

I/8459/2019



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

संलग्न सूची के अनुसार

As per list enclosed

विषय: उत्तर पूर्वी क्षेत्रीय विद्युत समिति (पारेषण योजना) (उ.पू.क्षे.वि.स.पा.यो) की प्रथम बैठक / पारेषण तंत्र पर उत्तर पूर्वी क्षेत्रीय स्थायी समिति (एन.ई.आर.एस.सी.टी.) की दूसरी बैठक का कार्यवृत्त।

Subject: Minutes of meeting of 01st meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP) / 2nd meeting of North Eastern Region Standing Committee meeting on Transmission (NERSCT) for planning of Transmission System.

महोदय(Sir)/महोदया(Madam),

उत्तर पूर्वी क्षेत्रीय विद्युत समिति (पारेषण योजना) (उ.पू.क्षे.वि.स.पा.यो) की प्रथम बैठक / पारेषण तंत्र पर उत्तर पूर्वी क्षेत्रीय स्थायी समिति (एन.ई.आर.एस.सी.टी.) की दूसरी बैठक शिलांग में 08 नवंबर, 2019 को आयोजित की गई थी। बैठक का कार्यवृत्त संलग्न है।

The minutes of the 01st meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP)/ 02nd meeting of North Eastern Region Standing Committee on Transmission (NERSCT) held at Shillong on 08th November, 2019 is enclosed herewith.

भवदीय/Your faithfully,

(प्रदीप जिंदल / Pardeep Jindal)

मुख्य अभियन्ता / Chief Engineer

I/8459/2019

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, Bijulee Bhawan; 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, Lum Jingshai, 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), Vidyut Bhawan, 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.

Special Invitee:

1	Shri T.A.N. Reddy Chief Business & Regulator, NER-II Transmission Ltd., F-1, The Mira Corporate Suites, 1&2, Ishwar Nagar, Mathura Road, New Delhi – 110065 (For Agenda No.-16)	2	Director, Kohima-Mariani Transmission Ltd. (KMTL), Plot No.101, Part-III, GIDC Estate, Sector-28, Gandhinagar-38028 Gujarat India (For Agenda No.-15 and 16)
3	The Chairman and Managing Director North Eastern Electric Power Corporation Ltd. Brookland Compound, Lower New Colony, Shillong (Meghalaya)- 793003		

Minutes of 01st meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP) / 02nd meeting of North Eastern Region Standing Committee on Transmission (NERSCT)

List of the participants is enclosed at **Annex-I**.

Member (Power System) welcomed all the participants in the meeting. He informed that MoP vide letter dated 04.11.2019 (**Annex-II**) has constituted North Eastern Regional Power Committee (Transmission Planning) (NERPCTP) in supersession of MoP's Office Order dated 13.04.2018 constituting the North Eastern Region Standing Committee on Transmission (NERSCT) for planning of Transmission system in the Region. Accordingly, this meeting can be termed as 01st meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP). He thanked NERPC Secretariat for making excellent arrangements for the meeting.

Chief Engineer (PSPA-II), CEA also welcomed the participants to the meeting. He stated that as per the order of MoP, NERPCTP has been constituted with following composition:

1.	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2.	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3.	Director(System Operation), Power System Operation Corporation Ltd.	Member
4.	Heads of State Transmission Utilities (STUs) of Assam, Meghalaya, Nagaland, Arunachal Pradesh, Tripura, Manipur, Mizoram #	Member
5.	Member Secretary of North Eastern Regional Power Committee	Member
6.	CMD/ MD/ Chairman of NTPC, NHPC, SECI and NEEPCO	Members
7.	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

STUs to coordinate with their respective Distribution Companies (DISCOMs).

* To be nominated by the Central Electricity Authority.

CE (PSPA-II) further stated that NEEPCO, which is invited as Special Invitee, has become a formal member of the committee. The Terms of Reference (ToR) of the Committee are as under:

- (i) *Carry out a quarterly review of the Transmission System in the region; assess 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.*
- (ii) *Assess the transmission system requirements in the near, medium and long term and draw up transmission schemes to meet these requirements. While doing this a perspective plan for the next 15-20 years may also be*

kept in mind and accordingly the requisite allowance/margin may be factored in the system during planning process.

- (iii) *Examine applications for connectivity and access and ensure that these are granted speedily, provided that the requisite fees/charges are paid.*
- (iv) *Review the upstream and downstream network associated with transmission schemes.*
- (v) *Examine and evaluate the intra-state transmission proposals.*
- (vi) *Review and facilitate the construction of the inter-regional grid strengthening schemes.*

As the agenda for the 2nd meeting of NERSCT was circulated before issuance of MoP order, this meeting may be treated as 01st meeting of North Eastern Regional Power Committee (Transmission Planning) (NERPCTP)/ 2nd meeting of North Eastern Region Standing Committee meeting on Transmission (NERSCT).

After a brief introduction of participants, he requested Director (PSPA-II), CEA to take up the agenda items for discussion.

1. Confirmation of minutes of the 1st meeting of North Eastern Region Standing Committee on Transmission (NERSCT)

- 1.1. The minutes of the 1st meeting of North Eastern Region Standing Committee on Transmission (NERSCT) for planning of Transmission held on 29.11.2018 at Guwahati (Assam) were circulated vide CEA's letter no. I/3859/2019 dated 30.01.2019. Subsequently, a corrigendum was issued vide letter no. I/5995/2019 dated 11.07.2019 based on the comments received from NERPC.
- 1.2. The minutes of the meeting of 1st meeting of North Eastern Region Standing Committee on Transmission (NERSCT) along with the corrigendum were confirmed.

2. Installation of 420kV, 80MVAR bus reactor at Ranganadi HEP

- 2.1. Director (PSPA-II) stated that in the 07th meeting of Standing Committee on Power System Planning of North Eastern Region (SCPSPNER), it was agreed that NEEPCO would install 1x80MVAR, 420kV Bus reactor along with associated GIS Bay at Ranganadi.
- 2.2. In the 1st meeting of North Eastern Region Standing Committee on Transmission (NERSCT), SE, NERPC opined that the proposed reactor at Ranganadi might be installed by transmission utility. Further, it was pointed out that there is space constraint at Ranganadi for installation of bus reactor. In the meeting, it was also agreed that POSOCO would provide the voltage profile inputs at Ranganadi end to CEA & CTU, and based on the inputs, the proposal of installation of 420kV, 80MVAR bus reactor at Ranganadi HEP end would be reviewed.

- 2.3. A joint study meeting was held on 05.08.2019, wherein it was recommended that 80MVAR bus reactor needs to be installed at Ranganadi HEP by NEEPCO using GIS bays. NEEPCO agreed for installation of the reactor.
- 2.4. POSOCO stated that though the voltage rise is witnessed throughout the year and there is severe voltage rise during the lean Hydro period leading to difficulty in operation of the grid.
- 2.5. Chief Engineer (PSPA-II), CEA stated that it is the issue of NER grid. Any voltage improvement at Ranganadi, would result in improving voltage profile of the grid.
- 2.6. After detailed deliberation following were agreed :
 - a) NEEPCO to install 80MVAR bus reactor at Ranganadi HEP using GIS bays
 - b) Timeline: 18 months (NIT to be floated in next 3-4 months)

3. Interconnection of 132kV substations in upper Assam (below Brahmaputra) with neighbouring substations in Arunachal Pradesh

- 3.1. Director (PSPA-II), CEA stated that in the 1st meeting of NERSCT, requirement of AGBPP (Kathalguri) – Namsai 132 kV link or other alternative proposals of Arunachal Pradesh were discussed and following alternative interconnections at higher voltage levels were suggested:
 - a) Tinsukia – Namsai 220kV D/c line or
 - b) AGBPP (Kathalguri) – Namsai 220kV D/c line
- 3.2. In the above meeting, AEGCL informed that the due to space constraint 220kV bays cannot be constructed at Tinsukia S/s. Accordingly, AGBPP (Kathalguri) – Namsai 220kV D/c line is the feasible option. AEGCL further proposed that the one connection from Jonai (Assam) to Pasighat (Arunachal Pradesh) may also be established for supply power to Arunachal Pradesh. DoP, Arunachal Pradesh proposed that the interconnection could alternatively be terminated at Niglok (Arunachal Pradesh). Accordingly, the proposal of AEGCL and DoP, Arunachal Pradesh regarding Jonai (Assam) to Pasighat (AP) and Niglok (AP), alongwith reactive compensation was referred for study by CEA / CTU.
- 3.3. A joint study meeting was held on 05.08.2019, wherein establishment of 220/132kV, 2x100MVA substation at Namsai (New) (Arunachal Pradesh) under ISTS along with following scope was recommended:
 - a) 220kV, 1x31.5MVAR bus reactor
 - b) Kathalguri (NEEPCO) – Namsai (New) 220kV D/c line
 - c) 2 no. 220kV lines bays at Kathalguri (NEEPCO)
 - d) Namsai (POWERGRID) – Namsai (New) 132kV D/c (Zebra) line
 - e) 2 no. 132kV line bays at Namsai (POWERGRID) S/s

- 3.4. Representative of NEEPCO stated that there is no space for 2 Nos. 220kV bays at Kathalguri. Further, availability of space for 2 Nos. 220kV bays at Tinsukia also could not be ascertained in the meeting.
- 3.5. It was informed that existing 132kV Namsai substation can be upgraded to 220kV instead of establishing new substation as sufficient space is available there.
- 3.6. Chief Engineer (PSPA-II) proposed that a site visit of Kathalguri and Tinsukia can be carried out to ascertain availability of space for accommodating 2 Nos. of 220kV AIS/GIS/Hybrid bays. It was also suggested that transformation capacity at proposed Namsai (New) (Arunachal Pradesh) may be increased to 2x160MVA.
- 3.7. After detailed deliberation the following were agreed:
 - a) Upgradation of existing 132kV Namsai S/s of POWERGRID to 220kV with GIS or Hybrid GIS with following elements under ISTS:
 - (i) 220/132kV, 2x160MVA ICTs
 - (ii) 220kV, 1x31.5MVAr bus reactor
 - (iii) Kathalguri (NEEPCO) / Tinsukia (AEGCL) – Namsai (POWERGRID) 220kV D/c line
 - (iv) 2 no. 220kV lines bays at Kathalguri (NEEPCO) / Tinsukia (AEGCL)
 - b) A team comprising of members from CEA, POWERGRID (NERTS), NERLDC, NERPC, NEEPCO and AEGCL to visit Kathalguri and Tinsukia S/s to ascertain availability of space for implementation of 2 Nos. 220kV bays. NERPC secretariat will coordinate the visit of the team and submit the report to CEA within one month.
 - c) The decision of terminating 220kV D/C line from Namsai (POWERGRID) to Kathalguri or Tinsukia or any LILO arrangement will be taken in next meeting of NERPCTP.
 - d) Tentative cost of the proposed system would be informed in the next meeting.

4. Requirement of reactive compensation at Umtru S/s of MePTCL

- 4.1. Director (PSPA-II), CEA stated that in the 1st meeting of NERSCT, it was agreed to jointly study reactive compensation requirement at Umtru S/s.
- 4.2. A joint study meeting was held on 05.08.2019. During load flow studies, it was observed that after LILO of Kahilipara - Umtru 132kV D/c lines at Killing S/S of MePTCL, there is improvement of 1kV in the voltage level at Umtru S/s. Further, presently there is no voltage regulation issue at Umtru S/s. Accordingly, from joint study, it was recommended that additional reactive compensation is not required at Umtru S/s of MePTCL.
- 4.3. Members agreed to the recommendations of joint study.

5. Proposed scheme for relieving congestion in Agia substation of Assam

- 5.1. Director (PSPA-II), CEA stated that in the 1st meeting of NERSCT, it was discussed that load in 220kV substation at Agia has increased due to additional loading on Agia (Assam) - Mendipather (Meghalaya) 132kV line and AEGCL has no tariff benefit due to PoC mechanism. Further, AEGCL proposed that for reducing loading on lines connected with Agia (Assam) substation and enhancing the reliability of power supply in the western parts of Meghalaya, a 220kV substation either in West Garo Hills district or in the East Garo Hills district of Meghalaya is required.
- 5.2. Accordingly, following intra-state system strengthening in Meghalaya was proposed:
- a) Establishment of 220/132kV, 2x160MVA substation at Nangalbibra
 - b) Mawngap-Nangalbibra 220kV D/c line
- 5.3. However, MePTCL proposed for additional 400kV link as Meghalaya is fed from only Byrnihat S/s at 400 kV level. Further, AEGCL informed that BTPS-Agia 220kV line is already critically loaded and in case of additional feed from Agia, this line needs to be reconducted. Accordingly, the issue was referred to joint study.
- 5.4. A joint study meeting was held on 05.08.2019 wherein the following scheme were agreed:
- a) Establishment of 220/132kV, 2x160MVA substation at Nangalbibra – under ISTS.
Note: Sufficient space provision for 400kV up-gradation in future need to be kept at this substation.
 - b) Bongaigaon – Nangalbibra 400kV D/c line (initially operated at 220kV) – under ISTS
 - c) 2 no. 400kV line bays to be vacated after shifting of Alipurduar – Bongaigaon line to Bornagar may be used for termination of the proposed Bongaigaon – Nangalbibra 400kV D/c line **OR** 2 no. new 220kV line bays at Bongaigaon S/s – under ISTS
 - d) Hatsinghmari (Assam) – Phulbari (Meghalaya) 132kV D/c line – under ISTS
 - e) Mawngap (Meghalaya) – Nangalbibra (Meghalaya) 220kV D/c line – By MePTCL under intra-state scheme
- 5.5. Representative of MePTCL stated that the load at Ampati and Phulbari are around 12MW and 6MW respectively. He informed that sufficient land is available at Ampati S/s, however, at Phulbari S/s land needs to be acquired. MePTCL proposed that 132kV Hatsinghmari (Assam) S/s may be connected with 132kV Ampati (Meghalaya) S/s instead of 132kV Phulbari (Meghalaya) S/s, which was agreed.

- 5.6. MePTCL requested for construction of Mawngap (Meghalaya) – Nangalbibra (Meghalaya) 220kV D/c line under ISTS.
- 5.7. Chief Engineer (PSPA-II), CEA stated that Mawngap (Meghalaya) – Nangalbibra (Meghalaya) 220kV D/c line lies within the territory of Meghalaya and is, therefore, to be built under intra-state transmission system. He also stated that MePTCL had to ensure that the system is built matching with the timeline of the system proposed under ISTS.
- 5.8. Chief Engineer (PSPA-II), CEA stated that as also agreed in the joint study meeting, 220/132kV, 2x160MVA transformer is to be built under ISTS. Further, with the establishment of 220/132kV, 2x160MVA S/s at Nangalbibra (ISTS), a 132kV D/c line is to be built from 220kV Nangalbibra (ISTS) to 132kV Nangalbibra (MePTCL) as an intra-state system by MePTCL. He enquired whether space is available at the existing 132kV Nangalbibra S/s for upgradation to 400kV/220kV.
- 5.9. MePTCL informed that space is not available at existing 132kV Nangalbibra S/s and hence, as suggested by CE (PSPA-II), CEA, a 132kV D/c line needs to be built from existing 132kV Nangalbibra (MePTCL) to new 220kV Nangalbibra (ISTS).
- 5.10. It was agreed to provide 2 Nos. 132kV bays for interconnection between new 220kV Nangalbibra (ISTS) to existing 132kV Nangalbibra (MePTCL). CTU stated that the MePTCL interconnection has to be made matching the timeline of the establishment of 220kV Nangalbibra (ISTS).
- 5.11. Chief Engineer (PSPA-II), CEA stated that as per CERC, if a system is built under ISTS and the states have not implemented the agreed system for drawal, then the whole charges of that ISTS system will be loaded to the state.
- 5.12. CTU stated that 2 x 31.5 MVAR Bus reactor at proposed 220/132kV Nangalbibra (ISTS) S/s may be planned for voltage control.
- 5.13. Regarding 2 nos. of bays at Nangalbibra (ISTS) for Mawngap (Meghalaya) – Nangalbibra (Meghalaya) 220kV D/c line, it was decided that the bays would be constructed along with the line by MePTCL. However, ISTS licensee needs to provide space for the construction of 2 Nos. 220kV bays at 220/132kV Nangalbibra (ISTS).
- 5.14. After detailed deliberations the following were agreed:

A. Under ISTS

- a) Establishment of new 220/132kV, 2x160MVA substation at Nangalbibra

220kV:

- ICTs: 220/132kV, 2x160MVA
- ICT bays: 2 no.
- Line bays: 2 no. [for termination of Bongaigaon (POWERGRID) – Nangalbibra 400kV D/c line (initially operated at 220kV) – under this scheme]

- Bus reactor: 2x31.5MVA
- Bus reactor bays: 2 no.
- Space for future line bays: 6 no. [2 no. for termination of Mawngap (Meghalaya) – Nangalbibra (Meghalaya) 220kV D/c line of MePTCL and 4 no. for future lines]

132kV:

- ICT bays: 2 no.
- Line bays: 2 no. [for termination of Nangalbibra – existing Nangalbibra (MePTCL) 132kV D/c (Single Moose) line of MePTCL]
- Space for future line bays: 6 no. (for future lines)

Additional space for future expansion:

Space for future ICTs:

- 220/132kV, 1x200MVA (along with associated bays at both levels)
- 400/220kV, 3x500MVA (along with associated bays at both levels)

Space for 400kV upgradation:

- Line bays along with space for switchable line reactor: 8 no. [2 no. for 400kV operation of Bongaigaon (POWERGRID) – Nangalbibra 400kV D/c line (initially operated at 220kV) and 6 no. for other lines]
 - Bus reactor: 420kV, 3x125MVA
 - Bus reactor bays: 3 no.
- b) Extension at Bongaigaon (POWERGRID) S/s: 2 no. 220kV line bays for termination of Bongaigaon (POWERGRID) – Nangalbibra 400kV D/c line (initially operated at 220kV)
- c) Extension at Hatsinghmari (Assam) S/s: 2 no. 132kV line bays for termination of Hatsinghmari (Assam) – Ampati (Meghalaya) 132kV D/c line
- d) Extension at Ampati (Meghalaya) S/s: 2 no. 132kV line bays for termination of Hatsinghmari (Assam) – Ampati (Meghalaya) 132kV D/c line
- e) Bongaigaon (POWERGRID) – Nangalbibra 400kV D/c line (initially operated at 220kV)
- f) Hatsinghmari (Assam) – Ampati (Meghalaya) 132kV D/c line

B. By MePTCL, Meghalaya under intra-state scheme: to be implemented in matching timeframe of above ISTS scheme

- a) Mawngap (Meghalaya) – Nangalbibra (Meghalaya) 220kV D/c line alongwith 220kV line bays at both ends
- b) Nangalbibra (ISTS) – existing Nangalbibra (MePTCL) 132kV D/c (Single Moose) line (2 no. 132kV line bays at Nangalbibra (MePTCL) is to be implemented by MePTCL, however, 2 no. 132kV line bays at Nangalbibra (ISTS) is under the scope of ISTS)

- 5.15. Regarding proposal of MePTCL about South Assam-South Meghalaya-Lower Assam transmission corridor, Chief Engineer (PSPA-II), CEA stated that it can be taken up in subsequent meetings after detailed proposals are received from MePTCL.
- 5.16. Regarding reconductoring of BTPS-Agia 220kV line by AEGCL it was agreed that the same could be reviewed after commissioning of the proposed Nangalbibra 220/132kV S/s under ISTS.

6. Strengthening of southern part of NER Grid

- 6.1. In the 1st meeting of NERSCT, POSOCO had proposed bypassing 400kV Silchar S/s and forming 400 kV Palatana – Byrnihat S/C and 400 kV Palatana – Azara S/C or 400 kV upcoming ring in NER (400 kV Palatana- Surajmaninagar- P.K.Bari-Silchar-Palatana & 400 kV Silchar- Misa - New Mariani- New Kohima- Imphal-Silchar) to cater natural calamity like flooding. However, the proposal of POSOCO was not agreed. CTU proposed bypassing PK Bari-Silchar and Silchar-Imphal 400kV D/c lines (via Silchar Switchyard) under exigencies. The issue was referred for feasibility and reactive compensation to joint study.
- 6.2. A joint study meeting was held on 05.08.2019 wherein CTU stated that the Silchar (POWERGRID) - PK Bari (ISTS) 400kV D/c line (130km) and Silchar (POWERGRID) - Imphal (POWERGRID) 400kV D/c line (170km) can be bypassed through tie-breaker and after bypassing these lines PK Bari – Imphal (via Silchar) line 400 kV D/c line can be operated.
- 6.3. It was opined that the proposed bypassing arrangement is to cater to natural calamity. However, during such exigencies, even the bypassing arrangement may not work as the bypassing is proposed through switchyard.
- 6.4. Representative of POSOCO stated that the daytime power flow is around 15-20MW in each circuit of Silchar-Imphal 400kV D/c line and high voltage is generally, experienced in and around Imphal area.
- 6.5. CTU stated that even without bypassing arrangement, additional reactive compensation may still be required at Imphal end, as Silchar-Imphal line is a long line and there is only one 80MVA_r bus reactor at Imphal and there are no line reactors at Imphal end. Without line reactors rise of about 21-22kV is observed during line charging. As over voltage is observed at most of the substations at 400kV level in NER, it was proposed to install line reactors at Imphal end in Silchar-Imphal line. With 63MVA_r line reactor, the rise reduces from about 22kV to about 6kV and with 80MVA_r the same reduces to about 2kV.
- 6.6. Chief Engineer (PSPA-II), CEA stated that with the installation of 63MVA_r line reactor, there would be a voltage rise of 6kV, with which the line could get charged.

- 6.7. CTU stated that Silchar(Assam)-PK Bari (Tripura) 400kV D/c line (130km) and Silchar(Assam) - Imphal (Manipur) 400kV D/c line (170km) can be bypassed through tie-breaker and by bypassing these lines, PK Bari – Imphal (via Silchar) line 400 kV D/c line can be operated in case of exigencies. However, the length of PK Bari – Imphal line (formed after bypassing PK Bari – Silchar and Silchar – Imphal) becomes about 300km and situation of over voltage further aggravates. On charging of one circuit of PK Bari – Imphal, it was observed from studies that voltage rise at PK Bari end is about 15-16kV and line rise is about 22-23kV i.e. total rise would be about 39kV. With the above proposed 63MVAR line reactor at Imphal end, the total voltage rise would be about 19kV and that with 80MVAR would be about 15kV.
- 6.8. Chief Engineer (PSPA-II), CEA stated that the scheme of evacuation of power from P.K.Bari to Imphal by bypassing Silchar will only work when Imphal-N.Kohima 400kV D/c link (which is under construction) gets commissioned.
- 6.9. Member Secretary, NERPC stated that they have never faced any exigencies in the case of Silchar switchyard. As such, the bypassing arrangement is not required as of now and the scheme can be reviewed later.
- 6.10. After detailed deliberation the following were agreed:
- a) Installation of 63MVAR switchable line reactor in Silchar(POWERGRID) - Imphal (POWERGRID) 400kV D/c line at Imphal end – under ISTS. Tentative Cost of the work would be about Rs. 15 crore.
 - b) Bypassing of Silchar (POWERGRID)-PK Bari (ISTS) 400kV D/c line and Silchar (POWERGRID) - Imphal (POWERGRID) 400kV D/c line would be reviewed in future, if need arises.

7. Reconductoring of Dimapur-Imphal and Leimatak (Loktak)-Jiribam 132kV lines

- 7.1. Director (PSPA-II), CEA stated that in the 1st meeting of NERSCT, Manipur had proposed reconductoring of Dimapur (POWERGRID)-Imphal(POWERGRID) and Leimatak (Loktak, NEEPCO)-Jiribam (POWERGRID) 132kV ISTS transmission lines. Further, it was opined that with implementation of under construction Mariani (POWERGRID) – Kohima (ISTS) – Imphal (POWERGRID) 400kV D/c line, reconductoring of Dimapur-Imphal and Leimatak (Loktak)-Jiribam 132kV lines may not be required. However, MSPCL emphasized that in case of outage of both ckts of 400kV Silchar – Imphal line, problem may arise in meeting the load in Imphal area. Accordingly, the issue of reconductoring of Dimapur-Imphal and Leimatak (Loktak)-Jiribam 132kV lines was referred for review in joint study.
- 7.2. A joint study meeting was held on 05.08.2019. In the meeting, CTU stated that Silchar – Imphal line is now being operated at 400kV level and New Kohima – Imphal 400kV D/c line is scheduled to be commissioned in July'20. After

commissioning of this 400kV line, power flow on Dimapur-Imphal and Leimatak (Loktak)-Jiribam 132kV lines are observed to be well within limits. Manipur emphasized that the Dimapur – Imphal and Loktak – Jiribam 132kV lines were commissioned in 1979 and 1980 respectively and being very old are prone of outage. He also stated that load in that area is increasing and it would be difficult to cater the load through these old lines. New Kohima-Imphal 400kV D/c line may not be commissioned before 3 years, due to severe RoW problems. In the meeting reconductoring of Dimapur-Imphal and Leimatak (Loktak)-Jiribam 132kV lines along with strengthening of towers and other line accessories was recommended.

- 7.3. Representative of POSOCO stated that reconductoring of Dimapur-Imphal 132kV S/c line should be attempted after commissioning of Imphal-New Kohima-Mariani (PG) 400kV D/c lines, otherwise there would be reliability issue in feeding power to Imphal.
- 7.4. On enquiry about the present status of Dimapur-Imphal 132kV line, CTU stated that the Dimapur-Imphal 132kV S/c line is not in operation since November 2018 due to line diversion works being carried out, which has been necessitated due to highway construction.
- 7.5. Chief Engineer (PSPA-II), CEA stated that there should not be any issue in reconductoring of the Dimapur-Imphal 132kV line as the line is out since long. Further, Imphal-New Kohima 400kV D/c line is scheduled for commissioning by July 2020. As such, there may not be any issue in outage for reconductoring.
- 7.6. Regarding Loktak-Jiribam 132kV S/c line, POSOCO stated that as the power flow in this line is very low, there is no requirement of reconductoring.
- 7.7. AEGCL stated that reconductoring of Loktak-Jiribam 132kV S/c line would enhance the power flow & reliability at Halflong and Pailapool 132kV substations (in Assam).
- 7.8. Representative of CTU stated Dimapur-Imphal 132kV S/c line is a very long line (170kms). The line can be made LILO at some mid-point to reduce length during shutdown to be availed while reconductoring.
- 7.9. Chief Engineer (PSPA-II), CEA stated that as the power flow is less in case of Jiribam-Loktak 132kV S/c line, the shutdown to be availed for reconductoring will not led to any difficulties in operation of the NER grid.
- 7.10. After deliberation reconductoring of Dimapur-Imphal and Loktak-Jiribam 132kV S/c lines with HTLS (*ampacity of single HTLS shall be 798A, which is equivalent to Single ACSR Moose conductor for 45°C ambient and 85°C maximum conductor temperature*) along with upgradation of terminal equipment and strengthening of tower, wherever required were agreed to be carried out under ISTS.

8. Alternative transmission line for evacuation of power from Tuirial HEP (60MW) of NEEPCO

- 8.1. Tuirial HEP with installed capacity of 60MW has been commissioned and 100% power is allocated to Mizoram. Tuirial-Kolasib 132kV S/C line (implemented by P&E Dept., Govt. of Mizoram) and Tuirial-Sihhmui 132kV D/c line (to be implemented by NEEPCO/ P&E Dept., Govt of Mizoram) were planned for evacuation of power from Tuirial HEP (60MW). Since, the Tuirial-Sihhmui 132kV D/c line could not be implemented, entire power from Tuirial HEP is being evacuated through Tuirial-Kolasib 132kV S/C line.
- 8.2. For reliable evacuation of entire power of Tuirial HEP, NEEPCO had informed that in the meeting held on 17-02-2017 between NEEPCO & Secretary, Power & Electricity Department, Govt. of Mizoram, it was decided to explore the possibility of LILO of Jiribam – Aizawl (Luangmual) 132kV S/C line at Tuirial HEP and the line would be constructed by Mizoram.
- 8.3. In the 1st meeting of NERSCT, it was suggested that NEEPCO may discuss with Mizoram and inform the progress to CEA.
- 8.4. P&E Dept., Govt. of Mizoram stated that the proposal of LILO could not be taken up due to hilly terrain. However, Govt. of Mizoram has given approval for constructing second (additional) 132kV S/c line from Tuirial (HEP) to Kolasib. NEEPCO has also agreed for this proposal. Survey work of the line has been completed.
- 8.5. CTU enquired about the plan of charging of 132kV Sihhmui S/s as Sihhmui - Melriat 132kV D/c (ISTS) line has already been commissioned.
- 8.6. P&E Dept., Govt. of Mizoram stated that they are planning to install 1 No. 12.5 MVA ICT at 132/33kV Sihhmui S/s within two months for utilizing the Sihhmui - Melriat 132kV D/c (ISTS) line.
- 8.7. After deliberation construction of second Tuirial (HEP)-Kolashib 132kV S/C line by P&E Dept., Govt. of Mizoram under intra-state transmission system was agreed.

9. Transmission System for Dikshi HEP (24MW) in West Kameng, Arunachal Pradesh

- 9.1. Director (PSPA-II), CEA stated that in the 1st NERSCT, following transmission system for evacuation of power from Dikshi HEP (24MW) in West Kameng, Arunachal Pradesh was agreed:

Transmission element

- a) 132kV S/C Dikshi switchyard to Tenga switching station - 10.5 Kms
- b) 132kV D/C Tenga switching station to Nechipu LILO connection (on Balipara-Khupi 132kV line) - 21.5 km

Substations

- c) 132 kV Tenga switching station with 4 no. of bays

- 9.2. Further, it was also decided that to control the voltages at Tenga switching station, 145kV, 1x5MVAR bus reactor would be required and DoP, Arunachal Pradesh would confirm utilisation of 4th bay at Tenga switching station.
- 9.3. DoP, Arunachal Pradesh stated that Tenga switching station and transmission lines have been implemented by Dikshi Project Authority and are in operation. However, 1x5MVAR bus reactor could not be installed as it was not part of the scope, which the Arunachal Pradesh Electricity Regulatory Commission has given to the Project Authority. He further informed that as of now, they were not facing any issue of overvoltage.
- 9.4. Regarding utilisation of 4th bay at Tenga switchin station, DoP, Arunachal Pradesh stated that they have planned to install a 132/33kV, 10MVA Transformer for drawal of power by March 2020.
- 9.5. After deliberations, it was agreed that bus reactor at Tenga switching station is not required. Further, it was noted that 1 No. 10MVA 132/33kV transformer is to be installed at Tenga S/s by March, 2020 under intra-state transmission system by Arunachal Pradesh.

10. Re-conductoring of the 132 kV line from Khliehriat to Panchgram by HTLS conductor

- 10.1. Representative of MePTCL stated that the 132 kV Khliehriat (Meghalaya) - Panchgram (Assam) S/c line is an ISTS line (approx. 90 km) owned by respective state utilities on each side, and the line was commissioned in 1983 (more than 35 years in operation). Presently, the loading of the line (ACSR Panther conductor) is restricted to 50MW only. MePTCL proposed for up-gradation of 132 kV Khliehriat-Panchgram line with HTLS conductor by MePTCL.
- 10.2. Representative of AEGCL stated that about 20km portion of the 132 kV Khliehriat-Panchgram line lies in Assam and AEGCL don't have any issue in reconductoring of this line by MePTCL. Further, AEGCL requested MePTCL to maintain the Assam portion of line as well alongwith the maintenance of the line which lies in Meghalaya.
- 10.3. Members agreed to the proposal of reconductoring of 132kV Khliehriat-Panchgram line with HTLS conductor alongwith uprating of requisite bay equipments by MePTCL. However, the maintenance issue is to be resolved between Assam and Meghalaya bilaterally. Meghalaya and Assam will inform CEA about expected date of completion of reconductoring on this line.

11. Re-conductoring and strengthening of the 132 kV D/C line from Umiam Stage-I to Umiam Stage-III by HTLS conductor

- 11.1. Representative of MePTCL has stated that the 132 kV D/c line from Umiam Stage-I to Umiam Stage-III power station was commissioned in the year 1979 and crossed its useful life. Presently, the loading of the line (ACSR Panther conductor) is restricted to 60MW only. The number of fault like de-capping, snapping of conductors is rising every year and at times hydel power stations have to back down their generation due to restriction of the transmission lines loading, thereby affecting the power supply to the state capital.
- 11.2. MePTCL proposed re-conductoring of Umiam Stage-I - Umiam Stage-III 132 kV D/c line with HTLS conductor to enhance the transmission capacity for relieving congestion for evacuation of power generated by these hydel power stations during the high monsoon and avoid frequent failure of the line and to ensure quality power supply.
- 11.3. Members agreed to the proposal of reconductoring of Umiam Stage-I - Umiam Stage-III 132 kV D/c line with HTLS conductor alongwith uprating of requisite bay equipments by MePTCL.

12. Modifications in enhancement of Intra-state Transmission system of Assam- Agenda by AEGCL

- 12.1. Representative of AEGCL stated that their proposal for "Enhancement of Intra State Transmission System" in Assam State to be implemented as intra-state scheme by AEGCL was agreed in 1st meeting of NERSCT held on 29.11.2018. Out of 24 (twenty four) nos. of approved substations and its associated transmission lines, AEGCL, after discussion with the primary funding authority (Asian Infrastructure Investment Bank, Beijing), has decided to carry out the execution in two phases. The 1st phase consists of 15 nos. of new substations along with the associated transmission lines and the remaining 9 nos. of substations shall be considered in the 2nd phase.
- 12.2. He added that AEGCL has finalized land and started preliminary works like Route Survey, Soil investigation and Preparation of Master plan for the 15 nos. of substations in 1st phase. While carrying out the Preliminary Route Survey, the surveyor as well as AEGCL field offices have suggested some modifications to avoid severe Right of Way (RoW) as per site location. Considering the issues, proposed modifications in "Enhancement of Intra-state Transmission system of Assam" were sent to CEA. Chief Engineer (PSPA-II), CEA stated that the modifications were discussed with AEGCL and CTU on 04.11.2019 and few changes were proposed in the proposal.
- 12.3. Member (PS), CEA stated that STUs should plan their system comprehensively. Repeated modifications in scheme is not advisable.
- 12.4. Members agreed for the modifications in the "Enhancement of Intra-state Transmission system of Assam" as enclosed at **Annex-III**.

13. New Proposals of Assam considering load forecast for the year 2030-Agenda by AEGCL.

- 13.1. Representative of AEGCL stated that to ensure universal access to affordable, reliable and modern energy services under “SUSTAINABLE DEVELOPMENT GOAL -7” the Govt. of Assam envisages a proposal for electrification of 87 lakhs households by the year 2030. The inference from the indicated graph is that by the year 2027, this household number is at least 81 lakh. Now, assuming an average load connectivity of 1kW per household (after duly considering the diversity factor at a maximum of 2.00), the domestic load will be a minimum of 4050 MW by the year 2027. About 1012 MW (one fourth of this domestic load) may be considered as commercial and small scale industrial load. There will be at least 500MW of additional load for the development of industrial belt proposed by the Govt. of Assam, during this period. This adds up to $4050 + 1012 + 500 = 5562$ MW. Thus, the state demand will approach at least 5500 MW by the year 2027. At a conservative growth of demand @ 5.5% per annum the demand is likely to touch 6450 by the year 2030.
- 13.2. To cater to this load growth up to 2030, AEGCL has prepared a DPR for establishment of 28 new sub-stations and associated lines for expansion of its network for meeting the demand of more than 6000MW by the year 2030. The list of proposed 28 nos. of new substations (establish 4 nos. of 400 kV Sub-stations, 8 nos. of 220 kV Sub-stations and 16 nos. of 132 kV Sub-stations) and associated transmission lines along three new transmission lines was enclosed as Annexure–III of the agenda. Total cost of the Scheme would be approx. Rs.6000 crores.
- 13.3. Member (PS), CEA stated that the scheme for 2030 should be carried out in a phase wise manner.
- 13.4. AEGCL proposed that 2 nos. 400 kV sub-stations i.e. Gogamukh and Khumtai would be required in first phase.
- 13.5. Chief Engineer (PSPA-II), CEA suggested that bays should be constructed by implementing agency of the transmission line to match the time line. He enquired about the location of the newly proposed 400/220 kV GIS at Khumtai.
- 13.6. AEGCL stated the new 400 / 220 kV GIS at Khumtai will be upgradation of the existing 220 / 132 kV Khumtai
- 13.7. Regarding Gogamukh S/s, POWERGRID stated that they are constructing 2 Nos. 400 kV D/c lines from BNC (PGCIL)-L.Subansiri HEP. As there is a delay in commission of L. Subansiri power generation project, a part of these lines along with few towers is yet to be completed and the project has been short closed. Now, as per AEGCL’s proposal of setting up of 400/220/132kV AIS at Gogamukh, it is suggested to LILO one D/c line of BNC (PGCIL)-L.Subansiri 400kV 2xD/c line at Gogamukh, under ISTS. CTU suggested that BNC (PGCIL)-Gogamukh-L.Subansiri may also be implemented under ISTS when L.Subansiri Generation

project is commissioned. POWERGRID also confirmed the availability of 2 nos. 400kV line bays at BNC (POWERGRID).

13.8. CTU further stated that BNC (POWERGRID)-Gogamukh 400kV D/c line will be completed irrespective of L.Subansiri generation project getting commissioned or not. In case, 400/220/132kV AIS at Gogamukh doesn't get commissioned (under intra-state), Assam has to bear the transmission charges. 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.

13.9. After deliberations, following two no. of 400kV substations along with associated transmission lines were agreed for implementation by AEGCL under intra-state transmission scheme by 2022:

(i) Upgradation of existing 220/132kV substation to 400/220kV GIS substation at Khumtai

- a. 400/220kV, 2x500 MVA ICT
- b. 220/132kV, 2x160 MVA ICT (already under implementation)
- c. 420kV, 2x80 MVAR Bus Reactor
- d. Biswanath Chariali (POWERGRID) – Khumtai 400kV D/C (Twin Moose) line
- e. 2 nos. of 400kV GIS line bays at Biswanath Chariali (POWERGRID) for termination of Biswanath Chariali (POWERGRID) – Khumtai 400kV D/C (Twin Moose) line

(ii) Establishment of new 400/220/132 kV AIS at Gogamukh

- a. 400/220kV, 2x500 MVA ICT
- b. 220/132kV, 2x160 MVA ICT
- c. 420kV, 2x80 MVAR Bus Reactor
- d. 2x63 MVAR Line reactors at Gogamukh end in Biswanath Chariali – Gogamukh 400kV D/c line
- e. Biswanath Chariali (POWERGRID) – Gogamukh 400kV D/c (Twin Moose) line
- f. 2 nos. of 400kV GIS line bays at Biswanath Chariali (POWERGRID) for termination of Biswanath Chariali (POWERGRID) – Gogamukh 400kV D/c (Twin Moose) line
- g. Bihpuria – Gogamukh 220kV D/c line (Sonabil – Bihpuria 220kV D/c line along with 220kV S/s at Bihpuria is already under implementation by AEGCL)
- h. North Lakhimpur – Dhemaji 132kV S/c line along with its LILO at Gogamukh

Note: Space provision may be made for installation of ICTs & Reactors and also for termination of additional 400kV, 220kV & 132kV lines in future.

13.10. Further, it was decided that establishment of other 400kV, 220kV and 132kV substations and their associated transmission lines will be reviewed.

14. Operational Constraints in North Eastern Region - Agenda by POSOCO

14.1. Representative of POSOCO stated that loading of 80-100 MW is observed at 220/132kV, 2x50MVA ICTs at Salakati, as power is flowing from Bhutan to India via Salakati. As such, the ICTs are not satisfying N-1 contingency criterion.

14.2. After deliberations installation of 3rd ICT of 220/132kV 1x100MVA at Salakati was agreed to be installed under ISTS.

15. Establishment of 7x167 MVA, 400/220 kV GIS substation at New Kohima in place of conventional substation under NERSS-VI

15.1. Director (PSPA-II), CEA stated that the 400/220 kV substation at New Kohima is being implemented by M/s Kohima Mariani Transmission Limited (KMTL) under NERSS-VI. Due to hilly terrain and constraint in availability of land for 400/220 kV New Kohima S/s, the issue of changing of conventional S/s to GIS S/s was discussed in the meeting chaired by Member (Power System), CEA on 28.05.2018 and following were agreed:

- (i) KMTL shall establish a 7x167 MVA, 400/220 kV GIS substation at New Kohima in place of conventional substation with no implication on cost, tariff and time schedule of transmission project.
- (ii) The switching scheme for GIS substation would be same as indicated for AIS in TSA/RFP document.
- (iii) The modifications in the transmission scheme (NERSS-VI) would be ratified in next standing committee of power system for NER.

15.2. On enquiry, representative of KMTL stated that the 400kV bus will be in GIS, however the switching scheme i.e. one and a half breaker scheme will remain the same. The SLD of the substation, submitted by KMTL is enclosed at **Annex-IV**

15.3. After detailed deliberation, members concurred the decisions taken in the meeting chaired by Member (Power System), CEA on 28.05.2018 as given below:

- (i) KMTL shall establish a 7x167 MVA, 400/220 kV GIS substation at New Kohima in place of conventional substation.
- (ii) The switching scheme for GIS substation would be same as indicated for AIS in TSA/RFP document.
- (iii) There would be no implication on cost, tariff and time schedule of transmission project.

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

16.1. 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. Capacity	Voltage level (kV)	Total no. of Bays	Lines emanating from S/s	No. of circuit	downstream responsibility	Remarks
1	Surajmaninagar	400/132kV, 2 x315MVA	132	2 - (RfP Schedule Jul 2020)	Surajmaninagar (TSECL) – Surajmaninagar (TBCB)	2	Tripura	NERSS-V
2	P. K. Bari	400/132kV, 2 x315MVA	132	2 - (RfP Schedule Jul 2020)	P. K. Bari (TSECL) – P. K. Bari (TBCB)	2	Tripura	NERSS-V
3	New Mariani	400/220kV, 2 x500MVA	220	Jul 2020	New Mariani – Mariani	2	Assam	NERSS-VI
4	New Kohima	400/220kV, 2 x500MVA	220	2 - (RfP Schedule Jul 2020)	New Kohima (TBCB) – New Kohima (Nagaland)	2	Nagaland	NERSS-VI

He requested concerned STUs to update.

16.2. Representative of TSECL stated that they have not yet planned any downstream system from Surajmaninagar (ISTS).

16.3. Regarding, downstream system from P.K. Bari (ISTS), representative of TSECL stated that they had shortage of funds and had requested MoP in this regard. He proposed for construction of P. K. Bari (TSECL) – P. K. Bari (TBCB) 132kV D/C line under ISTS. The matter was discussed and members were of the view that this line is required for drawal of power by Tripura from ISTS substation created at P.K. Bari. As such, this line should be constructed by TSECL as agreed in earlier meetings of the NER Standing Committee on Transmission without any further delay. Accordingly, TSECL proposal for implementation of 132 kV D/c line between P.K.Bari (ISTS) to P.K.Bari (TSECL) under ISTS could not be agreed.

16.4. Representative of AEGCL stated that New Mariani – Mariani 220kV line would be completed by May 2020.

16.5. Representative of Nagaland were not present in the meeting. However, DoP Nagaland, vide letter No. CEL/TB/NERSS/692 dated 11th October 2019 (Copy enclosed at **Annex-V**) informed CEA that it is not possible for DoP Nagaland to develop the downstream transmission system element on its own with no funding arrangement from the state resources.

16.6. States were advised to complete their downstream 132kV or 220kV lines in matching time-frame of ISTS substations, so as to avoid financial implications due to mismatch, if any.

16.7. Representative of Sterlite stated that AEGCL has not indicated line bays (under the scope of AEGCL) for termination of LILO of one circuit of Biswanath Chariali –

Itanagar 132kV D/c (ISTS) line at Gohpur (AEGCL). AEGCL informed that the planned upgradation of Gohpur S/s to GIS is yet to be taken up and bays could be indicated only after finalisation of the scheme.

16.8. It was informed that as per CERC regulations/orders, transmission licensee responsible for executing the upstream/ downstream transmission system shall be liable to pay the entire transmission charges of the inter-state transmission system till such upstream/ downstream transmission system commissioned.

17. Re-routing of 132 kV D/C Transmission Line from R.C Nagar (AGTCCPP, NEEPCO) to P.K Bari (TSECL) under TBCB through existing TSECL Bodhjungnagar 132 kV Sub-station

17.1. Director (PSPA-II), CEA stated that in the 1st meeting of NERSCT, TSECL proposed rerouting of AGTPP (R.C Nagar NEEPCO) - P.K Bari (TSECL) 132kV D/c line (being implemented under TBCB) via Bodhjungnagar S/s (TSECL) with associated bays to prevent intra-state grid congestion. In the meeting, it was suggested that AGTPP (NEEPCO) - P.K Bari (TSECL) 132kV D/c line is already under implementation under TBCB and change in scope scheme would involve commercial, regulatory and contractual issues. Therefore, it may not be advisable to reroute the line under the scope of the TSP implementing this project under TBCB.

17.2. Chief Engineer (PSPA-II), CEA stated that the purpose of ISTS is to evacuate the power from ISGS to the nearest substation. From there on, the state can develop their own intra-state system for drawl of power. He added that following connectivity already exists in Tripura for feeding Bodhjungnagar:

- (i) Bodhjungnagar is connected to Agartala (through 132kV S/c line)
- (ii) Agartala is connected to R.C.Nagar (through 132kV D/c line)
- (iii) Agartala is directly connected to Surajmaninagar (TSECL) (through 132kV D/c line)

Accordingly, there is already a link between Bodhjungnagar to R.C.Nagar via Agartala.

17.3. After deliberations, it was decided that TSECL can plan intra-state strengthening scheme, if required, and submit system study report to CEA.

18. Modifications in NERSS-V scheme and Surajmaninagar- Comilla (North) 400 kV link

18.1. Director (PSPA-II), CEA stated that following system was inter-alia included in the North Eastern Region Strengthening Scheme-V as agreed in the 5th meeting of SCPSPNER held on 08-08-2015 to meet the growing demand of the State of

Tripura and to provide alternate evacuation path to Palatana (726MW) generation project:

Under the scope of ISTS

- (i) Establishment of 2x315 MVA 400/132 kV S/s at Surajmaninagar
- (ii) Establishment of 2x315 MVA 400/132 kV S/s at P. K. Bari
- (iii) Surajmaninagar - P. K. Bari 400 kV D/c line
- (iv) Termination of Palatana – Surajmaninagar 400kV D/C line (presently operated at 132kV) at 400kV bus of Surajmaninagar ISTS substation
- (v) 2 no. 400 kV line bays at Palatana GBPP switchyard for termination of Palatana – Surajmaninagar 400kV D/c line

Under the scope of TSECL

- (vi) Surajmani Nagar (ISTS) – Surajmani Nagar (TSECL) 132kV D/c line with high capacity/ HTLS (equivalent of single moose) (by TSECL)
- (vii) P.K. Bari (ISTS) – P.K. Bari (TSECL) 132kV D/c line with high capacity/ HTLS (equivalent of single moose) (by TSECL)

18.2.CERC had given license to M/s NER-II Transmission Limited for transmission works (under TBCB) which inter-alia covers works mentioned at (i), (ii), (iii) and (v) above and is under implementation with completion schedule of July 2020. Item (iv) is being implemented by POWERGRID under RTM.

18.3.In the 1st meeting of NERSCT held on 29.11.2018 proposal of Tripura to establish a 400/132kV substation at Surajmaninagar as intra-state transmission scheme was discussed. Accordingly, to interconnect this future substation to NER grid, various options were explored. After deliberations, following were agreed:

QUOTE

(ii) Modification in part scope of the scheme – “POWERGRID works associated with NERSS-V” (Subject to views of TSECL – as per para 13.8 above)

Earlier scope:

- *Additional 400kV D/c line at Surajmani Nagar end for termination of Palatana – Surajmani Nagar 400kV D/c line (op. at 132kV) line at 400kV Surajmani Nagar (ISTS) S/s*

Revised scope:

- *LILO of Palatana – Surajmani Nagar (TSECL) 400kV D/c line (op. at 132kV) at Surajmani Nagar (ISTS) S/s and operation of Palatana – Surajmani Nagar (ISTS) section at rated voltage level of 400kV & operation of Surajmani Nagar (TSECL) – Surajmani Nagar (ISTS) section at 132kV (with provision to operate the line at 400kV level in future, as and when required).*

(iii) Upgradation of 132kV Surajmani Nagar (TSECL) S/s to 400kV level, can be examined when TSECL submits relevant study alongwith system data and load growth/generation addition planned in Tripura.”

UNQUOTE

18.4.TSECL has not confirmed the above proposal and as such, no decision could be taken for implementation of the same.

18.5.TSECL, however, submitted a “System study report considering Present and Future Load Growth Projection for the State of Tripura” for up-gradation of TSECL’s 132 kV Surajamaninagar S/s to 400kV level to MoP. This report was forwarded to CEA for examination and accordingly, CEA vide letter dated 06.08.2019 communicated its observations to MoP on Tripura’s proposal (**copy enclosed at Annex-VI**). To meet the increased load demand in Tripura, as projected by TSECL, following 400kV transmission system strengthening works were proposed:

(i) By Tripura State Electricity Corporation Limited (TSECL)

- a. Upgradation of existing 132kV substation at Surajamaninagar of TSECL to 400/132 kV, 7x105MVA (1-phase) (Tripura/TSECL should also plan suitable 132kV outgoing transmission lines at this upgraded sub-station and also at the under construction Surajamaninagar ISTS)

(ii) Under ISTS

- a. Surajamaninagar (TSECL) – Surajamaninagar (ISTS) 400kV D/C line
- b. 2 nos. of 400 kV bays at Surajamaninagar (TSECL)
- c. 2 nos. of 400 kV bays at Surajamaninagar (ISTS)

18.6.Representative of TSECL informed that they had received sanction from MoDONER vide letter dated 01.10.2019 for upgradation of existing 132kV substation at Surajamaninagar (TSECL) to 400/132kV. Fund will be arranged under NESIDS (North East Special Infrastructure Development Scheme). He added that tender is under preparation and is likely to be awarded by December 2019 with implementation in one year from date of award.

18.7.Chief Engineer (PSPA-II), CEA stated that there will be a time gap in between the commissioning schedule of 400/132kV ISTS S/s at Surajmaninagar (ISTS) and 400/132kV S/s at Surajmaninagar (TSECL), as Surajmaninagar (ISTS) is scheduled to commission by July 2020. This time gap needs to be addressed. He proposed that modification in part scope of the scheme – “POWERGRID works associated with NERSS-V” as discussed in 1st meeting of NERSCT (mentioned at para 18.1 (iv) above) may be agreed by TSECL.

18.8.Representative of TSECL stated that the proposal of LILO of Palatana – Surajmaninagar (TSECL) at Surajmaninagar (ISTS) is not acceptable to Tripura. He added that Palatana should to be terminated at 400/132 kV S/s at

SurajmaninNagar (TSECL) and then go to 400/132kV ISTS S/s at Surajmaninagar (ISTS) as communicated in letter of CEA to MoP dated 06.08.2019.

- 18.9. Representative of POSOCO stated that presently the south NER system which includes Palatana generation and entire Tripura system is running in extremely critical condition after collapse of Kopili. He requested for early decision, so that proposed connectivity is to be established by July, 2020.
- 18.10. Chief Engineer (PSPA-II), CEA informed that that the original approved scheme was of termination of Palatana – Surajmaninagar(TSECL) 400kV D/c line at Surajmaninagar (ISTS) S/s for 400kV operation of the link (to be implemented by POWERGRID) and Surajmani Nagar (ISTS) – Surajmaninagar (TSECL) 132kV D/c line to be implemented by TSECL. TSECL stated that they are exploring the option of connection to Surajmaninagar (ISTS) S/s via 132 kV D/c line, but will depend on the availability of funds.
- 18.11. TSECL insisted that connectivity of Surajmaninagar (TSECL) 400kV s/s should be exactly as depicted in CEA letter 06.08.2019, which was forwarded to them by MoP/MoDONER.
- 18.12. Members opined that any modification in the scheme which is already under implementation through TBCB and as per transmission license issued by CERC and nearing completion, would have financial and legal implications. Accordingly, there should not be any deviation in the scope of works of the already agreed and under construction system.
- 18.13. After exploring various options, it was proposed that the original approved scheme of shifting of Palatana – Surajmaninagar(TSECL) D/c line at Surajmaninagar (ISTS) S/s for 400kV operation of the link at rated voltage may be implemented in matching timeline of NERSS-V i.e. July 2020 (**schematic diagram enclosed at Exhibit-I (a)**). Upon 400kV upgradation of Surajmaninagar (TSECL) S/s, the Palatana – Surajmaninagar (ISTS) 400kV D/c link may be LILoed at Surajmaninagar (TSECL) S/s alongwith 4 nos. 400kV line bays at Surajmaninagar (TSECL) S/s under a separate ISTS scheme. (**schematic diagram enclosed at Exhibit-II**). It will also be in consonance with the connectivity as depicted in CEA letter 06.08.2019 which TSECL is referring to and mentioned in MoP/DoNER approvals.
- 18.14. After detailed deliberations the following were agreed:
- a) Shifting of Palatana – Surajmaninagar (TSECL) 400kV D/c line (operated at 132kV) to the 400/132kV ISTS S/s at Surajmaninagar – implementation by POWERGRID (by July 2020) as already allocated to them by MoP, Gol (Copy of Gol letter is enclosed at **Annex-VII**) – depicted at **Exhibit-I (a)**
 - b) LILo of Palatana-Surajmaninagar (ISTS) 400kV D/c line at 400/132kV Surajmaninagar (TSECL) s/s along with associated 4 no. 400kV line bays in

matching timeframe of upgradation of 400/132kV Surajmaninagar (TSECL) substation would be implemented under ISTS – depicted at **Exhibit-I (b)**

For 18.14 (b) above TSECL stated that they would send their opinion by 30th November, 2019.

Regarding shifting of Surajmaninagar (India) – Comilla (Bangladesh) 400kV cross border link to ISTS substation at Surajmaninagar:

- 18.15. In the 2nd meeting of Empowered Committee on Transmission held on 06.08.2018 following Indian Portion for 500MW HVDC back -to -back station at North Comilla (Bangladesh) for transfer of power through Surajmaninagar (India)- North Comilla (Bangladesh) was agreed for implementation under RTM
- (a) Operation of Surajmaninagar (TSECL) - North Comilla 400kV D/c line (presently operated at 132kV) at 400kV through termination at 400kV bus of Surajmaninagar ISTS S/s - implementation by POWERGRID
- (b) 2 nos. 400kV line bays at Surajmaninagar ISTS S/s for termination of Surajmaninagar (TSECL) - North Comilla 400kV D/C line – implementation by the owner of the Surajmaninagar ISTS substation i.e. NER II Transmission Ltd. an ISTS Transmission Licensee.
- 18.16. In the 17th Indo-Bangladesh JSC/JWG meeting held on 26th August, 2019 in Dhaka, Bangladesh, it was decided that operation of Surajmaninagar-Comilla 400 kV D/c line (presently operated at 132 kV level) at 400kV and the 500 MW HVDC terminal at Comilla would not be required considering technical and financial grounds. Hence, further works related to this project on the both sides may be dropped.
- 18.17. Representative of TSECL stated that they have ongoing contract for sale of power to Bangladesh upto March 2021, therefore, Comilla (Bangladesh) line should be connected at Surajmaninagar (TSECL).
- 18.18. It was opined that termination of Surajmaninagar (TSECL) - North Comilla 400kV D/C line at Surajmaninagar ISTS substation would not have any adverse impact on ongoing contract for sale of power by Tripura to Bangladesh.
- 18.19. It was informed that the Surajmaninagar (India) – Comilla (Bangladesh) 400kV (being operated at 132kV) cross border link (upto Indian Border) was implemented by POWERGRID but presently connected to Tripura state grid.
- 18.20. The views of member constituents were sought regarding shifting of the cross border Comilla (Bangladesh)-Surajmaninagar (TSECL) 400kV D/c line (operated at 132kV) Cross Border link to ISTS station at 400/132kV Surajmaninagar. Representatives from Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, CTU and NERLDC stated that the cross border link to Bangladesh should be

shifted to ISTS substation as this shall provide opportunity to all constituents to sell power to Bangladesh with equal terms.

18.21. After deliberations, it was agreed by all present except TSECL that Comilla (Bangladesh)-Surajmaninagar (TSECL) 400kV D/c line (operated at 132kV) Cross Border link would be shifted to 400/132kV S/s at Surajmaninagar (ISTS) along with 2 no. 132kV line bays at Surajmaninagar (ISTS), as ISTS scheme. This work would be scheduled for completion in April 2021 i.e. after expiry of existing contract of Tripura for sale of power to Bangladesh – depicted at **Exhibit-I (c)**

19. Implementation of 132kV line bay at Palatana generation switchyard

19.1. Palatana – Surajmaninagar 400kV D/c line (presently operating at 132 kV) has been commissioned as part of Palatana-Bongaigaon transmission system. At present, 2 nos. 132kV line bays are available at Palatana end. Palatana – Udaipur 132kV S/c line of Tripura has been terminated in one bay and one ckt. of Palatana – Surajmaninagar D/c line is terminated in the other bay. Other ckt. of Palatana – Surajmaninagar D/c line is yet to be connected at Palatana end.

19.2. In the 1st meeting of NERSCT, it was agreed to retain the connection of Palatana – Udaipur line in Surajmaninagar line bays at Palatana end for additional six months (upto May 2019). It was emphasized that Tripura may expeditiously complete the Monarchak – Surajmaninagar line to avoid further time extension.

19.3. Representative of TSECL stated that the issue was also discussed in the 20th meeting of TCC & RPC of NERPC, wherein it was elaborately requested to retain the connection of Palatana – Udaipur line in Surajmaninagar line bays at Palatana end for additional six months. NERPC has approved the retention till May 2020, subject to the approval of Standing Committee. Udaipur 132kV S/s is taking care of two districts of the state i.e. Gomti and South district. It is connected to Palatana and Rokhia each with a 132kV S/c line. If Palatana gets disconnected, then the two districts will be very much unstable. TSECL wants to retain the connection of Palatana-Udaipur 132kV line.

19.4. Chief Engineer (PSPA-II), CEA stated that with the commissioning of 400/132kV ISTS S/s at Surajmaninagar by July 2020, Palatana-Surajmaninagar (TSECL) 400kV D/c line (operated at 132kV) will be charged to 400kV and hence one more 132kV bay will become vacant, which TSECL may plan to utilize.

19.5. TSECL stated that the second bay will be utilized for establishing second circuit of Palatana-Udaipur 132kV line. So Udaipur will be connected to Palatana by 132kV D/c line.

19.6. After detailed deliberation the following were agreed:

- a) TSECL may retain the connection of Palatana – Udaipur 132kV line at Palatana
- b) TSECL may utilize the 2nd 132kV bay for a new Palatana - Udaipur 132kV S/c (2nd) line which will be vacated after operation of Palatana – Surajmaninagar line at 400kV.,.

20. Utilisation of spare 132kV ISTS bays at Silchar (POWERGRID), P.K.Bari (TSECL), Palatana (OTPC), and Surajmaninagar (TSECL)

20.1. Representative of CTU stated that after operation of Silchar – Imphal 400kV D/c lines (initially operated at 132kV) at rated voltage level of 400kV and upon operation of Palatana – Surajmaninagar and Silchar – P.K.Bari 400kV D/c lines (initially operated at 132kV) at rated voltage level of 400kV, following 132kV ISTS bays are / would be vacant, which could be utilised by NER states for construction of new outlets:

Substation	Upgraded 400kV line	No. of vacant bays	Bays vacant from	New transmission line for termination in vacant bays	Expected commissioning
Silchar 400/132kV (POWERGRID)	Silchar – Imphal	2 <i>(Imphal end bays have already been utilised for termination of 400/132kV, 2x315MVA ICTs)</i>	Jan 2019	Silchar – Ghungur 132kV S/c Silchar – Udarbond 132kV S/c	Dec 2021
Silchar 400/132kV (POWERGRID)	Silchar – P.K.Bari	2	Expected from Jul 2020	-	AEGCL.
P.K.Bari (TSECL) 132kV S/s	Silchar – P.K.Bari	2	Expected from Jul 2020	P.K.Bari (ISTS) – P.K.Bari (TSECL) 132kV D/c line	TSECL may update.
Palatana (OTPC)	Palatana – Surajmaninagar	2	Expected from Jul 2020	-	TSECL may identify.
Surajmaninagar (TSECL) 132kV S/s	Palatana – Surajmaninagar	2	Expected from Jul 2020	-	TSECL may identify.

20.2. AEGCL stated that Silchar – Ghungur 132kV S/c could be modified to D/c line. It is likely to get commissioned by December 2021. With respect to Silchar – Udarbond 132kV S/c, AEGCL informed that it is still under approval state accordingly, in view of availability of vacant bays this line can also be implemented as D/c. Members agreed to AEGCL's proposal for establishment of Silchar – Ghungur 132kV D/c and Silchar – Udarbond 132kV D/c lines utilising the 4 no. vacant 132kV ISTS line bays at Silchar (POWERGRID) S/s.

20.3.TSECL stated that at Palatana, one bay is already utilised for Palatana-Udaipur 132 line and other bay would be used for Palatana-Udaipur 132kV second line.

20.4.TSECL stated that they would update about use of ISTS bays at Surajmaninagar (TSECL). However, regarding P.K.Bari, TSECL informed that they had written to Secretary (Power) for considering the P.K.Bari (ISTS) – P.K.Bari (TSECL) 132kV D/c line to be built under ISTS.

20.5.The updated table is given below:

Substation	Upgraded 400kV line	No. of vacant bays	Bays vacant from	New transmission line for termination in vacant bays	Expected commissioning
Silchar 400/132kV (POWERGRID)	Silchar – Imphal	2	Jan 2019	Silchar – Ghungur 132kV D/c	Dec 2021
Silchar 400/132kV (POWERGRID)	Silchar – P.K.Bari	2	Expected from Jul 2020	Silchar – Udarbond 132kV D/c	-
P.K.Bari (TSECL) 132kV S/s	Silchar – P.K.Bari	2	Expected from Jul 2020	P.K.Bari (ISTS) – P.K.Bari (TSECL) 132kV D/c line	-
Palatana (OTPC)	Palatana – Surajmaninagar	2	Expected from Jul 2020	Palatana – Udaipur 132kV S/c: existing Palatana – Udaipur 132kV (2 nd) S/c line	-
Surajmaninagar (TSECL) 132kV S/s	Palatana – Surajmaninagar	2	Expected from Jul 2020	To be identified by TSECL.	-

21. Reconductoring of Siliguri-Bongaigaon 400kV D/c Twin Moose line with Twin HTLS conductor, reconductoring of Alipurduar – Salakati (Bongaigaon) 220kV D/c line with Single HTLS, and establishment of Bornagar S/s – Agenda by POWERGRID

21.1.Representative of CTU stated that in the 1st meeting of NERSCT held on 29-11-2018 it was decided to take up *“Reconductoring of Siliguri – Bongaigaon line with Twin HTLS conductor (ampacity of single HTLS shall be 1596A, which is equivalent to Twin ACSR Moose conductor for 45°C ambient and 85°C maximum conductor temperature) along with requisite modifications in line bay equipment at both ends with implementation of Bornagar – Parbotipur (Bangladesh) – Katihar 765kV (initially to be operated at 400kV) D/c cross border line”*. However, implementation of Bornagar – Parbotipur (Bangladesh) – Katihar 765kV D/c cross-border India-Bangladesh line is yet to be taken up. Under N-1-1 of the quad moose line viz. Alipurduar – Bornagar/Bongaigaon, loading on the remaining twin moose line would be close to/beyond thermal rating. Moreover, any further lower availability of generation in NER during low hydro scenario shall only aggravate the

situation under N-1-1. Further, from the study results it was observed that the Alipurduar – Salakati (Bongaigaon) 220kV D/c line is also getting over loaded under N-1-1 of Alipurduar – Bornagar/Bongaigaon 400kV D/c (Quad) line.

21.2. Accordingly, it was proposed to take-up reconductoring of Siliguri – Bongaigaon line with Twin HTLS conductor (ampacity of single HTLS shall be 1596A, which is equivalent to Twin ACSR Moose conductor for 45°C ambient and 85°C maximum conductor temperature) along with requisite modifications in line bay equipment at both ends, without linking its implementation with Bornagar – Parbotipur (Bangladesh) – Katihar 765kV D/c line and reconductoring of the Alipurduar – Salakati (Bongaigaon) 220kV D/c line with single HTLS (*ampacity of single HTLS shall be 1596A, which is equivalent to Twin ACSR Moose conductor for 45°C ambient and 85°C maximum conductor temperature*) along with requisite modifications in line bay equipment at both ends.

21.3. Further, construction of 400kV Bornagar substation as switching station alongwith connectivities was to be implemented as ISTS in the 7th SCM of NER held on 17-05-2018. However, keeping in view the requirement of 2nd node for reliable supply of power in NER and requirement of power import in low hydro scenario, it was proposed that construction of 400kV Bornagar substation as switching station alongwith connectivities to be taken up for implementation delinking with Katihar – Parbotipur – Bornagar 765kV D/c line project.

21.4. POSOCO raised apprehension in giving shutdown for Siliguri – Bongaigaon 400kV D/c line for smooth operation of NER grid. CTU stated that a similar proposal of reconductoring Siliguri-Rangpo line for evacuation of Sikkim's power in Eastern Region was agreed as the reconductoring was proposed section by section with small outage periods/span by span. In case of reconductoring of Siliguri – Bongaigaon 400kV D/c line, there are availability of parallel transmission corridor as well as HVDC. Further, outage will be only taken after POSOCO's approval. Regarding shutdown of Alipurduar – Salakati (Bongaigaon) 220kV D/c for reconductoring, POSOCO stated there would not be any issue.

21.5. After detailed deliberation the following were agreed:

- a) Reconductoring of Siliguri – Bongaigaon 400kV D/c line with Twin HTLS conductor (*ampacity of single HTLS shall be 1596A, which is equivalent to Twin ACSR Moose conductor for 45°C ambient and 85°C maximum conductor temperature*) along with requisite modifications in line bay equipment at both ends – under ISTS. The reconductoring will be carried out in accordance with outage permission from ERPC/NERPC/NLDC.
- b) Reconductoring of the Alipurduar – Salakati (Bongaigaon) 220kV D/c line with single HTLS (*ampacity of single HTLS shall be 1596A, which is equivalent to Twin ACSR Moose conductor for 45°C ambient and 85°C*

maximum conductor temperature) along with requisite modifications in line bay equipment at both ends – under ISTS

- c) Construction of 400kV Bornagar substation would be taken up after finalisation of Katihar – Parbotipur – Bornagar 765kV D/c line project.

21.6. It was informed that LILO of Alipurduar – Salakati (Bongaigaon) 220kV D/c is proposed at Gossaigaon under intra state system strengthening by Assam. Assam was requested to LILO the line with similar rating conductor, for which AEGCL was agreed.

22. Conversion of 2 nos. 63 MVAR Line Reactors at Bishwanath Chariali end of Biswanath Chariali – Lower Subansiri 400kV (2nd) D/c line to Bus Reactors- Agenda by POWERGRID

22.1. Representative of CTU stated that four (4) nos. 420kV, 63MVAR line reactors were planned for the Lower Subansiri – Biswanath Chariali 400kV 2xD/c lines at Biswanath Chariali end. In view high voltage at 400kV level at Biswanath Chariali, Balipara and Ranganadi substations for most part of the day, some of the 400kV lines were kept out of service during off-peak hours. To control the undesirable voltage excursions, two out of four 420kV, 63 MVAR line reactors at Biswanath Chariali end to be utilized as Bus Reactors through suitable modifications in existing 400kV line bays like installation/provision of NGR by-pass scheme, controlled switching device etc. were approved in the 6th meeting of NER-SCM held on 03-10-2016.

22.2. From the operational feedback of POSOCO it was observed that voltages at Biswanath Chariali, Balipara, Misa, and Ranganadi are on higher side most of the time. An 80MVAR bus reactor at Ranganadi has already been planned.

22.3. To further limit undesirable high voltage at 400kV level in NER, CTU proposed to convert the other two out of four 420kV, 63 MVAR line reactors at Biswanath Chariali end (of Lower Subansiri – Biswanath Chariali 400kV 2xD/c lines) also as bus reactors through suitable modifications in existing 400kV line bays like installation/provision of NGR by-pass scheme, controlled switching device etc. under ISTS.

22.4. After detailed deliberations conversion of remaining two 420kV, 63 MVAR line reactors at Biswanath Chariali end (of Lower Subansiri – Biswanath Chariali 400kV 2xD/c lines) as bus reactors through suitable modifications in existing 400kV line bays like installation/provision of NGR by-pass scheme, controlled switching device etc. under ISTS was agreed .

23. Conversion of 132kV Badarpur, 132kV Khliehriat, 132/33kV Nirjuli and 132kV Imphal substations from single main transfer scheme to double main transfer scheme on completion of 25 years age- Agenda by POWERGRID

- 23.1. Representative of POWERGRID stated that existing bus bar arrangement of 132kV Badarpur, 132kV Khliehriat, 132/33kV Nirjuli and 132kV Imphal substations are Single Main and Transfer scheme. These stations are going to complete 25 Years of age during current tariff block 2019-24. Nirjuli and Imphal substations have completed 25 years of service, commissioned in year 1991 and 1987 respectively, however, 132kV Badarpur and 132kV Khliehriat substations were commissioned in 2000.
- 23.2. POWERGRID proposed conversion of the existing Single Main Transfer scheme of 132kV Badarpur, 132kV Khliehriat, 132/33kV Nirjuli and 132kV Imphal substations to Double Main to improve reliability. Upgradation was proposed preferably by Bus Sectionalisation on AIS depending on layout or alternatively on GIS / Hybrid GIS if layout does not permit AIS Bus Sectionalisation.
- 23.3. Member Secretary, NERPC stated that during 155th OCC meeting the issue was discussed and the forum agreed to the up-gradation works and recommended for approval of NERPC & NERSCT. The proposal was discussed in the 20th TCC/NERPC meeting held on 12-09-2019, wherein the members in-principle approved to the proposal and referred the matter to NERSCT.
- 23.4. Member (PS), CEA stated that Standing Committee on transmission planning has been given the mandate of taking decision on any issues of transmission planning. He advised that RPCs should not take up the aspects of transmission planning as an agenda in their meetings.
- 23.5. Representatives of MePTCL and TSECL raised concern over upgradation of substations without completion of useful life i.e. 25 years.
- 23.6. POWERGRID stated that except 132kV Badarpur and 132kV Khiehriat substations, rest others have completed 25 years of life. However, at 132kV Badarpur S/s, a cement factory is located nearby and pollution is causing frequent trippings.
- 23.7. After deliberations, 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.

24. Charging of 400 kV Silchar (PG) - Melriat (PG) I (Future) Main Bay for completing GIS Dia of 420 kV, 125 MVAR Bus Reactor at 400/132 kV Silchar Substation- Agenda by NERLDC

24.1.As the bay is already charged, the agenda item was dropped.

25. Circuit Breaker between Air Insulated Substation (AIS) and Gas Insulated Substation (GIS): - Agenda by NERLDC

25.1.Representative of NERLDC proposed that Standard Guidelines may be set for installation of circuit breaker between AIS and GIS so that integration of GIS with AIS and maintenance of AIS bus could be done without taking the shutdown of the GIS and vice-versa in all the hybrid substations.

25.2.It was decided that the issue will be addressed during revision of Manual on Transmission Planning Criteria.

26. Conversion of 132kV Badarpur, 132kV Khliehriat, 132/33kV Nirjuli and 132kV Imphal Station from Single Main Transfer Scheme to Double Main Transfer Scheme on GIS on completion of 25 years age: - Agenda by NERLDC

26.1.The issue was already discussed under Agenda Item # 23.

27. Requirement of additional ICT at RHEP: - Agenda by NERLDC

27.1.Representative of NERLDC stated that after addition of 110 MW at Pare HEP (NEEPCO), on tripping of either ICTs at Ranganadi, N-1 criteria is not fulfilled. Also, Grid Disturbance occurred on 11.06.19 due to tripping of 360 MVA, 400/132 kV ICT-1 at Ranganadi. He proposed installation of additional 400/132 kV ICT at Ranganadi to prevent interruption of power supply to the State of Arunachal Pradesh as well as tripping of multiple units at Ranganadi - Pare Complex.

27.2.Representative of NEEPCO stated that there is no space for installation of additional ICT in 400kV switchyard.

27.3.Representative of CTU stated that as per studies, after commissioning of Pare – N.Lakhimpur 132kV D/c line along with LILO of one circuit at Nirjuli (POWERGRID) under NERSS-IX there may not be technical requirement of 3rd 400/132kV ICT at Ranganadi.

27.4.After detailed deliberation, the proposal of NERLDC for installation of additional 400/132 kV ICT at Ranganadi could not be agreed.

28. Subsystems not fulfilling N-1 -Agenda by NERLDC

- 28.1. Representative of NERLDC stated that N-1 criterion is not fulfilled in many subsystems and transmission lines of NER posing threat to the reliability and security of the NER Grid. Further, upgradation of transmission system is required to ensure 24x7 supply.
- 28.2. Chief Engineer (PSPA-II), CEA stated that the agenda by POSOCO was received very late (after the issuance of agenda of this meeting), as such it could not be studied.
- 28.3. It was decided that the agenda will be discussed in the next meeting after joint system studies.

29. Frequent high loading of 220 kV BTPS - Salakati line - Agenda by NERLDC

- 29.1. Representative of NERLDC stated that several times the loading of each 220 kV BTPS- Salakati line had gone beyond thermal limit of 203 MW. Further, BTPS – Salakati 220kV D/c line has already crossed 25 years of life.
- 29.2. NERLDC proposed for reconductoring of 220 kV BTPS- Salakati line with HTLS and commission 400/220 kV, 315 MVA ICT-1 at BgTPP at the earliest.
- 29.3. After deliberations, the proposal of NERLDC for reconductoring of BTPS- Salakati 220kV D/c line with HTLS conductor (*ampacity of single HTLS shall be 1596A, which is equivalent to Twin ACSR Moose conductor for 45°C ambient and 85°C maximum conductor temperature*) along with requisite modification in bay equipment at both ends was agreed to be implemented as ISTS scheme.

30. Installation of FACTS devices at Biswanath Chariali- Agenda by NERLDC

- 30.1. Representative of NERLDC stated that after commissioning of +/- 800 kV HVDC Biswanath Chariali – Agra Pole-1 in December 2015 and Pole 2 in September 2016, the duration of high voltage at 400 kV Bongaigaon, 400 kV Balipara, 400 kV Biswanath Chariali, 400 kV Ranganadi and 400 kV Misa nodes have increased. The low fault level at these 400 kV Buses of NER also result in voltage spikes with each switching of filter banks at 400 kV Biswanath Chariali (PG) substation.
- 30.2. High voltage observed in 400 kV nodes of NER grid (Balipara, Biswanath Chariali & Ranganadi) for 18 minutes w.e.f 23:55 Hrs on 22.02.19 while increasing power order of HVDC Biswanath Chariali – Agra from 500 MW to 700 MW after de-blocking of Pole-1. Unwanted switching of filter bank at Biswanath Chariali before the desired power flow in HVDC poles was the reason of sudden rise in voltage.

- 30.3.High voltage was also observed in major 400 kV nodes (phase voltage of 295 kV at Balipara, 303 kV at Biswanath Chariali & 299 kV at Ranganadi) while tripping of HVDC Biswanath Chariali –Alipurduar - Agra Pole-1 on 29th Aug'18 which resulted in Grid Disturbance in Arunachal Pradesh Power System and Ranganadi and Pare Power Stations.
- 30.4.This poses a threat to security of NER power system and also may force operation of HVDC Biswanath Chariali - Agra link at much lower capacity than rated. There have also been instances of tripping of 400 kV lines on overvoltage, which have resulted in near-miss incidents in NER power system. As per studies conducted by NERLDC, the planned reactive compensation till now may not be sufficient to keep all 400 kV lines in NER Grid in service during off-peak hours.
- 30.5.NERLDC proposed installation of FACTS devices like STATCOM/SVC at Biswanath Chariali.
- 30.6.Chief Engineer (PSPA-II), CEA stated that the issue requires more studies on part of CTU and CEA.
- 30.7.Accordingly, it was agreed that the agenda will be discussed in the next meeting.

31. Finalisation of Bus Bar Scheme of new nodes and tie connectivity of new elements approved in Standing Committee Meeting - Agenda by NERLDC

- 31.1.Representative of NERLDC proposed that Bus Bar Scheme of new nodes and tie connectivity of new elements approved in Standing Committee Meeting to be finalised by the respective ISTS Licensee after discussion with a Sub-Committee comprising of members from NERPC, NERLDC and NERTS before commencement of Engineering activities to ensure the reliability in Grid Operation.
- 31.2.It was agreed that the issue would be addressed during revision of Manual on Transmission Planning Criteria.

32. Re-conductoring and strengthening of aged 132 kV lines in Manipur with HTLS- Agenda by Manipur

- 32.1.Representative of MSPCL stated that they have proposal to strengthen and re-conductor the old 132 kV lines with HTLS conductor in three phases.
- It was opined that the agenda was received very late and could not be studied/examined. Accordingly, it was decided to discuss it in the next meeting.

List of participants:

Sl. No	Name (Smt./Shri)	Designation
Central Electricity Authority		
1	P S Mhaske	Member(PS)
2	Pardeep Jindal	Chief Engineer
3	B. S. Bairwa	Director
4	Deepanshu Rastogi	Assistant Director
NERPC		
5	A.K. Thakur	Member Secretary
6	B Lyngkhoi	SE
POWERGRID		
7	Dr. Subir Sen	ED (CTU)
8	Ashok Pal	CGM(CTU-Plg)
9	Laxmi Kant	DGM (CTU-Plg)
10	K.L. Shrama	Sr.GM (Project)
11	Prasanta Kanungo	GM
12	Anupam Kumar	Dy. Manager
13	Manish Ranjan Keshari	Dy. Manager (CTU-Plg)
POSOCO/NERLDC		
14	Samar Chandra	GM
15	S C Saxena	DGM
16	Amaresh Mallick	DGM
17	R. Sutradhar	Sr. GM
18	Priyam Jain	Dy. Manager
19	Palash Jyoti Borah	Dy. Manager
NEEPCO		
20	H.K. Deka	GM
21	Bhaskar Goswami	SE
AEGCL, Assam		
22	R.K. Das	CGM
23	Neelkamal Sharma	Assistant Manager
24	Ashutosh Bhattacharya	AGM
25	B.C. Borah	AGM
26	G K Bhuyan	DGM
TSECL, Tripura		
27	R Deb Barman	Addl. GM
MePTCL, Meghalaya		
28	A Kharpam	CE (Trans.)
29	M. Marbaniay	ACE (T)
30	EB Kharmujai	Dir (T)
31	F E Kharshing	SE (SLDC)
MSPCL,Manipur		

32	S. Priyanandi Singh	DGM (Trans)
33	N.G. Subhachandra Singh	ED (Tech)
SLDC, Assam		
34	T.K. Moahanta	CGM
35	D.C. Das	AGM
DoP, Arunachal Pradesh		
36	T.K. Tara	SE (E)
Mizoram		
37	F. Lalrinpuia	SE
KMTL/ KPTL		
38	Shekhar Vasudev	VP
39	Niraj Kr. Sinha	AVP
40	Ajay Tripathi	AVP
41	Dhurjyoti Chaliha	CEO
Sterlite Power		
42	Rohit Gera	Manager
43	Praveen Verma	Project Head
44	Ashish Srivastava	Prog. Manager

Dated, the 4th November, 2019**OFFICE ORDER****Subject: Constitution of five “Regional Power Committees (Transmission Planning)” (RPCTPs) - reg.**

In supersession of this Ministry's Office Orders of even number, dated 13.4.2018, constituting five Regional Standing Committees on Transmission (RSCTs) viz. Eastern Regional Standing Committee on Transmission (ERSCT), Western Regional Standing Committee on Transmission (WRSCCT), Northern Regional Standing Committee on Transmission (NRSCT), Southern Regional Standing Committee on Transmission (SRSCCT) and North Eastern Regional Standing Committee on Transmission (NERSCT), the undersigned is directed to state that in the light of the fact that the present transmission system is in the nature of One Nation- One Grid and the whole system as National System has to transport power seamlessly from one corner of the country to another corner of the country in the form of one single market, it has been decided to revise the existing five RSCTs by replacing the same with five new “Regional Power Committees (Transmission Planning) (RPCTPs)” with the following composition, with immediate effect:

Eastern Regional Power Committee (Transmission Planning) (ERPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Bihar, Jharkhand, West Bengal, Odisha, Sikkim, UT of Andaman & Nicobar Islands #	Member
5	Member Secretary of Eastern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC, SECI and DVC	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

STUs to coordinate with their respective Distribution Companies (DISCOMs).

* To be nominated by the Central Electricity Authority.

Western Regional Power Committee (Transmission Planning) (WRPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Gujarat, Madhya Pradesh, Chhattisgarh, Maharashtra, Goa, UT of Daman & Diu, UT of Dadra & Nagar Haveli #	Member
5	Member Secretary of Western Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC and SECI	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

STUs to coordinate with their respective Distribution Companies (DISCOMs).

* To be nominated by the Central Electricity Authority.

Northern Regional Power Committee (Transmission Planning) (NRPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of UT of Jammu & Kashmir, UT of Ladakh, Himachal Pradesh, Punjab, Haryana, Rajasthan, Delhi, Uttar Pradesh, Uttarakhand, UT of Chandigarh #	Member
5	Member Secretary of Northern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC and SECI	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

STUs to coordinate with their respective Distribution Companies (DISCOMs).

* To be nominated by the Central Electricity Authority.

Southern Regional Power Committee (Transmission Planning) (SRPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Telangana, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, UT of Puducherry, UT of Lakshadweep #	Member
5	Member Secretary of Southern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC and SECI	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

STUs to coordinate with their respective Distribution Companies (DISCOMs).

* To be nominated by the Central Electricity Authority.

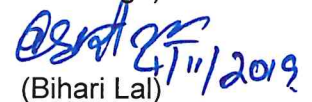
North Eastern Regional Power Committee (Transmission Planning) (NERPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Assam, Meghalaya, Nagaland, Arunachal Pradesh, Tripura, Manipur, Mizoram #	Member
5	Member Secretary of North Eastern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC, SECI and NEEPCO	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

STUs to coordinate with their respective Distribution Companies (DISCOMs).

* To be nominated by the Central Electricity Authority.

2. Terms of Reference (ToR) of the RPCTPs are to:
 - i. Carry out a quarterly review of the Transmission System in the region; assess 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.
 - ii. Assess the transmission system requirements in the near, medium and long term and draw up transmission schemes to meet these requirements. While doing this a perspective plan for the next 15-20 years may also be kept in mind and accordingly the requisite allowance/margin may be factored in the system during planning process.
 - iii. Examine applications for connectivity and access and ensure that these are granted speedily, provided that the requisite fees/charges are paid.
 - iv. Review the upstream and downstream network associated with transmission schemes.
 - v. Examine and evaluate the intra-state transmission proposals.
 - vi. Review and facilitate the construction of the inter-regional grid strengthening schemes.
3. The RPCTPs shall take steps to ensure that the transmission capacity is capable of wheeling the electricity to different parts of the region and outside the region as per the demands of the market. They shall carry out the quarterly reviews and make recommendation for system strengthening and expansion keeping in mind the guidelines laid down by the Tariff Policy.
4. The RPCTPs will forward their review of the transmission systems and their recommendation for system expansion/ strengthening to the National Committee on Transmission (NCT) at the end of every quarter- by 15th July; 15th October; 15th January and 15th April. The NCT will examine the proposals and forward them to Government with their recommendations.
5. This issues with the approval of the Hon'ble Minister of State (Independent Charge) for Power and New & Renewable Energy.


(Bihari Lal)

Under Secretary to the Govt. of India
Telefax: 23325242
Email: transdesk-mop@nic.in

To

1. All members of the five RPCTPs.
2. Secretary, Ministry of New & Renewable Energy, Govt. of India.
3. Chairperson, CEA, New Delhi.
4. CMDs of all CPSUs under the Ministry of Power and Ministry of New and Renewable Energy, Govt. of India.
5. Heads of all autonomous bodies under the Ministry of Power, Govt. of India.
6. Finance/ Budget Section, Ministry of Power.
7. Power/ Energy Secretaries of all States/UTs.
8. Chief Executives of all State Transmission Utilities (STUs).

Copy to:

- (i) PS to Hon'ble MoSP(IC)/ PPS to Secretary(Power)/ SS&FA/ AS(Trans)/ all Joint Secretaries/ EA/ Directors/ Dy. Secretaries, Ministry of Power.
- (ii) Technical Director, NIC, M/o Power, for publishing this order on the website of M/o Power.

Annex-III**1. AGOMONI SUBSTATION :**

Sl No.	As per Approved DPR (CEA letter No. CEA-PS-12-16/13/2018-PSPA-II Division dtd 11.01.2019)			Revised Proposal			Justification for the change proposal
	Scope of work	Route Length (KM)	Type of Conductor	Scope of work	Route Length (KM)	Type of Conductor	
3	Establishment of new 220/132 kV (2 X 160 MVA) and 132/33 kV (2 X 50 MVA) GIS Substation at Agamoni			Establishment of new 220/132 kV (2 X 160 MVA) AIS at Gossaigaon instead of Agomoni			<p>i. <u>Availability of Land:</u> At 132/33kV, 2x16MVA Gossaigaon Grid substation of AEGCL, about 0.33 acre (1338 sq metre) of AEGCL's owned unutilised land is available where the new 220/132kV Gossaigaon GIS is proposed to be constructed.</p> <p>ii. <u>Reduction in Route Length:</u> The route length of LILO of both ckt of Alipurduar (PGCIL) - Bongaigaon (PGCIL) D/C line at Agomoni (AEGCL- New) is reduced to 3KM from 25KM , which minimises not only the cost of construction of 220kV LILO but also ROW issues.</p> <p>iii. <u>Necessity of 132kV Substation at Agomoni:</u> The 33kV feeders of APDCL (Distribution Company of Assam) are required for catering the demand at surroundings localities</p>
	220 kV:			220 kV:			
	LILO of both ckt of Alipurduar(PGCIL) - Bongaigaon (PGCIL) D/C line at Agamoni (AEGCL- New)	25 KM	ACSR Zebra	LILO of both ckt of Alipurduar (PGCIL) - Bongaigaon (PGCIL) 220kV D/C line at Gossaigaon (AEGCL- New) with HTLS conductor (<i>ampacity of single HTLS shall be 1596A, which is equivalent to Twin ACSR Moose conductor for 45°C ambient and 85°C maximum conductor temperature</i>)	3 KM	ACSR Zebra	
	132 kV:			132 kV:			
	LILO of Gossaigaon - Gauripur S/C (AEGCL- Existing) Line at Agamoni (AEGCL- New)	10 KM	HTLS	Establishment of new 132/33 kV (2 X 50 MVA) AIS Substation at Agamoni			
	Load	16 MW	Load	LILO of Gossaigaon - Gauripur D/C (AEGCL-	10 KM	HTLS	

				Existing) Line at Agamoni (AEGCL- New)			of Agomoni. However, the GIS is converted to AIS as there is sufficient land available for 132kV AIS at Agomoni.
				Load	16 MW	Load	

2. GHUNGUR (Silchar-2) GIS :

Sl No.	As per Approved DPR (CEA letter No. CEA-PS-12-16/13/2018-PSPA-II Division dtd 11.01.2019)			Revised Proposal			Justification for the change proposal
	Scope of work	Route Length (KM)	Type of Conductor	Scope of work	Route Length (KM)	Type of Conductor	
9	Establishment of new 132/11 kV (2 X 31.5 MVA) GIS Substation at Ghungur (Silchar-2)			Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Ghungur (Silchar-2)			i. <u>Suitability in Power Evacuation at 33kV Level:</u> APDCL has requested AEGCL to change downstream voltage level from 11kV to 33kV, which APDCL will be more suitable in evacuating power from the proposed substation. 33kV sub-transmission line from this proposed substation to various load centres of rural areas will reduce the transmission losses to a great extent.
	132 kV:			132 kV:			
	Ghungur (AEGCL- New) - Silchar (PGCIL)- S/C Line	10 km	XLPE Armoured AI Cable	Ghungur (AEGCL- New) - Silchar (PGCIL)- D/C Line	10 km	XLPE Armoured AI Cable	
	Load	20 MW		Load	20 MW		

3. ZOO ROAD GIS :

Sl No.	As per Approved DPR (CEA letter No. CEA-PS-12-16/13/2018-PSPA-II Division dtd 11.01.2019)			Revised Proposal			Justification for the change proposal
	Scope of work	Route Length	Type of Conductor	Scope of work	Route Length	Type of Conductor	

		(KM)			(KM)	
11	Establishment of new 132/11 kV (2 X 31.5 MVA) GIS Substation at Zoo Road			Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Zoo Road		
	132 kV:			132 kV:		
	Zoo Road (AEGCL-New) – Gauhati Medical College(GMC) (AEGCL-Existing) S/C Line	8 KM	XLPE Armoured AI Cable	Zoo Road (AEGCL-New) – Gauhati Medical College(GMC) (AEGCL-Existing) S/C Line	8 KM	XLPE Armoured AI Cable
	Load	25 MW		Load	25 MW	
i. <u>Availability of Land:</u> The land of proposed new 132kV Zoo Road GIS is provided by APDCL free of cost inside their campus of existing 2x10MVA, 33/11kV Zoo Road Substation ii. <u>Suitability in Power Evacuation at 33kV Level:</u> APDCL has requested AEGCL to change downstream voltage level from 11kV to 33kV, which APDCL will be more suitable in evacuating power from the proposed substation.						

4. CHHAYGAON GIS :

Sl No.	As per Approved DPR (CEA letter No. CEA-PS-12-16/13/2018-PSPA-II Division dtd 11.01.2019)			Revised Proposal			Justification for the change proposal
	Scope of work	Route Length (KM)	Type of Conductor	Scope of work	Route Length (KM)	Type of Conductor	
12	Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Chhaygaon			Establishment of new 220/33 kV (2 X 100 MVA) GIS Substation at Chhaygaon			i. <u>Availability of Land:</u> The land for construction of new Chhaygaon GIS is finalised at Industrial Growth Centre(IGC), Chhaygaon by AIIDC (Assam Industrial Infrastructure Development Corporation) under Industry Deptt of Govt of Assam. The land is provided by AIIDC in the interest of reliable power supply to their existing and upcoming small scale industries. ii. <u>Catering of Future Load Growth with minimum ROW:</u>
	132 kV:			132 kV:			
	Chhaygaon (AEGCL-New) - Boko (AEGCL-Existing) D/C Line	20 KM	AAAC Panther	LILo of 220kV Agia - Azara line at Chhaygaon	3 KM	AAAC Zebra	
	Load	28 MW	Load	Load	28 MW		

							<p>The location is a load centre for many upcoming industries of AIIDC. Setting up of 220/33kV GIS inside AIIDC campus , will minimise RoW issues of drawing 33kV lines from a grid substation located at a far distance.</p> <p>iii. <u>Reduction of Route Length:</u> The proposed 132 kV D/C transmission line of route length of 20km from 220kV Boko substation to feed 132kV Chhaygaon substation as approved in the DPR is replaced by LILO of 220kV Mirza(Azara) – Boko line at 220kV Chhaygaon GIS. This reduces not only the RoW issues of 132kV DC line but also the cost of construction.</p> <p>iv. <u>Non-availability of Space for Bay at Boko GSS:</u> In addition to the above, the survey has revealed that sufficient space is not available for construction of the earlier proposed feeder bays at Boko GSS.</p>
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5. NAGAON-2 GIS :

Sl No.	As per Approved DPR (CEA letter No. CEA-PS-12-16/13/2018-PSPA-II Division dtd 11.01.2019)		Revised Proposal			Justification for the change proposal
	Scope of work	Route Length (KM)	Type of Conductor	Scope of work	Route Length (KM)	

17	Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Nagaon-2			Establishment of new 220/33 kV (2 X 100 MVA) GIS Substation at Nagaon-2			<p>i. <u>Availability of Land:</u> The land for construction of new Nagaon - 2 GIS is finalised at Laogaon at Northern part of Nagaon town. The land is provided by APDCL.</p> <p>ii. <u>Reduction of Route Length:</u> The LILO of one circuit of 220kV Samaguri – Jawaharnagar line to this proposed Nagaon -2 GIS is found to be the most suitable instead of 132 kV DC line from 220kV Samaguri substation of route length 41kms. The route of of 220kV LILO is 1km only</p> <p>iii. <u>Minimization of RoW issues:</u> It will also minimise RoW issues of crossing National Highways, Railways and densely populated villages near Nagaon town.</p> <p>iv. <u>Non-availability of Space for Bay at Samaguri GSS:</u> In addition to the above, the survey has revealed that sufficient space is not available for construction of the earlier proposed feeder bays at Samaguri GSS.</p>
	132 kV:			220 kV:			
	132kV Samaguri (AEGCL-Existing) – Nagaon-2 (AEGCL-New) D/C Line	41 km	AAAC Panther	LILO of one circuit of Samaguri (AEGCL-Existing) –Jawaharnagar (AEGCL-Existing) 220kV D/C Line at Nagaon-2 (AEGCL-New)	1 km	AAAC Zebra	
	Load	25 MW		Load	25 MW		

6. Bay Extension of 132 bays at Samaguri (2 bays) & Boko (2 bays):

As per Approved DPR		Revised Proposal		Justification for the change proposal
Scope of work	No. of Bays	Scope of work	No. of Bays	

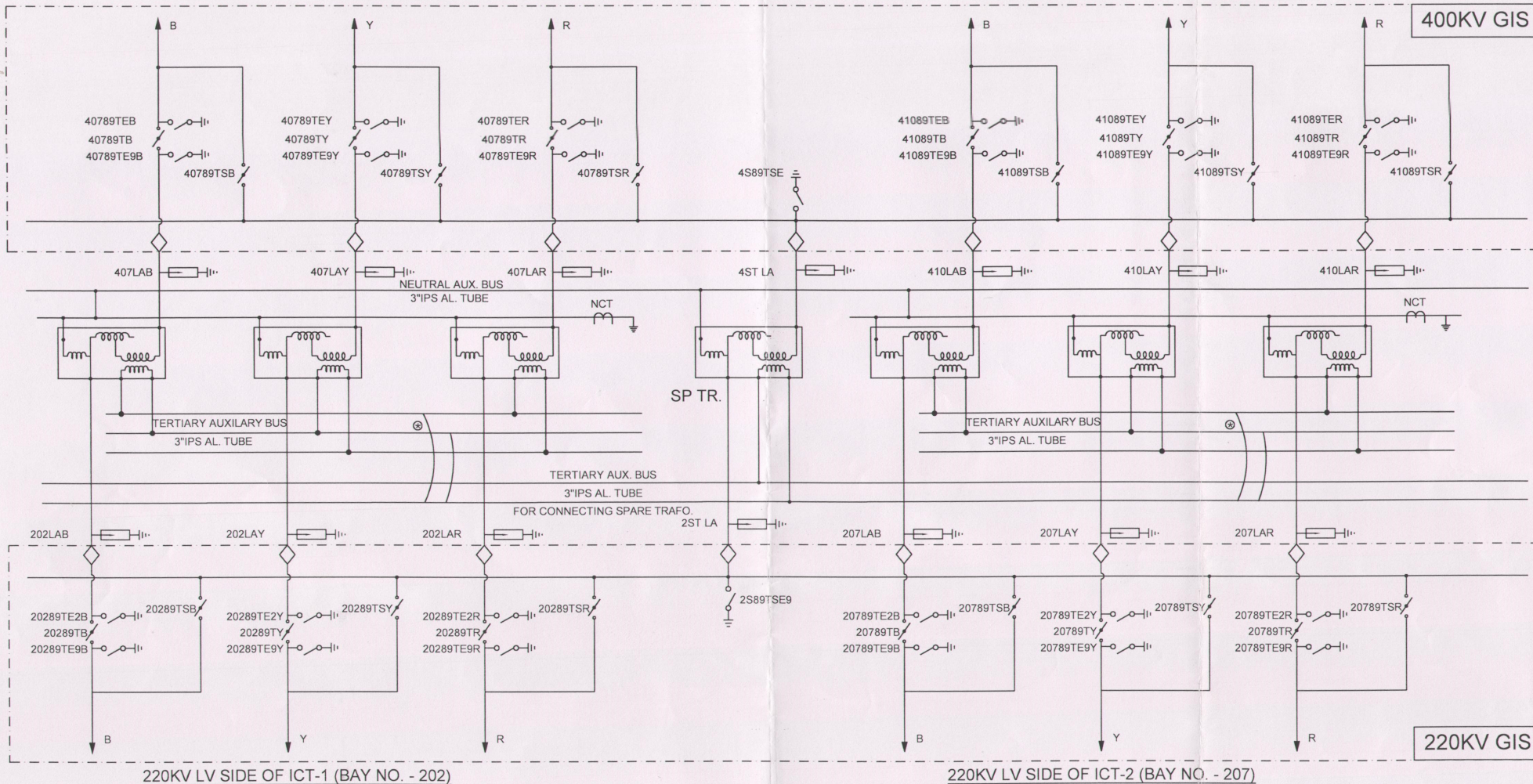
Two nos. of 132kV Line Bays for Boko- Chayygaon D/C Line & Two nos. of 132kV Line Bays for Samaguri-Nagaon-2 D/C Line	4	Two nos. of 132kV Line Bays for Boko- Chayygaon D/C Line & Two nos. of 132kV Line Bays for Samaguri-Nagaon-2 D/C Line	0	This is due to change in location of LILO point as described in SI Nos. 4, 5 as mentioned above
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7. MORIGAON Substation :

SI No.	As per Approved DPR (CEA letter No. CEA-PS-12-16/13/2018-PSPA-II Division dtd 11.01.2019)			Revised Proposal			Justification for the change proposal
	Scope of work	Route Length (KM)	Type of Conductor	Scope of work	Route Length (KM)	Type of Conductor	
16	Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Morigaon			Establishment of new 132/33 kV (2 X 50 MVA) AIS Substation at Morigaon			i. <u>Availability of Land:</u> The land identified for construction of new Morigaon Substation is at a remote location. Thus there is sufficient land available for construction of 132/33kV AIS instead of GIS. ii. <u>Ease in Operations and Maintenance in AIS at Remote Substations:</u> In case of substations at remote locations, AIS is more suitable from operations and maintenance point of view as the power restoration works in case of outages can be done easily with the existing manpower that is more acquainted with AIS system.
	132 kV:			132 kV:			
	132kV Baghjap(AEGCL-Existing) – Morigaon(AEGCL-New) D/C Line	20 KM	AAAC Panther	132kV Baghjap(AEGCL-Existing) – Morigaon(AEGCL-New) D/C Line	20 KM	AAAC Panther	
	Load	15 MW		Load	15 MW		

400KV HV SIDE OF ICT-1 (BAY-407)

400KV HV SIDE OF ICT-2 (BAY NO. -410)



220KV LV SIDE OF ICT-1 (BAY NO. - 202)

220KV LV SIDE OF ICT-2 (BAY NO. - 207)

7 x 167 MVA SINGLE PHASE TRANSFORMERS
VIEW - A-A

TEEC
Signature: *AD*
(Designation) 18/02/19
(Date) Techno Electric & Engg. Co. Ltd
Kolkata

Categories
I. Approved / released for fabrication / construction
II. Approved / released for erection / installation subject to incorporation of comments and modification as noted in the drawing.
III. To be resubmitted for approval after incorporating the comments.
IV. For information and record.
V. Not approved

VVR
Signature: *Adrian*
(Designation) 6/2/19
(Date) VVR Consultants & Enterprises Pvt. Ltd
CIN: U74120HR2010PTC039905

Categories
I. Approved / released for fabrication / construction
II. Approved / released for erection / installation subject to incorporation of comments and modification as noted in the drawing.
III. To be resubmitted for approval after incorporating the comments.
IV. For information and record.
V. Not approved

NOTE:
1. Ⓢ ELECTRICAL CONNECTION SHALL BE MADE MANUALLY DEPENDING UPON REQUIREMENT.

2	THIRD SUBMISSION	CR	BS	BS	14.02.19
1	SECOND SUBMISSION	CR	BS	BS	06.02.19
0	FIRST SUBMISSION	AM	BS	BS	01.12.18
REV	DESCRIPTION	PREP.	CHKD.	APPD.	DATE
		SIGN.			

OWNER	K.M.T.L. KOHIMA MARIANI TRANSMISSION LIMITED				
EPC	TECHNO ELECTRIC & ENGG. CO. LTD. ENGINEERS & CONSTRUCTORS KOLKATA, INDIA				
NOA NO.	AGREEMENT DATED : 15.06.2017				
PROJECT	INDEPENDENT TRANSMISSION PROJECT " NORTH EASTERN REGION STRENGTHENING SCHEME (NERSS) - VI"				
SUBSTATION	400/220KV GIS SUBSTATION AT KOHIMA				
DRG. TITLE	SINGLE LINE DIAGRAM				
DRG. NO. :	XXXX-XXXX-XXXX-XXXX				
SCALE :	NTS	JOB NO. 0729KM	SHEET	02 OF 02	

Minutes of 01st meeting of NERPC/TB/2nd meeting of NERSSCT

**GOVERNMENT OF NAGALAND
DEPARTMENT OF POWER
OFFICE OF THE CHIEF ENGINEER, TRANSMISSION AND GENERATION
NAGALAND: KOHIMA**

NO.CEL/TB/NERSS/692

Dated Kohima, the 11th Oct' 2019.

To,

S.K.Ray Mohapatra,
Chief Engineer,
Power System Project Monitoring Division,
Central Electricity Authority,
Sewa Bhawan, R.K. Puram-1
New Delhi-110066

Sub: Development of downstream network associated with Inter-state Transmission Scheme "North Eastern Region Strengthening Scheme (NERSS-VI)" by Department of Power, Nagaland-Regarding

Ref: No. CEA-PS-13-22(13)/1/2018-PSPM Division/524-28 Dt. 16.09.2019

Sir,

With reference to your letter under reference, I have the honour to state the following points:

- 1) As per the minutes of 31st meeting of the Empowered committee on Transmission held on 18.02.2013, the Department of Power was asked to confirm availability of space for the two nos. of 132 kV bays at new Kohima Sub-station for termination of Imphal (PG) to New Kohima, Nagaland 400 kV D/C line (initially charged at 132kV) vide. CEA letter No. 100/1/EC (31)/2012-SP&PA/990-994 Dt. 08.07. 2013. Accordingly Department of power, Government of Nagaland had confirmed the availability of space for the above two bays vide. our letter No. CEL/TB/CEA/PRO-REP/C-002/2154 Dt.17.07.2013.
- 2) It was made known to us later that the project was taken up under Tariff Based Competitive Bidding (TBCB) for the 400 KV D/C line from Imphal-Mariani with the 400/220kV,7x167 MVA Sub-stations at New Kohima.
- 3) Provision of 4 Nos of 220 kV bays for at the 400kV sub-station for intrastate system was thoroughly discussed during the 17th TCC/NERPC meeting held at Imphal where it was decided that 2 Nos 220kV bays would be sufficient for the time being. Accordingly, the Department of Power, Government of Nagaland provisioned space for 2 nos. of 220 kV bays at our 220kV Sub-station at Zhadima.
- 4) We appreciate the concern that the development of downstream associated 220 kV D/C Transmission line for linking & utilization of power from the above 400 kV Substation is essential. However, all this time we presumed that the downstream Transmission element with associated 220 kV bays was a part of ISTS being developed under the NERSS through the TBCB under implementation by M/s Kohima-Mariani Transmission Limited.

- 5) At this stage and with the completion schedule of the project by July 2020, it is not possible for the Department of Power, Government of Nagaland to develop the downstream Transmission element on our own with no funding arrangement from the State resources.
- 6) This matter was also discussed during the 20th NERPC meeting held at Guwahati on 12th September 2019 where the Department of Power requested that the downstream Transmission element also be taken up as an ISTS project. It was decided that the matter shall be referred to the Standing Committee.

Your kind cooperation & support towards the above is highly solicited.

Yours faithfully,




(Er. SHIKATO SEMA)
Chief Engineer (T&G)
Department of Power
Nagaland: Kohima.

Dated Kohima, the Oct' 2019.

NO.CEL/TB/NERSS/

Copy to:

1. Member Secretary, NERPC, NERPC Complex, Dong Parmaw Lapalang, Shillong-739006.
2. Executive Director, NERLDC, Lower Nongrah, Lapalang, Shillong-793006



Chief Engineer (T&G)
Department of Power
Nagaland: Kohima.

I/6353/2019



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II

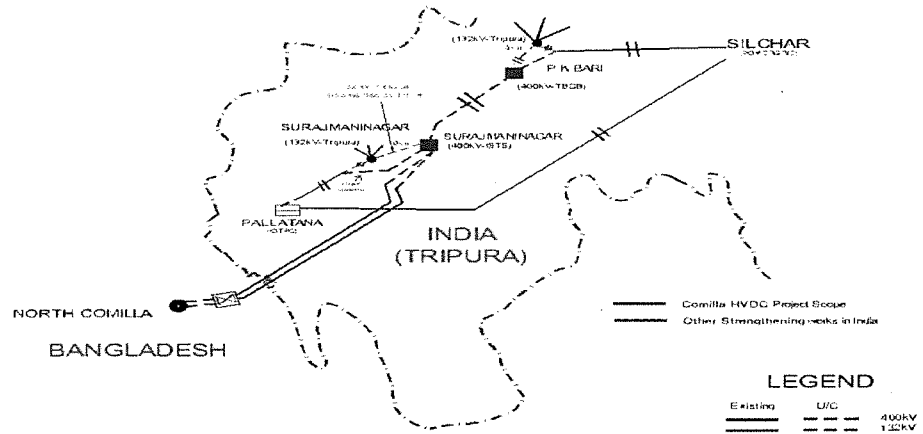
Subject: Upgradation of TSECL's 132 kV Surajamaninagar substation into 400 kV substation – reg.

- Ref :** 1) CEA letter no. CEA-PS-12-16/18/2018-PSPA-II-Division dated 06.06.2019 submitting Report on Tripura's proposal for upgradation of TSECL's 132kV Surajamaninagar substation into 400kV substation to MoP
- 2) Meeting held in Ministry of Power on 24.07.2019

This is in continuation of CEA letter dated 06.06.2019 through which a study report on Tripura's proposal for upgradation of TSECL's 132kV Surajamaninagar substation into 400kV substation was submitted to MoP. Following is further submitted:

1. Presently (i.e. up to June of 2019-20), the maximum demand of Tripura is 320 MW. Last year i.e. during 2018-19, the maximum demand of Tripura has been recorded as 298 MW(as per the records of CEA). This demand of Tripura is met partly from State-controlled Generating Stations and the rest is met by drawl from ISTS. The majority of ISTS drawl takes place at Palatana Interstate Generating Station which has transformation capacity of 2x125 MVA.
2. As per the current Electricity Demand Survey, which projects growth in electricity demand in India, Tripura's maximum demand is estimated to increase to 391 MW by 2021-22 and 495 MW by 2026-27. To meet this increasing demand in Tripura, two more 400 kV sub-stations under ISTS were planned in 2015. These sub-stations are P.K. Bari 400x132 kV, 2x135 MVA ISTS and Surajmaninagar 400x132 kV, 2x135 MVA under ISTS. Further to increase the reliability of electricity supply from ISTS to Tripura and also considering the enhancement in export of electricity to eastern part of Bangladesh, a 400 kV doubled Circuit line connecting Palatana to Surajmaninagar so as to form a Silchar(Assam) – P.K. Bari – Surajmaninagar – Palatana – Silchar 400 kV ring was also planned in 2015. This ring along with the two 400 kV substations as part of ISTS are under implementation and likely to be completed by 2020. The scheme is depicted below:

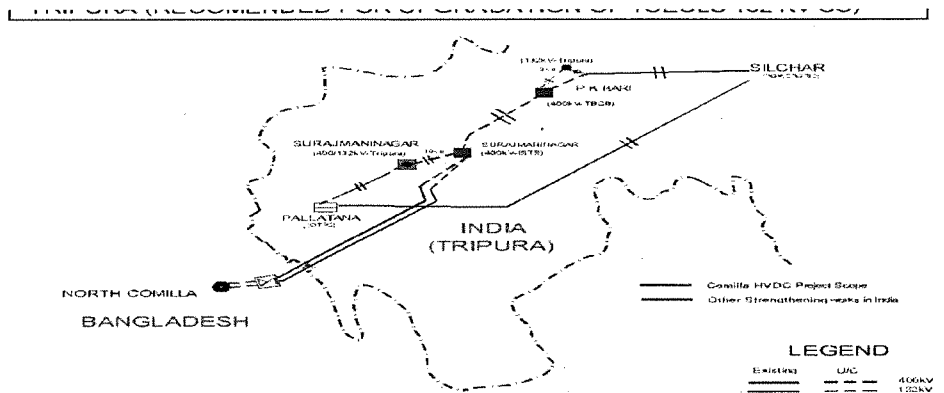
I/6353/2019



3. Subsequently i.e. in January, 2019, Tripura through its transmission company i.e. TSECL has informed the Ministry of Power that the Government of Tripura is looking at accelerated growth in their demand and therefore they had projected that the peak demand of Tripura will increase to 495 MW in 2022 and 800 MW in 2025. To meet this increased load demand requirement in Tripura, additional transmission system including upgradation of TSECL's existing 132 kV substation to 400 kV level is being recommended to be carried out. Accordingly, following 400kV transmission system strengthening works will be required:

- (i) By Tripura State Electricity Corporation Limited (TSECL)
 - a. Upgradation of existing 132kV substation at Surajamaninagar of TSECL to 400/132 kV, 7x105MVA (1-phase) (Tripura/TSECL should also plan suitable 132kV outgoing transmission lines at this upgraded sub-station and also at the under construction Surajamaninagar ISTS)
- (ii) Under ISTS
 - a. Surajamaninagar (TSECL) – Surajamaninagar (ISTS) 400kV D/C line
 - b. 2 nos. of 400 kV bays at Surajamaninagar (TSECL)
 - c. 2 nos. of 400 kV bays at Surajamaninagar (ISTS)

The above scheme is depicted below:



(Signature)
 (Pardeep Jindal)
 Chief Engineer

निदेशक(ट्रांस), विद्युत मंत्रालय, अम शक्ति भवन, रफ़ी मार्ग, नई दिल्ली-01

No. 15/9/2013-Trans
Government of India
Ministry of Power
Shram Shakti Bhawan, Rafi Marg, New Delhi

Dated, 24th November, 2015

OFFICE MEMORANDUM

Subject: New Transmission schemes to be taken up under compressed time schedule through regulated tariff mechanism route – reg.

Reference: i) CEA letter No. 100/1/EC(35)2015-PSP&PA-1/ dated 24.9.2015
ii) CEA letter No.100/1/EC(35)2015-PSP&PA-1/363-368 dated 6.11.2015

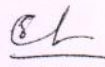
The undersigned is directed to inform that the competent authority in the Ministry of Power has approved the following nineteen transmission schemes along with the broad scope for implementation by Power Grid Corporation of India Limited, the CTU, under compressed time schedule through regulated tariff mechanism:

Sl. No.	<u>Name of the Scheme</u>
1	Maharanibagh– Rajghat 400kV D/C additional line Scope: (i) 400 kV Rajghat – Maharanibagh D/C line with HTLS conductor (ii) Two nos. of 400kV GIS bays each at Rajghat and Maharanibagh
2	Provision of 2 x 500MVA, 400/220kV ICTs at Parli (PG) switching station
3	Provision of 2 no. of 220 kV bays for LILO of Khedamara– Borjhara line at 400/220 kV Raipur PGCIL substation
4	Additional 2nd 1 X 500 MVA, 400/220 kV ICT at Itarsi (PG) 400 kV substation
5	Provision of 2 no. of 400 kV GIS bays for termination of Gwalior- Morena 400 kV D/C quad line at Gwalior substation
6	Provision of 2 no. of 400 kV bays for termination of Indore (PG)– Ujjain D/C 400 kV D/C line at Indore (765/400) substation
7	Additional 3rd 500MVA, 400/220kV ICT along with 2 no. of 220 kV bay at Satna (PG) substation
8.	Provision of 2 no. of 220 kV bays at Mapusa (Colvale) 400/220 kV substation for termination of the proposed Mapusa (Colvale) - Teum 220 kV D/C line of GED.
9.	Provision of 330 MVAR, 765 kV Line Reactor with reactor bays along with 850 Ω NGR for Vindhychal Pooling station– Jabalpur pool 765 kV D/C line (in each circuit at both ends).
10.	Re-conductoring of Maithon RB - Maithon 400kV D/C line of POWERGRID (ERSS-XVII) with HTLS conductor
11.	Transformation augmentation requirements in Eastern Region - XVII (ERSS-XVII)

	<p>Scope:</p> <ul style="list-style-type: none"> (i) Installation of 3rd 400/220 kV, 1x315 MVA ICT at Durgapur Substation (ii) Replacement of 400/220kV, 2x315 MVA ICTs at Malda Substation with 400/220 kV, 2x500 MVA ICTs. (iii) Installation of 3rd 400/220 kV, 1x315 MVA ICT at New Siliguri Substation (iv) Replacement of 400/220 kV, 2x315 MVA ICTs at Jeypore Substation with 400/220 kV, 2x500 MVA ICTs. (v) Replacement of 400/220 kV, 2x315 MVA ICTs at Rourkela Substation with 400/220 kV, 2x500 MVA ICTs. (vi) Installation of 400/220 kV, 1x500 MVA ICT at Gaya Substation. <p>Note:</p> <p>Replacement of transformers at Malda, Jeypore and Rourkela would create 6 units of 315 MVA transformers as spare and out of which 2 would be utilised at Durgapur and New Siliguri. The other 4 would be kept as regional spare</p>
12.	<p>Conversion of fixed Line Reactors to switchable Line Reactors (ERSS-XVII) (to be used as Bus Reactors) for Lakhisarai – Biharsharif 400kV D/C and Keonjhar–Rengali 400 kV S/C</p>
13.	<p>Proposal of JUSNL (Jharkhand Urja Sancharan Nigam Limited) for provision of 2x160 MVA, 220/132 kV Auto transformer in proposed 400/220 kV GSS of M/s POWERGRID at Daltonganj with provision of 02 nos. 132 kV bays for JUSNL</p>
14.	<p>Bypassing arrangement of LILO of 400kV lines at Angul (ERSS-17)</p> <p>Scope:</p> <ul style="list-style-type: none"> (i) LILO of Meramundali – Bolangir / Jeypore 400 kV S/C line at Angul pooling station (ii) LILO of one ckt of Talcher - Meramundali 400 kV D/C line at Angul pooling station
15.	<p>North Eastern Region Strengthening Scheme– V (NERSS - V)</p> <p>Scope:</p> <ul style="list-style-type: none"> (i) Additional 400 kV D/C line at Palatana end for termination of Palatana-Surajmaninagar 400 kV D/C line (op. at 132 kV) at 400 kV Palatana switchyard (ii) Additional 400 kV D/C line at Surajmaninagar end for termination of Palatana-Surajmaninagar 400 kV D/C line (op. at 132 kV) at 400 kV Surajmaninagar Substation (iii) Additional 400 kV D/C line at P. K. Bari end for termination of P. K. Bari-Silchar 400 kV D/C line (initially op. at 132 kV) at 400 kV P. K. Bari Substation (iv) Additional 400 kV D/C line at Silchar end for termination of P .K. Bari-Silchar 400 kV D/C line (initially op. at 132 kV) at 400 kV Silchar Substation (v) 2 no. 400 kV GIS line bays at Silchar for termination of P .K .Bari – Silchar 400kV D/C line

16.	<p>North Eastern Region Strengthening Scheme- VI (NERSSVI) Scope:</p> <ul style="list-style-type: none"> (i) Up-gradation of New Mariani substation to 400/220 kV with 2x500 MVA transformer along with associated bays (ii) 2 no. 400kV line bays at New Mariani for termination of Misa-New Mariani 400 kV D/C (op. at 220 kV) at 400kV (iii) Termination of Misa-New Mariani section of existing LILO of Kathalguri-Misa 400 kV D/C line (circuit-1) (op. at 220 kV) at New Mariani from 220 kV to 400 kV (iv) Disconnection of Kathalguri - Mariani (AEGCL) - Misa line from Mariani (AEGCL) Substation and LILO of the same at New Mariani (POWERGRID) with Misa-New Mariani section connected at 400kV and Kathalguri – New Mariani section connected at 220kV at New Mariani (v) 2 no. 400 kV line bays (GIS) at Misa for termination of New Mariani – Misa 400kV D/C line (presently charged at 220kV) at 400kV (vi) Operation of New Mariani – Misa 400kV D/C line (presently charged at 220kV) at 400kV along with termination at Misa at 400kV (vii) Operation of New Mariani – Kathalguri 400kV D/C line (presently charged at 220kV) at 220kV
17.	<p>Upgradation of existing inter-state 132 kV link between Imphal (PG) and Imphal (State) Scope:</p> <ul style="list-style-type: none"> (i) Re-conductoring of Imphal (PG)-Yurembam 132 kV S/C POWERGRID line with high capacity conductor (ii) Up gradation / modification of bay equipment at Imphal (PG) by POWERGRID because of the reconductoring.
18.	<p>Installation of 3rd 315 MVA Transformer at 400/132/33 kV at Silchar Sub Station</p>
19.	<p>Installation of 31.5 MVAR, 220 kV bus reactor at 220/132kV Mokokchung sub-station of POWERGRID</p>

2. It is requested that necessary action may be taken accordingly.

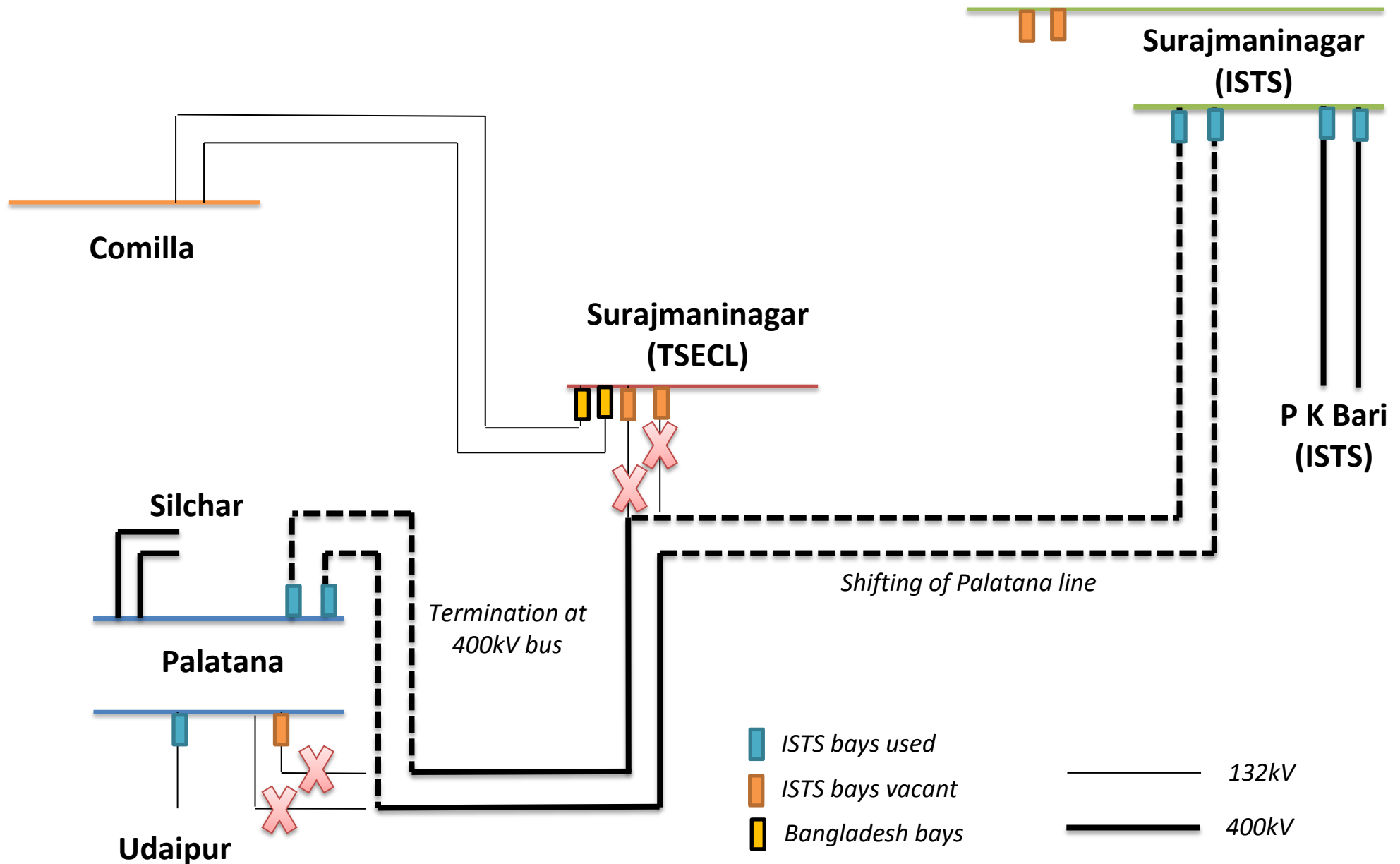

 (S. Venkateshwarlu)
 Under Secretary (Trans)
 Tele.No.2332 5242
 Email:transdesk-mop@nic.in

To,

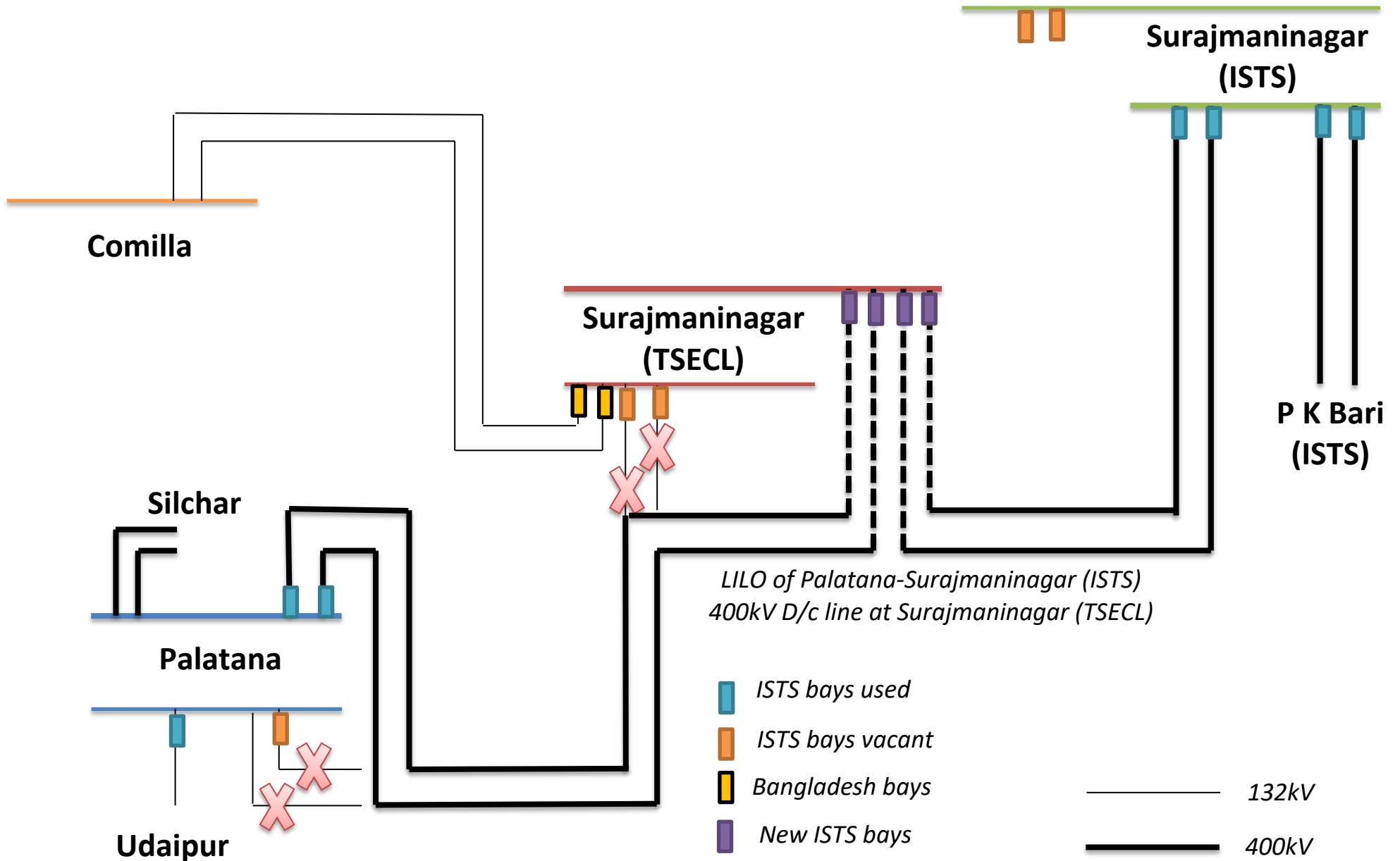
Member (PS),
 Central Electricity Authority
 Sewa Bhawan, R.K.Puram
 New Delhi-110066

Copy forwarded to CMD, PGCIL, Gurgaon, for information and necessary action.

[Shifting of Palatana – Surajmaninagar (TSECL) 400kV D/c line (operated at 132kV) to Surajmaninagar (ISTS) and operation of resultant line at 400kV]



[Establishment of Palatana – Surajmaninagar (TSECL) – Surajmaninagar (ISTS) 400kV D/c corridor]



[Shifting of Comilla – Surajmaninagar (TSECL) line to Surajmaninagar (ISTS)]

