

I/14953/2021



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

सेवा मे / To,

संलग्न सूची के अनुसार  
 As per list enclosed

**विषय : पूर्वी क्षेत्रीय विद्युत समिति (पारेषण योजना) (ERPCTP) की तीसरी बैठक का कार्यवृत्त।**  
**Subject: 3<sup>rd</sup> meeting of Eastern Region Power Committee Transmission Planning (ERPCTP) – Minutes.**

महोदय(Sir)/महोदया(Madam),

पूर्वी क्षेत्रीय विद्युत समिति (पारेषण योजना) (ERPCTP) की तीसरी बैठक तीसरी बैठक 9 फरवरी, 2021 को वीडियो कॉन्फ्रेंसिंग के माध्यम से आयोजित की गई थी। बैठक का कार्यवृत्त संलग्न है।

The 3<sup>rd</sup> meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP) was held on 9<sup>th</sup> February, 2021 through video conferencing. Minutes of the meeting **are** enclosed herewith.

भवदीय/Yours faithfully,

*प्रदीप जिंदल* / *Pardeep Jindal*  
 01/04/2021

(प्रदीप जिंदल/ Pardeep Jindal)  
 मुख्य अभियंता/ Chief Engineer

Copy for kind information to:

- 1) PPS to Chairperson/ Member (PS), CEA

**List of addressee:**

1. Member Secretary, Eastern Regional Power Committee, 14, Golf Club Road, Tollygunge, Kolkata-700033. Tel. No. 033-24235199	2. Managing Director, Bihar State Power Transmission Company, Vidyut Bhavan (4 <sup>th</sup> floor), Bailey Road, Patna-800021
3. Chairman-cum-Managing Director, Jharkhand Urja Sancharan Nigam Limited Engineering Building, H.E.C., Dhurwa, Ranchi-834004.	4. Chairman-cum-Managing Director, Orissa Power Transmission Corporation Ltd, Jan path, Bhubaneshwar-751022.
5. Principal Chief Engineer cum Secretary, Energy & Power Department Government of Sikkim, Sikkim. Tel. No. 03592-2022440 Fax No.03592-202927	6. Managing Director, West Bengal State Electricity Transmission Company Ltd, Vidyut Bhavan (8 <sup>th</sup> Floor), A-block, Salt Lake City, Kolkata-700091.
7. Superintending Engineer, Electricity Department C/O Secretary (GA) Andaman and Nicobar Administration, Secretariat, Port Blair (AN)	8. Chief Operating Officer, Central Transmission Utility (CTU), Power Grid Corporation of India “Saudamini” Plot No. 2, Sector-29, Gurugram-122001
9. Director (System Operations), POSOCO B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi-110016 Tel. No. 26852843 Fax No. 2626524525, 26536901	10. Chairman-cum-Managing Director, Damodar Valley Corporation DVC Towers, VIP Road, Kolkata-700054.
11. Chairman-cum-Managing Director NTPC Limited, NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road,New Delhi – 110003	12. Chairman-cum-Managing Director NHPC Limited, N.H.P.C. Office Complex, Sector-33, Faridabad - 121003 (Haryana)
13. Chairman, Solar Energy Corporation of India Limited, 1 <sup>st</sup> Floor, D-3, A Wing, Prius Platinum Building, District Centre, Saket, New Delhi - 110017.	

## **Minutes of 3<sup>rd</sup> meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP) held on 09<sup>th</sup> February 2021**

Chairperson/Member (PS) (additional charge), CEA welcomed the participants. He appreciated for reducing time gap between the meetings. After brief introduction of the participants, he requested to take up the agenda.

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

- 1. Confirmation of the minutes of 2<sup>nd</sup> meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP).**
- 1.1 Director (PSPA-II), CEA stated that minutes of the 2<sup>nd</sup> meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP) held on 30<sup>th</sup> Sep 2020 were circulated vide CEA letter No. CEA-PS-12-15/2/2018-PSPA-II Division-Part(1)/I/12622/2020 dated 14<sup>th</sup> Dec, 2020.
- 1.2 WBSETCL stated that in the minutes of 2<sup>nd</sup> meeting of ERPCTP, the Gas Generation for WBSETCL shown in Annexure-III has been taken as 100 MW, however, there is no Gas based Power plants in the state. He requested for amending this figure.
- 1.3 It was seen that gas generation was mentioned, however, it was not added to the total generation. Therefore, no other figures would be affected.
- 1.4 Members confirmed the minutes of 2<sup>nd</sup> meeting of ERPCTP with above amendment.

<b>A. ToR 2(i) – QUARTERLY REVIEW AND STRENGTHNING OF INTER-REGIONAL TRANSMISSION SYSTEM</b>
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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.
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### **2. Quarterly Review of transmission line and substation.**

- 2.1 Director (PSPA-II), CEA presented a list transmission lines and substations/ICTs commissioned in the Eastern Region during Q2 and Q3 of 2020-21. He requested the members to update the status, if any.
- 2.2 There were no comments on the presented list of transmission lines and substations/ICTs commissioned.

2.3 The list is of transmission lines and substations/ICTs commissioned in the Eastern Region during Q2 and Q3 of 2020-21 is enclosed at **Annexure-II**.

### **3. Assessment of growth in generation capacity and demand in the region**

3.1 Director (PSPA-II) presented the list of existing/ planned generation capacity (MW) and actual/anticipated peak demand of states in Eastern region. He requested members to update the data, if any, for better projection/ reassessment.

3.2 Representative of BSPTCL stated that the generation capacity of Bihar for Coal based generation is mentioned as 660 MW in the data. This includes the Nabinagar TPS which is now under Central sector as Bihar has sold their stake in the power project to NTPC. Similarly, Buxar TPS is of SJVN, which is under central sector. Regarding Solar generation, BSPTCL stated that they will update the figure within a week.

3.3 Representative of WBSETCL stated that there is no gas generation plant in the state. Also, the total figure of generation till 2024-25 will increase from 8607 MW to 9267 MW on account of new Sagardighi SCTPP (1x660 MW) unit commissioning.

3.4 Director (PSPA-II), CEA stated that the list of generation was shared with the minutes of 2<sup>nd</sup> meeting of ERPCTP. He requested WBSETCL to provide the list of generation pertaining to their projected total of 9267 MW in the format of the list of generation project in Annexure-V of the minutes of the 2<sup>nd</sup> ERPCTP meeting.

3.5 Representative of DVC stated that change is required in the figures of peak demand of DVC in 2019-20, 2021-22 and 2024-25. The same will be informed by DVC within a week.

3.6 The updated list of list of existing/ planned generation capacity (MW) and actual/anticipated peak demand of states in Eastern region is available at **Annexure-III**. The list of generation project is enclosed at **Annexure-IV**.

### **4. Requirement for strengthening of Inter-regional transmission system**

4.1 Director (PSPA-II), CEA stated that for assessment of requirement for strengthening of inter-regional transmission system, following analysis has been carried out:

- (i) Based on the generation/demand pattern of ER in previous three years, nine scenarios have been considered (Annexure-V(A)).
- (ii) Demand factors for the scenarios have been calculated in respect of peak demand met (Annexure-V(B)).

- (iii) Normalized demand for 2019-20, 2021-22 and 2024-25 have been arrived by multiplying peak demand as per EPS with the demand factors (Annexure-V(C)).
  - (iv) Fuel wise anticipated installed capacity in the region was considered as agreed in agenda item-3 above. The same is also available at Annexure-V(D).
  - (v) Considering generation availability factors, under different scenarios for thermal, gas, hydro, Wind/Solar etc. (Available at Annexure-V(E)), anticipated generation was calculated, which is available at Annexure-V(F).
  - (vi) From normalized demand and anticipated generation, surplus/deficit scenario of ER for the period 2019 to 2025 was calculated and available at Annexure-V(G).
  - (vii) It was observed that during 2024-25, maximum surplus in ER would be 12615 MW in August, noon (Scenario-7) and no deficit is estimated. Summary of maximum surplus for the period 2019 to 2025 is available at Annexure-V(H).
  - (viii) Details of inter-regional links with Eastern region are given at Annexure-V(I). From the details, it is observed that, by 2024-25 ER export and import transmission capacities would be 55,100 MW and 49,600 MW respectively. Import/ export transmission capacities of ER for 2021-22 & 2024-25 and ATC for June 2020 available at Annexure-V(I).
  - (ix) As per data obtained from NLDC website, Available Transfer Capability (ATC) for June 2020 (available at Annexure-V(J)) for NR-ER, ER-NR, NER-ER, ER-NER and ER-SR corridor were 1800 MW, 4950 MW, 2305 MW, 1035MW and 5700 MW respectively. Further, no limits were specified for SR-ER, WR-ER and ER-WR corridors. He also informed that as per the operational feedback, no congestion was seen in the market in Q1 of 2020-21.
  - (x) As there is sufficient inter-regional capacity to cater import/export requirement of ER during surplus scenario, additional inter-regional links from ER may not be required by 2024-25.
- 4.2 Representative of ERLDC stated that surplus of more than 10000 MW in ER includes allocation to other Regions also. Sometimes, ER also imports from other regions.
- 4.3 NLDC stated that Surplus/Deficit of Region should be calculated based on single All India snapshot for a particular despatch scenario. These outcomes of surplus/deficit calculated based on all India despatch scenario need to be discussed in all Regional transmission planning meetings in order to assess the overall impact on the system. In all other region's studies on transmission planning, ER is the net importer but, in regional study of ER, it has surplus

generation. Therefore, it is to be ensured that the despatch scenario is uniform for all National as well as regional planning study for assessing transmission system planning requirements.

- 4.4 Chief Engineer (PSPA-II), CEA stated that in absence of all India consolidated generation and demand figures, regional surplus/deficit have been calculated. NCT and CTU are mandated for all India study. The regional studies for ER would be updated as and when the data of self and of all India Load Generation Balance would be available from NCT/CTU.
- 4.5 After deliberations, it was agreed that no additional inter-regional links is to be planned till 2024-25 at present. However, the same would be reviewed in the next meeting of ERPCTP, after taking inputs from discussion in forthcoming meeting of NCT.

## **5. Review of Transmission system by system operator**

- 5.1 ERLDC presented the list of transmission line constraints, ICT constraints, nodes experiencing high voltage/ low voltage during Q2 of 2020-21. List of constraints faced, is at **Annexure-VI**. He stated that some of the constraints would have been avoided if the transmission elements agreed in the previous standing committee meetings were implemented as planned. CTU/STUs were requested for expediting implementation of the agreed transmission system in time, for smooth operation of the ER grid. The constraints requiring planning of additional elements have been discussed in subsequent paragraphs.
- 5.2 400 kV Maithon B – RTPS line : The issue was discussed with agenda item-6 below.
- 5.3 220 kV Patna-Sipara T/C : BSPTCL informed that the reconductoring of ckt-1 and ckt-2 of 220 kV Patna-Sipara T/C line will be taken up after commissioning of Jakhanpur and Naubatpur substations (expected by Dec, 2021) as these are feeding critical load connected at Patna. Accordingly, the work will be completed by July, 2022. ERLDC stated that these circuits will be non-compliant of N-1 criteria during summer peak load of 2021 and there could be cascading effect on other circuits. He suggested for implementation of SPS by BSPTCL for safeguard of the system.
- 5.4 **High loading on 220 kV Durgapur (PG) – Parulia (DVC) D/C line :**  
DVC stated that after detailed engineering for tower spotting, it was found that the electrical clearing from phase to phase cannot be achieved by bunching of each circuit of second 220 kV D/C line between Durgapur (POWERGRID) and Parulia (DVC) with 1<sup>st</sup> D/c line. Accordingly, they will go for reconductoring of 220 kV Durgapur (POWERGRID) -Parulia (DVC) D/C with high capacity HTLS conductor.

They also informed that the LILO of 220 kV Parulia (DVC)-Waria D/C at DSTPS will be completed by Feb, 2021. Therefore, shutdown will be available for reconductoring of 220 kV Durgapur (POWERGRID) -Parulia (DVC) D/C with high capacity HTLS conductor which will be completed by Dec, 2021.

Representative of ERLDC stated that Bidhannagar fault level is already high (40 kA) and WBSETCL has started split mode operation of 220 kV buses at 400/220 kV Bidhannagar substation by opening of bus coupler as short term measure to reduce the fault level at 220 kV Bidhannagar. This has in turn resulted into low reliability. He stated that a comprehensive plan is required to address such issues.

WBSETCL stated that after implementing the bus splitting arrangement on Bidhannagar, the fault level has reduced to 32 kA. But after the LILO of 220 kV Parulia (DVC)-Waria D/C at DSTPS by DVC, the loading at 220 kV Bidhannagar-Waria D/C line will be highly loaded and fault level at Bidhannagar will increase. As this line is very crucial, it cannot be switched off before installation of 3<sup>rd</sup> ICT at Bidhannagar. Therefore, the LILO of 220 kV Parulia (DVC)-Waria D/C at DSTPS by DVC may be commissioned after the commissioning of 3<sup>rd</sup> ICT at Bidhannagar substation i.e., after Dec 2021.

DVC informed that the LILO of 220 kV Parulia (DVC)-Waria D/C at DSTPS cannot be delayed till Dec, 2021 as it is essential for shutdown required for reconductoring of 220 kV Durgapur (POWERGRID) -Parulia (DVC) D/C with high capacity HTLS conductor.

Chief Engineer (PSPA-II) stated that this is an operational issue and ERLDC may convene a meeting with both parties to resolve this matter. CTU may also study the fault level of Durgapur (PGCIL).

It was agreed that the issue will be taken up by ERLDC by conducting a meeting with DVC and WBSETCL.

The issue will also be taken up in a joint study by CEA with participation from ERLDC, DVC, WBSETCL and CTU, if required.

#### **5.5 220 kV Rajarhat-Newtown D/C and 220 kV Suhashgram- EMSS D/C**

Representative of WBSETCL stated that for relieving the 220 kV Rajarhat-Newtown D/C and 220 kV Suhashgram- EMSS D/C, they have implemented Rajarhat (POWERGRID) – New Town AA2 220 kV D/c, Rajarhat (PGCIL) – Barasat/Jeerat 220 kV D/c and Subashgram (PGCIL) – Baraipur 220 kV D/c. But, due to RoW problem, New Town AA2 could not be completed. Barasat/Jeerat has been commissioned but the Rajarhat(PGCIL)-Barasat/Jeerat 220 kV D/C line is still under implementation. To mitigate this N-1 problem, they have started strengthening of 220 kV Rajarhat-Newtown AA3 D/C line with HTLS and will be completed by June, 2022. For the summer peak scenario, the overload problem of the line is relieved by bus splitting of

220 kV New Town AA3 bus with New Town AA3 load & Rajarhat connected at one split bus and EMSS and Subhashgram connected at the other split bus. Regarding 220 kV Suhashgram- EMSS D/C, SPS has been implemented which will operate if the current is increased beyond 1500 Amp.

**5.6 220 kV Muzaffarpur (PG)-Hazipur D/C and 220 kV Hazipur-Amnour D/C lines:**

ERLDC stated that these lines are not N-1 compliant. BSPTCL stated that 220 kV Amnour- Mujaffarpur D/C line will be commissioned by July 2021. The new 400/220/132 kV substation at Chapra (2 X 500 MVA+2 X 200 MVA) has been planned and the 220 kV connectivity proposed at 220 kV Chhapra(New)-Amnour D/C and 220 kV Chhapra(New)-Gopalganj D/C will help with the issue.

**5.7 220 kV Gaya-(PG) -Bodhgaya D/C lines:**

ERLDC stated that these lines are not N-1 compliant. BSPTCL stated that with commissioning of 400/220 kV substation at Chandauti, some load will be shifted from Bodhgaya to this new substation. Also, the 220 kV Bodhgaya(PG)-Sonenagar D/C line will be LILoed at Chandauti and Bodhgaya (BSPTCL) to make 220 kV Bodhgaya (PG)-Chandauti-Bodhgaya (BSPTCL)-Sonenagar D/C line. This will further reduce the loading at the line making it N-1 compliant. BSPTCL also informed that the LILo of the Bodhgaya(PG)-Sonenagar D/C and all the connectivity will be completed by March, 2021.

Representative of BSPTCL stated that at 400/220 kV Muzaffarpur substation an additional 500 MVA ICT (4<sup>th</sup>) has been planned. He also informed that a 315 MVA ICT is planned at Motihari. Upon commissioning these will mitigate the ICT constraints at Muzaffarpur and Motihari.

**5.8 Under voltage constraints:**

ERLDC stated that the voltage of Arambag fluctuates in the range 410-385 kV. The low voltage has been observed during peak hours of June (when load revival took place during unlock-1 phase of COVID-19 related lockdown) due to insufficient reactive power compensation at 220 kV and below levels.

Representative of WBSETCL stated that Arambag voltage has not been lower than 390 kV and presently there is no issue of low voltage. 200 MVAR capacitor banks are already installed under the command area of Arambag. WBSETCL also intimated that another 170 MVAR is expected to be commissioned by next 6 months.

**5.9 Over voltage constraints:**

Regarding high voltage at 400 kV NPGC, ERLDC informed that another 660 MW unit will be commissioned shortly which will increase the reactive power absorption capacity to control the overvoltage. Regarding New PPSP,



WBSETCL stated that they have already planned 2x125 MVAR bus reactor at New PPSP, and it will be commissioned in 18 months. Further, 4 nos. of 125 MVAR reactors have been planned one each at Bidhan Nagar, Kharagpur, Gokarna and Chanditala with target completion schedule of April-2022. This will help in containing these over voltages. WBSETCL mentioned that after the commissioning of Ranchi (New) – Medinipur – Jeerat (New) 765 kV corridor, they will see the effect of reactors installed at 765 kV corridor and accordingly plan for more reactors, if required, in their network.

OPTCL informed that 1x125 MVAR shunt reactor at New Dubri will be commissioned by June, 2021.

For over voltage issue at 400kV Maithon-A, it was agreed that reactive compensation will be studied by ERLDC along with the issues discussed at para 5.4 above.

<b>B. ToR 2(ii) – ASSESSMENT OF TRANSMISSION SYSTEM REQUIREMENTS IN NEAR, MEDIUM AND LONG TERM AND FORMULATE TRANSMISSION SCHEME</b>
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**6. Non-compliance of N-1 contingency criteria on 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C line.**

6.1 Director (PSPA-II), CEA stated that in the 2<sup>nd</sup> meeting of ERPCTP, ERLDC had raised the issue of high loading and non-compliance of N-1 contingency criteria on 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C lines.

6.2 The issue was further discussed in the Joint Study of Eastern Region held on 22.12.2020 wherein DVC had proposed following schemes to meet the substantial Power Demand of Barjora, Durgapur, CTPS & downstream connectivity's of that region and relieving congestion by reduction of power flow of 400KV S/C RTPS – Maithon (PG), 220KV D/C Kalyaneswari – Maithon (PG), 220KV D/C Parulia (DVC) – Parulia (PG) & 220KV D/C Dhanbad – Maithon (PG).

**(A) Establishment of 220KV infrastructure at existing Raghunathpur Thermal Power Station (RTPS) along with associated lines**

Presently, RTPS is having two units (U # 1 & 2 : 600 MW x 2) which are connected to 400KV grid system. DVC proposed for:

a. Establishment of 220KV side connectivity of 2 x 315MVA 400/220KV ICT (already in service) along with 04 nos. of 220KV line bays for the connectivity of item b.

b. D/C LILO of 220KV Chandrapura TPS – Kalyaneswari line to RTPS

**(B) Construction of 400KV (AIS)/220KV (GIS) infrastructure at existing Mejia Thermal Power Station (MTPS) along with associated lines**

DVC stated that MTPS (U # 1 to 6 : 210 MW x 4 + 250 MW x 2, U # 7 & 8 : 500 MW x 2) is having no electrical connectivity between the 400 kV and 220 kV system. DVC proposed for:

- a. Installation of 2 x 315MVA 400/220KV ICT along with controlling bays at both sides and 04 nos. of 220KV line bays for the connectivity of item b & c.
- b. Shifting of 220KV D/C MTPS-A – Barjora Line from MTPS – A to MTPS – B Switchyard
- c. Tie connection between MTPS – A & MTPS – B at 220KV level.
- d. 220KV S/C LILO of MTPS-A – Durgapur at Barjora substation.

6.3 In the Joint Study meeting held on 22.12.2020, members agreed “in-principle” that the above proposed schemes for MTPS and RTPS will help in mitigating the non-compliance of N-1 contingency criteria on 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C lines. However, to confirm through system studies, CTU was requested to share load flow study file with DVC who were requested to revise the load flow study in the updated file and send the converged case to CEA/CTU.

6.4 Representative of DVC stated that they had updated the load flow file and have sent the converged case to CEA and CTU on 08.01.2021.

6.5 ERLDC requested DVC and CTU to share the load flow file with ERLDC to enable them to assess the impact of planned system in operational planning studies. ERLDC also mentioned that:

- (a) The 220 kV Mejia is having a split bus arrangement, which needs to be considered during the study. The final arrangement for 220 kV MTPS-A and 400 kV MTPS-B to be studied considering the 220 kV bus section ON/OFF. The possibility of feeder rearrangement, if required at Mejia, need to be simultaneously studied.
- (b) DVC may share the existing 220 kV bus split detailed arrangement at MTPS-A and future arrangement with this scheme and check reliability issue, if any.
- (c) The fault level at 220 kV Majia-A, 400 kV Mejia-B and 400 kV Maithon Bus A and B need to be analysed simultaneously during the study, so that these connections do not pose any challenge to equipment safety.
- (d) The implementation timeline need to be firmed up, as delaying of scheme will left the DVC system non-reliable.

6.6 MS, ERPC enquired about the status of installation of 400/220 kV ICT, GIS system at 220 kV network and associated downstream connectivity at MTPS.

He mentioned that DVC have taken approval for ICT at MTPS but not for GIS system at 220 kV bus and associated downstream connectivity at MTPS.

- 6.7 DVC stated that the ICT is being used to supply power of 30-40 MW to FGD being erected at MTPS. The downstream network will be awarded when the project is approved in ERPCTP.
- 6.8 It was opined that utilities should bring their composite proposal before the committee for approval.
- 6.9 Director (PSPA-II), CEA stated that DVC has proposed reconductoring of Durgapur – Purulia 220 KV line instead of second D/C line. Further, LILO of Durgapur-Waria 220kV line at DSTPS and commissioning of 400/220 kV ICT at DSTPS are under implementation. Also, constraint of high loading of 400 kV Maithon-B – Raghunathpur line was observed by ERLDC and reported in operational feedback. In this scenario, the proposal of DVC may affect power flow in various lines and the fault level at Bidhan Nagar. He proposed for re-study of the proposal along with fault level studies with the revised inputs.
- 6.10 After deliberations, the issue was referred for joint study. Outcome of the studies will be put up before ERPCTP in next meeting.

## **7. Augmentation of transformation capacity at 400/220kV Ranchi (POWERGRID) S/s**

- 7.1 Director (PSPA-II), CEA stated that in the 2nd meeting of ERPCTP, CTU informed that the power flow through both the 400/220kV Ranchi (POWERGRID) S/s having the transformation capacity of 630MVA (2x315MVA ICT), exceeds more than 450MW during peak hours, thereby not meeting the N-1 reliability criteria and proposed for the augmentation of the transformation capacity at Ranchi S/s with additional 400/220kV, 500MVA ICT along with associated bays in ISTS. In the meeting, it was agreed that JUSNL would share data and studies with CEA/CTU and a joint study will be carried out to examine the issue.
- 7.2 The issue was discussed in the Joint Study of Eastern Region held on 22.12.2020 wherein JUSNL agreed for the augmentation and stated that 315 MVA 400/220 kV ICT can be installed at Ranchi S/s. ERLDC suggested that the bunched ICTs at Rourkela and Jeypore S/s, where new 400/220 kV 315 MVA ICTs were installed and bunched with the existing 315 MVA ICTs may be used for the augmentation at Ranchi S/s. Also, it was agreed that CTU will explore for the spare transformer at Rourkela, Jeypore or any other place for Ranchi S/s.
- 7.3 ERLDC stated that considering the load growth in the Jharkhand capital city and incoming additional 220 kV connectivity from Mejia-A and Ramgarh of

DVC to Ranchi, one additional 400/220 kV ICT is required at Ranchi substation.

- 7.4 Representative of CTU stated that the spare ICTs at Rourkela and Jeypore were planned in the 17<sup>th</sup> meeting of SCPSPER held on 25<sup>th</sup> May, 2015 for compliance of N-1 criteria. As, these ICTs are already in advance stages of commissioning therefore they cannot be used anywhere else.
- 7.5 COO, CTU informed that currently there is no spare ICT available in any region.
- 7.6 ERLDC stated that ICTs augmentation at Rourkela and Jeypore were planned due to high loading of existing ICTs (N-1 compliance), however, these new ICTs would be underutilised in absence of additional 220 kV outlets/drawl requirement from the substations. Further, due to additional ICTs in parallel, the impedance will decrease and loading of 220 kV Rourkela-Tarkera D/C and 220 kV Jeypore-Jeynagar will increase. He opined that bunching of ICTs may not be planned in future substations as has been done at Rourkela and Jeypore substations.
- 7.7 After deliberations, installation of new 400/220kV, 500MVA ICT at Ranchi S/s along with associated bays under ISTS was agreed.

**8. First time charging (FTC) request of 315MVA 400/220KV/33KV ICT#1 and associated 400KV bay of DSTPS, DVC at 400KV level.**

- 8.1 Director (PSPA-II), CEA stated that DVC vide email dated 11.12.2020 has requested CEA for approval for the first time charging (FTC) of 315MVA 400/220KV/33KV ICT#1 and associated 400KV bay of DSTPS, DVC at 400KV level. The issue was discussed in the Joint Study meeting of Eastern Region held on 22.12.2020, DVC informed that CEA, vide letter no. 74/1/2012-SP&PA/823-824 dated 31.07.2012, gave technical approval for 12th plan transmission augmentation of DVC system. This plan included "Establishment of 220 kV level at the existing DSTPS with associate line bays and ICT bays". However, there is no specific mention about ICTs at DSTPS. It was understood that two(2) ICTs are required to create 220 kV level at DSTPS.
- 8.2 DVC informed that the DVC assets for DSTPS are already in place which is ready for charging and may be given "in-principle" acceptance by CEA to put the asset in use. 400/220KV/33KV ICT#2 and associated 400KV bay of DSTPS, DVC is already charged and ICT#1 is on standby.
- 8.3 DVC has also informed that subsequent to erection and commissioning of transformer RIO (East), CEA, vide letter RIO/ER/DVCDSTPS/2020/109 dated 17.08.2020, has given approval for energisation of the electrical installations of new 315 MVA, 400/220/132 kV ICT#1 and associated 400 kV bay at DVC DSTPS substation.

- 8.4 Director (PSPA-II), CEA informed that CEA has conveyed “in-principle” approval for charging of 2x315MVA 400/220KV/33KV ICTs along with associated 400KV bay of DSTPS of DVC vide letter no. CEA-PS-12-15/13/2018-PSPA-II Division//13064/2021 dated 07.01.2021.
- 8.5 Members concurred the same.

**(a) ToR 2(iii) – APPLICATIONS FOR CONNECTIVITY AND ACCESS**

**9. Connectivity/Access application**

- 9.1 CTU stated that no connectivity/access applications were received after 2<sup>nd</sup> meeting of ERPCTP, however, some connectivity applications received before 2<sup>nd</sup> meeting of ERPCTP but could not be informed to ERPCTP. He informed that connectivity to Teesta-IV HEP of NHPC Limited was agreed for grant in 20<sup>th</sup> Connectivity and LTA Meeting held on 13.04.2020. Details of the connectivity is given below:

Sl. No.	Application No.	Applicant	Location	Date of Application	Connectivity Sought (MW)	Nature of Applicant	Tr. System for Connectivity
<b>20<sup>th</sup> Connectivity and LTA Meeting held on 13.04.2020</b>							
1	1200002803	NHPC Limited	Teesta-IV HEP (520MW), Sikkim	10.08.2020	520	Generator (other than Captive)	Through LILO of both circuits of Teesta-III HEP - Rangpo 400kV (Quad) D/c line at Teesta-IV HEP generation switchyard

He also stated that the transmission system for this connectivity was agreed in the 2<sup>nd</sup> meeting of ERPC-TP held on 30-09-2020.

- 9.2 Representative of ERLDC stated that at Teesta-IV switchyard, one and half breaker scheme may be implemented instead of double bus single breaker scheme. He also suggested that 400 kV LILO of Teesta-III – Rangpo D/C line to be terminated at Teesta-IV in such a way that in any contingency at switchyard, the line can be bypassed through Tie Circuit Breaker. Further, there should not be any limiting constraint on account of cables used.
- 9.3 After deliberations, it was agreed that a separate meeting with CEA, CTU, POSOCO and NHPC will be held to discuss the bus arrangement and other issue related to Teesta-IV connectivity system.
- 9.4 CTU also stated that following LTA application(s) were agreed for grant in various Connectivity and LTA meetings of ER:

Sl. No.	Application No.	Applicant	Location	Date of Application	LTA Quantum (MW)	Beneficiaries (MW)	Date of start of LTA
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Sl. No.	Application No.	Applicant	Location	Date of Application	LTA Quantum (MW)	Beneficiaries (MW)	Date of start of LTA
<b>19<sup>th</sup> Connectivity and LTA Meeting held on 28.02.2020</b>							
1	1200002436	ECR*	Nabinagar-I (1000MW), Bihar	23.01.2020	5	West Bengal: 55MW to 50MW Assam: 5MW	01.08.2020 (Revoked on account of non-signing of LTA agreement)
<b>20<sup>th</sup> Connectivity and LTA Meeting held on 13.04.2020</b>							
2	1200002509	ECR*	Nabinagar-I (1000MW), Bihar	06.03.2020	10	West Bengal: 55MW to 45MW Karnataka: 10MW	27.05.2020 (Operationalised)
3	1200002494	Madhya Bharat Power Corporation Limited	Rongnichu HEP (96MW), Sikkim	29.02.2020	96	WR-96MW (Target)	31.01.2021 (Operationalised)

\* Re-allocation of already granted 819MW LTA to ECR from Nabinagar-I generation project.

Further, following MTOA application was agreed to be closed in the meeting held on 05-02-2021:

Application No.	Name of the Applicant	Drawl Region	Quantum of MTOA	Start Date of MTOA	End Date of MTOA	Injection Point	Drawl Point
1200002947	Azure Power India Private Limited [Plant capacity: 30MW)	NR	100	01.06.2021	01.06.2024	Rajasthan	Haryana
		ER	200	01.06.2021	01.06.2024		Jharkhand

9.5 Members noted the same.

## (b) ToR 2(iv) – REVIEW OF UPSTREAM AND DOWNSTREAM NETWORK

### 10. Interim connectivity to generation projects in ER through LILO arrangement

10.1 Director (PSPA-II), CEA informed that in some cases generation projects were commissioned ahead of the commissioning of the associated transmission system. In such cases, generation projects were given temporary connectivity through loop-in & loop-out (LILO) of nearby transmission lines so as to enable them connect with the grid. The temporary connectivity through LILO was to be withdrawn after commissioning of the associated transmission system. Associated transmission system of some of such generation projects have been commissioned and their temporary connectivity through LILO has been

disconnected. However, some generators are still connected through LILO arrangement.

10.2 The details of associated transmission system of IPPs in Eastern Region, which are connected through interim arrangement is given below:

Generation Project in ER connected through temporary LILO arrangement					
Sl. No.	Generation Project	IC (MW)	Present Connectivity through LILO	Final Connectivity Arrangement	Anticipated Completion Schedule
1	Sneha Kinetic Power Projects Pvt. Ltd. (Dikchu HEP)	2x48	LILO of one circuit of Teesta-III – Rangpo 400kV D/c line at Dikchu <i>(granted in Dec'14 by CERC)</i>	LILO of one circuit of Dikchu pool – Singhik D/c (Twin Moose) line (220kV line operated at 132kV) at Dikchu HEP	December 2021, by Sikkim.
2	Shiga Energy Pvt. Ltd. (Tashiding HEP)	2x48.5	LILO of one circuit of Rangpo-New Melli 220kV D/c line at Tashiding through Tashiding-Legship Pool-New Melli 220kV D/c	Tashiding – Legship Pool 220kV D/c line	December, 2021 by Sikkim

10.3 POWERGRID informed that Dikchu pool - Singhik line and LILO portion is expected to be completed by December 2021, by Govt. of Sikkim.

10.4 Regarding Tashiding HEP, representative of POWERGRID informed that Legship Pool will be completed by Dec, 2021. However, as New Melli will be completed by Feb, 2021, the part interim arrangement will be disconnected by Feb, 2021 and Tashiding will be connected to New Melli bypassing Legship Pool S/s, till commissioning of Legship Pool S/s.

10.5 Members noted the information.

**11. Status of downstream 220kV or 132kV network by STUs from the various commissioned and under-construction ISTS substations**

11.1 Director (PSPA-II), CEA stated that 220kV and 132kV network was to be implemented by STUs from the various commissioned and under-construction ISTS substations in ER. He requested respective STUs to update the status of the same.

11.2 The updated details as per the information provided by STUs are enclosed at **ANNEXURE-VII**.

**12. Status of 400kV substations being implemented by STUs in ER under intra-state schemes**

- 12.1 Director (PSPA-II), CEA stated that many 400kV substations have been agreed in the previous meetings of SCPSPER/ERSCT/ERPCTP under intra-state strengthening schemes in ER. He requested respective STUs to update the status of the same.
- 12.2 The updated details as per the information provided by STUs are enclosed at **ANNEXURE-VIII**.

**(c) ToR 2(v) – EXAMINE AND EVALUATE INTRA-STATE PROPOSALS**

**13. Creation of 220 kV bus at Banka (PG)**

- 13.1 Director (PSPA-II) stated that In the 2<sup>nd</sup> meeting of ERPCTP, following was agreed for implementation:

**Under ISTS:**

**Eastern Region Strengthening Scheme-XXV (ERSS-XXV)**

- (a) Creation of 220kV GIS bus at Banka (POWERGRID) S/s
- (b) 400/220kV, 2x500MVA ICTs along with associated bays (220kV bays in GIS)
- (c) 2 nos. of 220kV GIS line bays at Banka (POWERGRID) for termination of Banka (POWERGRID) - Goradih (Sabour New) 220kV D/c line of BSPTCL
- (d) Space for future 220kV GIS bays: 6 no.

**By BSPTCL:**

220kV Banka (POWERGRID) - Goradih (Sabour New) D/C line along with associated bays at Goradih (Sabour New) end. BSPTCL will implement this line matching with the schedule of associated ISTS scheme as above.

- 13.2 He also stated that in the 2<sup>nd</sup> meeting of ERPCTP, it was also agreed that BSPTCL would study requirement of reactive power in Bihar system and send to CEA/CTU for discussion in the next meeting of ERPCTP. However, the information was awaited from BSPTCL.
- 13.3 BSPTCL informed that they are collecting data and will submit the study results with regard to reactive power in Bihar system to CEA/CTU by June, 2021.

**(d) ToR 2(vi) – REVIEW AND FACILITATE CONSTRUCTION OF INTER-REGIONAL GRID STRENGTHNING SCHEME**



**14. Re-conductoring 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**

14.1 Director (PSPA-II), CEA stated that reconductoring of the following transmission system under ISTS was agreed in the 1<sup>st</sup> meeting of NERPCTP held on 08-11-2019 and 1<sup>st</sup> meeting ERPCTP held on 14.02.2020

(i) Re-conductoring of Siliguri – Bongaigaon line with Twin HTLS conductor (ampacity of single HTLS shall be 1596A) along with requisite modifications in line bay equipment at both ends.

(ii) Re-conductoring of Alipurduar – Salakati (Bongaigaon) 220kV D/c line with single HTLS (ampacity of single HTLS shall be 1596A) along with requisite modifications in line bay equipment at both ends.

In the 2<sup>nd</sup> meeting of ERPC-TP, CTU informed that MoP has allocated the above work of reconductoring of lines under RTM to POWERGRID on 25-09-2020 with implementation schedule of 30 months.

14.2 He also stated that POWERGRID, during detailed engineering, observed that the sag considered in the tower design, corresponding to the maximum conductor temperature as mentioned above, is very less compared to present day design of transmission lines where maximum operating temperature is higher (75°C/85°C), while these transmission lines are very old and were designed with maximum conductor temperature of 65°C and 75°C for 220kV and 400kV lines respectively, considering an ambient temperature of 40°C and requested for modification in ampacity of new conductor.

14.3 To discuss the issue, a meeting was held on 21-12-2020 (minutes enclosed at **Annexure-IX**) wherein based on the technical difficulties in achieving the approved current rating through HTLS and considering power flow requirement as per studies of CTU, it was agreed that the Ampacity of HTLS conductors for these inter-regional lines in ER-NER corridor, as mentioned below in col (E) meets the technical requirement:

Sl. No.	Name of transmission line	Ampacity of existing ACSR sub-conductor (A)	Ampacity of Single HTLS Conductor as per MoP order (A)	Ampacity of single HTLS sub-conductor agreed considering technical constraints and system requirement (A)
(A)	(B)	(C)	(D)	(E)
1	400kV D/C Siliguri-Bongaigaon line (Twin ACSR Moose)	707	1596	1400
2	220kV D/C Alipurduar-Salakati line (Single ACSR Zebra)	451	1596	1100

14.4 Members concurred the revised ampacity of new HTLS conductors.

<b>(e) CROSS BORDER INTERCONNECTIONS</b>
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**15. Katihar (Bihar) – Parbotipur (Bangladesh) – Bornagar (Assam) 765kV D/c line.**

15.1 Director (PSPA-II), CEA stated that in the 6<sup>th</sup> meeting of Standing Committee on Power System Planning of NER held on 03-10-2016, Katihar (Bihar) – Parbotipur (Bangladesh) – Bornagar (Assam) 765kV D/c line (initially operated at 400kV) along with HVDC back-to-back at Parbotipur (2x500MW, 1x500MW with 400kV operation and 2<sup>nd</sup> 1x500MW with 765kV operation) was agreed.

15.2 The issue was discussed in the 8<sup>th</sup> meeting of India-Bangladesh JTT-T held on 15-12-2019 & 06-03-2020. In the 18<sup>th</sup> meeting of JSC on India-Bangladesh Cooperation in Power Sector held on 07<sup>th</sup> March 2020, it was mentioned that

*“India would like to go ahead with the financing and construction of the entire 765kV D/C Katihar (India) – Parbotipur (Bangladesh) – Bornagar (India) cross border link. The Bangladesh side may synchronize through this link at Parbotipur at an appropriate time as suggested by JWG for drawal of power. Bangladesh side welcomed the proposal of India’s financing and construction of the 765 kV D/c lines”.*

15.3 In the 2<sup>nd</sup> meeting of ERPCTP, Odisha, Bihar, West Bengal, DVC and Jharkhand stated that considering ROW constraints at chicken neck area, the link is strategically very important. However, they also stated that the link should be implemented by funds of Central Government and there should not be any financial implication on them.

15.4 He also informed that MoP vide letter No. 9/5/2018-trans-Pt(1) dated 31.12.2020 (copy enclosed at **Annexure-X**), has approved implementation of the 765 kV D/C Katihar (India) – Parbotipur (Bangladesh) – Bornagar (India) cross border transmission link (India as well as Bangladesh portion), by Power Grid Cooperation of India Ltd (PGCIL) under Regulated Tariff Mechanism (RTM). This entire link is declared as a project of “National Importance”.

15.5 Members noted the information.

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**Annexure-I****3<sup>rd</sup> meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP) held on 09<sup>th</sup> February 2021 through video conferencing**

<b>Sl. No.</b>	<b>Name</b>	<b>Designation</b>
<b>Central Electricity Authority (CEA)</b>		
1.	P.S.Mhaske	Chairperson & Member (PS)-In chair
2.	Pardeep Jindal	Chief Engineer (PSPA-II)
3.	B.S. Bairwa	Director(PSPA-II)
4.	Suyash Ayush Verma	Assistant Director(PSPA-II)
<b>Eastern Regional Power Commission (ERPC)</b>		
5.	N. S. Mondal	Member Secretary
6.	J. G. Rao	Executive Engineer
<b>POWERGRID (CTU)</b>		
7.	Subir Sen	COO (CTU)
8.	Rajesh Kumar	ED (ER-II)
9.	Ashok Pal	CGM (CTU)
10.	Manish Ranjan Keshari	Manager (CTU)
11.	Shyam Sunder Goyal	Manager (CTU)
12.	Anupam Kumar	Dy. Manager (CTU)
13.	Abhilash Thakur	Engineer (CTU)
<b>POSOCO</b>		
14.	S.R. Narasimhan	Director (System Operation)
15.	D.K. Jain	ED, ERLDC
16.	Saurav Kumar Sahay	CM
17.	Amaresh Mallick	CGM
18.	Surajit Banerjee	Sr. GM
19.	Rajeev Porwal	GM
20.	Chandan Kumar	Manager(SS)
21.	Prabhankar Porwal	Dy. Manager
<b>BSPTCL</b>		
22.	H.R. Panday	Director(Proj)
23.	Deepak Kumar Jha	CE(P&E)
24.	Ravi S. Parsad	ESE/ P&E
25.	Abhishek Kumar	EEE/P&E
<b>JUSNL</b>		
	No representation	
<b>OPTCL</b>		
26.	E.N. Panda	Dir (Projects)
27.	Sen Gupta	CGM (Construction)
28.	C.R. Mishra	DGM
<b>Sikkim (E&amp;PD)</b>		
	No representation	

<b>Sl. No.</b>	<b>Name</b>	<b>Designation</b>
	<b>WBSETCL</b>	
29.	P.K. Kundu	CE, SLDC
30.	Shouvik Banerjee	SE(CPD)
	<b>DVC</b>	
31.	D Kar	ED (Sys)
32.	Subrata Ghosh	Chief Engineer (SPE)
33.	Jayanta Dutta	DCE(E), SPE & OSU(System)
34.	Sandip Ghosh	SE(E), SPE
	<b>NTPC</b>	
35.	Subhash Thakur	Addl. GM(PE-E)
	<b>NHPC</b>	
36.	J. R. Choudhary	ED (T&RE)
37.	J. C. Sarkar	GM (T&RE)
	<b>SECI</b>	
38.	R.K. Agarwal	Consultant

## Annexure-II

### A. Transmission lines commissioned in the Eastern Region during 2019-20:

State/Sector	Executing Agency	Transmission Lines	Voltage Level (in KV)	Circuit Type	Length (Ckm)	Commissioning Month	Quarter
Central Sector	PGCIL	Re-conductoring of New Purnea - Purnea line	220	D/C	2	Dec-19	Q3
	PGCIL	400 kV S/C New Purnear - Gokarna line and 400 kV S/C New Purnear - Farakka line (part of Rajarhat - Purnea line)	400	S/C	302	Nov-19	Q3
	PGCIL	Nabinagar-II - Patna line (Q)	400	D/C	282	Jul-19	Q2
Private Sector	NIL						
Bihar	NIL						
Jharkhand	NIL						
Odisha	OPTCL	Balimela - Malkangiri 2nd Ckt.	220	S/C	21	Jan-20	Q4
	OPTCL	LILO of one ckt of Indravati - Thervali line at Jaypatna	220	D/C	32	Jul-19	Q2
	OPTCL	Bhanjanagar - Aska	220	D/C	57	May-19	Q1
West Bengal	WBSETCL	Bidhannagar-Arambag LILO at New Chanditala	400	D/C	96.8	July-19	Q2
	WBSETCL	Malda(PG)-Dalkhola (PG) LILO at Gajol	220	D/C	6.06	July-19	Q2
	WBSETCL	Gokarna - Krishnanagar LILO at Rejinagar	220	D/C	9	Oct-19	Q3
Sikkim	NIL						

### B. Substations/ICTs commissioned in the Eastern Region during 2019-20:

State/Sector	Executing Agency	Substation/ICTs	Voltage Ratio	Transformation Capacity (MW/MVA)	Commissioning Month	Quarter
Central Sector	PGCIL	Repl. of 1x315 MVA ICT with 1x500 MVA ICT at Pusauli s/s (ICT-II)	400/220	185	Jan-20	Q4
	PGCIL	Extn. at Banka s/s	400/132	315	Dec-19	Q3
	PGCIL	Extn. at Lakhisarai s/s	400/132	315	Dec-19	Q3
	PGCIL	Jharsuguda (Sundargarh) S/S (Addl.)	765/400	3000	Nov-19	Q3
	PGCIL	Uttra (Pindiabil) S/S	400/220	1000	Nov-19	Q3
	PGCIL	Alipurduar HVDC S/S	400/220	630	Nov-19	Q3
	PGCIL	Repl. at Malda (50-160)	220/132	110	Oct-19	Q3
	PGCIL	Extn. at Biharshariff	400/220	500	Sep-19	Q2
	PGCIL	Rajarhat (GIS) S/S (2x500 MVA) ICT-II	400/220	500	Aug-19	Q2
	PGCIL	Extn at Durgapur S/s (3rd ICT)	400/220	315	Jun-19	Q1
	DVC	Dhanbad (Auto-Xmer) T/F-I	220/132	160	Jan-20	Q4
Private Sector	NIL					
Bihar	BSPTCL	Laukahi (Supaul new)	220/132/33	320	May-19	Q1
Jharkhand	JUSNL	Govindpur GSS (PGCIL)	220/132/33	400	Nov-19	Q3
Odisha	OPTCL	Bolangir S/S	220/132	160	Feb-20	Q4
	OPTCL	Jaypatna T/F-II	220/132	160	Jan-20	Q4
	OPTCL	Lapanga S/S (ICT-II)	400/220	315	Aug-19	Q2
	OPTCL	Kashipur S/S	220/33	20	Jul-19	Q2
	OPTCL	Jaypatna S/S	220/132	160	Jul-19	Q2
	OPTCL	Aska S/S	220/132	320	Jun-19	Q1

State/Sector	Executing Agency	Substation/ICTs	Voltage Ratio	Transformation Capacity (MW/MVA)	Commissioning Month	Quarter
West Bengal	WBSETCL	Rejinagar S/S	220/132	320	Oct-19	Q3
	WBSETCL	Gazol GIS	220/132	320	Jul-19	Q2
	WBSETCL	New Haldia NIZ GIS	220/132	160	Jun-19	Q1
Sikkim	NIL					

**C. Transmission lines commissioned in the Eastern Region during Q1 of 2020-21 and upto August, 2020:**

State/Sector	Executing Agency	Transmission Lines	Voltage Level (in KV)	Circuit Type	Length (Ckm)	Commissioning Month	Quarter
Central Sector	PGCIL	Baharampur (PG) - Bheramerar (Bangladesh) line (2nd Ckt.) - India Portion	400	D/C	172	May-20	Q1
	PGCIL	Rajarhat - Purnea line (Triple Snowbird) (Balance Portion)	400	D/C	420	July-20	Q2
Private Sector	NIL						
Bihar	NIL						
Jharkhand	JUSNL	Daltonganj (PG)- Garhwa	220	D/C	183	Aug-20	Q2
	JUSNL	Godda - Dumka line	220	D/C	142	Aug-20	Q2
	JUSNL	Godda - Lalmatia	220	D/C	44	Aug-20	Q2
	JUSNL	Jasidih - Dumka	220	D/C	149	Aug-20	Q2
	JUSNL	Jasidih - Giridih line	220	D/C	154	Aug-20	Q2
Odisha	OPTCL	LILo of Meramundali - Duburi Ckt-I at Goda	220	S/C	12	May-20	Q1

State/Sector	Executing Agency	Transmission Lines	Voltage Level (in KV)	Circuit Type	Length (Ckm)	Commissioning Month	Quarter
	OPTCL	Bolangir (OPTCL) - Bolangir (PGCIL)	220	D/C	3	July-20	Q2
West Bengal	NIL						
Sikkim	NIL						

**D. Substations/ICTs commissioned in the Eastern Region during Q1 of 2020-21 and upto August, 2020:**

State/Sector	Executing Agency	Substation/ICTs	Voltage Ratio (kV/kV)	Transformation Capacity (MW/MVA)	Commissioning Month	Quarter
Central Sector	PGCIL	Extan. at Maithon	400/220	500	July-20	Q2
Private Sector	NIL					
Bihar	NIL					
Jharkhand	JUSNL	Garhwa	220/132	300	Aug-20	Q2
	JUSNL	Giridih S/S	220/132	300	Aug-20	Q2
	JUSNL	Godda GSS	220/132	300	Aug-20	Q2
	JUSNL	Jasidih S/S	220/132	300	Aug-20	Q2
Odisha	OPTCL	Goda S/S	220/132/33	320	May-20	Q1
	OPTCL	Joda S/S	220/132/33	160	July-20	Q2
West Bengal	NIL					
Sikkim	NIL					



**ANNEXURE-III****A. Generation capacity plan of Eastern Region:**

State	Coal	Hydro	Solar	Gas	DG	2019-20	2021-22	2024-25
Bihar	660	0	0	0	0	660	1980	1980
Jharkhand	420	130	0	0	0	550	550	550
Odisha	1740	2142	0	0	0	3882	3882	3882
Sikkim	0	0	0	0	0	0	0	0
West Bengal	7545	1062	0	0	0	8607	8607	9267
Central Sector	19050	1005	0	0	0	20055	24145	28345
Private	7667	1599	0	0	0	9266	9122	9239
<b>Total</b>	<b>37082</b>	<b>5938</b>	<b>0</b>	<b>100</b>	<b>0</b>	<b>43020</b>	<b>48286</b>	<b>53263</b>

**B. Actual/anticipated demand of states in Eastern region:**

Peak Demand (in MW) according to 19th EPS				Actual	Anticipated
State	2019-20	2021-22	2024-25	Peak (2019-20)	Peak (2024-25)
Bihar	5,308	6,576	8,003	5,835	8,003
DVC	3,129	3,598	4,439	3,014	4,439
Jharkhand*	3,332	3,755	4,385	1,396	4,385
Odisha	5,016	5,340	5,878	5,292	5,530
West Bengal*	9,919	10,528	11,624	9,263	11,043
Sikkim	154	170	197	115	197
<b>Total</b>	<b>24,869</b>	<b>27,747</b>	<b>31,968</b>	<b>23,421</b>	<b>31,108</b>

*\*Excluding DVC part*

## ANNEXURE-IV

### Demand and generation scenario in ER

#### A. Scenarios considered for studies

Scenario -1	Scenario-2	Scenario-3	Scenario-4	Scenario-5	Scenario-6	Scenario-7	Scenario-8	Scenario-9
<b>February</b>			<b>June</b>			<b>August</b>		
Noon	Evening Peak	Night off peak	Noon	Evening Peak	Night off peak	Noon	Evening Peak	Night off peak

#### B. Demand Factor for the 09 scenarios:

Scenario-1	Scenario-2	Scenario-3	Scenario-4	Scenario-5	Scenario-6	Scenario-7	Scenario-8	Scenario-9
0.68	0.9	0.55	0.78	0.95	0.66	0.75	0.97	0.7

#### C. Normalized Demand (= Peak Demand as per EPS x Demand Factor)

	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
<b>2019-20</b>	16911	22382	13678	19398	23626	16414	18652	24123	17408
<b>2021-22</b>	18868	24972	15261	21643	26360	18313	20810	26915	19423
<b>2024-25</b>	21738	28771	17582	24935	30370	21099	23976	31009	22378

#### D. Anticipated Installed Capacity (MW):

	Coal	Hydro	Solar	Gas	DG	Total
2019-20	34827	5862	0	100	0	40789
2021-22	39667	5958	0	100	0	45725
2024-25	43247	6695	0	100	0	50042

#### E. Availability Factor for the scenarios:

Scenario	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
<b>Coal</b>	0.7	0.8	0.6	0.7	0.8	0.6	0.7	0.8	0.6
<b>Hydro</b>	0.3	0.7	0.3	0.6	0.85	0.7	0.7	0.9	0.7

<b>Solar</b>	0.7	0	0	0.6	0	0	0.5	0	0
<b>Gas</b>	0	0.3	0	0	0.3	0	0	0.3	0
<b>DG</b>	0	0	0	0	0	0	0	0	0

F. Anticipated Available Generation:

	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
<b>2019-20</b>	26138	31995	22655	27896	32874	25000	28482	33167	25000
<b>2021-22</b>	29554	35934	25588	31342	36828	27971	31938	37126	27971
<b>2024-25</b>	32281	39314	27957	34290	40318	30635	34959	40653	30635

G. ER surplus/deficit scenario for the period 2019 to 2025:

	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
<b>2019-20</b>	9227	9613	8977	8498	9249	8586	9831	9044	7591
<b>2021-22</b>	10686	10962	10327	9699	10468	9658	11127	10211	8548
<b>2024-25</b>	10543	10543	10374	9355	9949	9536	10983	9644	8257

**Note:** In case of high RE generation during June and August in SR, WR & NR, the ER despatch may have to be brought down. Thus reducing the surplus.

H. Max Surplus (No deficit is estimated upto 2024-25):

	Max Surplus
<b>2019-20</b>	9831
<b>2021-22</b>	11127
<b>2024-25</b>	10983

I. Details of inter-regional links with Eastern region are given below:

Corridor	Present	Expected by 2022	Expected by 2024-25
<b>EAST-NORTH (ER-NR)</b>			
Karmanasa-Sahupuri 220 kV S/c	130	130	130
Muzaffarpur-Gorakhpur 400 kV D/c (with Series Cap+TCSC)	2,000	2,000	2,000
Patna – Balia 400kV D/c (Quad)	1,600	1,600	1,600

Corridor	Present	Expected by 2022	Expected by 2024-25
Biharshariff – Balia 400kV D/c(Quad)	1,600	1,600	1,600
Barh – Balia 400kV D/c (Quad)	1,600	1,600	1,600
Gaya - Balia 765kV S/c	2,100	2,100	2,100
Sasaram-Allahabad/Varanasi 400kV D/C line (Sasaram HVDC back to back has been bypassed)	1,000	1,000	1,000
Sasaram - Fatehpur 765kV2x S/c	4,200	4,200	4,200
Barh-II-Gorakhpur 400kV D/c (Quad) line	1,600	1,600	1,600
Gaya-Varanasi 765 kV S/c line	2,100	2,100	2,100
LILO of Biswanath Chariali - Agra +/- 800 kV, 3000 MW HVDC Bi-pole at new pooling station in Alipurduar and addition of second 3000 MW module	3,000	3,000	3,000
Biharsharif-Varanasi 400kV D/c line (Quad)	1,600	1,600	1,600
<b>Subtotal</b>	<b>22,530</b>	<b>22,530</b>	<b>22,530</b>
<b>EAST-WEST (ER-WR)</b>			
Budhipadar-Korba 220 kV 3 ckts.	390	390	390
Rourkela-Raipur 400 kV D/c with series comp.+TCSC	1,400	1,400	1,400
Ranchi –Sipat 400 kV D/c with series comp.	1,200	1,200	1,200
Rourkela-Raipur 400 kV D/c (2 <sup>nd</sup> ) with series comp.	1,400	1,400	1,400
Ranchi - Dharamjayagarh - WR Pooling Station 765kV S/c line	2,100	2,100	2,100
Ranchi - Dharamjayagarh 765kV 2nd S/c	2,100	2,100	2,100
Jharsuguda-Dharamjayagarh 765kV D/c line	4,200	4,200	4,200
Jharsuguda-Dharamjayagarh 765kV 2nd D/c line	4,200	4,200	4,200
Jharsuguda- Raipur 765kV D/c line	4,200	4,200	4,200
<b>Subtotal</b>	<b>21,190</b>	<b>21,190</b>	<b>21,190</b>
<b>EAST- SOUTH (ER-SR)</b>			
Balimela-Upper Sileru 220kV S/c	130	130	130
Gazuwaka HVDC back-to-back	1,000	1,000	1,000
Talcher-Kolar HVDC bipole	2,000	2,000	2,000
Upgradation of Talcher-Kolar HVDC Bipole	500	500	500
Angul - Srikakulum 765 KV D/C line	4,200	4,200	4,200
<b>Subtotal</b>	<b>7,830</b>	<b>7,830</b>	<b>7,830</b>
<b>EAST- NORTH EAST</b>			
Birpara-Salakati 220kV D/c	260	260	350 (After HTLS reconductoring)
Malda - Bongaigaon 400 kV D/c	1,000	1,000	1,600 (After HTLS reconductoring)
Siliguri - Bongaigaon 400 kV D/c (Quad) line	1,600	1,600	1,600
<b>Subtotal</b>	<b>2,860</b>	<b>2,860</b>	<b>3,550</b>
<b>Total</b>	<b>54410</b>	<b>54410</b>	<b>55100</b>

J. ER Import/export capacity/capability:

	<b>ER Export (in MW)</b>	<b>ER Import (in MW)</b>
June 2020 ATC*	11905+WR	4,355+SR+WR
By 2021-22	54,410	48,910
By 2024-25	55,100	49,600

*\*No simultaneous Export or Import capability provided by NLDC.*

**ANNEXURE-V**

**Generators considered for anticipated generation in ER**

STATE	FUEL TYPE	PROJECT NAME	Total Capacity	Capacity added till March, 2020	Capacity to be added during 2020-22(MW)	2022-25	SECTOR	DEVELOPER
Bihar	Coal	Barauni TPS Extn.	250	250			Central	NTPC
Bihar	Coal	Barh STPP-I	660		660		Central	NTPC
Bihar	Coal	Barh STPP-I	660		660		Central	NTPC
Bihar	Coal	Barh STPP-I	660		660		Central	NTPC
Bihar	Coal	Jas Infra. TPS	660				Private	JICPL
Bihar	Coal	Jas Infra. TPS	660				Private	JICPL
Bihar	Coal	Jas Infra. TPS	660				Private	JICPL
Bihar	Coal	Jas Infra. TPS	660				Private	JICPL
Bihar	Coal	Nabi Nagar TPP	250		250		Central	JV of NTPC & Rly.
Bihar	Coal	New Nabi Nagar TPP	660		660		State	JV of NTPC & BSPGCL
Bihar	Coal	New Nabi Nagar TPP	660	660			State	JV of NTPC & BSPGCL
Bihar	Coal	New Nabi Nagar TPP	660		660		State	JV of NTPC & BSPGCL
Bihar	Coal	Barauni TPS Extn.	250	250			Central	NTPC
Bihar	Coal	Muzaffarpur TPS	195	195			Central	NTPC
Bihar	Coal	Nabi Nagar TPP	250	250			Central	JV of NTPC & Rly.
Bihar	Coal	Nabi Nagar TPP	250	250			Central	JV of NTPC & Rly.
Bihar	Coal	Barh STPP II U-4	660	660			Central	NTPC
Bihar	Coal	Barh STPP II U-5	660	660			Central	NTPC
Bihar	Coal	Muzaffarpur TPS	195	195			Central	NTPC
Bihar	Coal	Nabi Nagar TPP	250	250			Central	JV of NTPC & Rly.
Bihar	Coal	Barauni TPS	210	210	-210		Central	NTPC
Bihar	Coal	Kahalgaon TPS	840	840			Central	NTPC
Bihar	Coal	Kahalgaon TPS	1500	1500			Central	NTPC
Bihar	Coal	Muzaffarpur TPS	220	220	-220		Central	NTPC
Bihar	Coal	Buxar TPP	1320			1320	Central	SJVNL
Jharkhand	Hydro	Maithon HPS (WB as per PDM)	63.2	63.2			Central	DVC
Jharkhand	Hydro	Panchet HPS	80	80			Central	DVC
Jharkhand	Hydro	Subernrekha HPS	130	130			State	Jharkhand Urja Utpadan Nigam Ltd.

STATE	FUEL TYPE	PROJECT NAME	Total Capacity	Capacity added till March, 2020	Capacity to be added during 2020-22(MW)	2022-25	SECTOR	DEVELOPER
Jharkhand	Coal	Chandrapura (DVC) TPS	130	0			Central	DVC
Jharkhand	Coal	Chandrapura (DVC) TPS	260	0			Central	DVC
Jharkhand	Coal	Koderma TPS	500	500			Central	DVC
Jharkhand	Coal	Matrishri Usha TPP Ph-I	270				Private	Corporate Power Ltd.
Jharkhand	Coal	Matrishri Usha TPP Ph-I .	270				Private	Corporate Power Ltd.
Jharkhand	Coal	Matrishri Usha TPP Ph-I .	270				Private	Corporate Power Ltd.
Jharkhand	Coal	Matrishri Usha TPP Ph-I .	270				Private	Corporate Power Ltd.
Jharkhand	Coal	Tori TPP	1800				Private	Essar Power
Jharkhand	Coal	North Karanpura TPP	660		660		Central	NTPC
Jharkhand	Coal	North Karanpura TPP	660		660		Central	NTPC
Jharkhand	Coal	North Karanpura TPP	660			660	Central	NTPC
Jharkhand	Coal	Patratu TPS	315				State	
Jharkhand	Coal	Patratu TPS	455				State	
Jharkhand	Coal	Adhunik Power TPP U1,2	540	540			Private	APNRL
Jharkhand	Coal	Bokaro TPS "A"EXP U-1	500	500			Central	DVC
Jharkhand	Coal	Koderma TPP	500	500			Central	DVC
Jharkhand	Coal	Bokaro TPS B	630	210	-210		Central	DVC
Jharkhand	Coal	Chandrapura (DVC) TPS	500	500			Central	DVC
Jharkhand	Gas	Maithon GT(liq)	90				Central	DVC
Jharkhand	Coal	Jojobera TPS	240	240			Private	TATA POWER
Jharkhand	Coal	Maithon RB TPP	1050	1050			Private	MAITHON POWER LIMITED
Jharkhand	Coal	Tenughat TPS	420	420			State	
Jharkhand	Coal	Patratu TPS	2400			1600	Central	PVUNL (JV of NTPC & Govt. of Jharkhand)
					800			
Odisha	Coal	Ind Barath (Utkal) TPP U2	350				Private	Ind Barath
Odisha	Hydro	Balimela HPS	510	510			State	
Odisha	Hydro	Hirakund HPS	275.5	275.5			State	
Odisha	Hydro	Chiplima HPS	72	72			State	

STATE	FUEL TYPE	PROJECT NAME	Total Capacity	Capacity added till March, 2020	Capacity to be added during 2020-22(MW)	2022-25	SECTOR	DEVELOPER
Odisha	Hydro	Machkund HPS	114.75	114.75			State	
Odisha	Hydro	Rengali HPS	250	250			State	
Odisha	Hydro	Upper Indravati HPS	600	600			State	
Odisha	Hydro	Upper Kolab HPS	320	320			State	
Odisha	Coal	Darlipalli STPP	800	800			Central	NTPC
Odisha	Coal	Darlipalli STPP	800		800		Central	NTPC
Odisha	Coal	Ib valley TPP	1320	1320			State	OPGCL
Odisha	Coal	KVK Nilanchal TPP	350				Private	KVK Nilanchal
Odisha	Coal	KVK Nilanchal TPP	700				Private	KVK Nilanchal
Odisha	Coal	Lanco Babandh TPP	660				Private	Lanco Babandh
Odisha	Coal	Lanco Babandh TPP	660				Private	LBP Ltd.
Odisha	Coal	Malibrahmani TPP	525				Private	MPCL
Odisha	Coal	Malibrahmani TPP	525				Private	MPCL
Odisha	Coal	Derang TPP	1200	1200			Private	J IPL
Odisha	Coal	Ind Barath (Utkal) TPP U1	350	350			Private	Ind Barath Power Ltd
Odisha	Coal	Kamalanga TPP	700	700			Private	GMR Energy
Odisha	Coal	Kamalanga TPP U-1	350	350			Private	GMR kamalanga Energy ltd
Odisha	Coal	Ib valley TPS	420	420			State	
Odisha	Coal	Sterlite TPP	1200	1200			Private	
Odisha	Coal	Talcher (old ) TPS	240	240	-240		Central	NTPC
Odisha	Coal	Talcher (old ) TPS	220	220	-220		Central	NTPC
Odisha	Coal	Talcher STPS	3000	3000			Central	NTPC
Odisha	Coal	Rourkela TPS Exp.	250		250		Central	JV of NTPC & SAIL
Sikkim	Hydro	Bhasmey	51			51	Private	Gati Infrastructure
Sikkim	Hydro	Dikchu	96	96			Private	Sneha Kinetic Power Projects Pvt. Ltd.
Sikkim	Hydro	Panan	300				Private	Madhya Bharat Power Corporation Ltd.
Sikkim	Hydro	Rangit-II HPS	66			66	Private	SHPL
Sikkim	Hydro	Rangit-IV HPS	120				Private	Jal Power



STATE	FUEL TYPE	PROJECT NAME	Total Capacity	Capacity added till March, 2020	Capacity to be added during 2020-22(MW)	2022-25	SECTOR	DEVELOPER
Sikkim	Hydro	Rongnichu	96		96		Private	MBPCL
Sikkim	Hydro	Tashiding	97	97			Private	Shiga Energy Pvt. Ltd.
Sikkim	Hydro	Teesta- III	1200	1200			Private	Teesta Urja Ltd
Sikkim	Hydro	Teesta V HPS	510	510			Central	NHPC
Sikkim	Hydro	Teesta- VI	500			500	Central	NHPC/LANCO
Sikkim	Hydro	Chujachen HEP	110	110			Private	Gati Infrastructure Ltd.
Sikkim	Hydro	Jorethong Loop U-1,2	96	96			Private	DANS PVT. LTD
Sikkim	Hydro	Rangit HPS	60	60			Central	NHPC
West Bengal	Coal	DPL TPS	60				State	DURGAPUR PROJECTS LIMITED
West Bengal	Coal	DPL TPS	220				State	DURGAPUR PROJECTS LIMITED
West Bengal	Coal	DPL TPS	110				State	DURGAPUR PROJECTS LIMITED
West Bengal	Coal	India Power TPP	150	150			Private	Haldia Energy Ltd.
West Bengal	Coal	India Power TPP	150	150			Private	Haldia Energy Ltd.
West Bengal	Coal	India Power TPP	150				Private	Haldia Energy Ltd.
West Bengal	Coal	New Cossipore TPS	60				Private	
West Bengal	Coal	New Cossipore TPS	100				Private	
West Bengal	Coal	Sagardighi TPS-II	500	500			State	WBDCL
West Bengal	Coal	DPL TPP EXT.	250	250			State	DURGAPUR PROJECTS LTD.
West Bengal	Coal	DPL TPP EXT.	300	300			State	DURGAPUR PROJECTS LTD.
West Bengal	Coal	Haldia TPP	600	600			Private	M/s Haldia Energy Limited
West Bengal	Coal	Raghunathpur TPP Ph-I	600	600			Central	DVC

STATE	FUEL TYPE	PROJECT NAME	Total Capacity	Capacity added till March, 2020	Capacity to be added during 2020-22(MW)	2022-25	SECTOR	DEVELOPER
West Bengal	Coal	Raghunathpur TPP, Ph-I	600	600			Central	DVC
West Bengal	Coal	Sagardighi TPP EXT	500	500			State	WBPDCL
West Bengal	Hydro	Jaldhaka HPS ST-I	27	27			State	WBSEDCL
West Bengal	Hydro	Jaldhaka HPS ST-II	9	9			State	WBSEDCL
West Bengal	Hydro	Purulia PSS HPS	900	900			State	
West Bengal	Hydro	Rammam - III	120			120	Central	
West Bengal	Hydro	Rammam HPS	50	50			State	WEST BENGAL STATE ELECTRICITY DISTRIBUTION CO. LIMITED
West Bengal	Hydro	Teesta Low Dam-IV	40	40			Central	NHPC
West Bengal	Hydro	Teesta Low Dam-IV	40	40			Central	NHPC
West Bengal	Hydro	Teesta Low Dam-III HEP	99	99			Central	NHPC
West Bengal	Hydro	Teesta Low Dam-IV HEP	80	80			Central	NHPC
West Bengal	Coal	Durgapur TPS	130				Central	DVC
West Bengal	Coal	Durgapur TPS	210	210	-210		Central	DVC
West Bengal	Coal	Durgapur Steel TPS	1000	1000			Central	DVC
West Bengal	Coal	Mejia TPS	840	840			Central	DVC
West Bengal	Coal	Mejia TPS	500	500			Central	DVC
West Bengal	Coal	Mejia TPS	1000	1000			Central	DVC
West Bengal	Hydro	Teesta Low Dam-III HEP	33	33			Central	NHPC
West Bengal	Coal	Bakreswar TPS	1050	1050			State	
West Bengal	Coal	Bandel TPS	120	120	-120		State	
West Bengal	Coal	Bandel TPS	120				State	
West Bengal	Coal	Bandel TPS	210	210	-210		State	
West Bengal	Coal	Budge Budge TPS	750	750			Private	
West Bengal	Coal	Chinakpuri TPS	30				Private	
West Bengal	Coal	Dishergarh TPP	12	12			Private	DISHERGARH POWER SUPPLY COMPANY LIMITED
West Bengal	Coal	Farakka STPS	600	600			Central	NTPC

STATE	FUEL TYPE	PROJECT NAME	Total Capacity	Capacity added till March, 2020	Capacity to be added during 2020-22(MW)	2022-25	SECTOR	DEVELOPER
West Bengal	Coal	Farakka STPS	1500	1500			Central	NTPC
West Bengal	Coal	Kolaghat TPS	1260	1260			State	
West Bengal	Coal	Sagardighi TPS	600	600			State	WBPDC
West Bengal	Coal	Santaldih TPS	480				State	WBPDC
West Bengal	Coal	Santaldih TPS	500	500			State	WBPDC
West Bengal	Coal	Southern REPL. TPS	135	135			Private	
West Bengal	Coal	Titagarh TPS	240	240	-240		Private	
West Bengal	Gas	Haldia GT (liq)	40	40			State	WBPDC
West Bengal	Gas	Kasba GT(liq)	40	40			State	WBPDC
West Bengal	Gas	Siliguri GPS	20	20			State	WBPDC

## ANNEXURE-VI

Operational constrains faced in Eastern Region by the system operator during Q2 of 2020-21 are given below:

## A. Transmission line constraints

Sl. No.	Transmission Element	Description of Constraints	Remarks
1.	400 kV Maithon B – RTPS line	During high generation at Raghunathpur TPS (both units in service) and low generation at MPL, the loading of 400 kV Maithon B- RTPS approaches its thermal limit as it provides a low impedance path being a short line (40 km) to Maithon which is a load centre.	Discussed with agenda item-6.
2.	220 kV Patna-Sipara T/C	There are three 220 kV lines between Patna (POWERGRID) and Sipara (BSPTCL) S/s. Major loads of Patna are fed from 220 kV Sipara substation. The length of the line is extremely short (less than 500 m). Further, Sipara is connected with Khagaul as well as to Fatuah at 220 kV level and is partly feeding these loads also. This is leading to higher loading of 220 kV Patna-Sipara T/C and violation of N-1 security criteria constraint for most of the time.	220 kV Patna-Sipara 1 & 2 HTLS conversion was approved during the 2nd meeting of ERPCTP.
3.	<b>220 kV Durgapur (PG) – Parulia (DVC) D/C</b>	Parulia (Durgapur) is a major load center in DVC control area. Due to decommissioning of DVC units (at Bokaro-B and CTPS) and low generation from internal plants particularly at Mejia and Waria, the load of Parulia and nearby area is practically met through importing large quantum of power from Durgapur substation	DVC has proposed for reconductoring of the line with HTLS conductor instead of implementing new circuit.

		of PG through 220 kV Durgapur(PG)-Parulia(DVC) D/C. This resulted in very high loading of above line and even crossed the N-1 security limit. In addition, it is observed from studies as well as established through trial operation that these loading further increase with 400 kV bus split operation of Durgapur (PG) and third 400/220 kV ICT operation at Durgapur which has already been taken into service from June 2019.	
4.	220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C	High loading of 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C is observed due to  1. Less generation at CTPS 2. Low/ NIL generation at Bokaro-B 3. Less generation at Koderma  With commissioning of 3 <sup>rd</sup> Maithon ICT of 500 MVA. Loading has further increased on these circuits due to low impedance path and nearness to load centre.	Included at agenda item no 6.
5.	220 kV Rajarhat-Newtown D/C and 220 kV Subhasgram-EMSS D/C	These lines are not N-1 compliant. In this qtr, 220 kV Shubhasgram-EMSS loading is low however it is more during the summer season.	1. Load trimming scheme has been implemented on 220 kV Subhasgram-EMSS D/C.
6.	220 kv Mujaffarpur (PG)-Hazipur D/C and 220 kv Hazipur-Amnour D/C	These lines are not N-1 compliant.	1. Sitamarhi s/s under implementation. 2. Chhapra 400/220 kV sub-stations already agreed. 3. Amnour- Mujaffarpur D/C line will be commissioned by July 2021

			<b>4.</b>
7.	220 kV Gaya-(PG) - Bodhgaya D/C	These lines are not N-1 compliant.	with commissioning of 400/220 kV substation at Chandauti, some load will be shifted from Bodhgaya to this new substation  220 kV Bodhgaya(PG)-Sonenagar D/C line will be LILOed at Chandauti and Bodhgaya (BSPTCL) to make 220 kV Bodhgaya (PG)-Chandauti-Bodhgaya (BSPTCL)-Sonenagar D/C line

## B. ICT constraints

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
1	400/220 kV Ranchi 2 X 315 MVA ICTs	With Low generation at Tenughat, increased load of JUSNL and drawal by WBSETCL from 220 kV Chandil-STPS, loading of 400/220 kV Ranchi ICTs exceeded the (n-1) security limit	Included in agenda item no 7.
2.	400/220 kV Muzaffarpur 2X315 MVA and 1 X 500 MVA ICTs	Muzaffarpur is feeding a major load in Bihar and presently feeding to Nepal under interim arrangement of 400 kV Muzaffarpur-Dhalkebar D/C operating at 220 kV. This is resulting in N-1 non-compliance.	1. 400 kV Mujaffarpur-Dhalkebar line has been charges at rated voltage. 2. Installation of 500 MVA additional ICT has already been planned and approved by Standing Committee.
3.	400/132 kV 2 X 200 MVA Motihari ICT	Motihari ICTs are feeding to loads of North Bihar as well as to Nepal through 132 kV Raxaul-Parwanipur circuits. Due to the increase in Load in North Bihar these ICTs do not satisfy	1. 3rd 315 MVA 400/132 kV ICT has already been planned for Motihari 2.

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
		N-1 Criteria.	
4.	400/220 kV 2 X 500 MVA Darbhanga ICT	During peak load of Bihar, the total ICT loading is increasing above 500 MW. The N-1 of one ICT has 60 % sensitivity on other ICT at present. In future with increasing demand of Bihar the loading will further increase	BSPTCL has already planned and is executing the 400/220 kV Saharsa substation which will relieve these ICTs loading.

### C. Under voltage constraints

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
1	Arambag, Shubhasgram and Jeerat	The voltage of Arambag fluctuates in the range 380-420 kV. The low voltage has been observed during peak hours of July and with insufficient reactive power compensation at 220 kV and below levels in West Bengal.	West Bengal has informed that there is no issue of undervoltage.

### D. Over voltage constraints:

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
1	400 kV NPGC	High voltage is observed during the off-peak hour due to lightly loaded condition of Patna-NPGC D/C.	Full utilization of the reactive capability of 1X660MW unit of NPGC.
2	400 kV Binaguri,	High voltage at Binaguri occurs during low hydro generation in Sikkim and Bhutan. There are two long Twin Moose lines to Bongaigaon(NER) and four Qd. Moose lines to Alipurduar	One circuit of Binaguri-Alipurduar had to be opened as last resort. However, there was no requirement of line opening in this quarter.

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
		connected to Binaguri. Due to the extremely light loaded condition of the lines, high voltage was aggravated at Binaguri	
3	400 kV New PPSP	Light loading of 400kV NPPSP-Ranchi D/C and NPPSP-Arambag D/C lines, which are more than 200 km each and absence of PPSP units during part of the lean hours caused high voltage at New PPSP and other nearby stations.	Need of additional reactors at N. PPSP Or Purulia pump storage HPS. Presently one circuit of N. PPSP – Arambag 400 kV D/C line is being opened on daily basis to control voltage.  WBSETCL has already planned installation of 1X125MVAR bus reactor at NPPSP.
4	400 kV Maithon A	Lightly loaded condition of 400kV Gaya-Maithon Qd. Moose lines coupled with inadequate reactive power absorption by Mejia-B units caused high voltage at Maithon A	Additional reactive power planning may be considered at Maithon.
5	400 kV New Dubri	During lean hours Odisha's consumption at N. Duburi area falls to low values leading to an extremely underloaded condition of N. Duburi-Baripada and N. Duburi – Pandiabil 400kV lines	Addition of 125 MVAR shunt reactor at N. Duburi has already been planned by OPTCL. Its implementation status needs to be shared.



## ANNEXURE-VII

**Status of downstream 220kV or 132kV network by STUs from the various commissioned and under-construction ISTS substations**

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Updated Completion Schedule
<b>A</b>	<b>Existing Substations:</b>			
	<b>To be implemented by WBSETCL:</b>			
<b>A1</b>	<b>Rajarhat</b>	<b>400/220kV</b>		
i)	Rajarhat (POWERGRID) – New Town AA3	220kV D/c	Commissioned	
ii)	Rajarhat (POWERGRID) – New Town AA2	220kV D/c	--	Dec'21
iii)	Rajarhat (POWERGRID) – Barasat/Jeerat	220kV D/c	--	March'22
<b>A2</b>	<b>Subashgram</b>	<b>400/220kV</b>		
i)	Subashgram (POWERGRID) – Baraipur	220kV D/c	--	Line completed. S/S Aug'21
	<b>To be implemented by OPTCL:</b>			
<b>A3</b>	<b>Pandiabil</b>	<b>400/220kV</b>		
i)	Pratapsasan (OPTCL) – Pandiabil (POWERGRID)	220kV D/c		June'21
<b>A4</b>	<b>Bolangir</b>	<b>400/220kV</b>		
i)	LILO of one ckt of Sadeipalli – Kesinga 220kV D/c at Bolangir	220kV		June'21
<b>A5</b>	<b>Keonjhar</b>	<b>400/220kV</b>		
i)	Keonjhar (POWERGRID) – Turumunga (OPTCL)	220kV D/c		Nov'21
	<b>To be implemented by JUSNL:</b>			
<b>A6</b>	<b>Daltonganj</b>	<b>400/220/132kV</b>		

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Updated Completion Schedule
i)	Daltonganj (POWERGRID) – Latehar	220kV D/c		Dec, 21
ii)	Daltonganj (POWERGRID) – Garhwa (New)	220kV D/c		commissioned
iii)	Daltonganj (POWERGRID) – Chatarpur	132kV D/c		Dec, 21
<b>A7</b>	<b>Chaibasa</b>	<b>400/220kV</b>		
i)	Chaibasa (POWERGRID) – Jadugoda (JUSNL)	220kV D/c		No update
<b>B</b>	<b>Under Construction Substations:</b>			
<b>B1</b>	<b>Sitamarhi</b>	<b>400/220/132kV</b>		Feb 2021
i)	Sitamarhi (New) – Motipur (BSPTCL)	220kV D/c		Ready to charge
ii)	Sitamarhi (New) – Raxaul (New)	220kV D/c (Twin Moose)		Mar, 2021
iii)	Sitamarhi (New) – Runni Saidpur	132kV D/c		Feb, 2021
iv)	LILO of Benipatti – Pupri 132kV S/c at Sitamarhi (New)	132kV S/c		Feb, 2021
<b>B2</b>	<b>Saharsa</b>	<b>400/220/132kV</b>		Mar 2021
i)	Saharsa (New) – Khagaria	220kV D/c		Mar, 2021
ii)	Saharsa (New) – Begusarai	220kV D/c		Jul, 2021
iii)	Saharsa (New) – Saharsa 132kV D/c line formed by LILO of Saharsa – Banmankhi and Saharsa – Uda Kishanganj 132kV S/c lines	132kV D/c		Feb, 2021

<b>Sl. No.</b>	<b>Substation/Location</b>	<b>Transformation Capacity/ Element</b>	<b>Date of Award</b>	<b>Updated Completion Schedule</b>
<b>B3</b>	<b>Chandauti</b>	<b>400/220/132kV</b>		<b>Expected by Mar 2021</b>
i)	LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at Chandauti (New)	220kV D/c		Complete
ii)	LILO of Chandauti (BSPTCL) – Rafiganj 132kV S/c at Chandauti (New)	132kV S/c		Mar, 2021
iii)	LILO of Chandauti (BSPTCL) – Sonenagar 132kV S/c at Chandauti (New)	132kV S/c		Mar, 2021
<b>B4</b>	<b>Dhanbad</b>	<b>400/220kV</b>		<b>expected by Oct 2020</b>
i)	LILO of the 220 kV Tenughat – Govindpur D/c line at Jainamore and at Dhanbad.	220kV	(Approval expected in next budget)	2024-25

## ANNEXURE-VIII

**Status of 400kV substations being implemented by STUs in ER under intra-state schemes**

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
<b>A</b>	<b><u>Bihar (to be implemented by BSPTCL/BGCL)</u></b>			
<b>I</b>	<b>Naubatpur GIS</b>	<b>400/220/132/33kV, 2x500MVA + 2x160MVA + 2x80MVA</b>	<b>26.04.2018</b>	<b>Dec, 21</b>
a)	Naubatpur	2x500 MVA +2x160 MVA+2x80 MVA 400/220/132 kV S/S		Dec, 21
b)	LILO of circuits 3 & 4 of Patna (PG)-Balua 400 kV D/c (Quad) line at Naubatpur 400 kV 2x D/C	400 kV 2x D/C		Dec, 21
c)	LILO of both circuits of Ara (PG) – Khagaul (BSPTCL) line at Naubatpur (New) 220 kV 2xD/C	220 kV 2xD/C		Dec, 21
d)	Naubatpur (New)-Bihta (BSPTCL)	220kV D/c		Dec, 21
e)	Naubatpur (New)-Bhusaula (New)	220kV D/c		Dec, 21
f)	Naubatpur (New)- Paliganj	132kV D/c		Dec, 21
g)	Naubatpur (New)- Masaurhi (existing)	132kV D/c		Dec, 21
<b>II</b>	<b>Bakhtiyarpur GIS:</b>	<b>400/220/132kV, 2x500MVA + 2x160MVA</b>	<b>26.11.2019</b>	<b>Dec, 21</b>
a)	Bakhtiyarpur	2x500 MVA +2x160 MVA 400/220/132 kV GIS S/S		Dec, 21
b)	LILO of both circuits of Barh – Patna (PG) 400kV D/c (Quad) line-1 at Bakhtiyarpur 400 kV 2xD/C	400kV 2xD/c		Dec, 21
c)	Bakhtiyarpur (New) -	220 kV D/C		Dec, 21.

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
	Sheikhpura (New)			
d)	Bakhtiyarpur (New) - Hathidah (New)	220 kV D/C		Dec, 21
e)	Bakhtiyarpur (New) - Fatuha (BSPTCL)	220 kV D/C		Dec, 21
f)	Bakhtiyarpur (New) - Harnaut (BSPTCL)	132 kV D/C		Dec, 21
g)	Bakhtiyarpur (New) - Baripahari (BSPTCL)	132 kV D/C		Dec, 21
h)	LILO of 132 kV S/C Line Baripahari – Harnaut at Bakhtiyarpur	132kV S/c		Dec, 21
<b>III</b>	<b>Jakkanpur GIS</b>	<b>400/220/132/33kV, 2x500MVA + 3x160MVA + 4x80MVA</b>	<b>26.04.2018</b>	<b>Dec, 21</b>
a)	Jakkanpur	2x500 MVA +3x160 MVA+3x80 MVA 400/220/132/33 kV GIS S/S		Dec, 21
b)	LILO of both circuits of Nabinagar-II – Patna (PG) 400kV D/c at Jakkanpur 400 kV 2xD/C	400 kV 2xD/C		Dec, 21
c)	LILO of both circuits of Sipara (BSPTCL)-Bihta (BSPTCL) line at Jakkanpur (new) 2x220 kV D/C	2x220 kV D/C		Dec, 21
d)	LILO of Khagaul (BSPTCL) - Sipara (BSPTCL) 220 kV S/C line at Jakkanpur (New) 220 kV D/C	220 kV D/C		Dec, 21
e)	LILO of both circuits of Jakkanpur-Sipara line at Jakkanpur New (being reconducted with HTLS by BSPTCL) 2x132 kV D/C	2x132 kV D/C		Dec, 21.
f)	LILO of 132 KV S/C Jakkanpur/Mithapur-Fatuha line at Jakkanpur New			

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
	(being re-conducted with HTLS by BSPTCL) 132 kV D/C	132kV S/c		Dec, 21
IV	<b>Chhapra (New):</b>			
	Establishment of 2x500 MVA +2x200 MVA 400/220/132/kV GSS S/S at Chhapra	400/220/132/kV	Funds not yet tied up	2022-23
	LILO of 400 kV Barh (NTPC) - Motihari (DMTCL) D/C (Quad) transmission line at Chhapra (about 40 km)	400 kV		
	220 kV Chhapra (New) - Gopalganj DCDS (about 100 km)	220 kV		
	220 kV Chhapra(New) - Amnour DCDS (about 25 km)	220 kV		
	132 kV Chhapra(New) - Maharajganj DCDS (about 45 km)	132 kV		
	132 kV Chhapra(New) - Raghunathpur DCDS (about 80 km)	132 kV		
<b>B</b>	<b><u>Odisha (to be implemented by OPTCL)</u></b>			
a)	Meramundali-B:	400/220kV, 2x500MVA		June'21
b)	Narendrapur (New):	400/220kV, 2x500MVA		Dec'24
c)	Khuntuni:	400/220kV, 2x500MVA		Mar'25
d)	Bhadrak:	400/220kV, 2x500MVA		Mar'25
e)	Paradeep:	400/220kV, 2x500MVA		June'24
f)	<b>Begunia:</b> 765/400kV,	765/400kV,		Expected by

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
	2x1500MVA along with Angul-Begunia 765kV D/c line and LILO of Pandiabil – Narendrapur 400kV D/c line at Begunia – Land Acquisition problem.	2x1500MVA		2025-26.
g)	Narendrapur – Therubali – Jeypore 400kV D/c line along with 400kV switching station at <b>Therubali</b> and 420kV, 1x125MVA bus reactor	400kV D/c		Dec'25
<b>C</b>	<b><u>Jharkhand (to be implemented by JUSNL)</u></b>			
a)	Jasidih:	400/220kV, 2x500MVA	RFQ/RFP will be floated after approval of the transmission scheme by JSERC	2024-25
b)	Chandil (New):	400/220kV, 2x500MVA		
c)	Koderma:	400/220kV, 2x500MVA		
d)	Mander:	400/220kV, 2x500MVA		
e)	Dumka (New):	400/220kV, 2x500MVA		
<b>D</b>	<b><u>West Bengal (to be implemented by WBSETCL)</u></b>			
a)	Laxmikantpur GIS	400/132kV, 2x315MVA		Dec'23



**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**

To,

<p>Shri Subir Sen          COO (CTU)          Central Transmission Utility (CTU)          Power Grid Corporation of India          "Saudamini" Plot No. 2, Sector-29,          Gurugram-122001</p>	<p>Shri R N Singh          ED (Engg-S/s, T/L &amp; Civil)          Power Grid Corporation of India          "Saudamini" Plot No. 2, Sector-29,          Gurugram-122001</p>
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**Subject: Minutes of meeting held on 21-12-2020 to discuss ampacity of conductors for reconductoring of various lines in NER.**

Sir,

A meeting was held through video conferencing on 21-12-2020 to discuss ampacity of conductors for reconductoring of various lines in NER under chairmanship of Chief Engineer (PSPA-II), CEA. Minutes of the said meeting are enclosed herewith for your information and further necessary action.

Yours faithfully,

(B.S. Bairwa)  
 Director



I/12983/2021

## Minutes of meeting held on 21-12-2020 to discuss ampacity of conductors for reconductoring of various lines in NER

A meeting was held on 21-12-2020 to discuss ampacity of conductors for reconductoring of various lines in NER under chairmanship of Chief Engineer (PSPA-II), CEA. List of participants is enclosed at Annexure-I.

Chief Engineer (PSPA-II), CEA welcomed the participants and requested CTU/POWERGRID to explain the agenda.

- 1.0 CTU stated that the following reconductoring works have been assigned to POWERGRID under Regulated Tariff Mechanism (RTM) with implementation timeframe of 30 months vide MoP vide OM dated 25-09-2020. These works are being taken up as NERSS-XII:

Sl. No.	Transmission line	Reconductoring with HTLS	Ampacity of Single HTLS Conductor
1	400 kV D/C Siliguri-Bongaigaon line (Twin Moose)	Twin HTLS	1596A
2	220 kV D/C Alipurduar-Salakati line (Single Zebra)	Single HTLS	1596A
3	220 kV D/C BTPS-Salakati line (Single Zebra)	Single HTLS	1596A
4	132 kV S/C Dimapur-Imphal line (Single Panther)	Single HTLS	798A
5	132 kV S/C Loktak-Jiribam line (Single Panther)	Single HTLS	798A

- 2.0 POWERGRID informed that above transmission lines are very old and were designed with maximum conductor temperature of 54/57°C, 65°C and 75°C for 132kV, 220kV and 400kV lines respectively, considering an ambient temperature of 40°C. During detailed engineering, it was observed that the sag considered in the tower design, corresponding to the maximum conductor temperature as mentioned above, is very less compared to present day design of transmission lines where maximum operating temperature is higher (75°C/85°C).

POWERGRID also informed that the towers of above transmission lines were designed based on IS: 802 (Part I)-1977, "Code of Practice for use of Structural Steel in Overhead Transmission line Towers, part I: Loads and permissible stresses" and following maximum conductor temperature and maximum ambient temperature were considered in the design of towers. Accordingly, sag and Ampacity of existing lines are given below (with ambient temperature of 40°C):

Sl. No.	Transmission line	Existing conductor	Maximum Conductor Temp. (deg. C)	Design Span (m)	Maximum Sag (m)	Ampacity of existing conductors (A)
1	400kV D/C Siliguri-Bongaigaon line	Twin ACSR MOOSE	75	400	12.87	707

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Sl. No.	Transmission line	Existing conductor	Maximum Conductor Temp. (deg. C)	Design Span (m)	Maximum Sag (m)	Ampacity of existing conductors (A)
2	220kV D/C Alipurduar-Salakati line	Single ACSR ZEBRA	65	350	8.84	451
3	220kV D/C BPTS-Salakati line	Single ACSR ZEBRA	65	350	8.84	451
4	132kV S/C Dimapur-Imphal line	Single ACSR PANTHER	54	304	5.74	93
5	132kV S/C Loktak-Jiribam line	Single ACSR PANTHER	57	335	7.25	185

Accordingly, keeping in view the tower design of the existing lines, the ampacity of HTLS conductor rating as agreed in the 2<sup>nd</sup> meeting of NERPC-TP needs to be reviewed.

- 3.0 CEA enquired about the maximum power flow observed in the system studies. CTU presented the flow on lines, which are given below:

Sl. No.	Transmission line	Maximum power flow on each circuit envisaged with reliability criteria as per CEA's Manual (MW)	Equivalent Ampacity of single HTLS sub-conductor required (A) (calculated @ 0.95pf)	Ampacity of existing ACSR sub-conductor (A)	Ampacity of Single HTLS Conductor as per MoP order (A)
1	400kV D/C Siliguri-Bongaigaon line	1000	760	707	1596
2	220kV D/C Alipurduar-Salakati line	350	967	451	1596
3	220kV D/C BPTS-Salakati line	300	829	451	1596
4	132kV S/C Dimapur-Imphal line	20	92	93	798
5	132kV S/C Loktak-Jiribam line	50	230	185	798

- 4.0 CTU stated that above power flows were for 2022-23 timeframe and may increase further based on the generation availability and demand growth in NER. Once reconductoring is being carried out, it should be done with the maximum possible conductor rating, keeping in mind about the future perspective of 20-25 years. However, the Ampacity as recorded in meetings of NERPCTP/NCT and in MoP order, are far exceeding the requirement, especially for the 220kV and 132kV lines.

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- 5.0 POWERGRID stated that considering the sag tension requirement of existing towers, the maximum ampacity that could be achieved in instant 400kV, 220kV and 132kV lines are 1400A, 1100A and 600A / 450A (600A for Loktak-Jiribam & 450A for Dimapur-Imphal) respectively assuming ambient temperature of 40 deg. C.
- 6.0 Based on the above mentioned technical difficulties in achieving the approved current rating through HTLS and considering power flow requirement as per studies of CTU, it was agreed that the Ampacity of HTLS conductors for these lines in NER, as mentioned below in col (E) meets the technical requirement:

Sl. No.	Name of transmission line	Ampacity of existing ACSR sub-conductor (A)	Ampacity of Single HTLS Conductor as per MoP order (A)	Ampacity of single HTLS sub-conductor agreed considering technical constraints and system requirement (A)
(A)	(B)	(C)	(D)	(E)
1	400kV D/C Siliguri-Bongaigaon line (Twin ACSR Moose)	707	1596	1400
2	220kV D/C Alipurduar-Salakati line (Single ACSR Zebra)	451	1596	1100
3	220kV D/C BPTS-Salakati line (Single ACSR Zebra)	451	1596	1100
4	132kV S/C Dimapur-Imphal line (Single ACSR Panther)	93	798	450
5	132kV S/C Loktak-Jiribam line (Single ACSR Panther)	185	798	600

- 7.0 Accordingly, CTU/POWERGRID may propose the above modifications in the forthcoming meeting of NERPC/NCT, which is proposed to be held in January, 2021. Thereafter, the changes may also be informed to NERPCTP.

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I/12983/2021

## Annexure-I

## List of participants

Sl. No.	Name	Designation	Organization
1	Pardeep Jindal	Chief Engineer (PSPA-II)	CEA
2	B S Bairwa	Director (PSPA-II)	CEA
3	Ashok Pal	CGM (CTU)	POWERGRID
4	S C Taneja	CMG (Engg-T/L)	POWERGRID
5	Surendra Kumar	Sr. GM (Engg-T/L)	POWERGRID
6	Rajesh Kumar	GM (CTU)	POWERGRID
7	Manish Ranjan Keshari	Manager (CTU)	POWERGRID
8	Anupam Kumar	Dy. Manager (CTU)	POWERGRID
9	Abhilash Thakur	Engineer (CTU)	POWERGRID

No. 9/5/2018-Trans-Pt(1)  
 Government of India  
 Ministry of Power  
 Shram Shakti Bhawan, Rafi Marg, New Delhi- 110001

Dated, 31<sup>st</sup> December, 2020

To

The Chairman and Managing Director,  
 Powergrid Corporation of India Ltd (PGCIL).  
 Gurugram.

**Subject: Implementation of the “765 kV D/C Katihar (India) – Parbotipur (Bangladesh) – Bornagar (India) cross border transmission link”, a project of National Importance, under Regulated Tariff Mechanism (RTM).**

Sir,

I am directed to refer to decisions taken in 18<sup>th</sup> meeting of India- Bangladesh Joint Steering Committee (JSC)/ Joint Working Group (JWG) on Cooperation in Power Sector, regarding implementation of 765 kV D/C Katihar (India) – Parbotipur (Bangladesh) – Bornagar (India) cross border transmission link and to state that the competent authority has approved implementation of the subject cross border transmission link (Indian as well as Bangladesh portion), by Power Grid Corporation of India Ltd (PGCIL) under Regulated Tariff Mechanism (RTM) .

2. The subject transmission line has following scope:

Component	Total Length (in km)	Indian Portion Length (in km)	Bangladesh Portion Length (in km)
Katihar (Bihar, India)– Parbotipur (Bangladesh)	177	127	50
Parbotipur (Bangladesh)– Bornagar (Assam, India)	238	135	103
<b>Total</b>	<b>415</b>	<b>262</b>	<b>153</b>

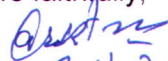
Note: Detailed scope of works would be specified by CEA and CTU.

3. This entire transmission link is declared as a project of “**National Importance**”. Recovery of transmission tariff for subject link will be under “National Component” as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations 2020.

4. For construction and O&M of the subject transmission link in Bangladesh territory, PGCIL shall work out the implementation modalities in consultation with Bangladesh counterparts. Further, PGCIL shall make all out efforts to complete the work of Bangladesh portion by Dec, 2022. PGCIL shall also keep this Ministry apprised of all the developments in this matter on regular basis.

5. This issues with the approval of Hon’ble Minister of State (Independent Charge) for Power and NRE.

Yours faithfully,

  
 31/12/2020  
 (Bihari Lal)

Under Secretary to the Govt. of India  
 Tele Fax: 011-23325242  
 E-mail: transdesk-mop@nic.in

Copy to:

1. Chairperson, CEA, New Delhi
2. Joint Secretary (BM), M/o External Affairs, New Delhi.
3. Secretary, CERC, New Delhi- with a request to take necessary action in view of para 3 above.