सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड

(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)

(भारत सरकार का उद्यम)

CENTRAL TRANSMISSION UTILITY OF INDIA LTD.

(A wholly owned subsidiary of Power Grid Corporation of India Limited)

(A Government of India Enterprise)

संदर्भ/Ref: CTU/E/00/8th CMETS-ER

दिनांक/Date: 23-06-2022

वितरण सूची के अनुसार/ As per distribution list

विषय/Subject: पूर्वी क्षेत्र में पारेषण योजनाओं के विकास के लिए 8वीं परामर्श बैठक की कार्यावली (सीएमईटीएस-ईआर) / Agenda for 8th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER)

महोदय /महोदया /Sir /Ma'am.

आईएसटीएस योजना और ओपन एक्सेस आवेदन प्रसंस्करण के लिए पूर्वी क्षेत्र में पारेषण योजनाओं के विकास के लिए **8वीं** परामर्श बैठक (सीएमईटीएस-ईआर) **30 जून, 2022 (गुरुवार)** को हाइब्रिड मोड माध्यम से नीचे दिए गए विवरण के अनुसार आयोजित होने वाली है:

The **8th** Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER) for ISTS planning and open access applications processing is scheduled to be held on **30th Jun, 2022 (Thursday)** through hybrid mode as per details below:

विषय/Topic	:	8th CMETS-ER
स्थान/Venue	:	ERPC, Kolkata and MS-Teams
दिनांक/Date & समय/Time	:	30th Jun 2022 at 10:30 AM
बैठक लिंक/ Meeting Link	:	MS-Teams (in email)

इस संबंध में, कृपया बैठक की कार्यावली (संलग्न), जो सीटीयू वेबसाइट (*www.ctuil.in >> ISTS Planning and Coordination >> Consultation Meetings for ISTS >> ER*) पर भी उपलब्ध है, प्राप्त करे । कृपया उपरोक्त लिंक के माध्यम से बैठक में शामिल होने और रिटर्न मेल के माध्यम से इस संबंध में भागीदार होने की पुष्टि करे।

In this regard, please find enclosed agenda of the meeting which is also available on CTU website (*www.ctuil.in >> ISTS Planning and Coordination >> Consultation Meetings for ISTS >> ER*).

It is requested to join the meeting through the above link and send confirmation of participation in this regard through return mail.

धन्यवाद/Thanking you,

भवदीय / Yours faithfully,

(राजेश कुमार) / (Rajesh Kumar)
महाप्रबंधक/ General Manager

A. वितरण सूची के अनुसार/ Distribution List:

1.	**Chief Engineer (PSP&A-II)** Central Electricity Authority Sewa Bhawan, R.K.Puram New Delhi-110066	2.	**Member Secretary** Eastern Regional Power Committee 14, Golf Club Road, Tollygunge Kolkata-700033
3.	**Director (SO)** Power System Operation Corporation Ltd. (POSOCO) 9th Floor, IFCI Towers, 61, Nehru Place, New Delhi-110016	4.	**Executive Director** Eastern Regional Load Despatch Centre 14, Golf Club Road, Jubilee Park, Golf Gardens, Tollygunge, Kolkata, West Bengal - 700095
5.	**CMD** Damodar Valley Corporation DVC Towers, VIP Road Kolkata-700054	6.	**CMD** Odisha Power Transmission Corporation Ltd. (OPTCL) Bhoinagar Post Office, Jan path Bhubaneshwar-751022
7.	**CMD** Bihar State Power Transmission Company Ltd. (BSPTCL) Vidyut Bhavan, 4th floor, Bailey Road Patna-800021	8.	**CMD** Jharkhand Urja Sancharan Nigam Limited (JUSNL) Engineering Building, HEC, Dhurwa Ranchi -834004
9.	**Principal Chief Engineer cum Secretary** Power Department Government of Sikkim Gangtok, Sikkim	10.	**Managing Director** West Bengal State Electricity Transmission Company Ltd. (WBSETCL) Vidyut Bhavan, 8th Floor, A-Block Salt Lake City, Kolkata-700091

B. विशेष आमंत्रित /Special invitee:

1.	**Director (Projects)** Power Grid Corporation of India Ltd. "Saudamini", Plot No. 2, Sec-29, Gurugram Haryana-122001

Agenda for 8th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER)

1. Confirmation of minutes of the previous meeting

The minutes of the 7th meeting of CMETS-ER held on 31-05-2022 were issued vide letter dated 22-06-2022. As no comments have been received, the minutes may be confirmed.

2. Presentation by states on intra-state network for 2026-27 time-frame

As agreed in the previous meeting, ERLDC may give a presentation on operational matters including details of elements leading to power transfer constraints in the grid, voltage management issues, non-fulfilment of N-1 or N-1-1 in operational grid etc.

A. Application related matters in Eastern Region (ER)

No new Open Access Application with either drawl or injection in Eastern Region has been received in the month of May 2022.

B. ISTS expansion schemes in Eastern Region

3. Revised connectivity for Laxmikantpur 400/132kV S/s and split bus arrangement at Laxmikantpur S/s

3.1. In the 7th CMETS-ER held on 31-05-2022, WBSETCL was requested to provide update on the following:

(a) Outcome of deliberation with CESC and HEL for implementation of New Laxmiknatpur S/s through LILO of both circuits of Haldia (HEL) – Subhasgram (POWERGRID) 400kV D/c line.

(b) Split bus arrangement at Laxmikantpur with implementation of New Laxmikantpur S/s.

3.2. WBSETCL may update on the above for further deliberation and finalisation of scope of works for establishment of New Laxmikantpur 400/132kV S/s.

3.3. Matter may be deliberated.

4. Augmentation of transformation capacity at Subhasgram and other intra-state substations of WBSETCL

4.1. In the 7th CMETS-ER held on 31-05-2022, it was decided that WBSETCL will expeditiously carry out further deliberations and system studies, and would give their observations with regard to following matters:

(a) Installation of 6th 400/220kV, 500MVA ICT at Subhasgram (POWERGRID) S/s.

(b) Installation of 5th 400/220kV ICT of 500MVA or replace all 315MVA ICTs with 500MVA in a progressive manner in case of space constraints at Jeerat.

(c) Feasibility of shifting of units connected at 400kV bus to 220kV at Kolaghat to avoid transformation capacity constraints.

(d) Installation of 4th 400/220kV, 500MVA ICT at Chanditala.

(e) Requirement of transformation capacity augmentation at Kharagpur.

4.2. WBSETCL may update on the above matters for further deliberation and finalisation of scope of works.

4.3. Matter may be deliberated.

5. Reconductoring of Rangpo – Gangtok 132kV D/c line

5.1. In the 7th CMETS-ER held on 31-05-2022, ERES-XXX scheme for augmentation of transformation capacity at Gangtok has been agreed. With the implementation of ERES-XXX, the total transformation capacity at Gangtok 132/66kV Substation would become 2x100MVA.

5.2. The peak load of Gangtok 132/66kV has reached about 90-95MVA during last winter and the same is expected to grow further. There are only two 132kV lines from Rangpo to feed the Gangtok S/s, which is not N-1 compliant.

5.3. Due to space constraint at Gangtok 132/66kV substation for creation of additional line bays as well as RoW constraints for termination of new transmission lines near Gangtok S/s, it is proposed to reconductor Rangpo – Gangtok 132kV D/c line with HTLS conductor.

5.4. POWERGRID vide email dated 23-06-2022, has been confirmed the following in regard to the reconductoring of the Rangpo – Gangtok 132kV D/c line:

(a) HTLS of upto 900A can be used for reconductoring.

(b) Rating of corresponding line bay equipment at Rangpo and Gangtok ends:

- Gangtok S/s (AIS): 132kV Rangpo bays

  CB: 2000A, 31.5 KA

  Isolator: 1250 A, 31.5 kA

  CT: 600/300/1A, class: 0.2, 40 VA, 5 core

  Wave trap: 1250 A

- Rangpo S/s (GIS): 132kV Gangtok bays

  CB module: 800A, 31.5 KA

  Isolator: 800A, 31.5 kA

  CT: 800/400/1A, class: 0.2, 5 core

5.5. From the above, it may be observed that with reconductoring of Rangpo – Gangtok line with single HTLS of 800A power flow requirements under N-1 shall

be met and also there will be minimal requirement of bay upgradation at Gangtok end only viz. replacement of CT.

5.6. In view of the above, following scope of works is proposed to be implemented under ISTS scheme namely Eastern Region Expansion Scheme-XXXI (ERES-XXXI) within 24 months from date of allocation:

(a) Reconductoring of Gangtok (POWERGRID) – Rangpo (POWERGRID) 132kV D/c ACSR Panther line with Single HTLS conductor (with ampacity Single HTLS as 800A at nominal voltage).

(b) Replacement of CTs at Gangtok end in both circuits of Gangtok (POWERGRID) – Rangpo (POWERGRID) 132kV D/c line commensurate with rating of HTLS.

6. Requirement of refurbishment/replacement of line reactors and bus reactors at Maithon and Jamshedpur

6.1. POWERGRID vide letter dated 25-05-2022 has informed that the following reactors have completed their useful life and based on the condition monitoring and residual life assessment, CPRI has recommended for replacement of the same.

Sl. No.	Region	Station	Feeder	Line length (km)	Year of Manufacturing
1	ER-II	Maithon	400kV Kahalgaon-I	172	1991
2	ER-II	Maithon	400kV Mejia-I	59.2	1991
3	ER-I	Jamshedpur	400kV Bus Reactor-II	-	1992

6.2. POWERGRID had approached CERC for replacement of above reactors in ADDCAP in Kahalgaon TS project vide petition no 733/TT/2020 in which CERC quoted the following:

"*The Commission is of the view that a detailed study needs to be carried out about the requirement of Reactors (Line Reactor/Bus Reactor) at these substations in the changed scenario of increase Short Circuit MVA levels and the same needs to be vetted by the CTU*"

6.3. System studies have been carried out for requirement of above three reactors in present time-frame and the observations are as below:

a) Maithon – Kahalgaon 400kV D/c line is 172km long with 50MVAr line reactor at Maithon end. Out of these two circuits, the reactor in circuit-1 has been recommended for replacement whereas the reactor in circuit-2 is relatively in working condition. Charging studies have been carried out without this 50MVAr line reactor at Maithon end. The study results are given in the table below.

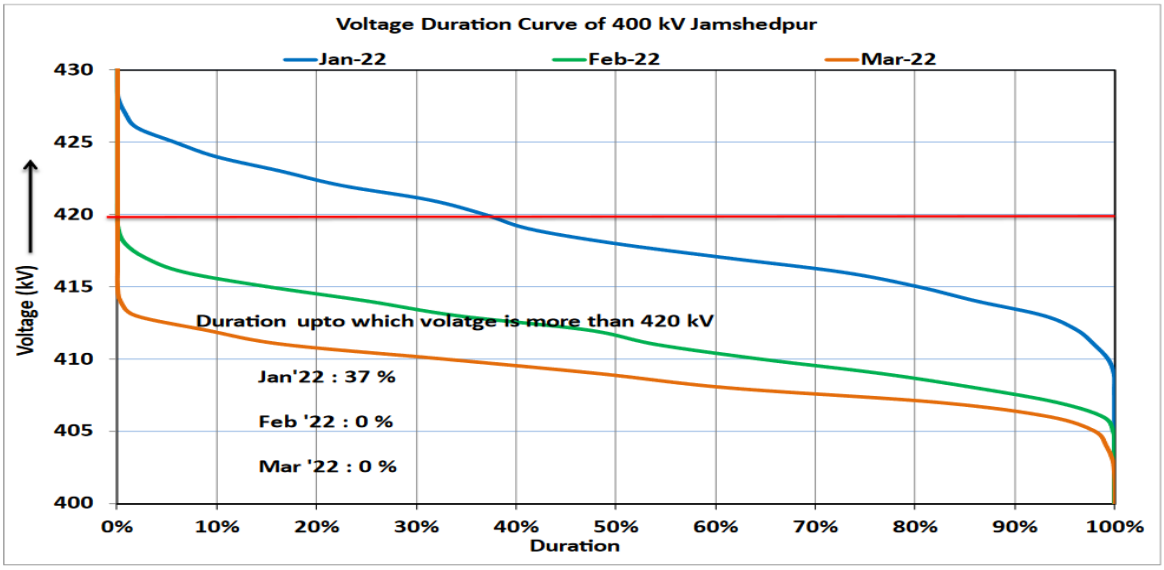
400kV line section	Voltage rise on charging from Maithon-A end			Voltage rise on charging from Kahalgaon-B end		
	Source Rise	Line Rise	Total Rise	Source Rise	Line Rise	Total Rise
Maithon-A – Kahalgaon-B ckt-1 (with 50MVAr LR at Maithon end)	1-2kV	7-8kV	9-10kV	1-2kV	0-1kV	2-3kV
Maithon-A – Kahalgaon-B ckt-1 (no LR)	3-4kV	7-8kV	11-12kV	2-3kV	7-8kV	10-11kV

From the above, it is observed without line reactor 10-11kV of voltage rise occurs on charging of line from Kahalgaon end. Accordingly, it is proposed that line reactor may still be required. Keeping in view growth in the network, it is proposed to install 63MVAr line reactor in place of 50MVAr. Study results with 63MVAr line reactor is given below:

400kV line section	Voltage rise on charging from Maithon-A end			Voltage rise on charging from Kahalgaon-B end		
	Source Rise	Line Rise	Total Rise	Source Rise	Line Rise	Total Rise
Maithon-A – Kahalgaon-B ckt-1 **(with 63MVAr LR at Maithon end)**	1-2kV	7-8kV	9-10kV	1-2kV	Negligible	1-2kV

b) Maithon-B – Mejia 400kV circuit-1 is 59.2km with 50MVAr line reactor at Maithon end. It may be observed that this line is very short and as such line reactor is not required for operation of the line. Accordingly, this 50MVAr line reactor at Maithon-B end may not be required for this line.

c) Presently, there are 1x50+2x125MVAr bus reactors at Jamshedpur at 400kV level. The voltage profile of Jamshedpur bus for the month of Jan-2022 has been observed to be beyond the permissible limits (>420kV) for almost 35-40% of the time as per operational feedback provided by ERLDC. This necessitates requirement of additional reactive compensation at Jamshedpur during winters.



With switching of bus reactors of various ratings following voltage change at Jamshedpur 400kV bus has been observed:

Bus reactor (MVAr)	Voltage Change (kV)
50	0.9
63	1.2
80	1.5
125	2.3

From the above result, it is observed that voltage changes by about 2.3kV with the installation of a 125MVAr bus reactor. Thus, a new 125MVAr bus reactor may be installed at Jamshedpur S/s after decommissioning of the existing of 50MVAr bus reactor.

6.4. In view of the above, following is proposed:

(a) As the 50MVAr line reactor at Maithon-A end in Maithon-A – Kahalgaon-B 400kV ckt-1 needs replacement, the same may be decommissioned and a new 420kV, 63MVAr line reactor may be installed in place of decommissioned 50MVAr line reactor. If existing NGR in 50MVAr line reactor is to be replaced, the same may also be replaced with same rating.

(b) 50MVAr line reactor at Maithon-B end in Maithon-B – Mejia 400kV circuit-1 may continue to be in service as long as the reactor is in working condition. Thereafter the line reactor may be decommissioned.

(c) As the 50MVAr bus reactor at Jamshedpur needs replacement, the same may be decommissioned and a new 420kV, 125MVAr bus reactor may be installed in place of decommissioned 50MVAr bus reactor .

6.5. Matter may be deliberated.

7. ISTS Rolling plan – Adequacy of transmission system by 2026-27 timeframe

7.1. Ministry of Power, Govt. of India vide gazette notification dated 01st Oct 2021, has notified Electricity (Transmission System Planning, Development and Recovery of Inter-State Transmission Charges) Rules, 2021. As per the said rules CTU has to draw up plan for Inter-State Transmission System (ISTS) for up to next five years on rolling basis every year identifying specific transmission projects which are required to be taken up along with their implementation time lines. Accordingly, CTU has prepared two rolling plans in Dec 2021 (for 2024-25 timeframe) and Mar 2022 (for 2026-27 timeframe).

7.2. The installed capacity of Eastern Region for 2026-27 has been considered as 57.5 GW to meet the peak demand of 35.6GW as per 19th EPS.

7.3. To perform the studies, Load Generation Balance (LGB) has been prepared considering the diurnal and seasonal load and generation variations across the country. Accordingly, nine number of load-generation scenarios have been identified corresponding to Monsoon, Summer, and Winter seasons along with

three points on daily load curve for each season viz. Solar max, Peak demand, and Off-peak demand. While preparing LGB for nine scenarios, merit order economic dispatch of thermal generations and RPO obligations of states have been taken into consideration. Out of these nine scenarios, Scenario-1 (Aug Solar Max) and Scenario-8 (Feb Peak demand) corresponds to two extreme cases with respect to import/export i.e. highest import (12.3 GW) and highest export (11.3 GW) scenarios respectively.

7.4. The following constraints were observed in the ISTS network for 2026-27 timeframe:

A. Transmission Lines (violating N-1 contingency)

(i) Ranchi – Sipat 400kV D/c line (862MVA) – under high RE condition and import by ER

(ii) Kahalgaon – Farakka 400kV D/c line (1129MVA) – low West Bengal generation

(iii) Jharsuguda – Rourkela 400kV D/c line (1085MVA) – Discussed and proposed for reconductoring

(iv) Rourkela – Chaibasa 400kV D/c line (1012MVA) – under high RE condition and import by ER

B. Transformers (violating N-1 contingency)

(i) 400/220kV, 2x315MVA ICTs at Durgapur TPS (441MVA) – Discussed, DVC to take action

(ii) 400/220kV, 2x315MVA ICTs at Bokaro-A TPS (570MVA) – Discussed, DVC to take action

(iii) 400/220kV, 2x315MVA ICTs at Koderma TPS (414MVA) – Discussed, DVC to take action

(iv) 400/220kV, 2x315MVA ICTs at Raghunathpur TPS (347MVA) – Discussed, DVC to take action

(v) 400/220kV, 2x500MVA ICTs at Rajarhat (464MVA) – Augmentation to be taken up at later stage

(vi) 400/220kV, 4x315MVA +1x500MVA ICTs at Subahsgram (288MVA) – Under discussion in this CMETS-ER

(vii) 765/400kV, 2x1500MVA ICTs at Jeerat New (1680MVA) – Augmentation to be taken up at later stage

C. Substations (violating designed short circuit level)

(i) Patna 400kV (50kA) – Being studied

(ii) Barh 400kV (46kA) – One section is 40kA and other section is 50kA. Bus sectionaliser may need to be opened. Being studied.

(iii) Farakka 400kV (42kA) – Farakka bypass scheme implemented. No further reduction possible.

(iv) New Siliguri 400kV (40kA) – under boundary condition, may be deferred

(v) Ranchi (Namkum) 400kV (51kA) – Being studied.

7.5. The following constraints were observed in the STU network for 2026-27 timeframe, for which respective STUs may take remedial measures:

A. Transmission Lines (violating N-1 contingency)

(i) Meramundali – Mendhasal 400kV D/c line (1353MVA) – OPTCL may study

(ii) Sterlite – Lapanga 400kV D/c line (2614MVA) – OPTCL may study

B. Transformers (violating N-1 contingency)

(i) 400/220kV, 2x315MVA ICTs at Mendhasal (562MVA) – OPTCL may take up implementation of already planned Khuntuni substation to overcome this overloading

(ii) 400/220kV, 2x315MVA ICTs at Lapanga (343MVA) – OPTCL may review

(iii) 400/220kV, 4x315MVA ICTs at Jeerat (345MVA) – Under discussion

(iv) 400/220kV, 2x315MVA ICTs at Kolaghat TPS (454MVA) – Under discussion

(v) 400/220kV, 3x315MVA ICTs at Chanditala (397MVA) – Under discussion

(vi) 400/220kV, 3x315MVA ICTs at Kharagpur (370MVA) – Under discussion

(vii) 400/132kV, 2x315MVA ICTs at New Laxmikantpur (374MVA) – Under discussion, may be overcome after split bus arrangement at Laxmikantpur 220/132kV S/s

(viii) 400/220kV, 3x315MVA ICTs at Bidhannagar (380MVA) – Under discussion

C. Substations (violating designed short circuit level)

(i) Patratu 400kV (42kA) – under boundary condition

7.6. Matter may be deliberated.

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

8.1. Numbers of ISTS sub-stations have been commissioned and some are under construction for which the downstream system is being implemented by the

STUs. Based on the information provided by the states, updated information on planned/under-construction downstream system is given at **Annexure-I**.

8.2. STUs may update the status of downstream system given at **Annexure-I** prior to the meeting for further deliberations in the meeting, if any.

9. Status of 400kV substations being implemented by STUs in ER under intra-state schemes to be connected through ISTS

9.1. Various 400kV substations have been approved in the intra-state strengthening schemes in ER having interconnection with ISTS grid involving LILO of ISTS lines or direct connection to ISTS substations. Status of such intra-sate substations as per available information is given at **Annexure-II**.

9.2. STUs may update the status of the transmission system given at **Annexure-II** prior to the meeting for further deliberations in the meeting, if any.

10. Status of space allocated at various ISTS substations to STUs for implementation of line bays under intra state system) for their intra state lines

10.1. Space at various ISTS substations have been allocated to STUs for creation of line bays for termination of their new intra-state lines. List of such ISTS substations as per available information is given at **Annexure-III**.

10.2. STUs may update the status of the bays given at **Annexure-III** prior to the meeting for further deliberations in the meeting, if any.

Annexure-I

Status of Downstream Transmission Network in ER

Sl. No.	ISTS S/s	State	Voltage ratio, Trans. Cap	Downstream Voltage level (kV)	Unuti-lised bays	Status of ISTS bay	STU lines for unutilised bays	Status of Lines	
								Date of Award	Completion schedule
1.	Chaibasa	Jharkhand	400/220kV, 2x315MVA	220	2	Existing bay	Chaibasa (POWERGRID) – Jadugoda (JUSNL) 220kV D/c		Will be taken up in future. No firm plan as of now.
2.	Daltonganj	Jharkhand	400/220/132kV, 2x315MVA+ 2x160MVA	132	2	Existing bay	Daltonganj (POWERGRID) – Chatarpur 132kV D/c	22-10-2019	Expected by 31-03-2023.
3.	Dhanbad	Jharkhand	400/220kV	220	4	Existing bay	LILO of 1st circuit of 220kV Dumka – Govindpur D/c line at Dhanbad (23km)	Bid evaluation is in progress.	Expected by Dec 2023
							LILO of 2nd circuit of 220kV Dumka – Govindpur D/c line at Dhanbad	Survey and estimation are being taken up. Thereafter, funding will be tied up.	
4.	Keonjhar	Odisha	400/220kV, 2x315MVA	220	2	Existing bay	Keonjhar (POWERGRID) – Turumunga (OPTCL) 220kV D/c		Expected by Dec 2022.
5.	Subashgram	West Bengal	400/220kV, 3x315MVA	220	2	Existing bay	Subashgram (POWERGRID) – Baraipur 220kV D/c line		Baraipur S/s test charged on 08-05-2022. Line is expected to be charged in June 2022.
6.	Rajarhat	West Bengal	400/220kV, 2x500MVA	220	4	Existing bay	Rajarhat (POWERGRID) – New Town AA2C 220kV D/c		Severe RoW (12km) in cable laying. Expected by Oct 2022.
7.	Sitamarhi (New)	Bihar	400/220/132kV, 2x500MVA + 2x200MVA	132	2	Existing bay	LILO of Benipatti - Pupri 132kV S/c at Sitamarhi (New)		Expected by July 2022.
8.	Saharsa (New)	Bihar		220	2	Existing bay	Saharsa (New) - Begusarai 220kV D/c line		Only two spans are remaining due to RoW

Sl. No.	ISTS S/s	State	Voltage ratio, Trans. Cap	Downstream Voltage level (kV)	Unuti-lised bays	Status of ISTS bay	STU lines for unutilised bays	Status of Lines	
								Date of Award	Completion schedule
			400/220/132kV, 2x500MVA + 2x200MVA						constraints. Expected by June 2022 end.
				132	2-ISTS (addln.4 by state)		Saharsa (New) - Saharsa 132kV D/c line formed by LILO of Saharsa - Banmankhi and Saharsa - Uda Kishanganj 132kV S/c line		04 nos. of bays are under construction by BSPTCL at Saharsa (New). Two bays are expected in Aug 2022, and balance two in Sept 2022.
9.	Banka	Bihar	400/220/132kV, 2x500MVA + 2x200 & 1x315MVA	220	2	Under Bidding	Banka (POWERGRID) – Goradih (Sabour New) 220kV D/c line	Funds tied up. Tendering is expected shortly.	18 months from award.

Annexure-II

Status of 400kV & 220kV substations being implemented by STUs in ER under intra-state schemes to be connected to ISTS

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
A	**Bihar (to be implemented by BSPTCL/BGCL)**			
I	**Bakhtiyarpur GIS**	400/220/132kV, 2x500MVA + 2x160MVA	26.11.2019	Progressively from Oct'22 to Dec'22.
a)	LILO of both circuits of Barh – Patna (PG) 400kV D/c (Quad) line-1 at Bakhtiyarpur 400 kV 2xD/C	400kV 2xD/c	26.11.2019	Line ready to be charged matching with Bakhtiyarpur S/s.
II	**Chappra (New)**	400/220/132kV, 2x500MVA + 2x200MVA	Funds not yet tied up	State Govt approval under process.
a)	LILO of 400 kV Barh (NTPC) - Motihari (DMTCL) D/C (Quad) transmission line at Chappra	400kV 2xD/c	Funds not yet tied up	State Govt approval under process.
B	**Odisha (to be implemented by OPTCL)**			
I	**Digapahandi**	400/220kV, 2x500MVA	Survey in progress	2025-26
a)	Digapahandi – Therubali – Jeypore 400kV D/c line	400kV D/c	Survey in progress	2025-26
II	**Therubali**	400kV switching station along with 420kV, 1x125MVAr bus reactor	Survey in progress	2025-26
III	**Bhadrak**	400/220kV, 2x500MVA	Tendering in progress	2024-25
a)	LILO of Baripada – Duburi and Baripada – Pandiabili 400kV line sections at Bhadrak	400kV 2xD/c	Tendering in progress	2024-25
IV	**Paradeep***	400/220kV, 2x500MVA		
a)	Paradeep – Duburi 400kV D/c line	400kV D/c	Line package awarded and substation awarded in May'22	24 months
V	**Paradeep***	765/400kV, 2x1500MVA	Survey in progress	2025-26
a)	Angul (POWERGRID) – Paradeep (OPTCL) 765kV D/c line	765kV D/c	Survey in progress	2025-26
VI	**Begunia**	765/400kV, 2x1500MVA	Kept in abeyance	Kept in abeyance
a)	Angul – Begunia 765kV D/c line	765kV D/c	Kept in abeyance	Kept in abeyance
b)	LILO of Pandiabil – Digapahandi 400kV D/c line at Begunia	400kV D/c	Kept in abeyance	Kept in abeyance

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
C	**Jharkhand (to be implemented by JUSNL)**			
I	**Chandil (New)**	400/220kV, 2x500MVA	NIT has been floated on 05-03-2022. Bid opening expected on 22-06-2022.	24 months
a)	PVUNL – Chandil 400kV D/c (Quad) line	400kV D/c (Quad)		
b)	Chandil – Chaibasa (POWERGRID) 400kV D/c (Quad) line	400kV D/c (Quad)		
c)	Chandil – Dhanbad 400kV D/c (Quad) line	400kV D/c (Quad)		
II	**Koderma**	400/220/132/33kV, 2x500MVA + 2x200MVA + 2x80MVA		
a)	PVUNL – Koderma 400kV D/c (Quad) line	400kV D/c (Quad)		
III	**Latehar**			2022-23
a)	Patratu – Latehar 400kV D/c line	400kV D/c		2022-23
b)	Latehar – Chandwa (POWERGRID) 400kV D/c line	400kV D/c		2022-23
III	**Jasidih**	400/220kV, 2x500MVA	-	No firm plan now. To be taken up in future.
a)	Koderma (JUSNL) – Jasidih 400kV D/c (Quad) line	400kV D/c (Quad)	-	
b)	Jasidih – Dumka 400kV D/c (Quad) line	400kV D/c (Quad)	-	
IV	**Mander**	400/220kV, 2x500MVA	-	
a)	LILO of Patratu – Ranchi (New) 400kV D/c line at Mander	400kV 2xD/c	-	
V	**Dumka (New)**	400/220kV, 2x500MVA	-	
a)	Dumka (New) – Dhanbad (ISTS) 400kV D/c (Quad) line	400kV D/c (Quad)	-	
D	**West Bengal (to be implemented by WBSETCL)**			
I	**Laxmikantpur GIS#**	400/132kV, 2x315MVA	Land identified. In process of acquisition. Expected by Dec 2024	
a)	LILO of Haldia – Subhasgram 400kV D/c line at Laxmikantpur	400kV D/c	-	Expected by Dec 2024
II	**Falakata**	220/132kV, 2x160MVA		
a)	LILO of Birpara – Alipurduar 220kV D/c line	220kV 2xD/c		

* ***As per inputs from OPTCL:*** *Paradeep 765/400kV S/s shall be established at a different location from the already under-construction Paradeep 400/220kV S/s, accordingly, 400kV 2xD/c line shall be established between two substations.*

The 400kV infeed to Laxmikantpur 400/132kV S/s is under discussion in the item no 3. Based on the deliberations, the lines would be updated, if required.

Annexure-III

Space allocated at various ISTS substations to STUs for implementation of line bays under intra state system for their intra state lines

Sl. No.	Substation/ Location	Space for	Date of award of line and bays	Completion Schedule	CMETS
1.	Angul (POWERGRID)	2 nos. 765kV lines bays for termination of Angul (POWERGRID) – Paradeep 765kV D/c line (including suitable switchable line reactors)			**1st**
2.	Rourkela (POWERGRID)	2 No. 220kV lines bays for termination of Rourkela (POWERGRID) – Tarkera 220kV D/c (HTLS) line			**1st & 7th**
3.	Keonjhar (POWERGRID)	2 No. 220kV lines bays for termination of Keonjhar (POWERGRID) – Tikarpada 220kV D/c line			**1st**
4.	Maithon (POWERGRID)	2 No. 220kV lines bays for implementation of Maithon (POWERGRID) – Asansol 220kV D/c line			**7th**