV, 5 MVA Transformer 5 Bay	MePTCL
		33 kV, 5 MVA Transformer 5 Bay	MePTCL
		132 kV, 10 MVA Transformer 1 Bay	MePTCL
		11 kV, 10 MVA Transformer 1 Bay	MePTCL
		132 kV, 10 MVA Transformer 2 Bay	MePTCL
		11 kV, 10 MVA Transformer 2 Bay	MePTCL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
P&ED, Mizoram			
1	132/66/33 kV Kolasib	132 kV, 12.5 Transformer Bay	P&ED, Mizoram
		66 kV, 12.5 Transformer Bay	P&ED, Mizoram
		132 kV, 12.5 Transformer Bay	P&ED, Mizoram
		33 kV, 12.5 Transformer Bay	P&ED, Mizoram
		66 kV, 6.3 Transformer Bay	P&ED, Mizoram
		33 kV, 6.3 Transformer Bay	P&ED, Mizoram
2	132/33 kV Longmol	132 kV, 12.5 Transformer 1 Bay	P&ED, Mizoram
		33 kV, 12.5 Transformer 1 Bay	P&ED, Mizoram
		132 kV, 12.5 Transformer 2 Bay	P&ED, Mizoram
		33 kV, 12.5 Transformer 2 Bay	P&ED, Mizoram
3	132/33 kV Lunglei	132 kV, 12.5 MVA Transformer 1 Bay	P&ED, Mizoram
		33 kV, 12.5 MVA Transformer 1 Bay	P&ED, Mizoram
		132 kV, 12.5 MVA Transformer 2 Bay	P&ED, Mizoram
		33 kV, 12.5 MVA Transformer 2 Bay	P&ED, Mizoram
4	132/33 kV Saitual	132 kV, 6.3 MVA Transformer Bay	P&ED, Mizoram
		33 kV, 6.3 MVA Transformer Bay	P&ED, Mizoram
5	132/33 kV Serchip	132 kV, 12.5 MVA Transformer 1 Bay	P&ED, Mizoram
		33 kV, 12.5 MVA Transformer 1 Bay	P&ED, Mizoram
		132 kV, 6.3 MVA Transformer 2 Bay	P&ED, Mizoram
		33 kV, 6.3 MVA Transformer 2 Bay	P&ED, Mizoram
6	132/33 kV Zungtui	132 kV, 12.5 MVA Transformer 1 Bay	P&ED, Mizoram
		33 kV, 12.5 MVA Transformer 1 Bay	P&ED, Mizoram
		132 kV, 12.5 MVA Transformer 2 Bay	P&ED, Mizoram
		33 kV, 12.5 MVA Transformer 2 Bay	P&ED, Mizoram
		132 kV, 12.5 MVA Transformer 3 Bay	P&ED, Mizoram
		33 kV, 12.5 MVA Transformer 3 Bay	P&ED, Mizoram
		132 kV, 12.5 MVA Transformer 3 Bay	P&ED, Mizoram
		33 kV, 12.5 MVA Transformer 3 Bay	P&ED, Mizoram

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
DoP, Nagaland			
1	132/66 kV Dimapur	132 kV, 100 MVA Transformer 1 Bay	DoP, Nagaland
		66 kV, 100 MVA Transformer 1 Bay	DoP, Nagaland
		66 kV, 20 MVA Transformer 1 Bay	DoP, Nagaland
		33 kV, 20 MVA Transformer 1 Bay	DoP, Nagaland
		66 kV, 20 MVA Transformer 2 Bay	DoP, Nagaland
		33 kV, 20 MVA Transformer 2 Bay	DoP, Nagaland
		66 kV, 20 MVA Transformer 3 Bay	DoP, Nagaland
		33 kV, 20 MVA Transformer 3 Bay	DoP, Nagaland
2	132/66/33 kV Kiphire	132 kV, 10 MVA Transformer 1 Bay	DoP, Nagaland
		66 kV, 10 MVA Transformer 1 Bay	DoP, Nagaland
		132 kV, 10 MVA Transformer 2 Bay	DoP, Nagaland
		66 kV, 10 MVA Transformer 2 Bay	DoP, Nagaland
		132 kV, 10 MVA Transformer 3 Bay	DoP, Nagaland
		66 kV, 10 MVA Transformer 3 Bay	DoP, Nagaland
		66 kV, 5 MVA Transformer 4 Bay	DoP, Nagaland
		33 kV, 5 MVA Transformer 4 Bay	DoP, Nagaland
3	132/33 kV Kohima	132 kV, 8 MVA Transformer 1 Bay	DoP, Nagaland
		33 kV, 8 MVA Transformer 1 Bay	DoP, Nagaland
		132 kV, 8 MVA Transformer 2 Bay	DoP, Nagaland
		33 kV, 8 MVA Transformer 2 Bay	DoP, Nagaland
		132 kV, 8 MVA Transformer 3 Bay	DoP, Nagaland
		33 kV, 8 MVA Transformer 3 Bay	DoP, Nagaland
4	132/33 kV Meluri	132 kV, 12.5 MVA Transformer Bay	DoP, Nagaland
		33 kV, 12.5 MVA Transformer Bay	DoP, Nagaland
5	132/66/33 kV Mokokchung	132 kV, 25 MVA Transformer 1 Bay	DoP, Nagaland
		66 kV, 25 MVA Transformer 1 Bay	DoP, Nagaland
		132 kV, 25 MVA Transformer 2 Bay	DoP, Nagaland
		66 kV, 25 MVA Transformer 2 Bay	DoP, Nagaland
		66 kV, 7.5 MVA Transformer 3 Bay	DoP, Nagaland
		33 kV, 7.5 MVA Transformer 3 Bay	DoP, Nagaland
		66 kV, 7.5 MVA Transformer 4 Bay	DoP, Nagaland
		33 kV, 7.5 MVA Transformer 4 Bay	DoP, Nagaland
6	132/33 kV Wokha	132 kV, 5 MVA Transformer 1 Bay	DoP, Nagaland
		33 kV, 5 MVA Transformer 1 Bay	DoP, Nagaland
		132 kV, 5 MVA Transformer 2 Bay	DoP, Nagaland
		33 kV, 5 MVA Transformer 2 Bay	DoP, Nagaland
7	132/33 kV Sanis	132 kV,12.5 MVA Transformer Bay	DoP, Nagaland
		33 kV ,12.5 MVA Transfomer Bay	DoP, Nagaland

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
TSECL			
1	132/33/11 kV Ambasa	132 kV ,25 MVA Transformer Bay	TSECL
		33 kV ,25MVA Transformer Bay	TSECL
		132 kV, 7.5 MVA Transformer 1 Bay	TSECL
		33 kV, 7.5 MVA Transformer 1 Bay	TSECL
		11 kV, 7.5 MVA Transformer 1 Bay	TSECL
		132 kV, 7.5 MVA Transformer 2 Bay	TSECL
		33 kV, 7.5 MVA Transformer 2 Bay	TSECL
		11 kV, 7.5 MVA Transformer 2 Bay	TSECL
2	132/33/11 kV Agartala	132 kV, 15 MVA Transformer 1 Bay	TSECL
		33 kV, 15 MVA Transformer 1 Bay	TSECL
		132 kV, 15 MVA Transformer 2 Bay	TSECL
		33 kV, 15 MVA Transformer 2 Bay	TSECL
		132 kV, 15 MVA Transformer 3 Bay	TSECL
		33 kV, 15 MVA Transformer 3 Bay	TSECL
		132 kV, 25 MVA Transformer 4 Bay	TSECL
		33 kV, 25 MVA Transformer 4 Bay	TSECL
		132 kV, 25 MVA Transformer 5 Bay	TSECL
		11 kV, 25 MVA Transformer 5 Bay	TSECL
		132 kV, 15 MVA Transformer 6 Bay	TSECL
		11 kV, 15 MVA Transformer 6 Bay	TSECL
3	132/66 kV Baramura	132 kV, 30 MVA Transformer Bay	TSECL
		66 kV, 30 MVA Transformer Bay	TSECL
4	132/33 kV Bodhjungnagar	132 kV, 25 MVA Transformer 1 Bay	TSECL
		33 kV, 25 MVA Transformer 1 Bay	TSECL
		132 kV, 25 MVA Transformer 2 Bay	TSECL
		33 kV, 25 MVA Transformer 2 Bay	TSECL
5	132/33/11 kV Dhalabil	132 kV, 15 MVA Transformer Bay	TSECL
		11 kV, 15 MVA Transformer Bay	TSECL
		132 kV,7.5MVA Transformer Bay	TSECL
		33 kV,7.5 MVA Transformer Bay	TSECL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
6	132/33/11 kV Dharmanagar	132 kV, 15 MVA Transformer 1 Bay	TSECL
		33 kV, 15 MVA Transformer 1 Bay	TSECL
		132 kV, 7.5 MVA Transformer 1 Bay	TSECL
		33 kV, 7.5 MVA Transformer 1 Bay	TSECL
		11 kV, 7.5 MVA Transformer 1 Bay	TSECL
		132 kV, 7.5 MVA Transformer 2 Bay	TSECL
		33 kV, 7.5 MVA Transformer 2 Bay	TSECL
		11 kV, 7.5 MVA Transformer 2 Bay	TSECL
		132 kV, 7.5 MVA Transformer 3 Bay	TSECL
		33 kV, 7.5 MVA Transformer 3 Bay	TSECL
		11 kV, 7.5 MVA Transformer 3 Bay	TSECL
7	132/33/11 kV Jirania	132 kV, 10 MVA Transformer Bay	TSECL
		33 kV, 10 MVA Transformer Bay	TSECL
		132 kV, 15 MVA Transformer Bay	TSECL
		11 kV, 15 MVA Transformer Bay	TSECL
8	132/11 kV Kamalpur	132 kV, 10 MVA Transformer 1 Bay	TSECL
		11 kV, 10 MVA Transformer 1 Bay	TSECL
		132 kV, 10 MVA Transformer 2 Bay	TSECL
		11 kV, 10 MVA Transformer 2 Bay	TSECL
9	132/33/11 kV Kailashor	132 kV, 15 MVA Transformer 1 Bay	TSECL
		33 kV, 15 MVA Transformer 1 Bay	TSECL
		132 kV, 7.5 MVA Transformer 1 Bay	TSECL
		33 kV, 7.5 MVA Transformer 1 Bay	TSECL
		11 kV, 7.5 MVA Transformer 1 Bay	TSECL
		132 kV, 7.5 MVA Transformer 2 Bay	TSECL
		33 kV, 7.5 MVA Transformer 2 Bay	TSECL
		11 kV, 7.5 MVA Transformer 2 Bay	TSECL
10	132/33/11 kV P K Bari	132 kV, 15 MVA Transformer Bay	TSECL
		33 kV, 15 MVA Transformer Bay	TSECL
		132 kV, 10 MVA Transformer Bay	TSECL
		11 kV, 10 MVA Transformer Bay	TSECL
11	132/66 kV Rokhia	132 kV, 30 MVA Transformer Bay	TSECL
		66 kV, 30 MVA Transformer Bay	TSECL
		132 kV, 12.5 MVA Transformer Bay	TSECL
		11 kV, 12.5 MVA Transformer Bay	TSECL
12	132/66/33/11 kV Teliamura	132 kV, 15 MVA Transformer Bay	TSECL
		11 kV, 15 MVA Transformer Bay	TSECL
		66 kV, 6.3 MVA Transformer 1 Bay	TSECL
		33 kV,6.3 MVA Transformer 1 Bay	TSECL
		66 kV, 4 MVA Transformer 2 Bay	TSECL
		33 kV, 4 MVA Transformer 2 Bay	TSECL
13	132/66/33/11 kV Udaipur	132 kV, 15 MVA Transformer 1 Bay	TSECL
		66 kV, 15 MVA Transformer 1 Bay	TSECL
		132 kV, 10 MVA Transformer 2 Bay	TSECL
		66 kV, 10 MVA Transformer 2 Bay	TSECL
		132 kV, 10 MVA Transformer 3 Bay	TSECL
		66 kV, 10 MVA Transformer 3 Bay	TSECL
		132 kV, 15 MVA Transformer 1 Bay	TSECL
		11 kV, 15 MVA Transformer 1 Bay	TSECL

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner

3. Bus Reactor Bay

POWERGRID

1	400/220/132 kV Balipara	400,50 MVAR Bus Reactor 1 Bay	POWERGRID
		400,80 MVAR Bus Reactor 2 Bay	POWERGRID
		400,125 MVAR Bus Reactor 3 Bay	POWERGRID
2	400/220/33kV Bongaigaon	400 kV, 50 MVAR Bus Reactor 1 Bay	POWERGRID
		400 kV, 50 MVAR Bus Reactor 2 Bay	POWERGRID
		400 kV, 80 MVAR Bus Reactor 3 Bay	POWERGRID
		400 kV, 80 MVAR Bus Reactor 4 Bay	POWERGRID
		400 kV, 125 MVAR Bus Reactor 5 Bay	POWERGRID
3	400/220/33kV Misa	50 MVAR Bus Reactor 1 Bay	POWERGRID
4	400/132/33 kV Silchar	63 MVAR Bus Reactor 1 Bay	POWERGRID
		63 MVAR Bus Reactor 2 Bay	POWERGRID
5	220kV Mariani(PG)	20 MVAR Bus Reactor Bay	POWERGRID
6	132 kV Aizawl	20 MVAR Bus Reactor Bay	POWERGRID
7	132 kV Imphal	20 MVAR Bus Reactor Bay	POWERGRID
8	132/33 kV Kumarghat	20 MVAR Bus Reactor Bay	POWERGRID
9	132/33 kV Ziro	20 MVAR Bus Reactor Bay	POWERGRID
10	132/33 kV Roing	20 MVAR Bus Reactor Bay	POWERGRID
11	132/33 kV Tezu	20 MVAR Bus Reactor Bay	POWERGRID
12	132/33 kV Namsai	20 MVAR Bus Reactor Bay	POWERGRID

NEEPCO

1	400/132 kV Ranganadi	50 MVAR Bus Reactor Bay	NEEPCO
2	400/132 kV Kameng	80 MVAR Bus Reactor Bay	NEEPCO

OTPC

1	400/132 kV Palatana	80 MVAR Bus Reactor	OTPC

List of Bays of North Eastern Region

A. Main Bay

Sl. No.	Name of Substation	Name of Main Bay	Name of Bay Owner
AEGCL			
1	400/220/Azara	63 MVAR Bus Reactor Bay	AEGCL
2	220/132/66/33 kV Mariani	12.5 MVAR Bus Reactor 1 Bay	AEGCL
		12.5 MVAR Bus Reactor 2 Bay	AEGCL
3	220/132/33 kV Samaguri	12.5 MVAR Bus Reactor 1 Bay	AEGCL
		12.5 MVAR Bus Reactor 2 Bay	AEGCL
MePTCL			
1	400/220/132 kV Byrnihat	63 MVAR Bus Reactor Bay	MePTCL
TSECL			
1	132/33/11 kV Dharmanagar	145 kV, 2 MVAR Bus Reactor 1 Bay	TSECL
		145 kV, 2 MVAR Bus Reactor 2 Bay	TSECL

4. Tertiary Reactor Bay

POWERGRID

1	400/220/132 kV Balipara	25 MVAR Tertiary Reactor 1 Bay	POWERGRID
		25 MVAR Tertiary Reactor 2 Bay	POWERGRID
		25 MVAR Tertiary Reactor 3 Bay	POWERGRID
		25 MVAR Tertiary Reactor 4 Bay	POWERGRID
2	400/220/33kV Bongaigaon	25 MVAR Tertiary Reactor 1 Bay	POWERGRID
		25 MVAR Tertiary Reactor 2 Bay	POWERGRID
3	400/220/33kV Misa	25 MVAR Tertiary Reactor 1 Bay	POWERGRID
		25 MVAR Tertiary Reactor 2 Bay	POWERGRID
		25 MVAR Tertiary Reactor 3 Bay	POWERGRID
		25 MVAR Tertiary Reactor 4 Bay	POWERGRID

5. Filter Bay

1	800 kV HVDC Biswanath Chariali	Filter Bank 1 Main Bay	POWERGRID
		Filter Bank 2 Main Bay	POWERGRID
		Filter Bank 3 Main Bay	POWERGRID

Line Bays expected to be commissioned during 2020-21(After commissioning of these elements, they will be considered as important elements of NER)

S.no	Substation	Voltage Leval	Nos
1	Itangar	132	2
2	P K Bari	132	2
3	AGTPP(Neepco)	132	2
4	Palatana(OTPC)	400	2

List of Tie-Bays in North Eastern Region

A. Tie Bay

Sl. No.	Name of Substation	Name of Tie Bay	Name of Bay Owner

1. Line-Line Bay

POWERGRID

1	400/220/33kV Balipara	400 kV Bongaigaon I & 400 kV Biswanath Chariali III (414)	POWERGRID
		400 kV Bongaigaon II & 400 kV Biswanath Chariali IV (417)	POWERGRID
		400 kV Biswanath Chariali I & 400 kV Misa I (411)	POWERGRID
		400 kV Biswanath Chariali II & 400 kV Misa II (408)	POWERGRID
		400 kV Bongaigaon III & 400 kV Kameng I (future) (420)	POWERGRID
		400 kV Bongaigaon IV & 400 kV Kameng II (future)(423)	POWERGRID
2	400/132/33 kV Biswanath Chariali	Balipara I and Balipara 1D	POWERGRID
		Balipara II and Ranganadi II	POWERGRID
3	400/220/33kV Bongaigaon	400 kV Balipara I & 400 kV Alipurduar I (414)	POWERGRID
		400 kV Balipara IV & 400 kV Alipurduar II (417)	POWERGRID
		400 kV Balipara III & 400 kV Azara	POWERGRID
		400 kV BTPS(NTPC) I & 400 kV Byrnihat	POWERGRID

NEEPCO

1	400/132 kV, Ranganadi	400 kV Balipara I	NEEPCO
		400 kV Balipara II	NEEPCO

Line- Generator

OTPC

1	400/132 kV Palatana	GT I & Silchar I (405)	OTPC
		STG II & Silchar II (408)	OTPC

MePTCL

1	400/220/132 kV Byrnihat	400 kV Silchar I	MePTCL
		400 kV Bongaigaon I	MePTCL
		Nangalbibra I (directly connected to 400 kV Bus)	MePTCL
		Nangalbibra II (directly connected to 400 kV Bus)	MePTCL

2. Line-Transformer Bay

POWERGRID

1	400/220/33kV Bongaigaon	New Siliguri I & 315 MVA ICT	POWERGRID
2	400/220/33kV Misa	Balipara I & 500 MVA ICT I	POWERGRID
		315 MVA ICT II directly connected to both bus	POWERGRID
		500 MVA ICT III directly connected to both bus	POWERGRID
3	400/132/33 kV Silchar	Palatana II & 400/132 kV, 200 MVA, ICT II (408)	POWERGRID
		Bongaigaon I & 400/132 kV,200 MVA ICT I (402)	POWERGRID
		PK Bari I (future) & ICT III (future)	POWERGRID

NEEPCO

1	400/132 kV, Ranganadi	360 MVA ICT I (directly connected to 400 kV Bus)	NEEPCO
		360 MVA ICT II (directly connected to 400 kV Bus)	NEEPCO

MePTCL

1	400/220/132 kV Byrnihat	400/220 kV 315 MVA ICT I	MePTCL
		400/220 kV 315 MVA ICT II	MePTCL

3. Line-Reactor Bay

POWERGRID

1	400/220/33kV Balipara	80 MVAR Bus Reactor II & Future V	POWERGRID
2	400/132/33 kV Biswanath Chariali	80 MVAR Bus Reactor I and Balipara 2D	POWERGRID
		80 MVAR Bus Reactor II and Ranganadi I	POWERGRID
		Bus Reactor (Future) and Future	POWERGRID
		Bus Reactor (Future) and Future	POWERGRID
3	400/220/33kV Bongaigaon	400 kV New Siliguri II & 50 MVAR Bus Reactor I	POWERGRID
		400 kV Balipara II & 50 MVAR Bus Reactor II	POWERGRID
		BTPS(NTPC) II (future) & 2x 80 MVAR Bus Reactor III and IV	POWERGRID
4	400/220/33 kV Misa	P&ED,Mizoram	POWERGRID
5	400/132/33 kV Silchar	Palatana II & 63 MVAR Bus Reactor II	POWERGRID
		Bongaigaon II & 63MVAR Bus Reactor I	POWERGRID

MePTCL

1	400/220/132 kV Byrnihat	420 kV,63 MVAR Bus Reactor	MePTCL

4 .Line-Generator Bay

OTPC

1	400/132 kV Palatana	GTG I & Silchar I	OTPC
		STG II & Silchar II	OTPC

5.Generator-Transformer Bay

OTPC

1	400/132 kV Palatana	STG I & 125 MVA ICT	OTPC

6. Generator-Reactor Bay

OTPC

1	400/132 kV Palatana	GTG II & 80 MVAR Bus Reactor	OTPC

7. Transformer-Transformer Bay

1	400/132/33 kV Biswanath Chariali	400/132 kV 200 MVA ICT I and 400/132 kV 200 MVA ICT II	POWERGRID

8.Filter Bank Bay

1	400/132/33 kV Biswanath Chariali	Filter Bank 1 and Filter Bank 2	POWERGRID

List of Generator Bay in North Eastern Region

Sl. No.	Name of Substation	Name of Gen Bay	Name of Bay Owner	CVT	CT	LA	Wave trap	CB (Type, PIR, Gang operated)	Disconnector/ Isolator	Earth Switch
NEEPCO										
1	400/132 kV Ranganadi	Unit 1 Bay	NEEPCO	LAVT, Ratio 11kV/110Volt, used for AVR, Protection & Metering	Rated Voltage :145KV, Current :2000A, Make :Hivoltrans, Adopted Ratio :2000-2000-1000/1-1-1, Accuracy Clas : PS/0.5/5P20, CT Burden : Core 3;40, Lighting Impulse Withstand Voltage : 275 rms/650pK	System Voltage :132 KV, Rated Arrested Voltage : 120V, Lighting Impulse Withstand Voltage : 650KVP/275KV(rms), Type : ZODIVER, Make : W.S. INDUSTRIES	-	Highest System Voltage : 145KV, Type : LTB145D1/B, PIR: NO, Gang Operated : Yes, Rated Current : 3150A, Fault Current : 40KA, Making Current : 100KA, Operating Mechanism : Spring, Make : ABB.	Highest System Voltage : 145KV, Rated Current : 3150A, Type : Double Break, Interlock : yes.	Provided
		Unit 2 Bay	NEEPCO	LAVT, Ratio 11kV/110Volt, used for AVR, Protection & Metering	Rated Voltage :145KV, Current :2000A, Make :Hivoltrans, Adopted Ratio :2000-2000-1000/1-1-1, Accuracy Clas : PS/0.5/5P20, CT Burden : Core 3;40, Lighting Impulse Withstand Voltage : 275 rms/650pK	System Voltage :132 KV, Rated Arrested Voltage : 120V, Lighting Impulse Withstand Voltage : 650KVP/275KV(rms), Type : ZODIVER, Make : W.S. INDUSTRIES	-	Highest System Voltage : 145KV, Type : LTB145D1/B, PIR: NO, Gang Operated : Yes, Rated Current : 3150A, Fault Current : 40KA, Making Current : 100KA, Operating Mechanism : Spring, Make : ABB.	Highest System Voltage : 145KV, Rated Current : 3150A, Type : Double Break, Interlock : yes.	Provided
		Unit 3 Bay	NEEPCO	LAVT, Ratio 11kV/110Volt, used for AVR, Protection & Metering	Rated Voltage :145KV, Current :2000A, Make :Hivoltrans, Adopted Ratio :2000-2000-1000/1-1-1, Accuracy Clas : PS/0.5/5P20, CT Burden : Core 3;40, Lighting Impulse Withstand Voltage : 275 rms/650pK	System Voltage :132 KV, Rated Arrested Voltage : 120V, Lighting Impulse Withstand Voltage : 650KVP/275KV(rms), Type : ZODIVER, Make : W.S. INDUSTRIES	-	Highest System Voltage : 145KV, Type : LTB145D1/B, PIR: NO, Gang Operated : Yes, Rated Current : 3150A, Fault Current : 40KA, Making Current : 100KA, Operating Mechanism : Spring, Make : ABB.	Highest System Voltage : 145KV, Rated Current : 3150A, Type : Double Break, Interlock : yes.	Provided
2	400/132 kV Kameng	Unit 1 Bay	NEEPCO							
		Unit 2 Bay	NEEPCO							
3	220/132 kV AGBPP	GTG 1 Bay	NEEPCO	No CVT on Generator bay, BUS VT available on BUS-I & II	Make BHEL, 5 Core CT , Core-1,2 &3: 150/1, Core 4&5: 800/1	Make : Oblum electric Pvt. Limited, Capacity 216 KV, 10 KA	No Wave trap on Generator bay	Make BHEL, Type : SF6 circuit breaker, 3AV1, 245 KV, hydraulic operated, PIR:No	Make: Switchgear Manufacturing Pvt Ltd., Hydreabad, Type : HCB, 245 KV, 3 Pole Horizontal upright mounting, center break type	Make: Switchgear Manufacturing Pvt Ltd., Hydreabad
		GTG 2 Bay	NEEPCO							
		GTG 3 Bay	NEEPCO							
		GTG 4 Bay	NEEPCO							
		GTG 5 Bay	NEEPCO							
		GTG 6 Bay	NEEPCO							
		STG 1 Bay	NEEPCO							
		STG 2 Bay	NEEPCO							
		STG 3 Bay	NEEPCO							

List of Generator Bay in North Eastern Region

Sl. No.	Name of Substation	Name of Gen Bay	Name of Bay Owner	CVT	CT	LA	Wave trap	CB (Type, PIR, Gang operated)	Disconnector/ Isolator	Earth Switch
4	220/132 kV Kopili	Unit 1 Bay	NEEPCO	(220/√3)kV/(110/√3) v	200/1 A	216 kV	No	SF6	245 kV, 1250 A, Center break	No
		Unit 2 Bay	NEEPCO	(220/√3)kV/(110/√3) v	200/1 A	216 kV	No	SF6	245 kV, 1250 A, Center break	No
		Unit 3 Bay	NEEPCO	(220/√3)kV/(110/√3) v	200/1 A	216 kV	No	SF6	245 kV, 1250 A, Center break	No
		Unit 4 Bay	NEEPCO	(220/√3)kV/(110/√3) v	200/1 A	216 kV	No	SF6	245 kV, 1250 A, Center break	No
5	132 kV AGTCCPP	GTG 1 Bay	NEEPCO		CT ratio=250/1,Short Time Current Rating:40kA/1s, Insulation Level=275kV/650kVp	System Voltage=132KV,Nom. Discharge Current=10kA		Rated Voltage=145KV,Rated Normal Current=2000A,Rated Short-Circuit Breaking Current=40kA,Rated Lightning Impulse Withstand Voltage=650kVp,Rated Making Capacity: 100kAp,Rated short Time Current=40kA for 3sec.	Type-DBCR,Voltage=132KV,Current-800Amps,BIL=650KV,STC=31.5 KA/3sec	Type-VERT,Voltage=132KV,Current-800 Amps
		GTG 2 Bay	NEEPCO							
		GTG 3 Bay	NEEPCO							
		GTG 4 Bay	NEEPCO							
		STG 1 Bay	NEEPCO		CT ratio=250/1,Short Time Current Rating:40kA/1swc,dynamic=100kAp,Rating factor-1.2,Insulation Level=275kV/650kVp	System Voltage=132KV,Nom. Discharge Current=10kAp,Pr. Relief Current40Ka,MCOV=102kV		Rated Voltage=145KV,Rated Normal Current=1600A,Rated Short-Circuit Breaking Current=40kA,Rated Lightning Impulse Withstand Voltage=650kVp,Rated Making Capacity: 100kAp,Rated short Time Current=40kA for 3sec.	Type-DBCR,Voltage=132KV,Current-1600Amps,BIL=650KV,STC=40KA/1sec	Type-VERT,Voltage=132KV,Current-1600Amps,BIL=650KV,STC=40KA/1sec
		STG 2 Bay	NEEPCO							
6	132 kV Doyang	Unit 1 Bay	NEEPCO							
		Unit 2 Bay	NEEPCO							
		Unit 3 Bay	NEEPCO							

List of Generator Bay in North Eastern Region

Sl. No.	Name of Substation	Name of Gen Bay	Name of Bay Owner	CVT	CT	LA	Wave trap	CB (Type, PIR, Gang operated)	Disconnector/ Isolator	Earth Switch
7	132/33 kV Khandong	Unit 1 Bay	NEEPCO							
		Unit 2 Bay	NEEPCO							
		Kopili St 2 Bay	NEEPCO							
8	132 kV Monarchak	GTG Bay	NEEPCO	No	3 nos	3 nos	No	145KV Areva Make Type GL312F3P. Operating O-0.3s-CO-3s-CO	1600A, Centre Break, Horizontal motor operated Isolator with both side motor operated E/S.	Yes
		STG Bay	NEEPCO	No	3Nos	3 nos	No	145KV Areva Make Type GL312F3P. Operating O-0.3s-CO-3s-CO	1600A, Centre Break, Horizontal motor operated Isolator with both side motor operated E/S.	Yes
9	132 kV Tuirial	Unit 1 Bay	NEEPCO							
		Unit 2 Bay	NEEPCO							
10	132 kV Pare	Unit 1 Bay	NEEPCO							
		Unit 2 Bay	NEEPCO							
NTPC										
1	400/220 kV BgTPP	Unit 1 Bay	NTPC							
		Unit 2 Bay	NTPC							
		Unit 3 Bay	NTPC							
NHPC										
1	132kV Loktak	Unit 1 Bay	NHPC							
		Unit 2 Bay	NHPC							
		Unit 3 Bay	NHPC							
OTPC										
1	400/132 kV Palatana	GTG 1 GT Bay	OTPC							
		STG 1 GT Bay	OTPC							
		GTG 2 GT Bay	OTPC							
		STG 2 GT Bay	OTPC							

List of Generator Bay in North Eastern Region

Sl. No.	Name of Substation	Name of Gen Bay	Name of Bay Owner	CVT	CT	LA	Wave trap	CB (Type, PIR, Gang operated)	Disconnector/ Isolator	Earth Switch
AEGCL										
1	220/132/66/33 kV Namrup TPS	Unit 1 Bay	AEGCL							
		Unit 2 Bay	AEGCL							
		Unit 3 Bay	AEGCL							
		Unit 4 Bay	AEGCL							
		Unit 5 Bay	AEGCL							
		Unit 6 Bay	AEGCL							
2	220 kV Karbi Langpi HEP	P&ED,Mizoram	AEGCL							
		Unit 2 Bay	AEGCL							
3	132/33 kV Lakwa TPS	Unit 1 Bay	AEGCL							
		Unit 2 Bay	AEGCL							
		Unit 3 Bay	AEGCL							
		Unit 4 Bay	AEGCL							
		Unit 5 Bay	AEGCL							
		Unit 6 Bay	AEGCL							
		Unit 7 Bay	AEGCL							
		Unit 8 Bay	AEGCL							
4	132/33kV Lakwa Replacement Power Plant	Unit 1 Bay	AEGCL							
		Unit 2 Bay	AEGCL							
		Unit 3 Bay	AEGCL							
		Unit 4 Bay	AEGCL							
		Unit 5 Bay	AEGCL							
		Unit 6 Bay	AEGCL							
		Unit 7 Bay	AEGCL							
5	132 kV Champavati	Unit 1 Bay	AEGCL							
		Unit 2 Bay	AEGCL							
6	132 kV Myntraing	Unit 1 Bay	AEGCL							
		Unit 2 Bay	AEGCL							
7	Suryataap	Unit 1 Bay	AEGCL							

List of Generator Bay in North Eastern Region

Sl. No.	Name of Substation	Name of Gen Bay	Name of Bay Owner	CVT	CT	LA	Wave trap	CB (Type, PIR, Gang operated)	Disconnector/ Isolator	Earth Switch
MePTCL										
1	132 kV Myntdu Leshka	Unit 1 Bay	MePTCL							
		Unit 2 Bay	MePTCL							
2	132 kV Umiam Stg I	Unit 1 Bay	MePTCL							
		Unit 2 Bay	MePTCL							
		Unit 3 Bay	MePTCL							
		Unit 4 Bay	MePTCL							
3	132 kV Umiam Stg II	Unit 1 Bay	MePTCL							
		Unit 2 Bay	MePTCL							
4	132 kV Umiam Stg III	Unit 1 Bay	MePTCL							
		Unit 2 Bay	MePTCL							
5	132 kV Umiam Stg IV	Unit 1 Bay	MePTCL							
		Unit 2 Bay	MePTCL							
6	132 kV Umtru	Unit 1 Bay	MePTCL							
		Unit 2 Bay	MePTCL							
		Unit 3 Bay	MePTCL							
		Unit 4 Bay	MePTCL							
7	132 kV New Umtru	Unit 1 Bay	MePTCL							
		Unit 2 Bay	MePTCL							
TPGL										
1	132/66 kV Baramura	Unit 1 Bay	TSECL							
		Unit 2 Bay	TSECL							
		Unit 3 Bay	TSECL							
		Unit 4 Bay	TSECL							
		Unit 5 Bay	TSECL							
2	66/33 kV Gumti	Unit 1 Bay	TSECL							
		Unit 2 Bay	TSECL							
		Unit 3 Bay	TSECL							
3	132/66 kV Rokhia	Unit 1 Bay	TSECL							
		Unit 2 Bay	TSECL							
		Unit 3 Bay	TSECL							
		Unit 4 Bay	TSECL							
		Unit 5 Bay	TSECL							
		Unit 6 Bay	TSECL							
		Unit 7 Bay	TSECL							
		Unit 8 Bay	TSECL							
		Unit 9 Bay	TSECL							
DOP , AP										
1	132/11 KV Dikshi SS	Unit 1 Bay	Devi enregy pvt. Limited							
		Unit 2 Bay	Devi enregy pvt. Limited							
		Unit 3 Bay	Devi enregy pvt. Limited							

List of Dias in North Eastern Regional Grid

Sl. No.	Name of Substation	Name of Dia
1	400/220/33 kV Azara	400 kV Silchar and 80 MVAR Bus Reactor
		400 kV Bongaigaon and 400/220/33 kV 315 MVA ICT-2
		400/220/33 kV 315 MVA ICT-1 connected to 400 kV Bus
2	400/220/132 kV Balipara	400 kV Bongaigaon I & 400 kV Biswanath Chariali III
		400 kV Bongaigaon II & 400 kV Biswanath Chariali IV
		400 kV Biswanath Chariali I & 400 kV Misa I
		400 kV Biswanath Chariali II & 400 kV Misa II
		Bongaigaon II & Future (Now directly connected to both bus
		400/220/33 kV,315 MVA ICT 1 & 420kV, 50 MVAR Bus Reactor I
		400 kV Bongaigaon III & 400 kV Kameng I
		400 kV Bongaigaon IV & 400 kV Kameng II
		420 kV,125 MVAR Bus Reactor
		420 kV, 80 MVAR Bus Reactor I
		420 kV, 80 MVAR Bus Reactor II
		420 kV, 50 MVAR Bus Reactor II
3	400 kV BgTPP	400 kV Bongaigaon I
		400 kV Bongaigaon II
		400/220/33 kV,315 MVA ICT II
4	400/132/33 kV Biswanath Chariali	400/132 kV,200MVA ICT 1 and 400/132 kV,200 MVA ICT 2
		Lower Subansiri 1 and Lower Subansiri 2
		Lower Subansiri 3 and Lower Subansiri 4
		Filter Bank 3 and Bus Reactor(Future)
		800 kV Convertor Pole 1 and Tie Bay of Bus Reactor(Future) & Future
		800 kV Convertor Pole 2 and Ranganadi 1 along with 420 kV, 80 MVAR Bus Reactor 2
		800 kV Convertor Pole(Future) and Tie Bay of Balipara 2 and Ranganadi 2
		800 kV Convertor Pole (Future) and Tie-Bay of Future and Future
		Tie-Bay of Filter Bank 1 & Filter Bank 2 and Tie-Bay of Balipara 1 and Balipara 1D
		Tie-Bay of Filter Bank (Future) & Filter Bank (Future) and Tie-Bay of Balipara 2D and 420 kV,80 MVAR Bus Reactor 1

List of Dias in North Eastern Regional Grid

Sl. No.	Name of Substation	Name of Dia
5	400/220/33 kV Bongaigaon	400 kV New Siliguri I & 400/220/33 kV ,315 MVA ICT
		400 kV New Siliguri II & 420 kV,50 MVAR Bus Reactor I
		400 kV Balipara II & 420 kV,50 MVAR Bus Reactor II
		400 kV Balipara I & 400 kV Alipurduar I
		400 kV Balipara IV & 400 kV Alipurduar II
		400 kV Balipara III & 400 kV Azara
		400 kV BTPS(NTPC) I & 400 kV Byrnihat
		400 kV BTPS(NTPC) II & 2x 80 MVAR Bus Reactor III and IV
		420 kV,125 MVAR Bus Reactor V
6	400/220/132 kV Byrnihat	400 kV Silchar I
		400 kV Bongaigaon I
		63 MVAR Bus Reactor (directly connected to 400 kV Bus)
		400/220/33 kV,315 MVA ICT I
		400/220/33 kV,315 MVA ICT II
7	400/220/33 kV Misa	400 kV Balipara I & 420 kV,50 MVAR Line Reactor
		400 kV Balipara II & 400/220/33 kV, 500 MVA ICT I
		400/220/33 kV,315 MVA ICT II
8	400/132 kV Palatana	STG I & 400/132 kV,125 MVA ICT-2
		GTG I & 400 kV Silchar I
		STG II & 400 kV Silchar II
		GTG II & 80 MVAR Bus Reactor
		400/132 kV,125 MVA ICT-1
9	400 kV Ranganadi	400/132/33 kV,3x120 MVA ICT 1
		400/132/33 kV,3x120 MVA ICT 2
		400 kV Biswanath Chariali I
		400 kV Biswanath Chariali II
		420 kV ,50 MVAR Bus Reactor
10	400/132/33 kV Silchar	400 kV Palatana I & 420 kV,63 MVAR Bus Reactor 2
		400 kV Palatana II & 400/132/33 kV,200 MVA ICT-2
		400 kV Byrnihat I & 420 kV,63 MVAR Bus Reactor 1
		400kVAzara & 400/132/33 kV,200 MVA ICT-1
		400/132/33 kV,315 MVA ICT-3 &(Future)
11	400/132/33 kV Imphal	400 kV Silchar I & 420 kV & 80 MVAR Bus Reactor 1
		P&ED,Mizoram
		400/132/33 kV,315 MVA ICT 1 & 400 kV New Kohima I (Future)
		Bus Reactor(Future) & 400 kV New Kohima II (Future)

HVDC Filters

HVDC Agra - BNC (at BNC End)						
Filter Bank		**Type-A**	**Type-B**	**Type-C**	**Type-D**	**Type-E**
I	Harmonic	HP 12	HP 12B	HP 24/36 B	HP3	Shunt Reactor
	Capacity	125MVAr	160 MVAr	125MVAr	159 MVAr	155MVAr
II	Harmonic	HP 12	HP 12B	HP 24/36 B	HP3	-
	Capacity	125 MVAr	160 MVAr	125MVAr	125 MVAr	-
III	Harmonic	HP 12	HP 12B	HP 24/36 B	HP3	Shunt Reactor
	Capacity	125 MVAr	160 MVAr	125MVAr	159 MVAr	155MVAr

Filter Bank 1 & 3:

Sub bank No.	Capacity	Name
1	125	HP-12
2	125	HP-24/36
3	160	HP-12B
4	159	HP-3
5	155	Shunt Reactor

Filter Bank 2:

Sub bank No.	Capacity	Name
1	125	HP-12
2	125	HP-24/36
3	160	HP-12B
4	125	

Electrode Station of HVDC-BNC:

Substation	Name of Electrode Station	Distance from substation
Biswanath Chariali End	Phagiabari	75km (approx.)

Minimum Filter Switching Points				
Monopolar Operation				
DC Side Power (in MW)	**Total Filter**	**HP-12***	**HP-24/36**	**HP-3**
150 - 375	2	1	1	
375 - 600	3	2	1	
600 - 750	4	3	1	
750 - 900	5	3	2	
900 - 1995	6	3	2	1

Monopolar Operation (Reduced DC Voltage)				
DC Side Power (in MW)	**Total Filter**	**HP-12***	**HP-24/36**	**HP-3**
150 - 450	2	1	1	
450 - 600	3	2	1	
600 - 750	4	3	1	
750 - 1200	5	3	1	1

HVDC Filters

Minimum Filter Switching Points				
Bipolar Operation				
DC Side Power (in MW)	**Total Filter**	**HP-12***	**HP-24/36**	**HP-3**
300 - 750	3	2	1	
750 - 1050	4	3	1	
1050 - 1200	5	3	1	1
1200 - 2250	6	4	1	1
2250 - 2850	7	4	2	1
2850 - 3600	8	5	2	1
3600 - 3990	9	6	2	1
Bipolar Operation (in case of outage of 2 HP-12)				
DC Side Power (in MW)	**Total Filter**	**HP-12***	**HP-24/36**	**HP-3**
2850 - 3600	8	4	3	1

Bipolar Operation (Reduced Voltage)				
DC Side Power (in MW)	**Total Filter**	**HP-12***	**HP-24/36**	**HP-3**
300 - 750	3	1	1	
750 - 900	4	3	1	
900 - 1800	5	3	1	1
1800 - 2400	6	4	1	1

Bipolar Operation (Unbalanced DC Voltage)				
DC Side Power (in MW)	**Total Filter**	**HP-12***	**HP-24/36**	**HP-3**
300 - 810	3	2	1	
810 - 1080	4	3	1	
1080 - 1620	5	3	1	1
1620 - 3210	6	4	1	1

*** First HP-12 followed by HP-12B**

Size/Type and Current rating of different Conductors

Sl. No.	Conductor Type and Dimension	Ambient Temperature in ^{0}C	Ampacity for Maximum Conductor Temperature	
			65	75
1	ACSR Panther (210 sq mm)	40	312	413
		45	244	366
		48	199	334
		50	-	311
2	ACSR Zebra(484 sq mm)	40	473	643
		45	346	560
		48	240	503
		50	128	462
3	AAAC Zebra(479 sq mm)	40	471	639
		45	345	557
		48	240	501
		50	130	460
4	ACSR Moose(597 sq mm)	40	528	728
		45	378	631
		48	247	565
		50	83	516
5	AAAC Moose(570 sq mm)	40	509	699
		45	366	606
		48	243	543
		50	96	497
6	ACSR Lapwing	40	635	899
		45	430	773
		48	234	686
		50	-	622

Size/Type and Current rating of different Conductors

Sl. No	Conductor Size Sq. Inch/Sq. MM/ (Cu. equv.)	Code Name	Conductor Age-Year	Current Carrying Capacity in Amps at Ambient Temp. (^{0} C) [Ampacity] {Maximum design temperature of conductor = 60^0 C}						
				20	25	30	35	40	45	50
1.	0.403/260	ACSR Zebra	Upto 1	766	656	542	495	352	267	171
			1 to 10	809	694	573	522	372	283	182
			Beyond 10	828	714	594	542	394	305	205
2.	0.504/325	ACSR Moose	Upto 1	880	750	615	535	358	265	148
			1 to 10	931	795	653	569	385	286	164
			Beyond 10	954	819	679	594	415	315	193

Sl. No	Conductor Size Sq. Inch/Sq. MM/ (Cu. equv.)	Code Name	Conductor Age-Year	Current Carrying Capacity in Amps at Ambient Temp. (^{0} C) [Ampacity] {Maximum design temperature of conductor = 65^0 C}						
				20	25	30	35	40	45	50
1.	0.403/260	ACSR Zebra	Upto 1	823	724	648	589	478	393	308
			1 to 10	871	767	684	623	506	417	328
			Beyond 10	891	788	705	643	527	438	350
2.	0.504/325	ACSR Moose	Upto 1	947	830	712	645	512	407	303
			1 to 10	1004	881	758	688	548	439	330
			Beyond 10	1028	906	784	713	575	466	358

Sl. No	Conductor Size Sq. Inch/Sq. MM/ (Cu. equv.)	Code Name	Conductor Age-Year	Current Carrying Capacity in Amps at Ambient Temp. (^{0} C) [Ampacity] {Maximum design temperature of conductor = 67^0 C}						
				20	25	30	35	40	45	50
1.	0.403/260	ACSR Zebra	Upto 1	845	749	677	622	519	433	352
			1 to 10	894	794	716	658	550	461	375
			Beyond 10	915	815	738	679	571	482	397
2.	0.504/325	ACSR Moose	Upto 1	972	859	746	684	561	455	355
			1 to 10	1031	913	795	730	601	491	386
			Beyond 10	1055	938	821	755	627	518	414

Sl. No	Conductor Size Sq. Inch/Sq. MM/ (Cu. equv.)	Code Name	Conductor Age-Year	Current Carrying Capacity in Amps at Ambient Temp. (^{0} C) [Ampacity] {Maximum design temperature of conductor = 75^0 C}						
				20	25	30	35	40	45	50
1.	0.403/260	ACSR Zebra	Upto 1	948	864	783	737	654	578	508
			1 to 10	1003	915	831	783	696	595	518
			Beyond 10	1025	937	853	805	718	638	564
2.	0.504/325	ACSR Moose	Upto 1	1063	964	869	817	720	616	529
			1 to 10	1131	1028	928	874	772	664	573
			Beyond 10	1158	1055	955	901	799	692	601

Line Parameters (per unit/km/circuit at 100 MVA base)

Voltage (kV)	Configuration	Type of Conductor	Ckt	Positive Sequence			Zero Sequence		
				R	X	B	R	X	B
400	Twin	ACSR Moose	S/C	1.86E-05	2.08E-04	5.55E-03	1.01E-04	7.75E-04	3.58E-04
400	Twin	ACSR Moose	D/C	1.80E-05	1.92E-04	6.02E-03	1.67E-04	6.71E-04	3.67E-03
400	Quad	ACSR Moose	S/C	9.17E-06	1.58E-04	7.32E-03	1.55E-04	6.25E-04	4.23E-03
400	Quad	ACSR Moose	D/C	9.18E-06	1.58E-04	7.33E-03	1.56E-04	6.25E-04	4.24E-03
220	Single	ACSR Zebra	S/C	1.44E-04	8.22E-04	1.41E-03	4.23E-04	2.76E-03	8.84E-04
220	Single	AAAC Zebra	S/C	1.55E-04	8.25E-04	1.42E-03	4.55E-04	2.77E-03	8.91E-04
132	Single	ACSR Panther	S/C	9.31E-04	2.22E-03	5.10E-04	2.33E-03	9.31E-03	-

Nominal Current Rating of Transformer

Sl. No.	Capacity of Transformer	Nominal Current Rating (in Amps)			
		400 kV Side	220 kV Side	132 kV Side	33 kV Side
1	315	455	828	-	-
2	360	520	-	1576	-
3	200	289	-	876	-
4	125	181	-	547	-
5	160	-	420	701	-
6	100	-	263	438	-
7	80	-	210	350	-
8	50	-	131	219	-
9	30	-	79	131	-
10	50	-	-	219	876
11	25	-	-	109	438
12	15	-	-	66	263

Miscellaneous

Maximum Conductor Temp. 85 °C
ACSR MOOSE (597 sq mm) where V=400 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	798	553
43	814	564
41	846	586
40	874	606
38	891	618
36	909	630
34	926	642
32	944	654
30	961	666
28	979	678
26	996	690
24	1014	702
22	1031	715
20	1049	727

Maximum Condutor Temp. 75 °C
ACSR MOOSE (597 sq mm) where V=400 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	631	437
43	644	446
41	669	463
40	728	504
38	743	514
36	757	525
34	772	535
32	786	545
30	801	555
28	815	565
26	830	575
24	844	585
22	859	595
20	874	605

Miscellaneous

Maximum Condutor Temp. 85 °C

Zebra (484 sq mm)where V=400 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	703	487
43	717	497
41	745	516
40	769	533
38	784	543
36	800	554
34	815	565
32	831	575
30	846	586
28	861	597
26	877	607
24	892	618
22	907	629
20	923	639

Maximum Condutor Temp. 75 °C

Zebra (484 sq mm) where V=400 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	560	388
43	571	396
41	594	411
40	643	445
38	656	454
36	669	463
34	682	472
32	694	481
30	707	490
28	720	499
26	733	508
24	746	517
22	759	526
20	772	535

Miscellaneous

Maximum Condutor Temp. 85 °C

ACSR MOOSE (597 sq) Quad Conductor where V=765 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	798	4229
43	814	4314
41	846	4483
40	874	4632
38	891	4725
36	909	4817
34	926	4910
32	944	5003
30	961	5095
28	979	5188
26	996	5281
24	1014	5373
22	1031	5466
20	1049	5559

Maximum Condutor Temp. 75 °C

ACSR MOOSE (597 sq) Quad Conductor where V=765 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	631	3344
43	644	3411
41	669	3545
40	728	3858
38	743	3936
36	757	4013
34	772	4090
32	786	4167
30	801	4244
28	815	4321
26	830	4399
24	844	4476
22	859	4553
20	874	4630

Miscellaneous

Maximum Condutor Temp. 75 °C
ACSR Panther (210 sq mm) where V=132 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	366	84
43	373	85
41	388	89
40	413	94
38	421	96
36	430	98
34	438	100
32	446	102
30	454	104
28	463	106
26	471	108
24	479	110
22	487	111
20	496	113

Maximum Condutor Temp. 65 °C
ACSR Panther(210 sq mm) where V=132 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	244	56
43	249	57
41	259	59
40	312	71
38	318	73
36	324	74
34	331	76
32	337	77
30	343	78
28	349	80
26	356	81
24	362	83
22	368	84
20	374	86

Miscellaneous

Maximum Conductor Temp. 85 °C
ACSR MOOSE (597 sq mm) Twin where V=400 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	798	1106
43	814	1128
41	846	1172
40	874	1211
38	891	1235
36	909	1259
34	926	1284
32	944	1308
30	961	1332
28	979	1356
26	996	1381
24	1014	1405
22	1031	1429
20	1049	1453

Maximum Condutor Temp. 75 °C
ACSR MOOSE (597 sq mm) Twin where V=400 kV

Amb. Temp. °C	Current in amp.	Sqr Root 3*V*I (MW)
45	631	874
43	644	892
41	669	927
40	728	1009
38	743	1029
36	757	1049
34	772	1069
32	786	1089
30	801	1110
28	815	1130
26	830	1150
24	844	1170
22	859	1190
20	874	1210

ACRONYMS

AAAC	All Aluminium Alloy Conductors
ACSR	Aluminium Conductor Steel Reinforced
AEGCL	AEGCL Electricity Grid Corporation Limited
AGBPP	AEGCL Gas Based Power Plant
AGTCCPP	Agartala Gas Turbine Combined Cycle Power Plant
AIS	Air Insulated Substation
APD	Alipurduar
APGCL	AEGCL Power Generation Corporation Limited
BgTPP	Bongaigaon Thermal Power Plant
BHU	Bhutan
BNC	Biswanath Chariali
BNG	Bangladesh
BPCL	Bhutan Power Corporation Limited
Ckt	Circuit
CSD	Controlled Switching Device
D/C	Double Circuit
DoP	Department of Power
ENICL	East-North Interconnection Company Limited
ESE, Myanmar	Electric Supply Enterprise, Myanmar
GIS	Gas Insulated Substation
IND	India
LTPS	Lakwa Thermal Power Station
MePGCL	MePTCL Power Generation Corporation Limited
MePTCL	MePTCL Power Transmission Corporation Limited
MSPCL	MSPCL State Power Company Limited
MYN	Myanmar
NA	Not Applicable
NEEPCO	North Eastern Electric Power Corporation Limited
NETC	North East Transmission Company
NHPC	National Hydroelectric Power Corporation
NTPC	National Thermal Power Corporation
NTPS	National Thermal Power Station
OTPC	ONGC TSECL Power Company

P K Bari	Purba Kanchan Bari
P&ED	Power & Electricity Department
PG	POWERGRID
PGCB	Power Grid Company of Bangladesh Limited
S/C	Single Circuit
TPGL	TSECL Power Generation Limited
TSECL	TSECL State Electricity Corporation Limited
TTC	Total Transfer Capability

List of alternate name of node

Byrnihat	Killing
Agartala	79 Tilla
AGBPP	Kathalguri
AGTCCPP	R C Nagar
Azara	Kukurmara/Mirza
Ranganadi	Dikrong
Binaguri	New Siliguri
Dhalabil	Khowai
Mawphlang	Mawngap
Umiam St I	Sumer
Umiam St II	Umsumer
Umiam St III	Kyrdemkulai
EPIP II	Norbong
Nazira	Gargaon
Ashok Paper Mill	APM
Sisugram	Amingaon
Jagiroad	Baghjap
Depota	Tezpur
Pavoi	Biswanath Chariyali
Sankardev Nagar	Lanka
North Lakhimpur	Nalkata
Jorhat	Garmur
Ledo	Margherita
Imphal	Yurembam
Churachandpur	Kheljang
Tura	Rongkhon
Cherapunjee	Sohra
EPIP I	Raja Bagan
EPIP II	Norbong
Kolasib	Bawklang
Zungtui	Zemabawk
Serchip	Bukpui
Lunglei	Khawiva
Teliamura	Gamaitilla
Udaipur	Banduar
Dharmanagar	Mission Tilla
Kailashor	Gournagar

Line Voltage	Phase Voltage
400	231
220	127
132	76