



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/00/30th CMETS-ER

दिनांक/Date: 14-05-2024

वितरण सूची के अनुसार/ As per Distribution List

विषय/ Subject: पूर्वी क्षेत्र में पारेषण योजनाओं के विकास के लिए 30^{वीं} परामर्श बैठक के कार्यवृत्त (सीएमईटीएस-ईआर)/ Minutes of 30th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER)

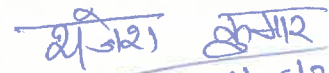
महोदय/महोदया/ Sir/Ma'am,

पूर्वी क्षेत्र में पारेषण योजनाओं के विकास के लिए 30^{वीं} परामर्श बैठक 26th अप्रैल, 2024 को वीडियो कॉन्फ्रेंस के माध्यम से आयोजित की गई थी। इस संबंध में बैठक के कार्यवृत्त संलग्न है। यही CTUIL की वेबसाइट ([>> ISTS Planning & Coordination >> Consultation Meetings for ISTS >> Eastern Region](http://www.ctuil.in)) पर भी उपलब्ध है।

The 30th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER) was held on 26th April 2024 through video conferencing. In this regard, please find enclosed minutes of the meeting. The same is available on CTUIL website ([>> ISTS Planning & Coordination >> Consultation Meetings for ISTS >> Eastern Region](http://www.ctuil.in))

धन्यवाद/ Thanking you,

भवदीय / Yours faithfully,


14/05/2024

(राजेश कुमार) / (Rajesh Kumar)

वरिष्ठ महाप्रबंधक (टी.पी.-III & सी.पी)/ Sr. GM (TP-III & CP)

Encl.: as above

A. वितरण सूची / 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) Grid Controller of India Limited 9 th 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, Janpath Bhubaneswar-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
11. Director (Projects) Power Grid Corporation of India Ltd. "Saudamini", Plot No. 2, Sec-29, Gurugram, Haryana-122001	12. Shri Pritpal Singh DGM Ind-Barath Energy (Utkal) Limited JSW Centre Bandra Kurla Complex Bandra East, Mumbai, Maharashtra Email: pritpal.singh@jsw.in abhay.yagnik@jsw.in
13. Sh. Prasenjit Senior Manager Damodar Valley Corporation Chief General Manager & HOP <i>[For Raghunathpur Thermal Power Station Phase-II and Koderma Thermal Power Station Phase-II]</i> Vill: Dumdumi; Nilidih, P.S Raghunathpur Purulia - 713133 Email: prasenjit.mandal@dvc.gov.in samit.mandal@dvc.gov.in	14. Sh. Devendra Pratap Singh General Manager NLC India Limited Office of the General Manager Projects & Business Development Neyveli Township, Neyveli, Cuddalore district, Tamil Nadu Ph. No.: 9301817785 Email: devendra_pratap@nlcindia.in ; dpsanu@gmail.com ; kishore@nlcindia.in ; kishore080308@gmail.com ; mahipal@nlcindia.in

Minutes for 30th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER)

Sr. GM (CTU) welcomed the participants to the meeting. Agenda wise deliberations and decisions are given below.

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

- 1.1. CTU informed that the minutes of the 29th CMETS-ER held on 27-03-2024 were issued vide letter dated 16-04-2024.
- 1.2. Modifications suggested by WBSETCL vide email dated 22-04-2024 were deliberated in the meeting and agreed modifications are as under:

As per Minutes of 29 th CMETS-ER issued	Modifications agreed as per proposal of WBSETCL
6.4. WBSETCL informed that installation of 5 th ICT has been planned in view of anticipated load growth. 315MVA ICT is being installed as 5 th ICT, as other ICTs are of 315MVA and N-1 of any ICT (considering even the 5 th one as 500MVA) the available capacity would be 4x315MVA. CTU mentioned that progressively WBSETCL can plan for replacement of 315MVA ICTs with load growth, thus, keeping same in view, 5 th ICT may be installed as 500MVA	6.4 WBSETCL informed that installation of 5 th ICT has been planned for compliance of (N-1) considering anticipated load growth. 315MVA ICT has been planned for installation as 5 th ICT, as all the existing ICTs are 315MVA & in case of outage of 500MVA ICT the available capacity would remain same i.e. 4x315MVA. CTU mentioned that progressively WBSETCL can plan for replacement of 315MVA ICTs with load growth, thus, keeping same in view, 5 th ICT may be installed as 500MVA. WBSETCL stated that the augmentation program of 315MVA ICTs with 500MVA ICTs, if necessary, will be considered in due course.
6.8. CTU mentioned that as there are issues of space constraints at Jeerat (WBSETCL) S/s, a joint visit of WBSETCL and POWERGRID can be carried out to work out feasibility for installation of 5 th ICT, re-arrangement for reinstallation of 2x50MVA bus reactor and new 125MVA bus reactor. WBSETCL mentioned that it is their substation, they have already done all the analysis regarding space requirement for the 5th ICT, which can only be installed after removing 2x50MVA (3x16.67MVA single phase units & 50MVA 3-Ph) bus reactors installed in parallel.	6.8 CTU mentioned that as there are issues of space constraints at Jeerat (WBSETCL) S/s, a joint visit of WBSETCL and POWERGRID can be carried out to work out feasibility for installation of 5 th ICT, re-arrangement for reinstallation of 2x50MVA bus reactor and new 125MVA bus reactor. WBSETCL mentioned that Jeerat S/s being an intra-State S/s they have already carried out the feasibility study considering the issue of space constraint & finalized the scheme for installation of 5th ICT after removing 2x50MVA (3x16.67MVA single phase units & 50MVA 3-Ph) bus reactors installed in parallel.
6.9. CTU mentioned that in past for termination of new lines at Jeerat (WBSETCL) S/s space constraints were observed and after joint site visit some arrangements were finalised including implementation of GIL in 4 no. 400kV lines. Accordingly, CTU once again suggested for	6.9 CTU mentioned that in past for termination of new lines at Jeerat (WBSETCL) S/s space constraints were observed and after joint site visit some arrangements were finalised including implementation of GIL in 4 no. 400kV lines. Accordingly, CTU once again suggested for a joint site inspection of Jeerat (WBSETCL) S/s by officials of CTU, WBSETCL, and

As per Minutes of 29 th CMETS-ER issued	Modifications agreed as per proposal of WBSETCL
a joint site inspection of Jeerat (WBSETCL) S/s by officials of CTU, WBSETCL, and POWERGRID.	POWERGRID. In response WBSETCL stated that it appears that since the mentioned issue was one of new ISTS connectivity at Jeerat S/s, the joint site inspection might have been required. But in the present case since scheme for installation of 5 th ICT has already been finalized & detailed engineering will be taken up soon, joint site inspection is not considered essential. CTU further mentioned that, if space is not provided by WBSETCL for re-installation of ISTS reactors (2x50MVAR) along with associated bay(s) at Jeerat S/s, then a joint site visit would be essentially required.

- 1.3. ERLDC further suggested some modifications in the issued minutes of 29th CMETS-ER. The same were deliberated in the meeting and agreed modifications are as under:

As per Minutes of 29 th CMETS-ER issued	Modifications agreed as per proposal of Grid-India
2.4.2. ... As per Grid-India, the ATC for Mar 2024 for Jharkhand grid from ISTS grid is 1811MW...	2.4.2. ... As per Grid-India in consultation with SLDC Jharkhand, the ATC for Mar 2024 for Jharkhand grid from ISTS grid is 1811MW...
2.4.3. ERLDC confirmed the ATC for Apr 2024 and mentioned that the ATC declared by Grid-India is operational ATC which includes SPS installed in the system and requested CTU to assess the transmission constraints separately. It was also mentioned that the limiting constraint in Jharkhand ATC is Maithon (POWERGRID) – Dumka (JUSNL) 220kV D/c intra-state line for which SPS has already been implemented, accordingly, ATC is being declared ignoring this constraint. JUSNL has been time and again requested to strengthen this corridor, however, there has not been any concrete planning by JUSNL.	2.4.3. ERLDC confirmed the ATC for Apr 2024 and mentioned that the ATC declared by Grid-India in consultation with SLDC Jharkhand is operational ATC. During the calculation, some of the constraints are not considered based on the nature of cascading, probable load/generation loss quantum and presence of any SPS. For Jharkhand case, ERLDC has already suggested for SPS implementation on 220kV Maithon – Dumka line and considering the limited cascading effect, constraint of 220kV Maithon – Dumka is ignored. ERLDC requested CTU to assess the transmission constraints separately for granting GNA in the ISTS network. It was also mentioned that the limiting constraint in Jharkhand ATC is Maithon (POWERGRID) – Dumka (JUSNL) 220kV D/c intra-state line for which SPS has already been implemented, accordingly, ATC is being declared ignoring this constraint. JUSNL has been time and again requested to strengthen this corridor, however, there has not been any concrete planning by JUSNL.
2.4.4. ...Accordingly, such GNAs are being granted as per ATC declared by Grid-India...	2.4.4. ...Accordingly, such GNAs are being granted as per ATC declared by Grid-India in consultation with SLDC Jharkhand...

As per Minutes of 29 th CMETS-ER issued	Modifications agreed as per proposal of Grid-India
2.4.6. ... by ERLDC ignoring the SPS implemented on Maithon (POWERGRID) – Dumka (JUSNL) 220kV D/c intra-state line.	2.4.6. ... by ERLDC in consultation with SLDC Jharkhand ignoring various constraints based on their limited cascading, load/generation loss impact or proposed SPS scheme.
2.4.7. ... based on ATC declared by Grid-India...	2.4.7. ... based on ATC declared by Grid-India in consultation with SLDC Jharkhand...
2.4.9. ... As per Grid-India, the ATC for Mar 2024 for West Bengal grid from ISTS grid is 6941MW...	2.4.9. ... As per Grid-India in consultation with SLDC Jharkhand, the ATC for Mar 2024 for West Bengal grid from ISTS grid is 6941MW...
2.4.10. ERLDC confirmed the ATC and further requested WBSETCL to proactively take adequate measures for strengthening of their intra-state system to avoid constraint in their network. WBSETCL noted the same.	2.4.10. ERLDC confirmed the ATC and further requested CTU to carry out fresh study for giving grant of GNA as operational ATC/TTC sometimes ignore few constraint on the basis of their limited cascading, load/generation loss impact or proposed/implemented SPS Scheme. CTU requested WBSETCL to proactively take adequate measures for strengthening of their intra-state system to avoid constraint in their network. WBSETCL noted the same.

- 1.4. With the above modifications at Para 1.2 and 1.3, the minutes of 29th CMETS-ER were considered confirmed. It was also agreed to issue suitable corrigendum to minutes of 29th CMETS-ER.

A. Connectivity and GNA related applications in ER

2. New application under GNA Regulations, 2022

- 2.1. CTU informed that the following new Connectivity application has been received in the month of March 2024 in ER:

Sl. No.	Application ID	Name of the Applicant	Applicant Type	Submission Date	Connection to ISTS (requested)	Quantum (MW)	Connectivity sought from
1	2200000648	Ind-Barath Energy (Utkal) Limited (IBEUL)	Generating station(s), including REGS(s), without ESS	15-03-2024	Jharsuguda (PGCIL), Odisha	350	15-06-2024
- CTU informed that M/s Ind-Barath Energy (Utkal) Limited under Regulation 4.1 as Generating station(s), including REGS(s), without ESS, has applied for Connectivity of 350MW for its 2nd unit at existing 765/400kV Sundargarh (Jharsuguda) ISTS substation in Odisha with start date of connectivity as 15-03-2024. Further, following was mentioned: - The applicant has already been granted 350MW Connectivity at 400kV level of Sundargarh (Jharsuguda) ISTS 765/400kV S/s (with IBEUL – Sundargarh (Jharsuguda) 400kV D/c line at DTL) for its Unit-1 (350MW), which is already effective from 31-03-2024.							

- CEA vide letter dated 26-02-2024 has mentioned that due to increasing demand and capacity addition targets proposed by MoP, commissioning of Unit-2 of M/s IBEUL at the earliest is crucial and thus after due examination of CTUIL, the commissioning activities of Unit-2 may be considered using the interim LILO arrangement [viz. LILO of one circuit of OPGC – Sundargarh 400kV D/c (Triple Snowbird) lines at DTL of M/s IBEUL at the suitable crossover point of the lines]. Further, the timeline of completion of DTL may be extended till Sept 2024. However, IBEUL may ensure that all RoW and other issues are resolved expeditiously so that the commissioning of line does not slip beyond Sept 2024.
- Upon stakeholder consultation, it was decided to allow the interim connection for Unit#1 till Sept 2024. Subsequently, M/s IBEUL would be connected to ISTS through its DTL viz. IBEUL – Sundargarh (Jharsuguda) 400kV D/c line.
- CTU stated that studies have been carried out and it has been observed that additional Connectivity of 350MW for Unit#2 of 350MW can be granted through the existing ISTS with already identified DTL viz. IBEUL – Sundargarh (Jharsuguda) 400kV D/c line.
- It was informed that as per Regulation 8, the applicant is liable to submit Conn-BG1 of ₹ 50 Lakh and Conn-BG3 at ₹ 2 Lakh/MW. Further, as per Regulation 22.2 (d), the applicant is also liable to furnish one-time GNA charge of ₹ 1 Lakh/MW one month prior to the start date.
- M/s IBEUL informed that the commissioning of their Unit-2 is expected to be completed by 15-06-2024, however, to carry out pre-commissioning activities M/s IBEUL would require power some time before 15-06-2024. Accordingly, they requested to revise the start date to **01-06-2024**. M/s IBEUL also agreed to fulfill all the requisite regulatory requirements such as submission of applicable Conn-BGs, one-time GNA charges, signing of agreements etc. prior to 01-06-2024. Further, regarding the completion of DTL, it was informed that the same is expected to be completed by Sep 2024, however, best efforts are being made to complete it prior to that. M/s IBEUL requested that as they have already got an extension in timeline for completion of DTL from CEA upto 30-09-2024; accordingly, the start date of Connectivity for grant of Connectivity for Unit#2 may not be linked with the completion of the DTL and power evacuation may be allowed through already existing interim arrangement.
- CTU mentioned that with interim arrangement no constraint was observed in base case scenario, however, there may be overloading in some scenarios under N-1 contingency which could be taken care by existing SPS. Further, if required, suitable modifications can be made in the existing SPS by Grid-India in coordination with other stakeholders. Accordingly, following was proposed:
 - (a) Connectivity of an additional 350MW may be granted to M/s IBEUL for its 2nd Unit through existing ISTS with the DTL i.e. IBEUL – Sundargarh (Jharsuguda) 400kV D/c line w.e.f. 01-06-2024.
 - (b) Interim connection of Unit#2 to ISTS through existing arrangement [viz. LILO of one circuit of OPGC – Sundargarh 400kV D/c (Triple Snowbird) lines at DTL of M/s IBEUL at the suitable crossover point of the lines] may be allowed till completion of the DTL i.e. 30-09-2024.
 - (c) All conditions of interim arrangement for Unit#1 shall be applicable for Unit#2 as well.
 - (d) If required, Grid-India may modify the SPS for interim arrangement in coordination with other stakeholders.
- SLDC Odisha mentioned that the interim connection of M/s IBEUL to ISTS through LILO arrangement was agreed for connection of their Unit-1 only. With the addition of Unit-2 generation of M/s IBEUL through the interim arrangement and considering full generation of the OPGC (2x660MW) units, there would be power flow constraint in the OPGC – Lapanga (OPTCL) 400kV D/c line of OPTCL under N-1 contingency.

- CTU mentioned that the issue of high loading of OPGC – Lapanga 400kV D/c line has arisen due to closure of sectionaliser between Unit#3 and Unit#4 of OPGC (2x660MW) generation by OPTCL. If the sectionaliser is kept open, one unit remains connected to Sundargarh (Jharsuguda) and other to Lapanga, through separate 400kV D/c line. Further, no overloading would be observed in evacuation of power even under N-1 contingency. Alternatively, with the present arrangement, the SPS implemented for power evacuation from Unit#1 can also be modified by Grid-India to take care of contingency in Odisha's intra-state system (including OPGC – Lapanga 400kV D/c line).
- OPTCL and SLDC Odisha both didn't agree to the suggestions/proposals of CTU and expressed reservations in granting Connectivity to M/s IBEUL for its Unit-2 w.e.f. 01-06-2024 with connection through interim arrangement citing reason of overloading under N-1 in intra-state system. OPTCL requested that the Connectivity for Unit#2 may be granted with the completion of DTL only.
- Due to non-consensus among stakeholders, it was suggested by CTU that CEA would be requested to arrange an urgent meeting among concerned stakeholders to discuss the matter as it is understood from CEA's letter that Unit#2 commissioning is required to meet the increasing demand in the country and capacity addition targets proposed by MoP, Govt. of India. ERPC, ERLDC and other stakeholders agreed to the proposal of CTU.

2.2. Connectivity applications received in previous months under GNA Regulations, 2022.

Sl. No.	Application ID	Name of the Applicant	Applicant Type	Submission Date	Connection to ISTS (requested)	Quantum (MW)	Connectivity sought from
1	2200000468 (Original Application)	Damodar Valley Corporation	Generating station(s), including REGS(s), without ESS	16-01-2024	Raghunathpur Thermal Power Station Phase-I (RTPS Ph-I)	1320	01-11-2027
2	2200000592 (Original Application)	Damodar Valler Corporation (DVC)	Generating station(s), including REGS(s), without ESS	28-02-2024	Koderma Thermal Power Station Phase-II (KTPS Ph-II)	1600	01-02-2028
• CTU mentioned that the above applications of DVC were discussed in the previous CMETS-ER (<i>Sl. no. 1 in 28th CMETS-ER & Sl. no. 2 in 29th CMETS-ER</i>) wherein DVC was requested to provide the inputs for evolving the transmission system under ISTS for evacuation of power from these generations. It was also decided that upon receipt of the requisite inputs from DVC, a joint study shall be carried out for identifying the ISTS system. • DVC mentioned that they are looking into the option to reduce the quantum of ISTS connectivity so that they can plan and implement intra-state system some quantum of power for their own consumption. Thus, these two plants would become dual connected generators i.e. part to intra-state and balance to ISTS. • CTU mentioned that there are additional requirements at application stage for dual connected generators, such as at the application stage itself evacuation system identified for intra-state share of power needs to be provided and ISTS Connectivity has to be applied for balance quantum only (Installed Capacity-Intra state connected capacity). Accordingly, DVC mentioned that they shall be withdrawing the instant Connectivity application and make fresh Connectivity application in ISTS as dual connected generators.							

- Subsequently, DVC vide email dated 02-05-2024 has requested to uphold any decision (specifically not to cancel) with regard to the above connectivity applications.
- It is to mention that any application cannot be put on hold awaiting inputs from application. Accordingly, DVC may clarify their stand at the earliest. As the ISTS Connectivity application has been made for full installed capacity, the transmission system for grant of ISTS Connectivity including DTL (under the scope of applicant) would be identified accordingly and brought in the next CMETS-ER.

B. ISTS expansion schemes in ER

3. Installation of 5th 400/220kV, 315MVA ICT at Jeerat (WBSETCL) S/s to maintain N-1 – Agenda by WBSETCL

- 3.1. CTU mentioned that the matter was deliberated in the 29th CMETS-ER wherein following was decided:
- a) Inputs on the matter would be obtained from POWERGRID. If required, a joint site inspection of Jeerat (WBSETCL) S/s may be carried out to plan installation of new 5th ICT.
 - b) The inputs obtained from POWERGRID shall be forwarded to ERPC for deliberations on the matter as commercial aspect of removal/re-arrangement of existing ISTS assets viz. 2x50MVA (3x16.67MVA single phase units & 50MVA 3-Ph) bus reactors are involved in the proposal.
 - c) Based on outcome of the meeting at ERPC level, if required, the matter can be again deliberated in CMETS-ER.
- 3.2. WBSETCL informed that they have already carried out feasibility of shifting of 2x50MVA ISTS bus reactors at Jeerat (WBSETCL) S/s and there may be space constraints for installation of the said reactors.
- 3.3. CTU mentioned that the requirement of 5th 400/220kV, 315 MVA ICT and 2x50MVA bus reactors are essential for reliable operation of the grid. Accordingly, it is reiterated that installation of ICTs in the bay proposed to be vacated after shifting of 2x50MVA bus reactors and re-installation of the said bus reactors in new bay needs to be approved simultaneously. All stakeholders agreed for the same.
- 3.4. POWERGRID representative was not available in the meeting, however, they had informed that the 2x50MVA bus reactors are in healthy condition and working fine. Accordingly, it was felt prudent that running asset i.e. 2x50MVA bus reactors may not be removed for installation of 5th ICT without any firm plan for re-installation of the said bus reactors. The same shall not be commercially viable also. Further, it was mentioned that if existing 2x50MVA bus reactors are working fine, then what is the purpose of removing these and also exploring for installation of new 125MVA bus reactor. The best solution would be to workout plan for re-installation of the displaced bus reactors in new bay and installation of 5th ICT in vacated

bay. Once these reactors complete their service, installation of new bus reactor can be planned. This will reduce financial burden on the existing consumers of West Bengal.

- 3.5. After detailed deliberations, it was agreed that POWERGRID may arrange a suitable date for joint site inspection in coordination with WBSETCL for the above points and submit a report at the earliest for further deliberation on the scope of works in the next CMETS-ER meeting.

4. Re-conductoring & replacement of earth-wire in 220kV lines of “Chukha Transmission System (CTS)” – Agenda by POWERGRID

- 4.1. CTU mentioned that POWERGRID vide letter dated 22-03-2024 has informed that the transmission system constructed under Chukha Transmission System (CTS) scheme was commissioned in the 1980's, and transmission lines build under the scheme are more than 35 years old. In a special meeting held on 05-02-2024 at ERPC it was deliberated to re-conductor the following lines and POWERGRID was advised to approach CTU for finalisation of the scheme:

A. With HTLS

- i) Malda – Gazole 220kV D/c line
- ii) Binaguri – Siliguri 220kV D/c line
- iii) Siliguri – Kishanganj 220kV D/c line
- iv) Binaguri – Birpara 220kV D/c line
- v) Alipurduar – Birpara 220kV D/c line

B. With ACSR

- vi) Dhalkhola – Gazole 220kV D/c line
- vii) Dhalkhola – Kishanganj 220kV D/c line

C. Reconductoring works of Birpara – Malbase 220kV S/c and Birpara – Chukha 220kV D/c lines shall be commenced after due co-ordination with Govt. of Bhutan.

- 4.2. In order to finalise the requirement of reconductoring, detailed system studies are required. Further, rating of existing equipment is also required to finalise the scope of works for lines identified for strengthening/reconductoring. POWERGRID

vide email dated 24-04-2024 has provide some inputs and balance are awaited. Further, WBSETCL is requested to provide data i.r.o. Falakata and Gazole substations. Data of Bhutan portion will be arranged separately.

Sl. No.	Line	Total length (km)	POWERGRID portion (km)	Year of Commissioning	Conductor	Thermal rating of Conductor (in Amps)	From end line bay equipment rating	To end line bay equipment rating	If bay equipment is also to be replaced, please indicate equipment	Feasible rating of HTLS for reconductoring (in A)
1.	Birpara (POWERGRID) – Chuka HEP (Bhutan) 220kV D/c	70	36	1986	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Owner: BPC CT: WT: CB: Isolator:	At Birpara end CB/CT/Isolator not required. In future PLCC will be replaced by DTPC. Not required to be considered in present package.	1250
1a	Bhutan portion of Birpara (POWERGRID) – Chuka HEP (Bhutan) 220kV D/c		34		Zebra	837				Data required
2.	Birpara (POWERGRID) – Alipurduar (POWERGRID) 220kV D/c (Being LIL Oed at Falakata by WBSETCL: Expected by July 2024 as per WBSETCL)	57.5	57.5	1987	Zebra	837	-	-	At Birpara/ Alipurduar end CB/CT/Isolator not required. Along with line reconductoring DTPC (01 channel) to be considered in same package. OPGC available.	-
2a	Birpara (POWERGRID) – Falakata (WBSETCL) 220kV D/c	31.165	27.099	1987	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Owner: WBSETCL CT: WT: CB: Isolator:	At Birpara end CB/CT/Isolator not required. In future PLCC will be replaced by DTPC in coordination with WBSETCL	1250
2b	Falakata (WBSETCL) – Alipurduar	31.076	26.849	1987	Zebra	837	Owner: WBSETCL CT:	Owner: POWERGRID	At Alipurduar end CB/CT/Isolator not required. In future PLCC will be	1250

Sl. No.	Line	Total length (km)	POWERGRID portion (km)	Year of Commissioning	Conductor	Thermal rating of Conductor (in Amps)	From end line bay equipment rating	To end line bay equipment rating	If bay equipment is also to be replaced, please indicate equipment	Feasible rating of HTLS for reconductoring (in A)
	(POWERGRID) 220kV D/c						WT: CB: Isolator:	CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	replaced by DTPC in coordination with WBSETCL	
3.	Siliguri (POWERGRID) – Kishanganj (POWERGRID) 220kV D/c	108.26	108.26	1986	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Owner: POWERGRID CT: WT: CB: Isolator:	Both Siliguri / Kishanganj end CB/CT/Isolator not required to be replaced. Along with line reconductoring DTPC (01 channel) to be considered in same package. OPGC also to be considered for equivalent length (93 km)	1250
4.	Dalkhola (POWERGRID) – Kishanganj (POWERGRID) 220kV D/c	30.96	30.96	1986	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Owner: POWERGRID CT: WT: CB: Isolator:	At Dalkhola end CB/CT/Isolator not required. Along with line reconductoring DTPC (01 channel) to be considered in same package. OPGC available.	Data required
5.	Malda (POWERGRID) – Gazole (WBSETCL) 220kV D/c	18.41	16.49	1986	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:	Owner: WBSETCL CT: WT: CB: Isolator:	At Malda end CB/CT/Isolator not required. DTPC will be install in future in coordination with WBSETCL	Data required
5a	WBSETCL portion of Malda (POWERGRID) – Gazole		1.92	2019	Zebra	837				Data required

Sl. No.	Line	Total length (km)	POWERGRID portion (km)	Year of Commissioning	Conductor	Thermal rating of Conductor (in Amps)	From end line bay equipment rating	To end line bay equipment rating	If bay equipment is also to be replaced, please indicate equipment	Feasible rating of HTLS for reconductoring (in A)
	(WBSETCL) 220kV D/c									
6.	Dalkhola (POWERGRID) – Gazole (WBSETCL) 220kV D/c	99.24	97.52	1986	Zebra	837	Owner: POWERGRID CT: WT: CB: Isolator:	Owner: WBSETCL CT: WT: CB: Isolator:	At Dalkhola end CB/CT/Isolator not required. DTPC will be install in future in coordination with WBSETCL	Data required
6a	WBSETCL portion of Dalkhola (POWERGRID) – Gazole (WBSETCL) 220kV D/c		1.72	2019	Zebra	837				Data required
7.	Birpara (POWERGRID) – Binaguri (POWERGRID) 220kV D/c	80	80	1986	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Owner: POWERGRID CT: WT: CB: Isolator:	Both Binaguri / Birpara end CB/CT/Isolator not required to be replaced. Along with line reconductoring DTPC (01 channel) to be considered in same package. OPGC available.	Data required
8.	Siliguri (POWERGRID) – Binaguri (POWERGRID) 220kV D/c	6	6	1986	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Both Binaguri / Siliguri end CB/CT/Isolator not required to be replaced. Along with line reconductoring DTPC (01 channel) to be considered in same package. OPGC available.	Data required

Sl. No.	Line	Total length (km)	POWERGRID portion (km)	Year of Commissioning	Conductor	Thermal rating of Conductor (in Amps)	From end line bay equipment rating	To end line bay equipment rating	If bay equipment is also to be replaced, please indicate equipment	Feasible rating of HTLS for reconductoring (in A)
9.	Birpara (POWERGRID) – Malbase (Bhutan) 220kV S/c	41	38	1988	Zebra	837	Owner: POWERGRID CT: 1600-800/1A WT: 800A CB: 3150A Isolator:1600A	Owner: BPC CT: WT: CB: Isolator:	Birpara end CB/CT/Isolator not required to be replaced.	Data required
9a	Bhutan portion of Birpara (POWERGRID) – Malbase (Bhutan) 220kV S/c		3		Zebra	837				Data required

4.3. It was decided that after receipt of inputs and requisite system studies, the agenda shall be discussed in the next CMETS-ER.

5. Establishment of Khuntuni 765/400kV, Naraj 400/220kV and Neulapoi 400/220kV along with associated systems under intra-state – Agenda by OPTCL

5.1. CTU mentioned that OPTCL vide letter dated 28-03-2024 has informed following:

- Presently, 400kV substations at Meramundali, Mendhasala and Duburi are feeding the load requirements in eastern part of Odisha. In the present scenario, loading at Meramundali – Mendhasala 400kV D/c and Meramundali (B) – Duburi 400kV D/c lines is about 450MW and 250MW per circuit respectively. It has been mentioned that following industries are planned to be set up at Neulapoi in Dhenkanal, Naraj and Gajmara areas:
 - i. M/s Waree Energies Ltd. – 650MW (Solar Panel Manufacturing Plant)
 - ii. M/s JSW Group – 350MW (Integrated EV Complex)
 - iii. Other industries (approved by IPICOL) – 200MW
- The present transmission system will be constrained with the inclusion of the above load. Accordingly, following additional system has been proposed under intra-state by OPTCL:
 - i. Establishment of 765/400kV substation at Khuntuni

- ii. Angul (POWERGRID) – Khuntuni 765kV D/c line
- iii. Establishment of 400/220kV substation at Neulapoi
- iv. LILO of both circuits of Meramunduli (B) – New Duburi at Neulapoi
- v. Establishment of 400/220kV substation at Naraj
- vi. LILO of both circuits of Meramunduli – Mendhasal at Naraj
- vii. Khuntuni – Neulapoi 400kV D/c line
- viii. Khuntuni – Naraj 400kV D/c line

5.2. CTU mentioned that a joint study was carried out between OPTCL and CTUIL on 22-04-2024. The assumptions of the studies are given below:

a) Studies have been carried out for 2028-29 timeframe considering following systems:

- (i) NLC Talabira (3x800MW) and Talcher-III (2x660MW) generations and their associated evacuation system
- (ii) Paradeep and Gopalpur 765/400kV substations and associated ISTS lines
- (iii) Intra-state system of OPTCL including new 765/400kV substations at Kolabira and Duburi [with OPGC Ph-II (2x660MW) and 1000MW Solar injection Kolabira] along with Sundargarh – Kolabira – Duburi 765kV D/c line and LILO of Angul – Paradeep 765kV D/c line at Duburi

(iv) Industrial demand considered in addition to Odisha's demand:

- Paradeep: 6 GW
- Gopalpur: 6 GW
- Duburi: 1.5 GW
- Neulapoi: 1.06 GW
- Naraj: 0.4 GW

b) For dispersal of power from upcoming HVDC station in Begunia (details at item no 6), Begunia (HVDC) – Khuntuni 765kV D/c line and Begunia (HVDC) – Mendhasal 400kV D/c (Quad) line were also considered in the studies in addition to Begunia (HVDC) – Paradeep & Begunia (HVDC) – Gopalpur 765kV D/c line.

5.3. CTU presented the outcome of the joint study for all the nine scenarios in the latest 2028-29 rolling plan files. The details are given below:

a) The power flow on major transmission system in the study area are tabulated below for all the nine scenarios:

Sl. No.	From	To	kV	Line	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9
1	Jharsuguda-A	Angul-A	765	D/c	2608	1781	2148	2636	1633	2107	2584	2272	1812
2	Jharsuguda-A	Talabira NLC	765	D/c	1550	-18	276	1668	-205	193	1212	-265	-466
3	Jharsuguda-B	Kolabira	765	D/c	1368	780	1139	1565	627	1056	1446	1367	1222
4	Kolabira	Duburi	765	D/c	3139	2552	2911	3335	2399	2828	3217	3139	2993
5	Talabira NLC	Angul-B	765	D/c	2206	1795	2086	2204	1696	2066	2282	2362	1946
6	Talabira NLC	Lapanga	400	D/c	303	227	230	422	115	167	57	-275	-373
7	Angul-B	Srikakula	765	D/c	-134	-1080	-766	-966	-930	-115	900	1433	619
8	Angul-B	Duburi	765	D/c	1418	1849	1800	1684	1797	1585	1038	1223	964
9	Angul-B	Gopalpur	765	D/c	2805	2842	2965	2980	2711	2789	2674	2701	2694
10	Angul-A	Khuntuni	765	D/c	732	750	871	929	670	744	558	516	459
11	Duburi	Paradeep	765	D/c	2627	2499	2661	2779	2398	2553	2553	2818	2462
12	Duburi	Duburi	ICT		1894	1875	2018	2200	1774	1829	1665	1508	1463
13	Khuntuni	Khuntuni	ICT		756	663	895	1035	599	765	509	195	282
14	Begunia HVDC	Khuntuni	765	D/c	-705	-833	-843	-817	-739	-719	-604	-835	-635
15	Begunia HVDC	Paradeep	765	D/c	2550	2721	2597	2531	2760	2605	2516	2984	2531
16	Begunia HVDC	Gopalpur	765	D/c	2275	2255	2205	2144	2239	2246	2435	2439	2623
17	Paradeep	Paradeep OPTCL	400	D/c	-842	-800	-763	-711	-861	-861	-950	-1223	-1025
18	Gopalpur	Gopalpur OPTCL	400	D/c	-947	-932	-859	-906	-1076	-992	-918	-888	-712
19	Khuntuni	Naraj	400	D/c	-274	-236	-104	-140	-380	-320	-412	-525	-426
20	Khuntuni	Neulapoi	400	D/c	1031	899	999	1176	979	1085	921	720	708
21	Naraj	Meramundali	400	D/c	-404	-586	-332	-339	-590	-422	-493	-1009	-571
22	Naraj	Mendhasal	400	D/c	-629	-516	-640	-647	-537	-633	-602	-349	-566
23	Neulapoi	Meramundali-B	400	D/c	-480	-872	-598	-334	-729	-408	-583	-1049	-914

Sl. No.	From	To	kV	Line	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9
24	Neulapoi	Duburi	400	D/c	385	615	429	350	589	376	409	650	521
25	Paradeep	Paradeep	ICT		5159	5200	5238	5290	5140	5139	5050	5777	4975
26	Gopalpur	Gopalpur	ICT		5053	5069	5141	5095	4925	5008	5082	5113	5289
27	Begunia HVDC	Mendhasal	400	D/c (Q)	1880	1857	2041	2142	1740	1868	1653	1412	1480

- b) From the study results, it is observed that power flow on Meramundali – Naraj and Meramunduli-B – Neulapoi 400kV D/c lines are on the higher side and may violate N-1 criteria in some scenarios, accordingly, the same needs strengthening by OPTCL. Further, 765/400kV ICTs at Duburi 765kV S/s also violates N-1 criteria in most of the scenarios.
- c) As Khuntuni – Neulapoi and Begunia HVDC – Mendhasal are new lines, these may be implemented as Quad lines to meet the power flow requirement.
- d) The power flow on all other transmission lines are within permissible limit.

5.4. In regard to outcomes of the study, OPTCL mentioned that following:

- a) Meramundali – Mendhasal and Meramundali-B – Duburi 400kV lines which are proposed to be LILoed for establishment of Naraj and Neulapoi substations respectively are 400kV lines with 75°C max conductor temperature and their thermal rating is about 850MW. Accordingly, it was suggested that LILo may be carried out with HTLS conductor and the main line section may be taken up for reconductoring in future with the increase in demand.
- b) Regarding Duburi 765/400kV ICTs, augmentation with 3rd ICT may be taken up at suitable time with the progressive increase in demand.
- c) Regarding Khuntuni – Neulapoi and Begunia HVDC – Mendhasal lines, OPTCL agreed for implementation of these lines with quad conductor.
- d) Keeping in view long term power transfer requirements and RoW, Khuntuni – Naraj lines shall also be built with quad conductor.

5.5. OPTCL informed the following scope of works for Khuntuni, Neulapoi and Naraj substations and associated lines with tentative commissioning schedule of 2027-28.

a) Khuntuni 765/400kV

- (i) 765/400kV, 2x1500MVA (7x500MVA single phase units) ICTs along with associated bays at both levels
- (ii) 765kV line bays: 4 nos. (2 for Angul and 2 for Begunia-HVDC)
- (iii) 400kV line bays: 4 nos. (2 for Naraj and 2 for Neulopoi)
- (iv) 765kV, 2x240 MVar (7x80MVar single phase units) reactor along with associated bays
- (v) 420kV, 2x125 MVar reactor along with associated bays
- (vi) Space for future expansion
 - 765/400kV, 2x1500MVA (6x500MVA single phase units) ICTs along with associated bays
 - 765kV line bays: 4 nos.
 - 400kV line bays: 6 nos.
 - 420kV, 1x125 MVar reactor along with associated bay
 - 765kV, 1x240 MVar (3x80MVar single phase units) reactor along with associated bay

b) Naraj 400/220kV

- (i) 400/220kV, 2x500MVA ICTs along with associated bays at both levels
- (ii) 400kV line bays: 6 nos. (4 for LILO of Meramundali – Mendhasal and 2 for Khuntuni)
- (iii) 220kV line bays: 4 nos. (4 for LILO of Bidanasi – Mendhasal)
- (iv) 420kV, 2x125 MVar reactor along with associated bays
- (v) Space for future expansion
 - 400/220kV, 2x500MVA ICTs along with associated bays
 - 400kV line bays: 4 nos.
 - 220kV line bays: 6 nos.
 - 420kV, 1x125 MVar reactor along with associated bay

c) Neulapoi 400/220kV

- (i) 400/220kV, 2x500MVA ICTs along with associated bays at both levels
- (ii) 400kV line bays: 6 nos. (4 for LILO of Meramundali-B – Duburi and 2 for Khuntuni)
- (iii) 220kV line bays: 4 nos. (2 for Khutnuni-old and 2 for Gajamara)
- (iv) 420kV, 2x125 MVar reactor along with associated bays
- (v) Space for future expansion
 - 400/220kV, 2x500MVA ICTs along with associated bays
 - 400kV line bays: 4 nos.
 - 220kV line bays: 8 nos.
 - 420kV, 1x125 MVar reactor along with associated bay

5.6. In view of the above, it was agreed to allocate space for 2 no. 765kV line bays at Angul (POWERGRID) 765/400kV to OPTCL for implementation of 2 no. 765kV lines bays for its Angul (POWERGRID) – Khuntuni (OPTCL) 765kV D/c line (to be implemented by OPTCL). The corresponding bay no. shall be allocated and intimated to OPTCL separately.

6. Establishment of HVDC link from Rajasthan to Begunia in Odisha for import of power from RE resources in NR to potential industrial consumers in Odisha including green hydrogen / green ammonia industries

6.1. CTU mentioned that ERES-XXXIV and ERES-XXXIX schemes were approved based on the request of Govt. of Odisha for supply of power to potential industrial consumers in Paradeep and Gopalpur areas of Odisha including green hydrogen / green ammonia industries. Paradeep (ISTS) and Gopalpur (ISTS) substations are planned with ultimate capacity of 6x1500MVA each, however, these substations are initially being established as 2x1500MVA with only one source from Angul 765kV (a 765kV D/c line at each substation). Presently, these transmission systems are under bidding stage, and both are expected to be commissioned by 2026-27 timeframe.

6.2. It was informed that MNRE vide letter dated 01-11-2023 has shared the list of potential industries of green hydrogen / green ammonia in Paradeep and Gopalpur areas by 2030 for planning of required substation capacities at these locations. Further, CEA in consultation with various green hydrogen / green ammonia developers has compiled developer wise electricity demand by 2030. The demand pertaining to Eastern Region is tabulated below:

Region	State	Location	Developer	Electricity Demand (MW) by 2030
Eastern	Odisha	Gopalpur	Renew Power	3000
		Gopalpur	Infinity Global	750
		Gopalpur (TATA SEZ)	Ocior Energy	1650
		Paradeep	Renew Power	3000
		Paradeep	Aditya Birla Renewables	150
		Kendrapada	Welspun New Energy	3500
		Malkangiri	Renew Power	1800
		Rayagada	Renew Power	1100
	West Bengal	Syama Prasad Mookerjee Port (Near Haldia Port)	NTPC	1000

- 6.3. From the above table, it is understood that power requirement at Gopalpur would be about 5400MW and that at Paradeep/Kendrapara would be about 6650MW. In addition to the above, GNA of 700MW has been granted to M/s Avaada Greenh2 Private Limited at Gopalpur and 432MW to M/s AMNSIL at Paradeep. Thus, total power requirement at these two complexes by 2030 would be about 13.2 GW.
- 6.4. To meet the power requirement of 13.2GW primarily from RE resources in a reliable manner, additional interconnection needs to be planned in addition to already under bidding schemes i.e. ERES-XXXIV and ERES-XXXIX. It is to mention that Paradeep and Gopalpur are being fed from only one source i.e. Angul at present. Accordingly, a HVDC transmission system from Bikaner complex in NR to Begunia in Odisha is envisaged. CTU further mentioned that a joint study in this regard was carried out between OPTCL and CTUIL on 22-04-2024. The assumptions of the studies are given below:
- a) The transmission system considered for the study in 2028-29 timeframe is as under:
- Establishment of ± 800 kV, 6000MW HVDC Bipole from Bikaner complex in Rajasthan to Begunia in Odisha
 - Installation of 765/400kV, 5x1500MVA (16x500MVA single phase units) ICTs along with associated bays at both levels
 - Begunia – Paradeep (ISTS)* 765kV D/c line along with associated bays at both ends

- iv. Begunia – Gopalpur (ISTS)[#] 765kV D/c line along with associated bays at both ends
- v. Begunia – Khuntuni (OPTCL)[@] 765kV D/c line along with associated bays at both ends
- vi. Begunia – Mendhasal (OPTCL)[&] 400kV D/c (Quad) line along with associated bays at both ends

Note:

***Paradeep (ISTS) S/s** is being implemented under ERES-XXXIV: under bidding.

#Gopalpur (ISTS) S/s is being implemented under ERES-XXXIX: under bidding.

@Khuntuni (OPTCL) S/s to be taken up under Intra-state by OPTCL: under planning.

&Mendhasal (OPTCL) S/s is an existing OPTCL S/s and space for 2 no line bays in AIS are available for termination of above line.

b) Industrial demand considered in addition to Odisha's demand:

- Paradeep: 6 GW
- Gopalpur: 6 GW
- Duburi: 1.5 GW
- Neulapoi: 1.06 GW
- Naraj: 0.4 GW

c) For dispersal of power from upcoming HVDC station at Begunia, Begunia (HVDC) – Khuntuni 765kV D/c line and Begunia (HVDC) – Mendhasal 400kV D/c (Quad) line were also considered in the studies in addition to Begunia (HVDC) – Paradeep & Begunia (HVDC) – Gopalpur 765kV D/c lines.

6.5. CTU presented the outcome of the joint study for all the nine scenarios in the latest 2028-29 rolling plan files. The details are given at para 5.3 above. The observations of the study are given below:

- a) The power flow on all the lines emanating from Begunia HVDC is within permissible limit in base case as well as in contingency case. However, the power flow on Begunia – Khuntuni 765kV D/c line is on the lower side.
- b) For normal operation of LCC based HVDC system, short circuit ratio of 3 times the rating of HVDC link is required (refer clause 6.3.2. of CEA's Manual on Transmission Planning Criteria). The short circuit level at Begunia 400kV bus with various configurations are tabulated below:

Arrangement	Short Circuit (GVA) of 400kV bus at Begunia HVDC station
A. With Paradeep and Gopalpur connections	14.8
B. (A) + Khuntuni	19.1
C. (A) + Mendhasal	21.5 (19.5GVA under N-1 of Begunia – Mendhasal (OPTCL) 400kV D/c (Quad) line)
D. (A) + Khuntuni + Mendhasal	24.3 (22.7GVA under N-1 of Begunia – Mendhasal (OPTCL) 400kV D/c (Quad) line)

c) From the above, it is observed the short circuit level at Begunia 400kV bus in Case-A is insufficient; in Case-B and Case-C, it is marginally sufficient, which might reduce in case of contingencies. However, in Case-D it is about 24.3GVA, which would be sufficient for reliable operation of HVDC. Accordingly, both interconnections viz. Begunia (HVDC) to Khuntuni (OPTCL) & Mendhasal (OPTCL) would be suitable.

- 6.6. CTU mentioned that the above system has been planned for evacuation of power from RE pocket and accordingly the scheme shall be implemented under ISTS and shall be under National Component-Renewable Energy (NC-RE) component in terms of CERC Sharing Regulations, 2020.
- 6.7. After detailed deliberations, all stakeholders agreed to the proposed ISTS expansion scheme viz. ± 800 kV, 6000MW HVDC Bipole from Bikarner complex in Rajasthan to Begunia in Odisha along with associated AC system in ER as mentioned at para 6.4 a) above.
- 6.8. CTU mentioned that the final scope of works including NR portion shall be brought in the next CMETS-ER for ratification.

7. Change of start date of Connectivity of Talabira (3x800MW) generation project of NLC Ltd.

- 7.1. CTU informed that NLC Ltd. has been granted 2000MW ISTS In-principle Connectivity for its 3x800MW Talabira generation project with start date as 01-05-2027.
- 7.2. NLC Ltd. has already submitted requisite Conn-BG1 and Conn-BG2. Further, the ATS viz. ERGS-I is under bidding process. As per the latest bidding calendar, the last date for bid submission is 31-05-2024.
- 7.3. Now, NLC Ltd. vide letter dated 26-04-2024 has requested to change the start date of connectivity from 01-05-2027 to 28-03-2028 considering the present progress of their plant. Keeping in view the bidding timelines i.e. last date of bid submission

in May 2024, change in the completion schedule of ERGS-I scheme from 01-05-2027 to 28-03-2028 is urgently required upon agreement by stakeholders.

- 7.4. After detailed deliberations, all stakeholders agreed to change the start date of connectivity and also the completion schedule of ATS i.e. ERGS-I scheme from 01-05-2027 to 28-03-2028.

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

- 8.1. CTU informed that numbers of ISTS sub-stations have been commissioned and some are under construction for which the downstream system is being implemented by the STUs.
- 8.2. Based on the information provided by the states through email and during meeting, updated information on planned/under-construction downstream system is given at **Annexure-II. JUSNL, OPTCL and WBSETCL** did not update their respective downstream system. Accordingly, status as per previous meeting is being maintained.

8. Status of 400kV substations being implemented by STUs/entities in ER to be connected through ISTS

- 8.1. CTU informed that 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.
- 8.2. Status of intra-state substations and associated lines as updated by states through email and during meeting is given at **Annexure-III. JUSNL, OPTCL and WBSETCL** did not update their respective downstream system. Accordingly, status as per previous meeting is being maintained.

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

- 9.1. CTU informed that space at various ISTS substations have been allocated to STUs for creation of line bays for termination of their new intra-state.
- 9.2. Status as updated by states through email and during the meeting is given at **Annexure-IV.**

Annexure-I**List of participants of 30th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER)**

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24.	Sh. Devendra Pratap Singh	CGM/PBD	NLCIL	devendra_pratap@nlcindia.in
25.	Sh. V. Rajasekaran	GM/PSE	NLCIL	v.rajasekaran@nlcindia.in
26.	Sh. Selvarani S.	DGM/E/PSE	NLCIL	selvarani.s@nlcindia.in
27.	Sh. Pritpal Singh	DGM	JSW - Ind Barath	pritpal.singh@jsw.in

Annexure-II**Status of Downstream Transmission Network in ER**

Sl. No.	ISTS S/s	State	Voltage ratio, Trans. Cap	Downstream Voltage level (kV)	Unutilised bays	Status of ISTS	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	-	March 2026
2.	Daltonganj [#]	Jharkhand	400/220/132kV, 2x315MVA+ 2x160MVA	132	2	Existing bay	Daltonganj (POWERGRID) – Chatarpur 132kV D/c	22-10-2019	Aug 2024. Issues of forest clearance.
3.	Dhanbad [#]	Jharkhand	400/220kV, 2x500MVA	220	4	Existing bay	LIL0 of 1 st circuit of 220kV Dumka – Govindpur D/c line at Dhanbad (23km)	17-05-2023	16-05-2024
							Dhanbad – Baliyapur 220kV D/c line	07-11-2023	06-11-2025
4.	Keonjhar [#]	Odisha	400/220kV, 2x315MVA	220	2	Existing bay	Keonjhar (POWERGRID) – Turumunga (OPTCL) 220kV D/c	Awarded	Mar 2024 [Not updated. As per 29 th CMETS-ER]
5.	Rourkela [#]	Odisha	400/220kV, 4x315MVA	220	-	-	Reconductoring of Rourkela – Tarkera 220kV D/c line with HTLS conductor	Awarded	Mar 2024 [Not updated. As per 29 th CMETS-ER]
6.	Subashgram [#]	West Bengal	400/220kV, 2x315MVA+ 1x500MVA	220	2	Existing bay	Subashgram (POWERGRID) – Baruipur 220kV D/c line	Awarded	220/132/33kV Baruipur S/s commissioned on 18-07-2022. 132kV downstream network viz. Baruipur-Serakol 132kV D/c line (HTLS) commissioned on 07-02-2024. Subashgram (POWERGRID) – Baruipur 220kV D/c line loaded. Entire downstream has been commissioned.

Sl. No.	ISTS S/s	State	Voltage ratio, Trans. Cap	Downstream Voltage level (kV)	Unutilised bays	Status of ISTS	STU lines for unutilised bays	Status of Lines	
								Date of Award	Completion schedule
7.	Rajarhat [#]	West Bengal	400/220kV, 2x500MVA	220	2	Existing bay	Rajarhat (POWERGRID) – New Town AA IIC 220kV D/c	Awarded	Line charged on 26-09-2022 from Rajarhat S/S. New Town AA IIC 220kV S/s commissioned on 16.01.2024. Entire downstream has been commissioned.
8.	Malda [#]	West Bengal	400/220kV 2x500MVA + 220/132kV, 3x160MVA	132	2 no. new 132kV GIS line bays	132kV upgradation in GIS ongoing. 4 out of 7 bays completed. Balance 3 to be completed by end of Dec 23	Malda (POWERGRID) – Manikchak (WBSETCL) 132kV D/c line	Awarded	132kV D/c line work is getting delayed due to severe ROW issues at 5 locations. ROW issue resolved at 1 location. Meetings are being held regularly with land owners in presence of Dist. Civil & Police admin. for resolving the ROW issues at balance locations. Fdn work started at 5 nos. of low-lying water stagnant locations. Approval from POWERGRID for finalisation of termination tower inside POWERGRID S/s premises has been obtained. Considering severe ROW issues & other constraints being faced for land development (full of mango gardens) anticipated completion is July-24.

Sl. No.	ISTS S/s	State	Voltage ratio, Trans. Cap	Downstream Voltage level (kV)	Unutilised bays	Status of ISTS	STU lines for unutilised bays	Status of Lines	
								Date of Award	Completion schedule
9.	Sitamarhi (New)	Bihar	400/220/132kV, 2x500MVA + 2x200MVA	132	2	Existing bay	LILO of Benipatti - Pupri 132kV S/c at Sitamarhi (New)	Awarded	90% of the work is completed. Expected by Sep 2024. Delay due to financial issue with the contractor
10.	Saharsa (New)	Bihar	400/220/132kV, 2x500MVA + 2x200MVA	132	2-ISTS (addln.4 by state)	Existing bay	Saharsa (New) - Saharsa 132kV D/c line formed by LILO of Saharsa - Banmankhi and Saharsa - Uda Kishanganj 132kV S/c line	Awarded	Expected by May 2024.
11.	Banka	Bihar	400/220/132kV, 2x500MVA + 2x200 & 1x315MVA	220	2	Oct 2024	Banka (POWERGRID) – Goradih (Sabour New) 220kV D/c line (around 45km) along with 2 nos. 220kV GIS line bays at Goradih (Sabour New) S/s/	Line: 03-03-2023. Bays: Tendering is under process.	Line: 02-09-2024. Bays: work awarded on 05-03-2024. Expected by Sep 2025.
12.	Lakhisarai	Bihar	400/220kV, 2x500MVA	220	2	May 2025	Lakhisarai (POWERGRID) – Haveli Kharagpur 220kV D/c line along with 2 no. 220kV line bays at Haveli Kharagpur	05-03-2024	Work awarded on 05-03-2024. Expected by Sep 2025.

Not updated by state. Status as per 29th CMETS-ER.

Annexure- III

**Status of 400kV & 220kV substations being implemented by STUs/entities in ER
to be connected to ISTS**

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
A Bihar (to be implemented by BSPTCL)				
I	Bakhtiyarpur GIS	400/220/132kV, 2x500MVA + 2x160MVA	26-11-2019	Expected by 30-09-2024
a)	LILO of both circuits of Barh – Patna (PG) 400kV D/c (Quad) line-1 at Bakhtiyarpur 400 kV 2xD/c line	400kV 2xD/c	26-11-2019	Line ready to be charged matching with Bakhtiyarpur S/s.
II	Chappra (New)	400/220/132kV, 2x500MVA + 2x200MVA	Retendering work is under process	18 months from date of award
a)	LILO of 400 kV Barh (NTPC) – Motihari (DMTCL) D/C (Quad) transmission line at Chappra	400kV 2xD/c	Awarded in Dec-23	June 2025
B Odisha (to be implemented by OPTCL)				
I	Gopalpur[#]	400/220kV, 2x500MVA	Yet to be Tendered	Mar 2026
a)	Pandiabili (POWERGRID) – Gopalpur 400kV D/c (AAAC Twin Moose) line	400kV D/c	Yet to be Tendered	Mar 2026
II	Therubali[#]	400kV switching station along with 420kV, 1x125MVA bus reactor	Survey completed. Land schedule is under preparation	2026-27
a)	Gopalpur – Therubali – Jeypore (POWERGRID) 400kV D/c line	400kV D/c	To be taken after tendering of Gopalpur S/s.	2026-27
III	Bhadrak[#]	400/220kV, 2x500MVA	Tender was cancelled due to high cost.	2025-26
a)	LILO of Baripada – New Duburi and Baripada – Pandiabili 400kV line sections at Bhadrak	400kV D/c	Tender was cancelled due to high cost.	2025-26
IV	Paradeep[#]	400/220kV, 2x500MVA	Dec 2022	Dec 2024
a)	Paradeep – New Duburi 400kV D/c line (136 km)	400kV D/c	Line work started.	Dec 2024
V	Joda New[#]	400/220kV, 3x500MVA	To be taken up under intra state TBCB. Assigned to PFC. Site selection completed.	2025
a)	LILO of Rourkela (POWERGRID) – Talcher (NTPC) 400kV D/c line at Joda New	400kV D/c	To be taken up under intra state TBCB. Assigned to PFC.	2025
VI	Kolabira[#]	765/400kV, 2x1500MVA	Land is finalised	-

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
a)	Sundargarh-B (POWERGRID) – Kolabira 765kV D/c line	765kV D/c	Survey work will be awarded in Mar 2024	-
b)	Kolabira – Duburi-765kV 765kV D/c line	765kV D/c	Survey work will be awarded in Mar 2024	-
C Jharkhand (to be implemented by JUSNL)				
I	Chandil (New) #	400/220kV, 2x500MVA	Awarded in Jan 2024	24 months
a)	PVUNL – Chandil 400kV D/c (Quad) line (130km) (80MVAR sw. line reactor at Chandil end)	400kV D/c (Quad)	20-07-2023	July 2025 (24 months from the award date)
b)	Chandil – Chaibasa (POWERGRID) 400kV D/c (Quad) line (50km)	400kV D/c (Quad)	20-07-2023	July 2025 (24 months from the award date)
c)	Chandil – Dhanbad (ISTS) 400kV D/c (Quad) line (130km)	400kV D/c (Quad)	20-07-2023	July 2025 (24 months from the award date)
II	Extn. at Chaibasa (ISTS) S/s#	2 no. 400kV line bays at Chaibasa (ISTS) S/s for termination of Chandil – Chaibasa (ISTS) 400kV D/c (Quad) line	JUSNL mentioned that they initially focused on award of lines first. Now, bay works would be taken up. CTU highlighted that as line works have already been awarded with 24 months completion schedule, associated line bay works at Chaibasa and Dhanbad ISTS substations may also be taken up expeditiously to avoid mismatch in line and bay implementation.	
III	Extn. at Dhanbad (ISTS) S/s#	2 no. 400kV line bays at Dhanbad (ISTS) S/s for termination of Chandil – Dhanbad (ISTS) 400kV D/c (Quad) line		
IV	Koderma#	400/220/132/33kV, 2x500MVA + 2x200MVA + 2x80MVA	Expected in March 2024	24 months
a)	PVUNL – Koderma 400kV D/c (Quad) line (133km) (80MVAR sw. line reactor at Koderma end)	400kV D/c (Quad)	20-07-2023	July 2025 (24 months from the award date)
V	Latehar#			
a)	Patratu – Latehar 400kV D/c line	400kV D/c	Forest Stage-I clearance is awaited.	Aug 2024
b)	Latehar – Chandwa (POWERGRID) 400kV D/c line	400kV D/c	Work in Progress. However, progress is slow. This work is being executed by POWERGRID under Jharkhand Consultancy Project (JCP).	Aug 2024
D West Bengal				
(to be implemented by WBSETCL)				
I	New Laxmikantpur GIS#	400/132kV, 2x315MVA	Land identification & short listing are in progress. 400kV & 132kV line survey for connectivity feasibility in progress for finalisation of land .	
a)	LILO of one circuit of Jeerat (New) –	400kV D/c	Interim arrangement: M/s HEL is yet to receive & convey the clearance from OEM of	

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
	Subhasgram 400kV D/c (Quad) line at New Laxmikantpur (Interim arrangement: LILO of Haldia – Subhasgram 400kV D/c line at Laxmikantpur)		their generating units for LILOing of 400KV Haldia-Subhasgram line.	
II	Falakata[#]	220/132kV, 2x160MVA	Works in progress	July-2024 (getting delayed due to poor progress of work by Vendor)
a)	LILO of Birpara – Alipurduar 220kV D/c line at Falakata substation (LILO portion length around 9km)	220kV 2xD/c	95% works completed. Only line tapping & termination portion of work pending	May-2024 (termination of line at SS may get delayed due to slow progress of SS works)
(to be implemented by CESC) – to be updated by POWERGRID				
III	Subhasgram (POWERGRID)[#]			
	Installation of new 400/220kV, 500MVA (6 th) ICT at Subhasgram (POWERGRID) S/s along with associated ICT bays and OLTC by CESC at its own cost	400/220kV, 1x500MVA (6 th ICT)	Go ahead clearance from CESC given to POWERGRID for tendering process. Agreement between POWERGRID & CESC executed on 26-05-2023. LOA placed in Nov'23.	May 2025 (as intimated by POWERGRID)
IV	Rajarhat (POWERGRID)[#]			
	Installation of new 400/220kV, 500MVA (3 rd) ICT at Rajarhat (POWERGRID) S/s along with associated ICT bays	400/220kV, 1x500MVA (3 rd ICT)	To be implemented in ISTS under ERES-41 as per 21 st CMETS-ER. Process for placement of Award in progress.	October 2025 (as intimated by POWERGRID)
E DVC (to be implemented by DVC)				
I	Gola-B	400/220/132kV 2x500MVA + 2x200MVA	Will be taken up in TBCB mode by formation of two different SPVs for WB and Jharkhand area respectively. M/S PFC Consulting Ltd. has been appointed as BPC. Presently RFP documents are under preparation. Deviations in respect of DVC has been observed in the Standard Bidding Documents and the TSA. Letter initiated to MoP, GoI for incorporation of changes. Awaiting reply. Once received, the RfP document would be issued.	December 2026
a)	LILO of both circuits of Ranchi – RTPS 400kV D/c line at Gola-B	400kV D/c		
II	Ramkanali-B	400/220/132kV 2x500MVA + 3x200MVA (3 rd ICT to be installed progressively with load growth)		
a)	LILO of both circuits of RTPS – DSTPS 400kV D/c line at Ramkanali-B	400kV D/c		

Not updated by state. Status as per 29th CMETS-ER

Annexure-IV**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	Agreed in CMETS-ER
1.	Rourkela (POWERGRID) #	2 No. 220kV lines bays for termination of Rourkela (POWERGRID) – Tikrapara 220kV D/c (HTLS) line	No clarity from beneficiary	On hold	1 st & 7 th
2.	Keonjhar (POWERGRID) #	2 No. 220kV lines bays for termination of Keonjhar (POWERGRID) – Tikarpada 220kV D/c line	No clarity from beneficiary	On hold	1 st
3.	Maithon (POWERGRID) #	2 No. 220kV lines bays for implementation of Maithon (POWERGRID) – Asansol 220kV D/c line	Line bays to be constructed by PGCIL as a deposit work of WBSETCL on consultancy basis. Agreement between WBSETCL & PGCIL has been executed on 18-07-23. LOA by PGCIL for 2 nos 220KV Fdr bays at Maithon SS placed in Nov'23. LOA for 220 KV D/C line & 2 nos 220KV Fdr bays at Asansol 220KV SS has been placed by WBSETCL ON 13.03.2024.	18 months from date of LOA. (Sept 2025)	7 th
4.	Sitamarhi (New) (PMTL)	2 no. line bays for termination of Sitamarhi (New) (PMTL) – Sheohar (BSPTCL) 132kV D/c line	Fund tie up in progress	Fund tie up in progress	24 th
5.	Chandauti (New) (PMTL)	2 no. line bays for termination of Chandauti (New) (PMTL) – Sherghati (BSPTCL) 132kV D/c line	Fund tie up in progress	Fund tie up in progress	24 th

Not updated by state. Status as per 29th CMETS-ER