

I/17064/2021



भारत सरकार
Government of India

विद्युत मंत्रालय
Ministry of Power

केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II

सेवा में/To

संलग्नसूची के अनुसार
As per list enclosed

विषय: उत्तर पूर्वी क्षेत्रीय विद्युत समिति (पारेषण योजना) (उपक्षेविसपायो) की तीसरी बैठक का कार्यवृत्त ।

Subject: Minutes of 03rd meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP) - regarding.

महोदय(Sir)/महोदया(Madam),

उत्तर पूर्वी क्षेत्रीय विद्युत समिति (पारेषण योजना) (उपक्षेविसपायो) की तीसरी बैठक 19 जुलाई, 2021 को वीडियो कॉन्फ्रेंसिंग द्वारा संपन्न हुई। बैठक का कार्यवृत्त संलग्न है ।

The 03rd meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPC-TP) was held on 19th July, 2021 through video conferencing. Minutes of the meeting are enclosed herewith.

भवदीय/Your faithfully,

(प्रदीप जिंदल/Pardeep Jindal)

मुख्य अभियन्ता/ Chief Engineer

I/17064/2021

List of Addresses:

1.	The Member Secretary, North Eastern Regional Power Committee(NERPC), Meghalaya State Housing Finance Co-Operative Society Ltd. Building Nongrim Hills, Shillong (Meghalaya) – 793003	2.	The Managing Director, Assam Electricity Grid Corporation Limited, BijuleeBhawan; Paltan Bazar, Guwahati (Assam) – 781001.
3.	The Chairman-cum-Managing Director, Tripura State Electricity Corporation Limited, Bidyut Bhavan, Banamalipur, Agartala, Tripura.	4.	The Chairman-cum-Managing Director, Meghalaya Energy Corporation Limited, LumJingshai, Short Round Road, Shillong (Meghalaya) – 793001.
5.	The Managing Director, Manipur State Power Company Ltd. (MSPCL), Electricity Complex, Patta No. 1293 under 87(2), Khwai Bazar, Keishampat, District – Imphal West, Manipur – 795001	6.	The Chief Engineer (Power), VidyutBhawan, Department of Power, Zero Point Tinali, Itanagar (Arunachal Pradesh) – 791111.
7.	The Chief Engineer (T&G), Department of Power, Electricity House, A.G. Colony, Kohima, Nagaland- 797001	8.	Engineer-in-Chief Power & Electricity Department, Kawlphetha Building, New Secretariat Complex, Khatla, Aizawl Mizoram- 796001
9.	COO(CTU-Planning), Power Grid Corporation of India Ltd., “Saudamini” Plot no-2, Sector-29, Gurugram- 122001, Haryana	10.	Director (System Operation), POSOCO, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi – 110016.
11.	Chairman-cum-Managing Director NTPC Limited, NTPC Bhawan, SCOPE Complex, Institutional Area, LodhiRoad,New Delhi – 110003	12.	Chairman-cum-Managing Director NHPC Limited, N.H.P.C. Office Complex, Sector-33, Faridabad - 121003 (Haryana)
13.	Chairman, Solar Energy Corporation of India Limited, 1st Floor, D-3, A Wing, Prius Platinum Building, District Centre, Saket, New Delhi - 110017.	14.	The Chairman and Managing Director North Eastern Electric Power Corporation Ltd. Brookland Compound, Lower New Colony, Shillong (Meghalaya)- 793003

SUMMARY OF MINUTES:

1. Confirmation of minutes of the 02nd meeting of North Eastern Region Power Committee-Transmission Planning (NERPCTP)

A. ToR-I : QUARTERLY REVIEW AND STRENGTHNING OF INTER-REGIONAL TRANSMISSION SYSTEM

2. Quarterly Review of transmission line and substation
3. Assessment of growth in generation capacity and demand in the region
4. Requirement for strengthening of Inter-regional transmission system
5. Review of Transmission system from operational considerations

B. ToR-II: ASSESSMENT OF TRANSMISSION SYSTEM REQUIREMENTS IN NEAR, MEDIUM AND LONG TERM AND FORMULATETRANSMISSION SCHEME

6. Construction of additional 400kV transmission line from 600MW Kameng HE Project, Arunachal Pradesh to BnC and associated bays at Kameng and BnC for reliable evacuation as part of NERPSIP etc.

C. ToR-III: APPLICATIONS FOR CONNECTIVITY AND ACCESS

7. Connectivity, MTOA, LTA applications processed after 02nd meeting of NERPC-TP
8. Installation of 125MVAR Bus Reactor at Subansiri Lower HE Project (2000 MW)

D. ToR IV– REVIEW OF UPSTREAM AND DOWNSTREAM NETWORK

9. Downstream system development by STUs from the various commissioned and on-going ISTS substations
10. Status of 400kV substations and other important elements being implemented by STUs in NER under intra-state schemes
11. Utilisation of spare 132kV ISTS bays by States

E. ToR-V: EXAMINE AND EVALUATE INTRA-STATE PROPOSALS

12. 132kV S/C LILO connectivity to 132kV Karimganj (AEGCL) S/S from 132kV S/C Badarpur - Kumarghat line of POWERGRID
13. New Mariani-Mariani interconnection
14. Restoration of Kopili generation switchyard
15. Conversion of 132kV bus bar at Imphal
16. Intra state scheme considering the load forecast for the year 2030 - Agenda by AEGCL.
17. Connectivity system for Dibang HEP (12x240MW) of M/s NHPC Ltd.
18. Under-utilization of 2x160MVA, 220/132kV ICTs at Balipara

19. LILO of 400 kV D/C Silchar-Byrnihat along with 400/220 kV 2x315 MVA, 220/132 kV 2x160 MVA substation at Mynkre, Meghalaya
20. LILO of 400 kV D/C Silchar-Byrnihat along with 400/220kV 2x315 MVA, substation at New Shillong, Meghalaya
21. Re-conductoring and strengthening of aged 132 kV lines in Manipur with HTLS
22. N-1 reliability requirement at Sohra (Cherrapunji)
23. N-1 reliability requirement at Zuangtui
24. Proposals under 10% GBS-Mizoram

F. ToR-VI: REVIEW AND FACILITATE CONSTRUCTION OF INTER-REGIONAL GRID STRENGTHNING SCHEME

25. MoP vide OM dated 20th May, 2021 amended ToR of NCT

ADDITIONAL AGENDA:

26. Additional agenda by CTU
27. Additional Agenda by TSECL

Minutes of the 03rd meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP)

List of participants is enclosed at **Annexure-I**.

Member (Power System), CEA, welcomed all the participants in the meeting. After brief introduction of the participants, he requested Chief Engineer (PSPA-II), CEA to take up the agenda items for discussion. Agenda wise deliberations are as follows:

1 Confirmation of minutes of the 02nd meeting of North Eastern Region Power Committee-Transmission Planning (NERPCTP)

- 1.1. The minutes of the 02nd meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP) held on 25th September, 2020 via Video Conferencing were circulated vide CEA's letter no. I/12003/2020 dated 27.10.2020.
- 1.2. NHPC vide letter dated 09.11.2020 had requested for following modification in para 4.6 of the minutes:

Recorded in minutes	Proposed para by NHPC
4.6 Representative of NHPC informed that scheduled commissioning date of first unit of L.Subansiri (HEP-2000MW) is May 2023. Thereafter, every month one unit would be commissioned.	4.6 Representative of NHPC informed that scheduled commissioning date of first 02 unit of L. Subansiri (HEP-2000MW) is May 2023. Thereafter, every month two units would be commissioned and whole project would be commissioned (all 8 units) by August 2023.

- 1.3. Representative of NHPC informed that due to recent developments, the schedule has been further revised. He requested for incorporating latest schedule in the above minutes.
- 1.4. Chief Engineer (PSPA-II), CEA stated that the minutes have been prepared based on the statement/information as provided by NHPC in the 02nd meeting of NERPCTP. Therefore, the minutes can be amended to the extent the information available till that meeting. Now, schedule cannot be recorded in the minutes of the previous meeting.
- 1.5. The minutes of 02nd meeting of NERPCTP were confirmed with modifications as proposed by NHPC in para 1.2.

A. ToR-I : QUARTERLY REVIEW AND STRENGTHNING OF INTER-REGIONAL TRANSMISSION SYSTEM

Carry out a quarterly review of the Transmission system in the region; asses the growth in generation capacity and the demand in various parts of the region; and draw up proposals for strengthening inter-

Regional transmission system. The transmission planning is required to keep in mind the areas where the generation is likely to grow and areas where load demand will grow so that the transmission system at any point of time is capable to meet the demand in every corner of the country and comply with the mandate under the Tariff policy of developing transmission system ahead of the generation for ensuring smooth operation of the grid.

2 Quarterly Review of transmission line and substation

- 2.1. Director (PSPA-II), CEA presented a list of transmission lines and substations/ICTs commissioned in the North Eastern Region during Q3 & Q4 of 2020-21. He requested the members to update the status, if any.
- 2.2. Chief Engineer (PSPA-II), CEA informed that as per the EA-2003, there is requirement for each state to convey the status of progress of their transmission lines and substations to CEA.
- 2.3. Director (PSPA-II), CEA stated that the states may inform changes, if any, to PSPM Division, CEA.

The updated list is enclosed at **Annexure-II**.

3 Assessment of growth in generation capacity and demand in the region

- 3.1. Director (PSPA-II) presented the list of existing/ planned generation capacity (MW) and actual/anticipated peak demand of states in North Eastern region. He requested members to update the data, if any, for better projection/ reassessment.
- 3.2. TSECL stated that the generation details of Tripura have to be updated. There is 10 MW of Hydro capacity i.e. 10MW Gumti HEP available in Tripura. Further, generation availability through gas power plant is 162 MW. In 2019-20, generation capacity of Tripura was 110 MW which is expected to remain same in the year 2021-22. In 2024-25 timeframe, total generation capacity of Tripura is expected to be at 172 MW. The increase in generation in 2024-25 is because of expected generation at Rokhia Gas power plant.
- 3.3. Updated list is enclosed at **Annexure-III**.

4 Requirement for strengthening of Inter-regional transmission system

- 4.1. Director (PSPA-II), CEA stated that as per ToR-I of NERPC-TP, the committee has to *“Carry out a quarterly review of the Transmission system in the region; asses the growth in generation capacity and the demand in various parts of the region; and draw up proposals for strengthening inter-Regional transmission system”*

However, MoP vide OM dated 20th May, 2021 amended ToR of NCT. This OM mentions that:

“2(i) The Regional Power Committees (Transmission Planning) can make meaningful recommendations only regarding their own Region. They cannot decide on transfers across region.”

He also stated that in view of the amendment in ToR of NCT, it is proposed not to discuss Inter-regional transmission system in this meeting to ensure compliance of the above OM, at this stage. Once all India level generation or surplus/deficit scenario got confirmed in NCT, the same would be informed in the next meeting.

- 4.2. Representative of CTU stated that as per MoP OM dated 20.05.2021, RPC-TP cannot decide on transfers across region. However, a discussion on the same could be included in the RPC-TP.
- 4.3. Chief Engineer (PSPA-II), CEA stated that it was earlier decided that assessment on All India basis carried out by NCT/CTU will be discussed in the RPC-TP. However, no assessment report has been received from NCT/CTU. As and when, the data made available by NCT/CTU, the same would be informed to NERPC-TP in subsequent meeting.
- 4.4. After deliberations, Members noted the MoP direction and agreed to drop the agenda.

5 Review of Transmission system from operational considerations

- 5.1. Director (PSPA-II), CEA presented the list of transmission line constraints, ICT constraints, node experiencing high voltage/ low voltage during during Q3 and Q4 of 2020-21. List of constraints is at **Annexure-IV**. He stated that the constraints have been addressed in the previous meetings. States need to expedite the implementation of approved transmission system.
- 5.2. Representative of NERLDC stated that the N-1 constraint faced in 220 kV BTPS-Salakati I & II lines (POWERGRID) is affecting the reliability of the grid. He requested that the HTLS works scheduled to be commissioned by Mar-2023 please be expedited. Further, to remove the N-1 constraint at 132 kV Biswanath Chariali (PG) – Biswanath Chariali (Pavoi) (AEGCL) I & II lines (POWERGRID), LILO of one circuit of 132 kV Biswanath Chariali (PG) – Itanagar at Gohpur is required at the earliest.
- 5.3. Representative of AEGCL stated that w.r.t. LILO of one circuit of 132 kV Biswanath Chariali (PG) – Itanagar at Gohpur, work order has been issued in June-20. Bid time of around 08 months has been given. It will get implemented by December-21.
- 5.4. Representative of TSECL informed that one circuit of existing 132 kV Palatana – Surjamaningar (TSECL) D/C has been upgraded to 400 kV level and the ICT constraint at Palatana has been addressed.
- 5.5. Director (PSPA-II), CEA enquired NEEPCO about the updates in implementation of 420 kV, 80 MVAR Bus Reactor by NEEPCO at Ranganadi Bus. Representative of

NEEPCO informed that tender has been floated on 01st July, 2021 and expected commissioning schedule shall be March-23.

- 5.6. It was informed that 420 kV, 63 MVAR line reactor of Palatana-Silchar-I at 400 kV Palatana has been restored. 63 MVAR Bus Reactor at Byrnihat shall be connected by March-22.

B. ToR-II: ASSESSMENT OF TRANSMISSION SYSTEM REQUIREMENTS IN NEAR, MEDIUM AND LONG TERM AND FORMULATED TRANSMISSION SCHEME

6 Construction of additional 400kV transmission line from 600MW Kameng HE Project, Arunachal Pradesh to BnC and associated bays at Kameng and BnC for reliable evacuation as part of NERSIP etc.

- 6.1. Director (PSPA-II), CEA stated that NEEPCO vide letter dated 04.01.2021, requested for considering the construction of a second 400kV D/c line between Kameng HEP and Bishwanath Chariali so as to ensure uninterrupted evacuation of power from Kameng HEP.

He also stated that earlier in the 01st meeting of NERSCT held on 29.11.2018, additional connectivity for evacuation of generation from Kameng HEP was discussed, wherein it was observed that outage of Kameng – Balipara (about 60km) 400kV D/c line doesn't lead to any appreciable effects on EHV system in NER. Further, as per Manual on transmission planning criteria, to meet the N-1 reliability criteria at Kameng, there is already a 400kV D/c line from Kameng to Balipara, and as such there is no need of having any additional connectivity for power evacuation. Accordingly, it was agreed to drop the proposal of additional connectivity for Ranganadi (405MW) and Kameng (600MW) HEPs. However, it was agreed that the proposal would be reviewed in future, if required.

- 6.2. Representative of NEEPCO stated that the 400kV Kameng-Balipara D/c transmission line is lying in the valley region and as such during rainy season, there have been incidences of bamboo falling on tower/line leading to line to line fault, foundation failure etc. which lead to long outage of transmission lines and constraint in power evacuation. Such incidences have been witnessed 4 to 5 times within one year.
- 6.3. Chief Engineer (PSPA-II), CEA stated that such issues will always remain for transmission lines in hilly regions. However, planning of additional 400kV D/c line doesn't look feasible from technical as well as economic point of view. Further, he suggested that statistical analysis of such instances need to be carried out.
- 6.4. Representative of CTU stated that 400kV Kameng-Balipara D/c line has been operational for past 02 years. However, tower failure has not been reported in these 02 years.

- 6.5. Representative of AEGCL stated that the issue raised by NEEPCO is basically an issue of maintenance of lines which could be addressed and such planning of additional system is not required.
- 6.6. After detailed deliberation, it was agreed that there is no requirement of additional evacuation lines from 600MW Kameng HEP.

C. ToR-III: APPLICATIONS FOR CONNECTIVITY AND ACCESS

7 Connectivity, MTOA, LTA applications processed after 02nd meeting of NERPC-TP

- 7.1. Representative of CTU stated that one MTOA application was received from Arunachal Pradesh Power Corporation Private Limited (APPCPL) in the month of Jan'21, for power transfer from Arunachal Pradesh (NER) to Noida Power Company Limited (NPCL), Uttar Pradesh (NR). The same has been granted after circulation of agenda. Details of the same are given below:

Application ID	Name of the Applicant	Drawl Region	Quantum of MTOA (MW)	Start Date of MTOA	End Date of MTOA	Injection Point	Drawl Point
1200003037	Arunachal Pradesh Power Corporation Private Limited (Electricity Trader)	NR	50	01/07/21	30/09/21	Interface Points of Arunachal Pradesh, NER	Interface Points of UPPTCL, NR

He further informed that the MTOA has been operationalized since 01st July, 2021.

- 7.2. Members noted the same.

8 Installation of 125MVAR Bus Reactor at Subansiri Lower HE Project (2000 MW)

- 8.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP, installation of one no. of 125MVAR, 400kV Bus-reactor at Subansiri Lower HE Project by NHPC was agreed.
- 8.2. Subsequently, NHPC vide letter dated 23.10.2020 citing optimization of space and transportation limit, requested to accord consent/approval for installation of 2 Nos. of 80MVAR Bus reactor in place of 1 No. of 125 MVAR Bus reactors.
- 8.3. The proposal of NHPC was discussed with CTU and it was found to be technically in order. NHPC vide letter dated 09.11.2020 also confirmed the space availability for installation of 02 nos. of 80MVAR Bus reactor. Accordingly, CEA vide letter dated 12.11.2020 granted in-principle approval for installation of 420kV, 2x80MVAR bus reactor at Lower Subansiri HEP in place of 1x125 MVAR Bus reactor. However, it

was informed that the two reactors need to be implemented by the generation developer viz. NHPC Ltd. at its own cost.

- 8.4. Members concurred the in-principle approval for installation of 420kV, 2x80MVAR bus reactor along with associated bays at Lower Subansiri HEP by NHPC Ltd. at its own cost.

D. ToR IV– REVIEW OF UPSTREAM AND DOWNSTREAM NETWORK

9 Downstream system development by STUs from the various commissioned and on-going ISTS substations

- 9.1. Director (PSPA-II), CEA stated that the downstream 220kV or 132kV system of the under-implementation schemes has to developed by ISTS licensee/ STUs from the various commissioned /on-going ISTS substations is as below:

Sl. No.	ISTS S/s	Voltage ratio, Trans. Cap	Voltage level (kV)	Total no. of Bays	Lines emanating from S/s	No. of circuit	downstream responsibility	Remarks
1	Surajmaninagar	400/132kV, 2x315MVA	132	2	LILO of one circuit of Surajmaninagar (TSECL) – Bodhjungnagar(TSECL) 132kV D/c line	2	Tripura	NERSS-V
2	P. K. Bari	400/132kV, 2x315MVA	132	2	LILO of P. K. Bari (TSECL) – Ambasa/Manu (TBCB)	2	Tripura	NERSS-V
3	New Mariani	400/220kV, 2x500MVA	220	2	New Mariani – Diphu 220kV D/c	2	Assam	NERSS-VI
4	New Kohima	400/220kV, 2x500MVA	220	2	New Kohima (TBCB) – New Kohima (Nagaland)	2	Nagaland	NERSS-VI

- 9.2. Representative of TSECL informed that as per approval of Govt. of Tripura and consent of CEA, Ministry of Power, Govt. of India, following 132 kV downstream connectivities have been already implemented by NER – II Transmission Limited (Sterlite Power), New Delhi on behalf of TSECL for utilization of 400/132kV ISTS sub-stations at each Surjamaninagar and P.K. Bari implemented by Sterlite:

- a) LILO of one circuit of 132 kV D/C line from Surjamaninagar to Bodhjungnagar (TSECL) at Surjamaninagar (ISTS) 400/132 kV sub-station.
- b) LILO of 132 kV S/c Ambassa to P.K. Bari line (TSECL) at P.K. Bari (ISTS) 400 /132 kV sub-station.

The LILO portions mentioned at a) and b) have been executed by HTLS conductor and commissioned by NER – II Transmission Limited (NTL) with HTLS conductor on behalf of TSECL on 28th December, 2020 and 02nd February, 2021 respectively and those same have already been handed over to TSECL by NTL.

- 9.3. Representative of AEGCL informed that preliminary investigation for land for Diphu GSS is on. Final survey of the line will be completed soon. Tentative expected CoD for New Mariani – Diphu 220kV D/c is January-2025 (36 months from the Date of Award).
- 9.4. Nagaland representative informed that they are yet to take up implementation of the line due to unavailability of funds. The state was requested to take up implementation at the earliest so as enable utilization of additional source of reliable and secure power supply to the state from ISTS.
- 9.5. Members noted the information provided by States.

10 Status of 400kV substations and other important elements being implemented by STUs in NER under intra-state schemes

10.1. Director (PSPA-II), CEA stated that various 400kV substations have been approved in the previous meetings under intra-state strengthening schemes in NER. Respective STUs were requested to update the expected date of award (if not already awarded) and commissioning schedule of the same.

10.2. Chief Engineer (PSPA-II), CEA stated that that as per the Electricity Act-2003, there is requirement of furnishing status of construction of transmission lines and substations by states to CEA. Accordingly, the updated status may be submitted to PSPM Division, CEA.

He also stated that from next meeting, the status as available with PSPM Division, CEA will be put up before this committee for information only.

10.3. The updated status as informed in this meeting is given at **Annexure-V**.

10.4. Representative of TSECL informed that notification of Award (NOA) for the Project namely “Up-gradation of 132kV Surjamaninagar Sub-Station of TSECL into 400 kV in Tripura” was issued by TSECL on dated 11th January, 2021.

However, the firm did not comply with the contractual formalities like furnishing of Performance Securities and entering into a Contract Agreement with TSECL despite several correspondences made by TSECL in this regard.

Consequently, Notification of Award vide dated 11th January, 2021 has been terminated by TSECL on 18th June, 2021, Bid Security (EMD amount) submitted by the firm in the shape of Bank Guarantee has been forfeited by TSECL and the firm has been debarred from participation in any tender of TSECL for next 5 (five) years w.e.f. FY 2021-22.

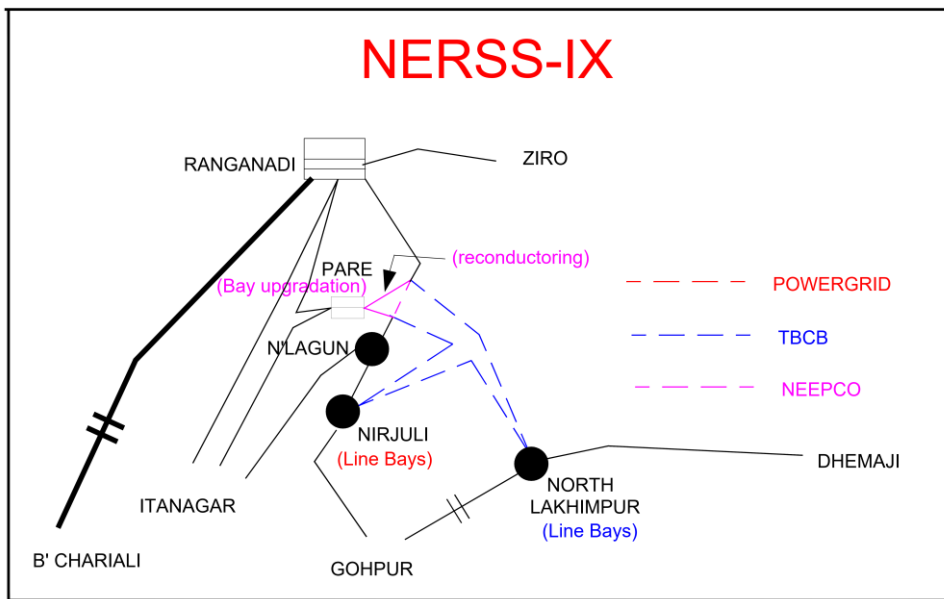
The project will now be implemented through call of fresh tender. Fresh Tender has been invited on 3rd July, 2021.

10.5. Representative of NEEPCO informed that NEEPCO vide letter dated 05.11.2020 (**Annexure-VI**) requested Chairperson, CEA to relieve NEEPCO from bypassing of LILO of Ranganadi - Naharlagun / Nirjuli at Pare HEP so as to form direct Ranganadi

- Naharlagun / Nirjuli 132 kV S/C line and Re-conductoring of LILO portion at Pare end (of Ranganadi - Naharlagun / Nirjuli 132kV S/c line) with HTLS (HTLS equivalent to ACSR Zebra) along with modification of 132kV bay equipment at Pare HEP.

He also stated that NEEPCO could not sustain the commercial implications in implementing the above works.

10.6. CTU informed that the Pare HEP (from LILO point) – North Lakhimpur 132kV D/c (ACSR Zebra) line along LILO of one circuit at Nirjuli has already been awarded through TBCB route to M/s Sterlite with commissioning schedule of June 2023. NEEPCO needs to implement its scope as indicated in Gazette notification, in matching time-frame.



10.7. Chief Engineer (PSPA-II), CEA stated that NEEPCO may send a letter to Member (PS), CEA mentioning the reasons for not taking up the project. Further, cause of action will be decided after receiving the letter from NEEPCO.

10.8. Members agreed with the suggestion of CE (PSPA-II).

11 Utilisation of spare 132kV ISTS bays by States

11.1. Director (PSPA-II), CEA stated that based on the information provided by the states, the information has been updated:

Tripura:						
Substation	Upgraded 400kV line	No. of vacant bays	Bays vacant from	New transmission line for termination in vacant bays	Date of Award (new line)	Expected commissioning
P.K.Bari (TSECL) 132kV S/s	Silchar – P.K.Bari	2	Mar 2020	132kV S/c P.K.Bari (TSECL)-Kailasahar		DPR has been prepared and shall be forwarded to

Tripura:					
				(District HQ of Unakutty) line 132kV S/c P.K.Bari (TSECL)-Kanchanpur.	appropriate funding agency.
Palatana (OTPC)	Palatana – Surajmani nagar	1	Expected with 400kV operation of Surajmani ngar (ISTS)-Palatana line	Palatana – Udaipur 132kV S/c: existing Palatana – Udaipur 132kV (2 nd) S/c line	DPR was submitted to State Govt. for funding from NESIDS, MoDONER
Surajmaninagar (TSECL) 132kV S/s	Palatana – Surajmani nagar	2	Expected with 400kV operation of Surajmani ngar (ISTS)-Palatana line	132kV D/c Surajamaninagar (TSECL)-Badarghat	DPR will be submitted to appropriate funding agency

11.2. Representative of TSECL informed that after getting funding for the above three projects, the expected CoD would be December, 2022. He further informed the following in respect of the above transmission lines:

11.2.1 132kV S/c P. K. Bari (TSECL) – Kailasahar line and 132kV S/c P. K. Bari (TSECL) – Kanchanpur line:

Proposal will be placed by TSECL for consideration of the above two lines under NER Power System Improvement Project (NERPSIP) Tranche – II.

11.2.2 132 kV Palatana – Udaipur (2nd) S/c line:

Proposal already placed by TSECL to the State Govt. for consideration of funding under North Eastern Special Infrastructure Development Scheme (NESIDS) of Ministry of DoNER, Govt. of India.

11.2.3 132 kV D/c Surjamaninagar (TSECL) – Badharghat line:

Up-gradation of 66 kV sub-station at Badharghat to 132 kV is already planned by TSECL, cost data for which is under preparation. Fund to be tied up. Proposal for 132 kV D/c Surjamaninagar (TSECL) – Badharghat line will be placed by TSECL for consideration under NER Power System Improvement Project (NERPSIP) Tranche – II.

Assam:						
Substation	Upgraded 400kV line	No. of vacant bays	Bays vacant from	New transmission line for termination in vacant bays	Date of Award (new line)	Expected commissioning
Misa 400/220kV (POWERGRID)	Misa – Mariani/ New Mariani section of Misa – Mariani/ New Mariani – Kathalguri	2	May 2021	Misa – Sankerdebnagar 220kV D/c line	EPC Contract Award is tentatively scheduled in the early half of March 2022.	2024 (24 months from date of Award)
New Mariani 400/220kV (POWERGRID)	New Mariani– Misa section of Misa – New Mariani – Kathalguri	1	May 2021	New Mariani (POWERGRID) – Mariani (AEGCL) 220kV S/c	Program already chalked out in co-ordination with PGCIL	Aug-21 (15 days of work)

11.3.NERLDC informed that New Mariani (POWERGRID) – Mariani (AEGCL) 220kV S/c is very important for reliable power evacuation from generation projects i.e. Kathalguri, Namrup, Lakwa from upper Assam area.

11.4.Members noted the same.

E. ToR-V: EXAMINE AND EVALUATE INTRA-STATE PROPOSALS

12 132kV S/C LILO connectivity to 132kV Karimganj (AEGCL) S/S from 132kV S/C Badarpur - Kumarghat line of POWERGRID

12.1.Director (PSPA-II), CEA stated that AEGCL vide letter dated 14.10.2020 had requested for approval of LILO of 132kV S/C Badarpur – Kumarghat ISTS line of POWERGRID at 132kV Karimganj S/S.

12.2.Accordingly, the issue was deliberated in the joint system study meeting held on 23rd December, 2020 wherein the following were agreed:

- a) AEGCL to send a formal request from Managing Director for 'in-principle' approval of CEA for LILO of 132kV S/c Badarpur-Kumarghat ISTS line at 132/33kV Karimganj (AEGCL) S/s.
- b) After 'in-principle' approval, AEGCL may implement the LILO compatible with the original line parameters of 132kV S/c Badarpur-Kumarghat line including installation and operation of compatible protection and communication equipment, as necessary. The existing 132kV S/c Badarpur- Kumarghat line is having OPGW. Any additional OPGW and accessories/equipment as required shall be taken care by AEGCL. AEGCL to coordinate with POWERGRID to ensure this requirement.

- c) As the original line belongs to POWERGRID, they shall ensure that the specifications of the LILO (to be implemented by AEGCL) segment of this line are compatible with the original line and that capacity/ thermal limit does not reduce.
- d) The losses of the LILO section would be accounted under ISTS and CTU and Implementing Agency (NLDC) should ensure that the charges of the LILO are not counted under ISTS.
- e) It is inferred that Tripura has no objection to the proposal as the 165th OCC meeting (held on 14th Feb.'2020) of NERPC had agreed in-principle to this request of Assam and no objection was raised by Tripura.
- f) In view of the urgency for AEGCL to commission the LILO at the earliest, the proposal of AEGCL may be agreed. However, the same should later on be placed before NERPC (TP) for appraisal of the members and post-facto approval.

12.3. Subsequently, AEGCL vide letter 11.01.2021, requested Member (PS), CEA for grant of in-principle approval of LILO.

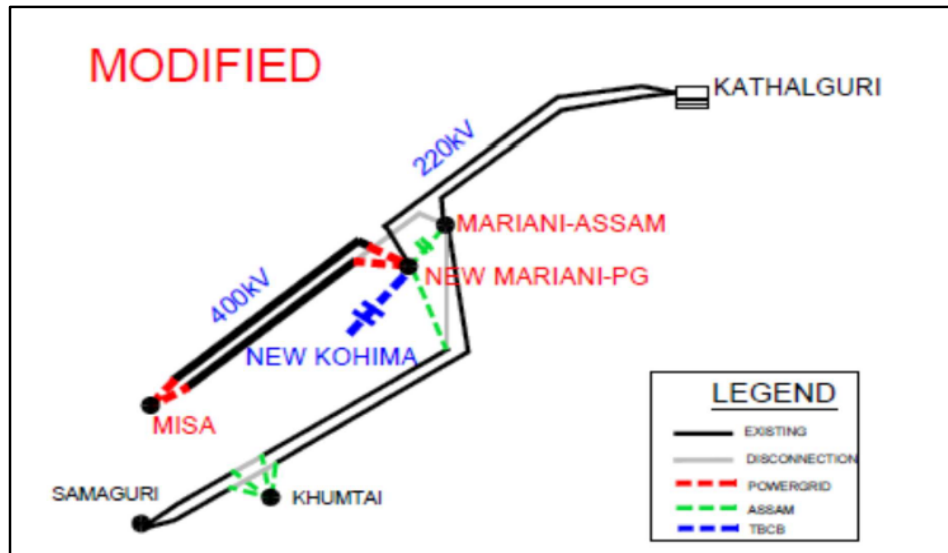
12.4. CEA vide letter dated 25.01.2021 granted no objection in implementation of 132kV S/C LILO connectivity to 132kV Karimganj (AEGCL) S/S from 132kV S/C Badarpur - Kumarghat line of POWERGRID by AEGCL, subject to the conditions as agreed in the meeting of Joint system study.

12.5. On enquiry from Director (PSPA-II), CEA, representative of AEGCL stated that the LILO of 132kV S/c Badarpur-Kumarghat ISTS line at 132/33kV Karimganj (AEGCL) S/s has been commissioned and is in operation.

12.6. The Committee granted post-facto approval for implementation of LILO of 132kV S/c Badarpur-Kumarghat ISTS line at 132/33kV Karimganj (AEGCL) S/s by AEGCL under intra-state transmission scheme.

13 New Mariani-Mariani interconnection

13.1. Director (PSPA-II), CEA stated that in the 05th meeting of SCM-NER held on 08.05.2015, Imphal-Kohima-Mariani system was agreed. In the 06th meeting held on 03.10.2016, the following modified scheme was agreed to be implemented by POWERGRID under NERSS-VI:

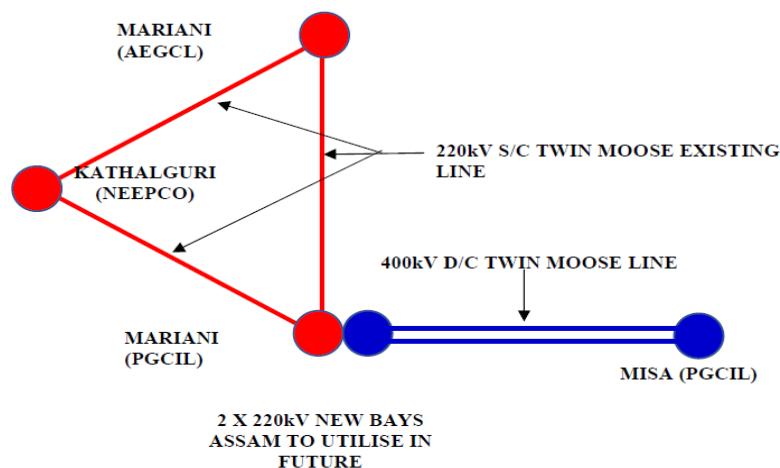


13.2. In the 02nd meeting of NERPC-TP held on 25th September 2020, AEGCL stated that as per approved scope of works, 220kV D/c New Mariani (POWERGRID) - Mariani (Assam) was to be constructed by AEGCL. Representative of Assam stated that construction of gantry from New Mariani- Mariani would be very difficult as most of the lines emanating from New Mariani are in same direction / area.

In that meeting, it was decided that NERPC may coordinate the site visit of a group comprising of members from NERPC, POWERGRID and AEGCL to visit the Mariani and New Mariani substations. NERPC would submit the report regarding feasible options so as to draw maximum number of 220kV outlets from New Mariani (POWERGRID) so as to utilize 2x500MVA ICTs being installed under NERSS-VI.

13.3. Accordingly, a joint visit was conducted by AEGCL and POWERGRID and the matter was discussed among NERPC, POWERGRID and AEGCL through a VC meeting on 06-10-2020. Based on the joint investigation of the matter, following scheme was recommended by NERPC vide its letter dated 09-11-2020:

- Triangular configuration of Mariani (POWERGRID) – Kathalguri (NEEPCO) – Mariani (AEGCL) at 220kV level with existing Twin Moose Conductor.



13.4. Accordingly, the issue was deliberated in the joint system study meeting held on 23rd December, 2020 wherein the following were agreed:

- (a) The scheme proposed by the group mentioned above at para 13.3 was agreed.
- (b) AEGCL to send a formal request for 'in-principle' approval of CEA, so that the agreed downstream 220kV system can be implemented at New Mariani (POWERGRID) by AEGCL in matching time-frame of 400/220kV substation at New Mariani
- (c) The proposal would be put up before NERPC-TP in its next meeting.

13.5. In the meeting, representative of AEGCL informed that they would also not be shifting one circuit of Samaguri/Khumtai – Mariani (AEGCL) 220kV D/c line to New Mariani (POWERGRID), which was planned earlier.

13.6. Representative of AEGCL was informed in the meeting that due to above proposed modifications, the 2 no. new 220kV line bays implemented at New Mariani (POWERGRID) shall remain unutilized and there may be commercial implications of the same on AEGCL.

13.7. Subsequently, AEGCL vide letter dated 22.01.2021 requested for 'in-principle' approval of triangular configuration of Mariani (POWERGRID) – Kathalguri (NEEPCO) – Mariani (AEGCL) at 220kV level with existing Twin Moose Conductor.

13.8. CEA, vide letter dated 09.02.2021, granted no objection in implementation of triangular configuration of Mariani (POWERGRID) – Kathalguri (NEEPCO) – Mariani (AEGCL) at 220kV level with existing Twin Moose Conductor by AEGCL, in place of New Mariani (POWERGRID) – Mariani 220kV D/c line (with high capacity conductor) and non-shifting of one circuit of Samaguri – Mariani 220kV 2xS/c lines at New Mariani (POWERGRID) S/s; subject to the following conditions:

- a) With the above modifications, 2 no. of 220kV line bays at New Mariani (POWERGRID) S/s being constructed under NERSS-VI, will remain vacant. Any commercial implication for the vacant bays shall be borne by AEGCL.
- b) The agreed downstream 220kV system may be implemented at New Mariani (POWERGRID) by AEGCL in matching timeframe of 400/220kV substation at New Mariani.

13.9. On enquiry from Director (PSPA-II), CEA, regarding completion schedule of the modified configuration, representative of AEGCL informed that w.r.t. 220kV New Mariani (POWERGRID)-Mariani (AEGCL) interconnection, ERS adapters required for mechanical balancing of the towers are lying in Merapani, Golaghat district which is currently in lockdown. Once the adapters are available, the interconnection will be implemented within 01-02 weeks. Further, all other implementation modalities have already been finalized between AEGCL and POWERGRID in a meeting held on 17th June, 2021.

13.10. Members agreed for the triangular configuration of Mariani (POWERGRID) – Kathalguri (NEEPCO) – Mariani (AEGCL) at 220kV level with existing Twin Moose Conductor by AEGCL, in place of New Mariani (POWERGRID) – Mariani 220kV D/c line (with high capacity conductor) and non-shifting of one circuit of Samaguri – Mariani 220kV 2xS/c lines at New Mariani (POWERGRID) S/s; subject to the following conditions:

- a) With the above modifications, 2 no. of 220kV line bays at New Mariani (POWERGRID) S/s being constructed under NERSS-VI, will remain vacant. Any commercial implication for the vacant bays shall be borne by AEGCL.
- b) The agreed downstream 220kV system may be implemented at New Mariani (POWERGRID) by AEGCL in matching timeframe of 400/220kV substation at New Mariani.

14 Restoration of Kopili generation switchyard

14.1. Director (PSPA-II), CEA stated that in 02nd meeting of NERPC-TP held on 25th September 2020, the issue of restoration of Kopili switchyard was discussed and it was decided to drop the agenda. Thereafter, NERPC Secretariat requested for further discussion on the issue. Accordingly, the issue was deliberated in a joint system study meeting held on 23rd December, 2020) wherein the following was agreed:

- a) NEEPCO will furnish the DPR (submitted to Hydro Wing, CEA) to PSPA-II Div., CEA and CTU for analysis.
- b) The restoration of generator and 220kV line bays for operation of the grid by NEEPCO may take time. Therefore, for the purpose of power transfer in grid an interim arrangement may also be decided by CEA and CTU.
- c) The agenda shall be put up for discussion in next meeting of NERPC-TP.

However, the DPR has not been received by PSPA-II Division CEA / CTU

14.2. Representative of NERPC informed that in OCC meeting temporary restoration plan has been finalized and it has been decided that permanent restoration will be carried out by NEEPCO on its own. Thereafter, he requested to drop the agenda.

14.3. Members noted and agreed to drop the agenda.

15 Conversion of 132kV bus bar at Imphal

15.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP, with respect to upgradation works at Imphal S/s, it was decided that CTU would furnish details of the issue with CEA.

15.2. Subsequently, the issue was discussed in joint system study meeting held on 23rd December, 2020 wherein representative of CTU informed that the following works are proposed to be carried out to complete the scope:

- (a) Old 132kV bus section including bay equipment is proposed to be converted to Double Main (instead of Double Main Transfer) in GIS.
- (b) New 132kV bus section (including bus section of line bays of MSPCL) is proposed to be converted to Double Main (instead of Double Main Transfer) in AIS through re-conductoring of existing Transfer bus of Single Main & Transfer bus switching scheme and other associated requisite works.
 - **2 Sets of 132kV, three 1-Phase Circuit breakers envisaged:** For conversion of existing bays from Main & Transfer to Double Main scheme, existing 132kV, 3-Phase Circuit breakers (2 no.) associated with 2x 400/132kV transformer bays needs to be replaced each with three 1-Phase Circuit breakers (total 6 new 1-Phase Circuit breakers are required).
 - **New Isolators with Earth switch envisaged:** For all 132kV line bays in new 132kV AIS switchyard (including STU bays), new line isolator with Earth switch is required for connection to the 2nd Main Bus.
 - Further, **new CRP system/ protection panels** envisaged for all 132kV bays in new 132kV AIS switchyard in line with new Bus scheme.

15.3. In that meeting, representative of Manipur informed that the state is planning to re-conductor Imphal (POWERGRID)-Imphal (Yurembam, Manipur) 132kV ckt-2 & ckt-3 with HTLS conductor with capacity of 1120 A. As POWERGRID is upgrading/ re-conductoring bus bar, Manipur requested POWERGRID to change the bay equipment in accordance with the current carrying capacity of the conductor as well. Manipur is drawing maximum power from Imphal S/s. Maximum flow is observed in Imphal-Imphal (Manipur) 132kV ckt-2 & ckt-3 as Imphal (POWERGRID) is the only injecting point in the state. Further, it was informed that Manipur is upgrading the bay equipment at Imphal (Manipur) S/s.

15.4. In that meeting, conversion of 132kV bus bar at Imphal with scope of works as mentioned above at para 15.2 was agreed from technical consideration.

15.5. Representative of Manipur raised the apprehension that even though the sufficient space is available in Imphal S/s, why CTU had proposed to upgrade Old 132kV bus section in GIS. He also stated that older stage comprising of 132kV bus section and bays (associated with 132/33kV, 2x50MVA ICTs, 1x20MVAr bus reactor, Imphal-Imphal (Manipur) 132kV ckt-1, Imphal-Dimapur 132kV S/c, Imphal-Loktak 132kV S/c and Imphal-Ningthoukhong 132kV S/c with Transfer Bus coupler) which are proposed to be implemented using indoor GIS. There is also a constraint of drawing power to a limit of only 20 MW because of indoor type CT. He also stated that the state was not informed before finalizing the upgradation to GIS.

15.6. Representative of CTU stated that the space has been surveyed and based on the assessment it was decided to upgrade the older section using GIS. Further, the proposal has been agreed upon in the 01st meeting of NERPC-TP, wherein it was agreed that 132/33kV Nirjuli and 132kV Imphal substations, which have completed 25 years of life, could be converted to Double Main Transfer Scheme preferably with

Bus Sectionalisation on AIS depending on layout or alternatively on GIS / Hybrid GIS if layout does not permit Bus sectionalisation under ISTS. Subsequently, the issue was also discussed in the 02nd NERPC-TP and in joint system study meeting held on 23rd December, 2020.

- 15.7. Regarding capacity of equipments CTUIL stated that 132kV Imphal (PG)-Imphal Bay-2 is owned by POWERGRID, which has breaker capacity of 3150 A and having CT of ratio 600-300/5 A. Further 132kV Imphal (PG)-Imphal Bay-3 is owned by MSPCL and it has breaker/isolator capacity of 800 A and CT ratio as 600-300/5 A.
- 15.8. CE (PSPA-II) suggested that CT in the Imphal-Imphal Bay-2 and all equipments in Bay-3 need to be replaced.
- 15.9. Representative of Manipur stated that CT at Imphal (PG) has once burnt and power drawal of Manipur was severely affected. Representative of NERTS, POWERGRID informed that new CT has been procured and installed in 2019. Chief Engineer (PSPA-II), CEA stated that the issue of burning of CT, replacement etc. can be discussed in OCC meetings of NERPC, rather than discussing in NERPC-TP.
- 15.10. After deliberations, it was agreed that the already agreed scheme of conversion of bus bar at Imphal using GIS/AIS, may be implemented. Additionally, it was agreed that, CT of 132kV Imphal-Imphal Bay-2 will be upgraded to 1200 A under ISTS in matching time-frame of conversion of bus-bar at Imphal.
- 15.11. It was also agreed that the bay equipments in Imphal-Imphal Bay-3 will be upgraded by MSPCL under Intra-state transmission scheme with reconductoring of 132kV Imphal-Imphal transmission line.

16 Intra state scheme considering the load forecast for the year 2030 - Agenda by AEGCL.

- 16.1. Director (PSPA-II), CEA stated that augmentation of Intra-state transmission system of Assam was discussed in the 01st meeting of NERPC (TP). Thereafter, Assam had submitted modifications/upgradation in agreed system as well as some new system for discussion. To discuss the new proposals of Assam, a joint system study meeting was held on 09.09.2020 with CEA, CTU, and POSOCO. In the meeting, it was agreed that AEGCL will submit their revised proposal including data and system studies. The same would be put up before NERPCTP.

In the 02nd meeting of NERPC-TP, it was agreed that AEGCL would submit documents/report/load flow studies to CEA and CTU. Thereafter, the proposals would be discussed in joint system study meeting. Subsequently, the issue was discussed in joint system study meeting held on 27th January, 2021.

The proposed transmission system of AEGCL with recommendation of Joint study were presented in the meeting.

Director (PSPA-II), CEA stated that 400/220/132kV S/s at Gogamukh under intra-state of Assam and proposal of CTU for establishment of 400kV S/s at Gogamukh under ISTS as a part of evacuation system of Dibang HEP, may be discussed together. Accordingly, the same is discussed at Agenda No.17.

- 16.2. Representative of AEGCL stated that 132 kV Barpetta – Amayapur line was not agreed in the joint study. However, Barpetta S/s is likely to be commissioned by Dec-21. Reliability and power quality through distribution lines in between Barpetta and Amayapur is degraded due to long 33kV lines. Therefore, he requested that connectivity between Barpetta and Amayapur S/s is urgently required and may be agreed.
- 16.3. Chief Engineer (PSPA-II), CEA enquired about the present connectivity of Amayapur and Barpetta S/s. Representative of AEGCL informed that Barpetta will be connected to LILO of 132kV S/c Dhaligaon-Nalbari currently under construction with estimated completion schedule of December, 2021. Amayapur shall be connected to 132kV Hazo S/s through 132kV D/c lines currently under construction by POWERGRID under NERPSIP. Further, once 132kV Amayapur S/s is commissioned, it will remain radially connected to Hazo.
- 16.4. Regarding query of LILO of 132 kV Barpetta – Amayapur at Doulasal, representative of AEGCL informed that Doulasal S/s has not yet been approved.
- 16.5. Representative of CTU stated that even after connecting Barpetta-Amayapur, there is no new source getting added in the system and hence there shall be no improvement in voltage. To meet the excess demand and resolve the low voltage issue, state may consider installing capacitors.
- 16.6. Representative of AEGCL enquired for completion schedule of implementation of 220kV and 132kV level S/s at Bornagar under ISTS. He also stated that in case the same is delayed, they may be allowed to upgrade the 132kV Bornagar S/s to 220kV through S/c LILO of 220 KV D/C Rangia-Salakati line.
- 16.7. Chief Engineer (PSPA-II), CEA stated that the proposals need to be studied in detail considering the existing and future grid connections being under implementation. He proposed to discuss the proposal of 132 kV Barpetta - Amayapur D/C link via S/C LILO at Doulasal in joint system study meeting. He also requested AEGCL to send 33kV power map and load details.
- 16.8. NERLDC/CTUIL stated that re-conductoring of Balipara (PG) - Depota, 132 kV S/C Line with HTLS was agreed in Joint Study, however there is no such line. Therefore the proposal for re-conductoring may be dropped.
- 16.9. After detailed deliberations, 132 kV D/c Barpetta – Amayapur, LILO of 132 kV D/c Barpetta – Amayapur at Doulasal and upgradation of Bornagar S/s was referred for joint study.
- 16.10. The discussion/decision on proposals of AEGCL held in the meeting are given below.

Sl. No.	Transmission System	Deliberations in 03 rd meeting of NERPC-TP
1	400/220/132 kV S/s at Gogamukh	AEGCL to submit detailed proposal for establishing Gogamukh with timeframe of implementation. Therefore, it will be discussed in the Joint study meeting.
2	S/C LILO from 400 kV New Mariani - Misa D/C at Khumtai S/s (to increase the stability of Khumtai sub-station).	It was agreed that initially, 400 kV BNC – Khumtai D/C may be constructed by AEGCL as approved in the 02 nd NERPC-TP meeting. Further, requirement of S/C LILO from 400 kV New Mariani - Misa D/C at Khumtai S/s (to increase the stability of Khumtai sub-station) will be reviewed in future.
3	132kV Barnagar Substation needs to be upgraded to 220 KV Substation through the connectivity of S/C LILO from 220 KV D/C Rangia-Salakati line. This line passes through the vicinity of existing Barnagar Substation (within 10 kms).	(i) Requirement of 220kV Bornagar referred for joint study. (ii) 220kV Dhaligaon S/s was agreed to be implemented with LILO of both the circuits of 220kV D/C Rangia-Salakati line, by AEGCL.
4	220kV New Dhaligaon Substation needs to be set up in the IOC (BGR) Complex through connectivity of S/C LILO of 220 kV D/C Rangia – Salakati line	
5	To meet up the transmission constraint of South Assam, a 220 kV link via Mariani - Diphu - Haflong - Silcoorie and 220 kV Diphu - Sankardev Nagar need to be established.	(i) 220kV New Mariani (POWERGRID)–Diphu D/C and 220kV Sankardevnagar – Diphu D/C lines were agreed for implementation by AEGCL. (ii) 02 no. 220kV line bays already implemented at New Mariani (POWERGRID) S/s shall be used for termination of New Mariani – Diphu 220kV D/c line. (iii) Proposal of other transmission links may be reviewed in future.
6	132 kV Barpeta - Amayapur D/C link via S/C LILO at Doulasal	The issue was referred for joint study.
7	AEGCL request PGCIL to commission 400/220 kV transformation facility at Silchar Powergrid Substation to facilitate future connectivity between 220KV Silcoorie and Silchar	As per system studies 220kV level at Silchar is not required as of now. Creation of 220kV substation in nearby areas could be reviewed in future after commissioning of Ghungur and Udarbond.
8	132/33 kV Ghilamora S/S is	Establishment of 132/33kV Ghilamara

Sl. No.	Transmission System	Deliberations in 03 rd meeting of NERPC-TP
	proposed from S/C LILO of the proposed 132 kV D/C North Lakhimpur - Dhemaji new circuits	S/s was agreed with LILO of existing 132kV North Lakhimpur - Dhemaji S/C line at Ghilamora S/s.
9	132/33kV S/S at Modertoli near Kampur is proposed from S/C LILO of 132 kV Samaguri - Sankardevnagar D/Cline	The same was agreed
10	132/33 kV Grid S/S is proposed at Lakhipur (Tikrikilla) through LILO of 132 kV D/c Agia – Hatsingimari.	The same was agreed. AEGCL with LILO of both circuits.
11	<p>Revised Proposal in respect of 220 kV Mariani - New Mariani connectivity: It is now proposed by AEGCL to amend the proposal as hereunder.</p> <p>(1) New connectivity between New Mariani and Mariani shall be established through 220 kV S/C Mariani - New Marianiline.</p> <p>(2) Earlier proposal for 220 kV LILO connectivity of 220 kV Samaguri - Mariani S/C line at New Mariani needs to be dropped.</p>	Issue already discussed in Agenda No.13 (New Mariani- Mariani Interconnection)
12	<p>Capacity augmentation of following transformers:</p> <ol style="list-style-type: none"> 1. Sarusajai, 220/132/33Kv Substation: New 3x50 MVA, 132/33 kV in place of old 3x31.5 MVA Transformers 2. Sibsagar, 132/33 kV Substation:New 2x50 MVA, 132/33 kV in place of old 2x16 MVA Transformers 3. Sishugram, 132/33 kV Substation:New 2x50 MVA, 132/33 kV in place of old 2x30 MVA Transformers 4. Samaguri, 132/33 kV Substation:New 2x50 MVA, 132/33 kV in place of old 2x25 MVA Transformers 5. Kukurmara, 220/132 kV Substation:New 2x160 MVA, 220/132 kV in place of old 2x50 MVA Transformers 6. Agla, 132/33 kV Substation:New 1x50 MVA, 	Agreed.

Sl. No.	Transmission System	Deliberations in 03 rd meeting of NERPC-TP
	132/33 kV in place of old 1x1.25 MVA Transformers 7. Khaloigaon, 132/33 kV Substation: New 2x50 MVA, 132/33 kV in place of old 2x25 MVA Transformers	
13	Capacity Augmentation of Transmission Lines 1. Sonabil-Depota 132kV S/C Line 2. LTPS-Mariani, 132kV S/C line. 3. Balipara (PG) - Depota, 132 kV S/C Line 4. Sonabil-Pavoi, 132kV S/C Line 5. Sonabil-Gohpur, 132kV S/C Line 6. Pavoi-Gohpur, 132kV S/C Line 7. Kahilipara - Rangia 132 kV both circuits with all LILO points & Rangia – Nalbari- Dhaligaon 132 kV S/C & Dhaligaon - Barnagar- Nathkuchi 132 kV S/C. 8. Dhaligaon - Gossaigaon, 132 kV S/C Line 9. Srikona-Pailapool, 132kV S/C Line	(i) Reconductoring of the following transmission lines with HTLS have been agreed as of now as per system requirement: 1. Sonabil-Depota 132kV S/C Line 2. Sonabil-Pavoi, 132kV S/CLine 3. Sonabil-Gohpur, 132kV S/CLine 4. Pavoi-Gohpur, 132kV S/CLine 5. Kahilipara-Amingaon 132kV both line sections with one circuit via Kamakhya and other via Shishugram may be taken up as of now, not entire Kahilipara – Rangia section. (ii) AEGCL confirmed ampacity of HTLS as 875A at 138°C Casablanca conductors. (iii) Requirement on reconductoring of other lines may be reviewed in future
14	a) 220 kV Rowta (AEGCL-existing)– Sonabil (AEGCL-existing) D/C line b) 132 kV Bokajan – Diphu S/Cline c) 132 kV Moran – Betbari (Sibsagar) D/C line d) LILO of one circuit of 132 kV D/C Baghjhap (Jagiroad) – Nagaon (Khaloigaon) at Morigaon substation e) 132 kV Baghjhap – Khaloigaon D/C line	a) Agreed. b) Agreed. c) Not required at present. May be reviewed in future. d) Assam informed that the same is not required as of now. e) Assam informed that the same is not required as of now.

17 Connectivity system for Dibang HEP (12x240MW) of M/s NHPC Ltd.

17.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP, it was agreed that the connectivity to Dibang HEP may be granted at its switchyard. However, the

transmission system to evacuate the power was suggested to be discussed in the joint system study meeting.

Subsequently, the issue was discussed in the joint system study held on 27th January, 2021, wherein it was agreed that the CTU will present the alternatives with their estimated cost before NERPC-TP in its 3rd meeting for decision.

17.2. Member (PS), CEA asked about clearances, tentative CoD and downstream project of Dibang. Representative from NHPC informed that NHPC has already got CCEA clearance from the Gol w.r.t. Dibang HEP. He further informed that the construction time frame is about 09 years. He further informed that expected CoD of Dibang HEP is May, 2029 (wherein first 2 units will be commissioned and after that every month 2 units will be commissioned). Further, he informed that they are not envisaging any other new generation downstream projects during that time.

17.3. On the suggestion of Member (PS), CEA for implementation of evacuation system in phases, representative of CTU informed that as there is no significant time-gap in commissioning schedule of all 12 units Dibang HEP. It was, therefore, proposed to implement 2xD/c Quad Moose conductor for evacuation of power as a single project and not in a phased manner.

17.4. Representative of CTU stated that this is a preliminary discussion. Once the system is planned, implementation will start only 3-4 years before actual CoD of Dibang HEP.

17.5. Chief Engineer (PSPA-II), CEA requested CTU to present the alternatives.

17.6. Representative of CTU stated that two alternatives have been studied for pooling of power from the generation project viz. pooling power at Silapathar (about 160km away), and Gogamukh (about 215km away):

➤ **Alternative-1:** Pooling at Silapathar (through ISTS line)

• **By NHPC:**

- 4 no. 400kV line bays at Dibang, for Dibang – Silapathar 2xD/c lines
 - 4x63MVAr switchable line reactors at Dibang end of Dibang – Silapathar 400kV 2xD/c (Quad) line, one in each circuit
- 2x125MVAr (420kV) bus reactors along with bays at Dibang
- Space for future expansion:
 - Additional 400kV line bays (along with space for switchable line reactor) / Bus reactors: 4 no.

• **Under ISTS:**

- Silapathar 400/220kV, 2x500MVA S/s
 - 8 no. 400kV line bays
 - 4 no. for Dibang – Silapathar 2xD/c lines
 - 2 no. for Silapathar – Biswanath Chariali D/c line
 - 2 no. for Silapathar – Lower Subansiri D/c line
 - 420kV, 2x125MVAr bus reactor along with bays
- Dibang – Silapathar 400kV 2xD/c (Quad) line: about 2x160km

- Silapathar – Biswanath Chariali 400kV D/c (Quad) line: about 230km
 - 2x63MVAR switchable line reactors at Silapathar end, one in each circuit
 - 2x63MVAR switchable line reactors at Biswanath Chariali end, one in each circuit
- Silapathar – Lower Subansiri 400kV D/c (Quad) line: about 55km
- 2 no. 400kV line bays at Biswanath Chariali for Silapathar – Biswanath Chariali D/c line
- 2 no. 400kV line bays at Lower Subansiri for Silapathar – Lower Subansiri D/c line

➤ **Alternative-2:** Pooling at Gogamukh (through ISTS line)

• **By NHPC:**

- 4 no. 400kV line bays at Dibang, for Dibang – Gogamukh 2xD/c lines
 - 4x63MVAR switchable line reactors at Dibang end of Dibang – Gogamukh 2xD/c lines, one in each circuit
- 2x125MVAR (420kV) bus reactors along with bays at Dibang
- Space for future expansion:
 - Additional 400kV line bays (along with space for switchable line reactor) / Bus reactors: 4 no.

• **Under ISTS:**

- Gogamukh 400/220/132kV, 2x500MVA + 2x200MVA
 - 8 no. 400kV line bays
 - 4 no. for Dibang – Gogamukh 2xD/c lines
 - 2 no. for Gogamukh – Lower Subansiri D/c line
 - 2 no. for Gogamukh – Biswanath Chariali D/c line
 - 420kV, 2x125MVAR bus reactor along with bays
 - 4x63MVAR switchable line reactors at Gogamukh end of Dibang – Gogamukh 400kV 2xD/c lines, one in each circuit
 - 2x80MVAR switchable line reactors at Gogamukh end of Gogamukh – Biswanath Chariali 400kV D/c line, one in each circuit
- Dibang – Gogamukh 400kV 2xD/c (Quad) line: about 2x215km
- Gogamukh – Lower Subansiri 400kV D/c (Quad) line: about 18km
- Gogamukh – Biswanath Chariali 400kV D/c (Quad) line: about 175km
 - 2 no. 400kV line bays at Lower Subansiri for Gogamukh – Lower Subansiri D/c line

2 no. 400kV line bays at Biswanath Chariali for Gogamukh – Biswanath Chariali D/c line

17.7. Representative of CTU stated that as AEGCL is interested in implementing 400/220/132kV Gogamukh S/s in intra-state, we are left with the other alternative of having a pooling S/s at Silapathar for evacuation of Dibang, HEP. Distance between Gogamukh and Silapathar is about 50 kms.

However, having one 400kV S/s will always be more optimum economically as well as technically in view of the evacuation of the expected generation project.

Further, in case the power from Dibang HEP is to be terminated at Gogamukh S/s, there will be commercial implications of using State's network.

He opined that a pooling S/s, associated ATS etc. has to be planned only under ISTS so that any future projects can be tapped at ISTS S/s. There should not be any state's S/s in between their main corridor for evacuation of Central Generation projects.

17.8. Representative of AEGCL stated that establishment of new 400/220/132 kV GIS at Gogamukh has been approved under intra-state scheme in the 01st meeting of NERPC-TP held on 08th November, 2019. Further, there have been many instances where there exist two or more nos. of 400kV S/s at a distance of less than 50-60 kms.

Further, land for the 400/220/132kV S/s at Gogamukh has been finalized. AEGCL has also engaged surveyor for the same. As such, pooling S/s at Silapthar could be planned instead of Gogamukh. He requested to allow LILO of proposed 400kV Silapathar – Biswanath Chariali D/c line at 400/220/132kV Gogamukh S/s.

17.9. Representative of DoP, Arunachal Pradesh stated that to address the voltage issue in the 132kV line from Passighat-Niklok-Likabali running across the border of Assam, Silapathar may be considered as a pooling S/s, so that connectivity could be planned from Silapathar to Likabali or any other substation in future.

17.10. Representative of AEGCL stated that AEGCL would like to drop the implementation of Biswanath Chariali (POWERGRID) – Gogamukh 400kV D/c (Twin Moose) line which was agreed in the 01st meeting of NERPC-TP. Further, it is proposed to consider D/c LILO of one of 2x400kV D/c L.Subansiri-BnC line.

17.11. Chief Engineer (PSPA-II), CEA stated that in the 01st meeting of NERPC-TP, AEGCL proposed that they would like to implement BNC (POWERGRID) – Gogamukh 400kV D/c new line under intra-state scheme to avoid charges due to mismatch in commissioning of BNC (POWERGRID)-Gogamukh 400kV D/c line (part of proposed BNC (POWERGRID) – Gogamukh – Lower Subansiri line). If they are going ahead with the implementation of 400/220/132kV S/s at Gogamukh, they should also implement new Biswanath Chariali (POWERGRID) – Gogamukh 400kV D/c (Twin Moose) line which was agreed in the 01st meeting of NERPC-TP.

He further stated that it should not be the practice of state where they bring intra-state transmission proposals which gets agreed in the RPC-TP and later on state decides to not implement.

17.12. Representative of CTU stated that in the 01st meeting of NERPC-TP, they had suggested that LILO one D/c line of BNC (PGCIL)-L.Subansiri 400kV 2xD/c line at Gogamukh, under ISTS. However, in that meeting, AEGCL rejected their proposal to avoid charges due to mismatch in commissioning of ISTS and intra-state scheme.

17.13. Member (PS) stated that AEGCL may send their detailed proposal alongwith timeframe of implementation and the same could be taken up for discussion in the joint system study meeting . Further, it was also agreed that connectivity system for Dibang HEP may also be finalized in the joint system study meeting. Members agreed for the same.

18 Under-utilization of 2x160MVA, 220/132kV ICTs at Balipara

18.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP, the issue of under-utilization of ICTs at Balipara was discussed and referred for joint system study.

18.2. Subsequently, the issue was discussed in the joint system study meeting held on 27th January, 2021, wherein it was agreed that AEGCL may carry out LILO of Sonabil – Balipara 132kV line at Depota 132kV S/s after restoration of the following lines:

- a) 132kV Balipara-Sonabil line
- b) 132kV Balipara-Ghoramari line
- c) 132kV Sonabil-Gohpur line
- d) 132kV Sonabil-Pavoi line

18.3. It was also agreed that AEGCL will inform the expected commissioning schedule for implementation of the above system in NERPC-TP.

18.4. On enquiry about timeline for completion of above works, representative of AEGCL informed that bays for 132kV Balipara-Sonabil has been awarded. In 132kV Balipara-Ghoramari line, 132kV Sonabil-Gohpur line, 132kV Sonabil-Pavoi line, no new lines have to be constructed and only change of jumpers is required. Accordingly, total time line for implementation of elements from a) to d) is December, 2021.

18.5. Representative of NERLDC enquired about the commissioning schedule of LILO of Sonabil – Balipara 132kV line at Depota 132kV S/s after restoration of elements mentioned at a) to d), so as to resolve the issue of under-utilization of 2x160MVA, 220/132kV ICTs at Balipara.

18.6. Representative from SLDC, Assam informed that if LILO of Sonabil – Balipara 132kV line at Depota 132kV S/s is implemented, reverse power flow has been witnessed at Balipara wherein power flows from Balipara to Ghoramari instead of Sonabil and Depota.

18.7. Representative of NERLDC stated that in the joint system study meeting held on 27th January, 2021, it was shown that if LILO of Sonabil – Balipara 132kV line at Depota 132kV S/s is not implemented, around 96MW flows from Sonabil to Depota and hence the Balipara ICTs remain underutilized. If LILO has been carried out, the load of Depota gets shared.

18.8. Chief Engineer (PSPA-II), CEA stated that the system agreed above has been discussed in detail in joint system study meeting wherein AEGCL also agreed to the proposed system.

18.9. After deliberations, it was decided that NERPC may coordinate a meeting with AEGCL, SLDC, Assam and NERLDC regarding the issue and send proposed alternatives to CEA/CTU for discussion in the joint system study meeting.

19 LILO of 400 kV D/C Silchar-Byrnihat along with 400/220 kV 2x315 MVA, 220/132 kV 2x160 MVA substation at Mynkre, Meghalaya

19.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP, proposal of LILO of 400 kV D/C Silchar-Byrnihat along with 400/220 kV 2x315 MVA, 220/132 kV 2x160 MVA substation at Mynkre of Meghalaya was discussed. In the meeting, it was decided that the proposal would be discussed in the joint system study meeting.

Subsequently, the issue was discussed in the joint system study meeting held on 27th January, 2021 wherein it was decided that LILO of Silchar – Byrnihat/Azara 400kV D/c line and proposal of establishment of 400/220/132kV S/s at Mynkre is not required at present and shall be reviewed again in future, if need arises.

19.2. Members agreed that at present there is no requirement of the proposed LILO. It may be reviewed in future, if need arises.

20 LILO of 400 kV D/C Silchar-Byrnihat along with 400/220kV 2x315 MVA, substation at New Shillong, Meghalaya

20.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP, the proposal of LILO of 400 kV D/C Silchar-Byrnihat along with 400/220kV 2x315 MVA, substation at New Shillong, Meghalaya was discussed and it was decided that the proposal would be discussed in joint system study meeting.

20.2. Subsequently, the proposal was discussed in joint system study meeting held on 27th January, 2021 wherein the proposal of LILO of 400 kV D/C Silchar –Byrnihat along with 400/220kV 2x315 MVA, substation at New Shillong, Meghalaya could not be agreed on account of not getting justified as per the load profile of N.Shillong.

20.3. Members agreed that at present there is no requirement of the proposed LILO. It may be reviewed in future, if need arises.

21 Re-conductoring and strengthening of aged 132 kV lines in Manipur with HTLS

21.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP, proposal of re-conductoring and strengthening of aged 132 kV lines in Manipur with HTLS was

received from Manipur. As studies could not be carried out due to non-availability of detailed information, it was agreed that the proposal of MSPCL would be discussed in a joint study meeting to be held with CEA, CTU, NERLDC, NERPC and Manipur after receipt of following details from MSPCL:

- i) Age of each of the lines proposed for reconductoring or commissioning date,
- ii) MSPCL to certify that the existing towers are healthy to sustain the installation with HTLS conductors.
- iii) Load flow studies carried out by MSPCL.

21.2. Accordingly, MSPCL vide letter dated 20.01.2021 and email dated 23.01.2021 submitted the following:

- i) Commissioning date of each of the lines proposed for reconductoring,
- ii) MSPCL certified that the aged/old towers of the lines proposed for reconductoring are technically fit for stringing of the lines with HTLS conductors
- iii) Transmission lines details i.e. Line length, SIL, Thermal Capacity, Conductor type etc.
- iv) Substation wise existing load.

21.3. The issue was discussed in the meeting of joint system study held on 27th January 2021, wherein the following intra-state lines from first phase were agreed for reconductoring by MSPCL with HTLS conductor:

- a) Imphal (PG)-Yurembam D/C 132kV line
- b) Existing Leimatak, NHPC-Ningthoukhong S/C 132kV line (subject to under construction Leimatak, NHPC-Ningthoukhong S/C 132kV line also to be reconducted/implemented with HTLS of same rating)
- c) Yurembam–Yaingangpokpi D/C 132 kV line (agreed with CoD of 2027)
- d) MSPCL was requested to confirm the ampacity of HTLS conductors in the forthcoming meeting of NERPC-TP.

21.4. Representative of MSPCL requested for reducing timeframe of Yurembam–Yaingangpokpi D/C 132 kV line (viz. agreed with CoD of 2027) to CoD of 2025 as this line is very critical for the Manipur grid.

21.5. On enquiry from Member (PS), representative of MSPCL stated that Manipur had submitted two more lines in phase I viz. Ningthoukhong–Churachandpur D/C 132kV line, Yaingangpokpi–Kongba- Thoubal D/C 132kV line and Imphal (PG)-Ningthoukhong S/C 132 kV line. However, in the joint system study meeting held on 27th January, 2021, these lines were not agreed for reconductoring.

21.6. Chief Engineer (PSPA-II), CEA stated that during reconductoring, the lines have to be taken on long outage. Further, the downstream system should be capable enough to carry the power downstream from the HTLS conductors. The proposal had been discussed and studied in detail in the joint system study meeting. Keeping in view the grid reliability point, the above three lines (at para 21.3) from Phase I have been agreed.

21.7. Representative of CTU stated that re-conductoring is a recurring process. The system had been discussed in detail keeping in view of life of the line, technical feasibility etc. Remaining proposals of MSPCL can be discussed in the future meetings of NERPC-TP as and when need arises.

21.8. Representative of MSPCL informed that the ampacity of HTLS conductors shall be 1120A.

21.9. After deliberations the re-conductoring on following lines, as finalized in Joint Study Meeting, were agreed alongwith upgradation of bay equipments at both ends.

- a) Imphal (PG)-Yurembam D/C 132kV line
- b) Existing Leimatak, NHPC-Ningthoukhong S/C 132kV line (subject to under construction Leimatak, NHPC-Ningthoukhong S/C 132kV line also to be reconducted/implemented with HTLS of same rating)
- c) Yurembam–Yaingangpokpi D/C 132 kV line (agreed with CoD of 2027)

21.10. After deliberations, it was agreed that MSPCL will send the consolidated re-conductoring proposals with age of lines and system studies to CEA/CTU. Thereafter, the proposal for other lines will be discussed in the joint system study meeting.

22 N-1 reliability requirement at Sohra (Cherrapunji)

22.1. Director (PSPA-II), CEA stated that in the 01st meeting of NERPC-TP, Mawangap (Meghalaya) – Nangalbibra (Meghalaya) 220kV D/c line alongwith 220kV line bays at both ends, was agreed to be implemented by MePTCL under intra state scheme. However, due to space constraint in Mawangap (Meghalaya), MePTCL in the 02nd meeting of NERPC-TP proposed to connect Cherrapunji/Sohra with Nangalbibra bypassing Mawangap i.e. Cherrapunji (Meghalaya) – Nangalbibra (Meghalaya) 400kV D/c (charged at 220kV). Further, Cherrapunji was proposed to be connected to Silchar-Byrnihat 400kV D/c line at Mynkre, near Khlieriat i.e. LILO of 400kV D/c Silchar-Byrnihat line at 220kV Mynkre S/s and at 220kV New Shillong S/s. This would form a ring main based system of 400kV and would also strengthen the southern part of Meghalaya. Southern part of Meghalaya is rich in minerals and potential for tourism sector is there, leading to demand growth in future. Meghalaya is also planning to install hydro generation projects in southern part of Meghalaya.

22.2. In 02nd meeting of NERPC-TP, following was agreed:

- a) MePTCL, Meghalaya would furnish Substation-wise load growth demand in Meghalaya and Details of generating sources planned in 4-6 years of timeframe i.e. timeline, capacity, location etc. to CEA within 15days.
- b) The proposal of Meghalaya would be discussed in joint study meeting.
- c) The outcome of joint study would be deliberated in next meeting of NERPCTP.

22.3. Subsequently, the issue was discussed in the meeting of Joint System Study held on 27th January 2021, wherein MePTCL was asked to furnish physical power map of Meghalaya (depicting the distances) to CEA for further analysis and the following proposals will be put up before NERPCTP in its next meeting :

- a) 132kV D/c N.Shillong - Sohra line by MePTCL.
- b) Nangalbibra (ISTS) – N.Shillong 220kV D/c intra-state line by MePTCL in place of earlier agreed Nangalbibra (ISTS) – Mawngap 220kV D/c intra state line due to RoW constraints at Mawngap.

22.4. Director (PSPA-II), CEA stated that, in the joint system study meeting MePTCL was requested to provide physical power map of Meghalaya. However, the map has not been received.

22.5. Representative of NERPC informed that at Mawngap, they are facing many issues due to RoW in implementing transmission lines emanating from Mawngap to Killing. He requested to consider MePTCL request in implementing Nangalbibra (ISTS) – N.Shillong 220kV D/c intra-state line by MePTCL in place of earlier agreed Nangalbibra (ISTS) – Mawngap 220kV D/c intra state line. He also stated that they will coordinate with MePTCL in providing physical power map of Meghalaya power system.

22.6. Representative of CTU stated that from system reliability point of view, the system proposed by MePTCL is a good alternative as with the implementation of Nangalbibra (ISTS) – N.Shillong 220kV D/c intra-state line by MePTCL in place of earlier agreed Nangalbibra (ISTS) – Mawngap 220kV D/c intra state line, a 220kV network ring is created from Byrnihat-Mawngap-New Shillong-Nangalbibra. Further, at 220/132kV New Shillong S/s which is being implemented under NERPSIP, no 132kV downstream system has been planned. With the proposed 132kV D/c N.Shillong - Sohra line by MePTCL, 132kV connectivity gets established at New Shillong. Further, it will resolve the issue of N-1 at Sohra as well.

22.7. Chief Engineer (PSPA-II), CEA stated that from practical consideration of RoW and benefits envisaged by CTU, the proposals recommended by joint study may be agreed.

22.8. After deliberation, the following was agreed to be implemented under intra-state scheme by MePTCL:

- a) 132kV D/c New Shillong – Sohra line.
- b) Nangalbibra (ISTS) – New Shillong 220kV D/c line in place of earlier agreed Nangalbibra (ISTS) – Mawngap 220kV D/c intra state line.

23 N-1 reliability requirement at Zuangtui

- 23.1. Director (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP held on 25th September, 2020, it was deliberated that the issue of N-1 reliability at Zuangtai shall be discussed in the Joint System study meeting.
- 23.2. Subsequently, a joint system study meeting was held on 27th January, 2021. However, due to no participants from Mizoram, the issue could not be discussed. Subsequently, another joint system study meeting was held on 22nd February, 2021 wherein it was decided that the issue needs to be discussed in detail with system studies.
- 23.3. Representatives of CTU and NERLDC stated that they have carried out system studies and proposed new/upgradation of existing transmission elements.
- 23.4. Director (PSPA-II), CEA opined that it would be prudent to discuss the two independent studies carried out by CTU and NERLDC alongwith Mizoram in joint system study meeting.
- 23.5. After deliberations, it was decided that the issue would be discussed in joint system study meeting with Mizoram, CTU, NERPC and NERLDC.

24 Proposals under 10% GBS-Mizoram

- 24.1. Director (PSPA-II), CEA stated that Government of Mizoram vide letter 10th June, 2020 (addressed to MoP) has submitted proposals and concept notes on 11 nos. of transmission projects under 10% GBS scheme. Further, P&E Dept., Mizoram also submitted two additional proposals for 10% GBS funding vide their letter dated 30.09.2020.
- 24.2. To discuss the proposals in detail, a system study meeting was held on 22nd February, 2021.

In the meeting, the following was agreed:

- b) New Substation: 2x12.5MVA 132/33kV S/s at Lawngtlai
- c) 132kV S/c line on D/c tower from Saiha to Lawngtlai
- d) 132kV D/c line on D/c tower from Hnathial to Bukpui (Matching with commissioning of upcoming HEP at Hnathial)
- e) A 33kV D/C line from E.lungdar to Khawbung can be implemented by Mizoram
- f) 132kV S/C line on D/C tower from S. Bungtlang to Lawngtlai (to be charged at 33kV) can be implemented by Mizoram
- g) 132kV S/c line on S/c tower from Marpara to Thenhlum (to be charged at 33kV) can be implemented by Mizoram
- h) Augmentation of 132kV S/s in Mizoram:

S.No.	Name of S/s	Capacity (MVA)	Proposed Augmentation/ New Transformers	Decision

			(in MVA)	
1)	Bawktlang S/s., Kolasib	2x12.5	2x20	Agreed. Replaced 2x12.5 MVA ICTs to be used each at Khawmzawl and Saitual.
2)	Luangmual S/s	3x12.5	2x20	Agreed. Replaced 2x12.5 MVA ICTs to be used each at E.Lungdar and Sihhmui. 1x12.5MVA ICT to be retained at Luangmual.
3)	Saitual S/s	1x12.5	1x12.5	Agreed. Spare transformer of Bawktlang to be used
4)	Khawmzawl S/s	1x12.5	1x12.5	Agreed. Spare transformer of Bawktlang to be used
5)	Champai S/s	1x12.5	1x12.5	Agreed. New Transformer to be installed.
6)	E.Lungdar S/s	1x6.3	1x12.5	Agreed. Spare Transformer of Luangmual to be used.
7)	Bukpui S/s, Serchhip	1x12.5 & 1x6.3	1x12.5	Agreed. New Transformer to be installed.

24.3. Based on the outcome of the meeting, CEA vide letter dated 19.04.2021 submitted the recommendations to MoP. Members concurred the same.

24.4. Representative of Mizoram stated that to meet N-1 reliability at 132kV S/s at Champai, another 132kV S/c line from Khawzawl to Champai is required. He added that Champai being a border area, the reliability of supply needs to be upgraded. Further, existing 33kV line from Champai to Khawbung is around 70kms long and hence voltage issues are there.

24.5. On enquiry from Chief Engineer (PSPA-II), CEA, representative of P&E Deptt., Mizoram informed that the load at existing 132kV S/s at Champai is around 08 MW.

24.6. Representative of NERPC informed that Champai being a border area, is very important to have a good power quality and reliability, in case of future cross border interconnections. It is therefore, requested to meet the N-1 reliability criteria, proposal of P&E Deptt, Mizoram may be considered.

24.7. Chief Engineer (PSPA-II), CEA opined that it is not techno-economically justified to have 132kV D/c planned for a load of 08 MW. However, to meet the N-1 contingency at Champai, recommendation of NERPC could be accepted.

24.8. After deliberations, second 132kV Khawzawl to Champai S/c line was agreed for implementation by Mizoram under intra state scheme.

<p style="text-align: center;">F. ToR-VI: REVIEW AND FACILITATE CONSTRUCTION OF INTER-REGIONAL GRID STRENGTHENING SCHEME</p>

25.1. Director (PSPA-II), CEA stated that as per ToR-VI of the committee, the committee have to review and facilitate construction of inter-regional grid strengthening scheme. However, MoP vide OM dated 20th May, 2021 amended ToR of NCT. This OM also mention that:

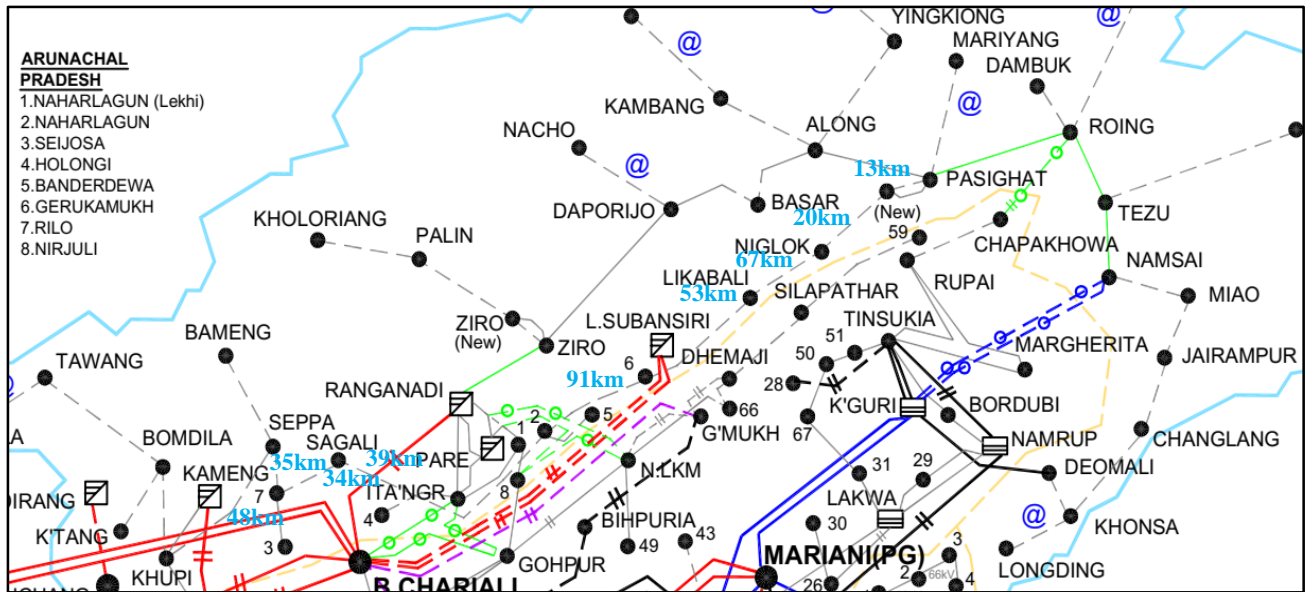
“The Regional Power Committees (Transmission Planning) can make meaningful recommendations only regarding their own Region. They cannot decide on transfers across region.”

25.2. In compliance of the above OM, it was agreed to drop this agenda.

Additional Agenda:

26 Strengthening of transmission system in Arunachal Pradesh-Agenda by CTU

26.1. Representative of CTU stated that 132kV S/c corridor from Pasighat to Khupi is under construction (under Comprehensive Scheme) which is about 400km long without any intermediate anchoring. At Khupi end, power is supplied from Balipara (POWERGRID) S/s and Kameng (600MW) HEP and there is no source at Pasighat end. It was observed that apart from Ranganadi and Pare HEPs there are no additional source in eastern portion of Arunachal Pradesh. Further, the Kameng/Kimi – Khupi 132kV S/c line is found to be overloaded in base case itself. Accordingly, to strengthen feed to eastern portion of Arunachal Pradesh, Roing – Chapakhowa 132kV D/c line is already under construction and Kathalguri – Namsai 220kV D/c line along with 220/132kV substation at Namsai has been approved for implementation in ISTS. However, the Pasighat to Khupi corridor needs additional feed in between to make the power supply reliable and secure.



26.2. He also informed that from studies, it is observed that outage of feed from any end in Pasighat to Khupi corridor results in voltage collapse in the corridor, resulting into system failure and large-scale power outage. Accordingly, there is a need to provide additional interconnection(s) to this long corridor from other sources. Following alternatives were studied:

(a) Naharlagun (Lekhi) – Naharlagun (New) 132kV S/c HTLS line- (Alternate-I)

- This line results in formation of a large ring starting from Ranganadi to Ziro and so on, and ending at Naharlagun (Lekhi), thereby leading to increased power transfer from Ranganadi HEP to Naharlagun (Lekhi) necessitating reconductoring of Ranganadi HEP – Naharlagun (Lekhi) line (high hydro case). Further, this also necessitates reconductoring of Ranganadi – Pare and Ranganadi – Itanagar 132kV lines, as the lines are found to be critically loaded in N-1 of other adjacent lines. Further, no new source is established for feeding this large ring apart from Ranganadi and Pare HEPs. It is understood that due to RoW constraints, only one 132kV S/c line can be drawn from Naharlagun (New) using the under-construction M/c corridor at Naharlagun (New). For low hydro case, reconductoring of said lines may not be required.
- However, under N-1 of Naharlagun (Lekhi) – Naharlagun (New) 132kV S/c HTLS line, Kameng/Kimi – Khupi 132kV S/c line again gets overloaded, thus necessitating reconductoring of the same.

(b) Gogamukh (ISTS) – Gerukamukh (Arunachal Pradesh) 132kV D/c line- (Alternate-II)

- There is no source (EHV substation or generation) in upper Assam or in eastern part of Arunachal Pradesh. However, a new 400kV substation is proposed to be established at Gogamukh for feeding power to upper Assam above Brahmaputra river and also for pooling power from upcoming large HEPs in Arunachal Pradesh. Accordingly, the same substation can be utilised for providing additional feed to Pasighat to Khupi corridor through Gogamukh (ISTS) – Gerukamukh (Arunachal Pradesh) 132kV D/c line (about 20km). With

this new 132kV D/c line, the feed to the Pasighat to Khupi corridor is strengthened. However, under N-1 of Gerukamukh – Naharlagun (New) line, 6-7kV voltage drop is observed at Naharlagun (New), which can be overcome through installation of capacitor banks.

- However, Kameng/Kimi – Khupi 132kV S/c line is observed to be critically loaded in base case itself. N-1 of Gerukamukh – Naharlagun (New) line results in further increase in power flow on Kameng/Kimi – Khupi line. Thus, reconductoring of Kameng/Kimi – Khupi 132kV S/c line is required in view of critical loading in base case and overloading during contingencies.

26.3. In view of the above, representative of CTU proposed the following system strengthening is proposed in Arunachal Pradesh in ISTS and Intra-state:

(a) In ISTS: Gogamukh (ISTS) – Gerukamukh (Arunachal Pradesh) 132kV D/c line

(b) In Intra-state: Reconductoring of Kameng/Kimi – Khupi 132kV S/c line (with at least 1000A HTLS) along necessary upgrade in bay equipment commensurate with HTLS line rating

26.4. Chief Engineer (PSPA-II), CEA, stated that Gogamukh (ISTS) has not yet been finalized and the issue needs to be discussed with Assam and Arunachal Pradesh.

26.5. After deliberations, it was agreed that the issue may be referred for joint system study.

27 Re-conductoring of 132 KV transmission lines of TSECL by HTLS conductor with allied accessories-Agenda by TSECL

27.1. Representative of TSECL proposed for re-conductoring of the following 132 KV transmission line sections by HTLS conductor:

- I. Surjamaninagar (TSECL) to LILO Point of Surjamaninagar (ISTS)- 5.493 km
- II. Bodhjungnagar (TSECL) to LILO Point of Surjamaninagar (ISTS) – 12.867 km
- III. Surjamaninagar (TSECL) to Bodhjungnagar (TSECL) – 18.36 km
- IV. Ambassa (TSECL) to LILO Point of P.K. Bari (ISTS) – 35.45 km
- V. P.K. Bari (TSECL) to LILO Point of P.K. Bari (ISTS) – 6.407 km
- VI. P.K. Bari (TSECL) to Kumarghat (PG) – 2.40 km

27.2. Chief Engineer (PSPA-II), CEA stated that in the 02nd meeting of NERPC-TP held on 25th September, 2020, the committee requested TSECL to consider implementation of following in addition to other suggestion:

- a) The whole section of Surajmaninagar (TSECL) – Surajmaninagar (ISTS) – Bodhjungnagar should be reconducted with HTLS.
- b) The whole section of P.K. Bari (TSECL) – P.K. Bari (ISTS) – Ambassa should be reconducted with HTLS.

27.3. As such the proposal of TSECL is in line with the recommendations of this committee.

- 27.4. Representative of TSECL informed that they have added an additional proposal i.e. 132kV P.K. Bari (TSECL) to Kumarghat (PG) – 2.40 km. He requested for considering this small section for reconductoring also.
- 27.5. Representative of CTU informed that Ambassa (TSECL) -P.K. Bari (ISTS) 132kV section is also getting LILOed at 132kV Manu S/s (being implemented under NERPSIP). He suggested that TSECL may also take up the reconductoring of this section of LILO at Manu S/s as well. Representative of TSECL agreed for the same.
- 27.6. After deliberations, reconductoring of the following 132kV intra-state lines/section by TSECL with HTLS conductor having ampacity of 800A was agreed:
- a) Surjamaninagar (TSECL) to LILO Point of Surjamaninagar (ISTS) – 5.493 km
 - b) Bodhjungnagar (TSECL) to LILO Point of Surjamaninagar (ISTS) – 12.867 km
 - c) Surjamaninagar (TSECL) to Bodhjungnagar (TSECL) – 18.36 km
 - d) Ambassa (TSECL) to LILO Point of P.K. Bari (ISTS) – 35.45 km alongwith LILO portion at 132kV Manu S/s
 - e) P.K. Bari (TSECL) to LILO Point of P.K. Bari (ISTS) – 6.407 km
 - f) P.K. Bari (TSECL) to Kumarghat (PG) – 2.40 km

List of Participants

CEA:

1. Sh. Goutam Roy, Member(PS)
2. Sh. Pardeep Jindal, Chief Engineer (PSPA-II)
3. Sh. B.S. Bairwa, Director (PSPA-II)
4. Sh. Deepanshu Rastogi, Deputy Director (PSPA-II)
5. Sh. Manish Maurya, Assistant Director-I (PSPA-II)

NERPC:

1. Sh. Ashok Thakur, Member Secretary
2. Sh. B. Lyngkhoi, SE
3. Sh. Srijit Mukherjee, EE

CTUIL:

1. Dr. Subir Sen, COO (CTUIL)
2. Sh. Ashok Pal, Dy. COO (CTUIL)
3. Sh. Manish Ranjan Keshari, Manager (CTUIL)
4. Sh. Shyam Sunder Goyal, Manager (CTUIL)
5. Sh. Anupam Kumar, Dy. Manager (CTUIL)
6. Sh. Abhilash Thakur, Engineer (CTUIL)

POWERGRID:

1. Sh. R. K. Tyagi, ED (NERTS), POWERGRID
2. Sh. U Kakati, CGM(AM), NERTS, POWERGRID
3. Sh. Prasanta Kanungo, Sr. GM (NERTS), POWERGRID

POSOCO/NLDC:

1. Sh. S.R. Narasimhan, Director (SO)
2. Sh. S.C. De, GM (SO)
3. Sh. R.K. Porwal, Sr. GM (SO)
4. Sh. Priyam Jain, Dy. Manager (SO)

NERLDC:

1. Sh. Rajib Sutradhar, CGM (SO)
2. Sh. Palash Jyoti Borah, Dy. Manager (SO)

AEGCL, Assam:

1. Sh. G.K. Bhuyan, DGM
2. Sh. Neelkamal Sharma, AM, P&E

DoP, Arunachal Pradesh:

1. Sh. T.K. Tara, SE
2. Sh. H.R. Bado, SE

MSPCL, Manipur:

1. Sh. N. Sarat Singh, MD

MePTCL, Meghalaya:

1. Sh. A. Kharpan, CE(Trans)

P&E Dept., Mizoram:

1. Er F.Lalrinpuia, Superintending Engineer (Planning)
2. Er Lalbiaksanga, Superintending Engineer (SLDC)
3. Er Benjamin L Tlumte, Senior Executive Engineer (SLDC)

TSECL, Tripura:

1. Sh. Debasis Sarkar, Director (Technical)
2. Sh. R Deb Barman, AGM (Transmission)

DoP, Nagaland

1. Sh. Shikato Sema, Engineer-in-Chief

NEEPCO:

1. Sh. Joypal Roy, DGM

NHPC:

1. Sh. J.C. Sarkar, GM
2. Sh. I.P. Ranjan

Annexure-II

Following transmission lines have been commissioned in the North Eastern Region during Q3 & Q4 of 2020-21:

State/Sector	Transmission Lines	Voltage Level (in KV)	Circuit Type	Executing Agency	Month of Completion
Central Sector	Additional 400KV D/C line at P.K.Bari s/s and Silchar S/S end for termination of P.K. Bari - Silchar 400KV D/C line	400	D/c	PGCIL	Mar-21
Private Sector	Imphal - New Kohima (Twin Moose ACSR) (K-MTL - TBCB)	400	D/c	KPTL	Dec-20
	Surajmaninagar - P. K. Bari line (NER-II TL-TBCB)	400	D/c	SGL	Jan-21
	Silchar (PG) - Misa (PG) (Q) line (NER-II TL-TBCB)	400	D/c	SGL	Feb-21
Assam	-NIL-				
Meghalaya					
Manipur	Yurembam - Thoubal via Nambol	400	D/c	ED, Manipur	Mar-21
Mizoram					
Tripura					
Nagaland					
Arunachal Pradesh					

27.7. Following substations/ICTs have been commissioned in the North Eastern Region during Q3 & Q4 of 2020-21:

State/Sector	Substation/ICTs	Voltage Ratio	Transformation Capacity (MW/MVA)	Executing Agency	Month of Completion
Central Sector	New Mariani S/stn.(ICT-I)	400/220	500	PGCIL	Dec-20
	Mariani New (ICT-II) extn	400/220	500	PGCIL	Mar-21
Private Sector	P.K. Bari S/S (NER-II TL-TBCB)	400/132	630	SGL	Jan-21
	Surajmaninagar (NER-II TL - TBCB)	400/132	630	SGL	Jan-21
Assam	-NIL-				
Meghalaya					
Manipur	Thoubal S/s	400/132	315	ED, Manipur	Mar-21
Mizoram	-NIL-				
Tripura					
Nagaland					
Arunachal Pradesh					

Annexure-III

I. The generation capacity plan of North Eastern Region is as under:

State	Coal	Hydro	Solar	Gas	DG	2019-20	2021-22	2024-25
Arunachal Pradesh								
Assam		100		328.49		428.49	464.64	464.64
Manipur					36	36	36	36
Meghalaya		322				322	322	322
Mizoram							0	0
Nagaland							0	0
Tripura		10		162		110	110	172
Central Sector	750	1195		1253.6		3198.6	3498.6	5498.6
Private		110		24.5		134.5	134.5	134.5
						4230	4566	6628

II. The actual/anticipated peak demand of states in North Eastern region are as under:

State	Peak Demand (in MW) according to 19th EPS				Actual	Actual
	2019-20	2020-21	2021-22	2024-25	Peak (2019-20)	Peak (2020-21)
Arunachal Pradesh	224	249	278	386	158	158
Assam	2,297	2502	2,713	3590	2,193	2072
Manipur	339	372	410	553	226	252
Meghalaya	453	470	488	552	371	384
Mizoram	148	159	171	213	133	132
Nagaland	204	219	234	284	186	160
Tripura	351	371	391	452	320	317
Total	3,856	4,342	4,499	5790	2,989	3,294

Annexure-IV

The operational constraints faced by the system operator during Q3 and Q4 of 2020-21 are given below (as reported by POSOCO):

Transmission Line Constraints

Sl. No.	Corridor	Season/ Antecedent Conditions	Description of the constraints	Remedial Measure and deliberations in the meeting:
1	220 kV BTPS-Salakati I & II lines (POWERGRID)	High Hydro / Heavy demand in Downstream Dhaligaon of Assam and Downstream Mendipathar of Meghalaya	During Oct-45.87 %, Nov -8.13 %, Dec-0.54 % and Mar- 2.75 % of the time loading of these elements together was more than 200 MW, thus not satisfying the N-1 contingency criterion.	Upgradation of the 220 kV BTPS-Salakati I & II lines with HTLS conductor with requisite modification in bay equipment at both ends was agreed in the 2 nd Meeting of NERSCT. The works have been awarded under NERSS-XII with completion schedule of Mar 2023. Further, commissioning 400/220kV Rangia S/s Loading in 220 kV BTPS-Salakati I & II will be reduced. <u>Deliberations in the meeting:</u> Representative of NERLDC stated that the N-1 constraint faced in 220 kV BTPS-Salakati I & II lines (POWERGRID) is affecting the reliability of the grid. He requested that the HTLS works scheduled to be commissioned by Mar-2023 please be expedited.
2	132 kV Biswanath Chariali (PG) – Biswanath Chariali (Pavoi) (AEGCL) I & II lines (POWERGRID)	High Hydro / Heavy demand in Gohpur, Pavoi areas of Assam	During Oct-41.53 %, Nov -17.28 %, Dec-15.63 %, Jan-16.4%, Feb-13.8 % and Mar- 12.7 % of time, loading of these elements	To address this constraint, 132 kV Biswanath Chariali – Itanagar D/C has been approved by Joint Standing Committee of ER and NER on 03.01.2014. LILO of one circuit of 132 kV Biswanath Chariali (PG) – Itanagar at Gohpur was

			<p>together was more than 80 MW, thus not satisfying N-1 contingency criterion.</p> <p>Tripping of any of these lines may result in Grid disturbance in downstream area of Pavoil & Gohpur after cascaded tripping.</p>	<p>approved in 6th Standing Committee of NER held at Imphal on 03.10.16 & The project is under execution by Sterlite Grid 4 and was expected to be completed by Dec 2020.</p> <p><u>Deliberations in the meeting:</u></p> <p>i. Representative of NERLDC stated that to remove the N-1 constraint at 132 kV Biswanath Chariali (PG) – Biswanath Chariali (Pavoi) (AEGCL) I & II lines (POWERGRID), LILO of one circuit of 132 kV Biswanath Chariali (PG) – Itanagar at Gohpur is required at the earliest.</p> <p>ii. Representative of AEGCL stated that w.r.t. LILO of one circuit of 132 kV Biswanath Chariali (PG) – Itanagar at Gohpur, work order has been issued in June-20. Bid time of around 08 months has been given. It will get implemented by December-21.</p>
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ICT Constraints

Sl. No.	ICT	Season/ Antecedent Conditions	Description of the constraints	Remedial Measure and deliberations in the meeting:
1	220/132 kV, 160 MVA ICT at Kopili	High Hydro	N-1 criteria is not satisfied.	It was agreed in Joint Standing Committee Meeting of Eastern and North Eastern Region on Power System Planning held at Guwahati on

				03-01-2014, the proposal of replacement of existing 60MVA, 220/132kV ICTs by 1x160 MVA, 220/132 kV ICT at Kopili HEP of NEEPCO by POWERGRID. Kopili Substation is under outage since 07.10.19 due to flooding caused by bursting of penstock. Debris caused by flood needs to be removed from site to restore Khandong – Kopili – Misa link. This needs to be expedited.
2	400/132 kV, 2x125 MVA ICT at Palatana	High Hydro	During Oct-66.56 %, Nov - 5.02 %, Dec- 2.13 %, Jan- 0.07 %, Feb- 2.8 % and Mar- 5.1 % of time, loading of these elements was more than 119 MW. Tripping of one ICT at Palatana will result in reduction of reliability in NER.	Commissioning of 400/132 kV Surjamaninagar (TBCB) Substation with 400/132 kV, 2x315 MVA ICTs at Surjamaninagar (TBCB) executed by Sterlite Grid 4 and upgradation of existing 132 kV Palatana – Surjamaninagar (TSECL) D/C to 400 kV level will remove the constraint. <u>Deliberations in the meeting:</u> Representative of TSECL informed that one circuit of existing 132 kV Palatana – Surjamaninagar (TSECL) D/C has been upgraded to 400 kV level and the ICT constraint at Palatana has been addressed.

Nodes Experiencing Low Voltage

Sl. No	Node	Season/ Antecedent Conditions	Description of the constraints	Remedial Measure:
NIL				

Nodes Experiencing High Voltage

Sl. No	Node	Season/ Antecedent Conditions	Description of the constraints	Remedial Measure and deliberations in the meeting:
1	Ranganadi (NEEPCO)	High Hydro / Off-Peak load hours	During Oct - 0.03% , Nov- 0.25%, Dec - 0.47%, Jan- 0.64% , Feb- 0.00% & Mar - 2.72 % of time, 400 kV bus voltage of this node was more than 420 kV..	<p>It was agreed in 5th and 7th Standing Committee Meeting of NER for installation of 420 kV, 80 MVAR Bus Reactor by NEEPCO at Ranganadi Bus with associated GIS bays. The same will be completed by Dec-22 as discussed in 2nd meeting of NERPC-TP held on 25th September 2020.</p> <p><u>Deliberations in the meeting:</u></p> <p>i. Director (PSPA-II), CEA enquired NEEPCO about the updates in implementation of 420 kV, 80 MVAR Bus Reactor by NEEPCO at Ranganadi Bus.</p> <p>ii. Representative of NEEPCO informed that tender has been floated on 01st July, 2021 and expected commissioning schedule shall be March-23.</p>
2	Balipara (POWERGRID)	High Hydro / Off-Peak load hours	Bus voltage of this node was more than 400 kV	
3	Misa (POWERGRID)	High Hydro	Bus voltage of this node was more than 400 kV	
4	BiswanathChari ali (POWERGRID)	High Hydro / Off-Peak load hours	Bus voltage of this node was more than 400 kV	
5	Palatana (OTPC)	High Hydro	Bus voltage of this node was more than 400 kV	
				<p>420 kV, 63 MVAR line reactor of Palatana-Silchar-I at 400 kV Palatana is under forced outage since 25.04.2019.</p> <p><u>Deliberations in the meeting:</u></p>

				It was informed that 420 kV, 63 MVAR line reactor of Palatana-Silchar-I at 400 kV Palatana has been restored.
6	Byrnihat (MePTCL)	High Hydro	<p>During Oct - 0.06% , Nov- 0.01% of time, 400 kV bus voltage of this node was more than 420 kV</p>	<p>The 63 MVAR Bus Reactor at Byrnihat is under prolonged outage. Bus Reactor at Byrnihat may mitigate the high voltage problem.</p> <p><u>Deliberations in the meeting:</u> It was informed that 63 MVAR Bus Reactor at Byrnihat shall be connected by March-22.</p>

Annexure-V1. Assam: to be implemented by AEGCL

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
a)	Rangia	400/220kV, 2x500MVA	1. EPC Contract Award is tentatively scheduled in the early half of March'2022. 2. Tender floated for Master Plan and Route Survey and evaluation is in process.	2025 (36 months from the Date of Award)
b)	Gogamukh	400/220/132kV, 2x500MVA + 2x160MVA	Tender for Route Survey and detailed survey of 3 (Three) nos. of transmission lines namely: 1. 220 KV Bihpuria-Gogamukh D/C Line for Gogamukh GSS 2. 132 KV North Lakhimpur-Dhemaji line along with LILO at Gogamukh. 3. 400 KV D/C Khumtai (AEGCL new)- D/C (Twin Moose Biswanath Chariali (PGCIL) for Khumtai GSS with a total tender value of Rs. 89,59,032.00 only has been processed for being floated.	2026 (36 months from the Date of Award)
c)	Khumtai	400/220/132kV, 2x500MVA + 2x160MVA		
d)	Gohpur	2 no. 132kV GIS line bays at Gohpur for termination of LILO of one circuit of BiswanathChariali – Itanagar 132kV D/c line (line works under ISTS through TBCB route)	1. EPC Contract Award is tentatively scheduled in the early half of December'2021. 2. PMC Team engaged for AIIB funded project along with E&S Specialist of AEGCL has visited S/S site on 18.06.2021 for	2023 (24 months from the Date of Award)

			initiation of Master Plan work.	
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2. Tripura: to be implemented by TSECL

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
a)	Surajmaninagar (TSECL)	400/132kV, 2x315MVA	Aug-2021	12 months from Date of Award

3. NEEPCO: to be implemented by NEEPCO

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
a)	Ranganadi	420kV, 80MVAs bus reactor at Ranganadi generation switchyard	Oct-20	Dec-22
b)	Pare HEP	Bypassing of LILO of Ranganadi - Naharlagun / Nirjuli at Pare HEP so as to form direct Ranganadi - Naharlagun / Nirjuli 132 kV S/C line	No work related to Award of project is started	
c)	Pare HEP	Re-conductoring of LILO portion at Pare end (of Ranganadi - Naharlagun / Nirjuli 132kV S/c line) with HTLS (HTLS equivalent to ACSR Zebra) along with modification of 132kV bay equipment at Pare HEP		