सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड

(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)

(भारत सरकार का उदयम)

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/00/9th/CMETS-ER

दिनांक/Date: 18-08-2022

वितरण सूची के अनुसार/ As per Distribution List

विषय/ Subject: पूर्वी क्षेत्र में पारेषण योजनाओं के विकास के लिए 9वी परामर्श बैठक के कार्यवृत्त (सीएमईटीएस-ईआर) / Minutes of 9th 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 **9वी** परामर्श बैठक **29th जुलाई, 2022** को वीडियो कॉन्फ्रेंस के माध्यम से आयोजित की गई थी। इस संबंध में बैठक के कार्यवृत्त संलग्न है। यही CTUIL की वेबसाइट (*www.ctuil.in >> ISTS Planning and Coordination >> Consultation Meeting for ISTS >> Eastern Region*) पर भी उपलब्ध है।

The **9th** Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER) was held on **29th July, 2022** through video conferencing. In this regard, please find enclosed minutes of the meeting. The same is available on CTUIL website (*www.ctuil.in >> ISTS Planning and Coordination >> Consultation Meeting for ISTS >> Eastern Region*)

धन्यवाद/ Thanking you,

भवदीय / Yours faithfully,

18/08/2022

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

A. वितरण सूची / Distribution List:

1.	**Chief Engineer (PSP&A-II)** Central Electricity Authority Sewa Bhawan, R.K.Puram New Delhi-110066	**2.**	**Director (SO)** Power System Operation Corporation Ltd. 9th Floor, IFCI Towers, 61, Nehru Place, New Delhi-110 016
3.	**Member Secretary** Eastern Regional Power Committee 14, Golf Club Road, Tollygunge Kolkata-700033	**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
11.	**Director (Projects)** Power Grid Corporation of India Ltd. "Saudamini", Plot No. 2, Sec-29, Gurugram Haryana-122001	**12.**	**Managing Director** Haldia Energy Limited (HEL) 2A, Lord Sinha Road, First Floor, Kolkata, West Bengal - 700 071, Email: haldiaenergy@rpsg.in
13.	**Chairman** CESC Limited CESC House, Chowringhee Square Kolkata – 700001 Email: cesclimited@rpsg.in		

Minutes of 9th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER)

GM (CTU) welcomed the participants in the meeting. List of the participants is enclosed at **Annexure-I.**

Agenda wise deliberations and decisions are given below:

1. Confirmation of minutes of the previous meeting

CTU informed that the minutes of the 9th meeting of CMETS-ER held on 30-06-2022 were issued vide letter dated 19-07-2022. As no comments have been received, the minutes were considered to be confirmed as circulated.

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

As agreed in the previous meeting, representative of E&P Dept., Govt. of Sikkim gave a presentation (copy enclosed at **Annexure-V**) regarding present and future (2026-27) power scenario, intra-state transmission system, generation (central & state), and demand in Sikkim. Expected commissioning of intra-state transmission system being implemented under Comprehensive Scheme for Strengthening of Transmission & Distribution System in Sikkim was also updated. The transmission related issues faced in Sikkim such as ageing of intra-state transmission lines, reduction in ground clearances due to habitation and forest growth etc. were also highlighted in the presentation. It was informed that the load in Gangtok, North Sikkim and Pakyong areas is rapidly increasing and in the last winter season (Dec 2021 to Feb 2022) the demand in these areas reached new peaks. Accordingly, it was suggested that suitable transmission system augmentation needs to be carried in order to meet the growing demand of the state capital and other high growth areas.

A. Application related matters in Eastern Region (ER)

3. MTOA applications with injection in ER and drawl in other Regions

3.1. CTU informed that following MTOA applications have been received with injection in ER and drawl in other regions in the month of June 2022:

Sl. No.	Applic-ation ID	Name of Applicant	Submission Date	Drawl Region	Quantum of MTOA	Start Date of MTOA	End Date of MTOA	Generation/ Injection Point	Drawl Point
1.	0551100004	Tata Power Trading Company Limited (TPTCL)	29.06.2022	SR	#51.6	01-12-2022	30-11-2025	Jindal India Thermal Power Limited Odisha, (ER)	South Western Railways, Karnataka (SR)-ISTS Connected
2.	0563500002	North Central Railway	14.06.2022	NR	30	01-12-2022	30-11-2024	Raghunathpur TPS DVC (2x600MW), West Bengal	North Central Railway, Dadri &

Sl. No.	Applic-ation ID	Name of Applicant	Submission Date	Drawl Region	Quantum of MTOA	Start Date of MTOA	End Date of MTOA	Generation/ Injection Point	Drawl Point
									Phaphund
3.	0563500003	Northern Railway	28.06.2022	NR	47.05	02-12-2022	01-12-2024	Raghunathpur TPS DVC (2x600MW), West Bengal	Northern Railway, UP, NR
4.	0512100002	North Western Railway	30.06.2022	NR	37.66	08-12-2022	07-12-2024	Raghunathpur TPS DVC (2x600MW), West Bengal	North Western Railway, Rajasthan, NR
5.	0530700002	Indian Railway Gujarat (Western Railway)	29.06.2022	WR	30	01-12-2022	30-11-2024	Raghunathpur TPS DVC (2x600MW), West Bengal	Indian Railway Gujarat (Western Railway), Gujarat, WR

Note: *#Quantum of PPA is 50MW, however, MTOA has been sought for 51.6MW. In this regard, applicant has clarified that they have applied MTOA considering transmission losses of 3.19% to deliver contracted capacity of 50MW at the delivery point.*

3.2. CTU mentioned that presently, 323MW LTA (95MW to KSEB, SR and 228MW to BSPHCL, ER) and 311MW MTOA [NR (106.88MW) & WR (204.2MW)] is already granted and operational from M/s JITPL to beneficiaries in different region.

3.3. CTU informed that the MTOA application at Sl. No. 1 involves transfer of 51.3MW additional power from M/s JITPL (ER) to beneficiary in SR. The drawl of power under the said MTOA by South West Railway would be through KPTCL STU network. No Objection Certificate issued by Karnataka SLDC, copy of PPA signed between JITPL & TPTCL and copy of PSA signed between TPTCL & South Western Railway have been submitted along with the application. Present ATC of Southern Region for import of power from NEW grid is 18,900MW and sufficient margins are available for allocation under LTA/MTOA.

3.4. In regard to Raghunathpur TPS, CTU mentioned that presently, 446.75MW LTA (46.75MW to KSEB, 300MW to Punjab, and 100MW to Haryana) is already granted and operational from Raghunathpur TPS to beneficiaries in different region. The MTOA applications at Sl. No. 2 to 5 involves transfer of 144.71MW additional power from Raghunathpur TPS to beneficiaries in NR and WR.

- Application at Sl. No. 2: North Central Railway is connected with ISTS network in NR at Dadri & Phaphund in Uttar Pradesh from which drawl is envisaged under present MTOA.
- Application at Sl. No. 3: Northern Railways is connected with STU network in UP and STU network is connected with ISTS network at many locations in

Uttar Pradesh. No Objection Certificate (NOC) submitted by the applicant from UP SLDC is for the period of 02-12-2022 to 01-12-2024.

- Application at Sl. No. 4: North Western Railways is connected with STU network in Rajasthan and STU network is connected with ISTS network at many locations in Rajasthan. No Objection Certificate (NOC) submitted by the applicant from Rajasthan SLDC is for the period of 08-12-2022 to 07-12-2024.
- Application at Sl. No. 5: Western Railway is connected with STU network in Gujarat and STU network is connected with ISTS network at many locations in Gujarat. SLDC NOC and PPA has been submitted with application.
- No constraint is envisaged in present Available Transfer Capability (ATC) between ER-NR, ER-WR, and WR-NR corridors for above mentioned power transfer requests from ER to NR & WR.

3.5. It was informed that the start date of all the MTOAs mentioned above are in Dec 2022. Accordingly, studies have been carried out on All India load flow file for Dec 2022 timeframe for all four regions with injections in ER and drawl in SR, NR and WR. From the system studies, it has been observed that power flows are generally in order, including on the inter-regional lines.

3.6. After detailed deliberations, it was agreed to grant the above MTOAs as per the details mentioned at para 3.1 above.

B. ISTS expansion schemes in Eastern Region

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

4.1. CTU informed that in the 8th CMETS-ER held on 31-05-2022, following was deliberated:

- WBSETCL informed that they have identified land for establishment of New Laxmikantpur 400/132kV S/s which is about 1km from the Haldia – Subhasgram 400kV D/c line and implementation of the same through LILO of the said line may not encounter any RoW constraints, and also this shall be most techno-economical solution to serve the increasing load in the South 24 Parganas district. WBSETCL further informed that they had submitted the plan for LILO of Haldia – Subhasgram 400kV D/c line at New Laxmikantpur to CESC & HEL, however, they have not received any confirmation from CESC/HEL in this regard till date. In the meeting, it was decided that matter regarding LILO of Haldia – Subhasgram 400kV D/c line for establishment of New Laxmikantpur S/s would be deliberated (including regulatory & commercial issues) along with CESC and HEL at ERPC level. Subsequently, the matter would be discussed in the CMETS-ER for finalisation of the scheme.

- WBSETCL was also requested to share the bus splitting plan for Laxmikantpur 220/132kV S/s in a way that some portion of load would be fed from existing Laxmikantpur – Subhasgram (POWERGRID) 220kV D/c line and balance from 400/132kV New Laxmikantpur S/s.

4.2. CTU mentioned that LTOA of 400MW to CESC Ltd. was granted vide intimation dated 21-05-2009 for transfer of 400MW power from Haldia TPS to CESC Ltd. Another LTOA of 150MW to Noida Power Company Ltd. was granted vide intimation dated 11-06-2009 for transfer of 150MW power from Haldia TPS to Noida Power Company Ltd. However, the same was revoked vide CTU letter dated 23-02-2017 in view of non-signing of BPTA/LTA by M/s NPCL.

4.3. Thereafter, in a special meeting at ERPC on 11-08-2014, it was decided that for LTA upto 400MW there will not be ISTS transmission charges and losses for power transaction from Haldia (CESC) to CESC. For remaining 200MW, provisions of WBERC would be applied for STOA from SLDC, WB, and for this transaction also there would be no ISTS transmission charges and losses.

4.4. ERPC informed that the subject matter was deliberated in the 193rd OCC meeting of ERPC wherein it was informed that a meeting was held on 19-07-2022 among CESC, WBESTCL and HEL to discuss the connectivity of New Laxmikantpur S/s. In this meeting, HEL mentioned about the constraints in obtaining clearance from their generator OEM for the proposed connectivity for New Laxmikantpur 400/132kV S/s which would take more than one month time.

4.5. HEL mentioned that WBSETCL shared the studies carried out in 2019 for the proposed connectivity system and they would like to evaluate the data as per the present power requirement in and around Laxmikantpur area, and based on the outcome they would seek clearance from their generator OEM on the proposed connectivity which would take more than one month time. He also requested that any other study data in this regard, if available, may kindly be provided for further examination at their end. HEL also mentioned that once the technical concurrence on this matter is obtained from OEM, they would discuss on commercial and regulatory aspects for the same.

4.6. WBSETCL mentioned that studies has already been carried out for the said proposal. He also informed that a joint study was carried out at ERPC in August 2021 the studies were presented. This data would serve the requirement of HEL and the same is already available with CESC. WBSETCL requested CESC to coordinate and share the data with HEL. WBSETCL further requested HEL to expeditiously provide their opinion on the above proposal.

4.7. WBSETCL mentioned that the connectivity system for New Laxmikantpur substation was discussed & agreed in the 2nd meeting of erstwhile ERSCT held on 05-07-2019 and since then there is no progress in development of agreed system in view of delay caused by HEL / CESC. More than three valuable years have already passed but no works has started till date. As per the load growth

in and around area of Laxmikatnpur, WBSETCL mentioned that New Laxmikantpur S/s is urgently needed and all decisions should be made in the time bound manner as the completion of the 400/132kV New Laxmikantpur S/s and associated system would itself take at least 36 months from the date of approval.

4.8. CTU also emphasized the concerned raised by WBSETCL and requested WBSETCL & CESC to kindly provide the data required by HEL and requested HEL to share their decision after studies, if any, at the earliest, preferably prior to the next CMETS-ER meeting to be held in August 2022.

4.9. It emerged in the meeting that based on views of HEL and due to high load growth in and around Subhasgram and Laxmikantpur areas, if there are real issues in implementation of the said 400kV LILO at New Laxmikantpur S/s, the possibilities of new transmission system for the connectivity of New Laxmikantpur S/s can also be explored.

4.10. CTU proposed that the scope of implementation of the OPGW in the LILO portion at 400kV Laxmikantpur may also be included to strengthen the communication system in ER.

4.11. After detailed deliberations, following was agreed:

- WBSETCL and CESC would provide the required data to HEL
- HEL to provide their decision on the LILO of Haldia – Subhasgram 400kV D/c line at 400/132kV New Laxmikantpur substation, prior to the next CMETS-ER meeting.
- The detailed scope of works would be finalized after receipt of the comments from HEL as mentioned at point b) above and the same shall be deliberated in the next CMETS-ER.

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

5.1. CTU mentioned that in the 8th CMETS-ER held on 30-06-2022, it was decided that augmentation of transformation capacity at Subhasgram S/s will be finalized after assessing the power drawl by CESC and WBSETCL in last one year.

5.2. It was informed that presently, there are 4x315MVA + 1x500MVA ICTs at Subhasgram S/s. 2x315MVA + 1x500MVA is under ISTS and 2x315MVA has been installed by CESC.

5.3. CTU informed that ERLDC had shared the ICTs loading details at Subhasgram S/s. Major highlights of the details shared by ELRDC is given below:

- In the present summer season (Apr-June 2022), N-1 reliability rating has been violated in 400/220kV Subhasgram (POWERGRID) ICTs on many occasions.

- The highest loading of about 1540MW was observed on 28th April 2022 both by CESC and WBSEDCL.
  - CESC maximum drawl was 803.17 MW on 28-04-2022 3:42 PM
  - WBSEDCL maximum drawl was 804.76 MW on 28-04-2022 11:25 PM
- The N-1 of CESC ICTs have been violated for about 74% of the time to meet its load.
- The N-1 of ISTS ICTs have been violated for about 11% of the time to meet WBSEDCL load.

5.4. CTU proposed that in view of loading on existing ICTs not meeting the reliability criteria as detailed at para 5.3 above, there is an urgent requirement for installation of 6th 400/220kV, 500MVA ICT at Subhasgram (POWERGRID) S/s.

5.5. ERLDC also emphasised regarding the urgent need for augmentation of transformation capacity at Subhasgram S/s. It was mentioned that major power demand of capital city of Kolkata is met from Subhasgram S/s, and any major overloading could result into cascaded tripping of ICTs, leading to major blackout in the area.

5.6. WBSETCL mentioned that since major over drawl at Subhasgram is by CESC, the 6th ICT may be installed at cost of CESC. CESC mentioned that as both CESC (74% of the time) and WBSEDCL/WBSETCL (11% of the time) drawl are not N-1 compliant, the cost of ICT in ISTS may be shared by both utilities.

5.7. All the stakeholders including CESC and WBSETCL agreed for installation of new ICT (6th) on technical grounds. However, the scheme could not be finalised due to commercial issues of cost sharing. It was suggested the matter may be discussed in the forthcoming 46th meeting of TCC & ERPC. Thus, following was suggested for deliberation by CTU in the forthcoming meeting of ERPC:

- **ICT to be installed in ISTS:** WBESTCL to bear the ISTS transmission charges (CESC is not a DIC) of the new 6th 400/220kV, 500MVA ICT at Subhasgram (POWERGRID) S/s as per the prevailing CERC Sharing Regulation 2020, on similar lines as the tariff of existing 2x315MVA + 1x500MVA ICTs are presently being recovered. Further, WBSETCL and CESC may enter into a separate agreement for sharing of ISTS transmission charges among them on mutually agreed proportion, as 6th ICT is required for reliable supply of power for both CESC and WBSEDCL/WBSETCL.

5.8. After detailed deliberations, it was decided that the matter would be again deliberated in the next CMETS-ER, after deliberation in the 46th meeting of ERPC.

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

6.1. CTU informed that in the 8th CMETS-ER held on 30-06-2022, it was decided that Rangpo – Gangtok 132kV D/c line can be reconductored with HTLS of 800A

rating so as to meet the power drawl requirement of Sikkim and also there would be minimal requirement of only change of CTs at Gangtok end. In themeeting, POWERGRID had informed that that CERC has asked for consent of the beneficiaries to bear the tariff corresponding to the residual value of the transmission line in case of reconductoring of the same before completion of its useful life. Accordingly, in the said meeting all the STUs requested POWERGRID to share the residual cost of the transmission line to be recovered as tariff, so that view on reconductoring proposal can be taken.

6.2. Subsequently, POWERGRID shared the details as under:

"*The current book value of conductor and accessories along with 6 nos. 132 kV CTs at Gangtok end to be dismantled for reconductoring of 132 kV D/C Rangpo-Gangtok transmission line as on 30-06-2022 is Rs. 65,73,438.*"

6.3. All the stakeholders agreed on the said proposal of reconductoring of Rangpo – Gangtok 132kV D/c line with HTLS of 800A including bearing of residual cost as provided by POWERGRID mentioned at para 6.2 above.

6.4. Accordingly, following scope of works was agreed to be implemented under ISTS under the Eastern Region Expansion Scheme-XXXIII (ERES-XXXIII) within 24 months from date of allocation:

- Reconductoring of Rangpo – Gangtok 132kV D/c line with single HTLS conductor of 800A (at nominal voltage level).
- Upgradation of CTs at Gangtok end in both circuits of Rangpo – Gangtok 132kV D/c line from 600A to rating commensurate with rating of HTLS conductor.

7. NGR in the 63MVAr line reactor at Kahalgaon end of Kahalgaon – Durgapur 400kV D/c line

7.1. CTU informed that in 5th CMETS-ER held on 25-02-2022, installation of 420kV, 63MVAr switchable line reactor at Kahalgaon (NTPC) end, one each in both circuits of Kahalgaon (NTPC) – Durgapur (POWERGRID) 400kV D/c line was agreed to be implemented under ERES-XXVII scheme.

7.2. Subsequently, CTU vide OM dated 26-04-2022 approved implementation of the above scheme by POWERGRID under Regulated Tariff Mechanism (RTM) route. Thereafter, POWERGRID vide email dated 11-05-2022 requested to confirm the requirement of NGR, if any, with said line reactors.

7.3. CTU mentioned that studies were carried out for the requirement of NGR in the 63MVAr switchable line reactor at Kahalgaon end of the Kahalgaon – Durgapur 400kV D/c line and it was observed that 500 Ohm NGR is technically suitable.

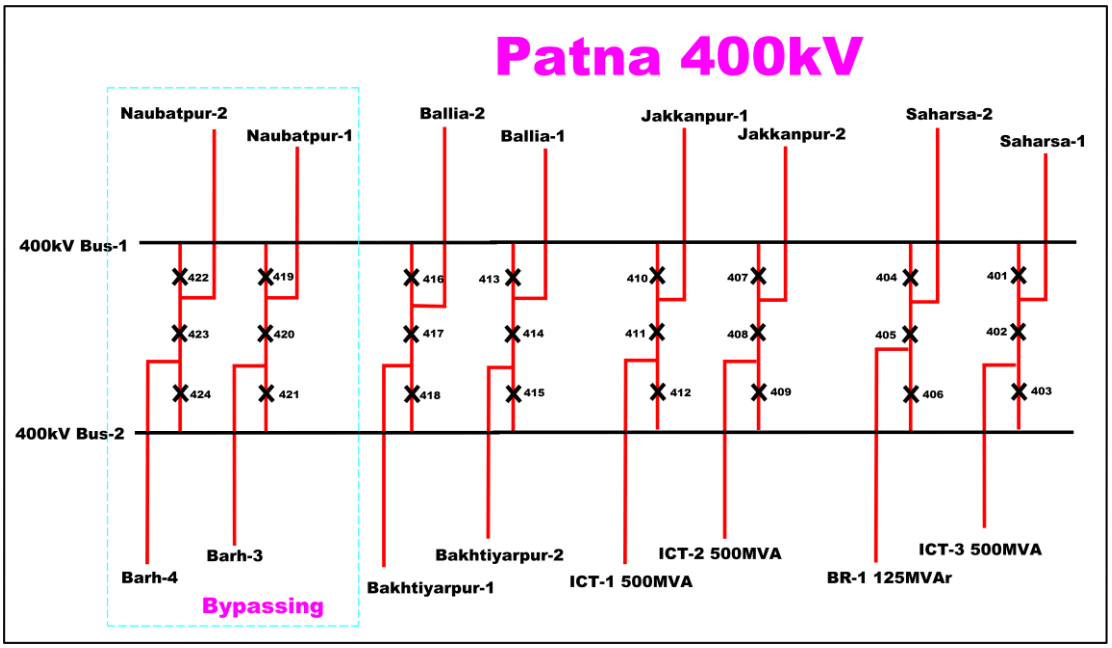
7.4. Accordingly, CTU vide OM dated 24-06-2022 has approved additional provision of 500 Ohm NGR along with suitable NGR bypass arrangement in the already approved 63MVAr switchable line reactor at Kahalgaon end of Kahalgaon –

Durgapur 400kV D/c line under ERES-XXVII (to be implemented by POWERGRID). Stakeholders were requested to agree regarding installation of the said NGR.

7.5. All the stakeholders agreed to the above proposal.

8. Fault level control at Patna (POWERGRID) S/s at 400kV level

8.1. CTU informed that in the present timeframe, the fault level at 400kV level at Patna (POWERGRID) S/s has been observed to be about 49kA, which is exceeding the design rating of 40kA. The schematic/SLD of Patna S/s is shown below:



8.2. CTU suggested that in order to limit fault current at 400kV side at Patna S/s, it is proposed to bypass Patna – Barh 400kV D/c (Quad) line (ckt-3 & 4) (68.9km) and Patna – Naubatpur 400kV D/c (Quad) line (25.45km) at Patna S/s so as to form Barh – Naubatpur 400kV D/c (Quad) line. The bypassing is proposed through switching arrangement at substation itself i.e. by opening the main CBs (419, 421, 422, and 424) and keeping the tie CBs closed (420 and 423) under normal operating condition.

8.3. CTU informed that with the proposed arrangement mentioned at para 8.2 above, fault level at Patna S/s reduces to 37kA and line length of Barh – Naubatpur section would become about 95km. As such no operational constraints are envisaged with proposed bypassing arrangement.

8.4. ERLDC mentioned that they agree with the proposal, however, they would share their observations separately after checking other operational aspects also.

8.5. CTU informed that upon implementation of the above proposed bypassing arrangements at Patna S/s, necessary protection settings need to updated at

Patna and Naubatpur substations. Accordingly, CTU requested POWERGRID and BSTPCL to take the necessary steps for the same.

8.6. After detailed deliberations, it was decided that ERLDC would share their observations and based on the observations of ERLDC, implementation of the bypassing through switching arrangement at Patna S/s to bypass Patna – Barh 400kV D/c (Quad) line (ckt-3 & 4) and Patna – Naubatpur 400kV D/c (Quad) line at Patna S/s so as to form Barh – Naubatpur 400kV D/c (Quad) line would be taken up.

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

9.1. 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.

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

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

10.1. 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.

10.2. Status of intra-state substations and associated lines as updated by STUs in the meeting is given at **Annexure-III**.

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

11.1. 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 lines. List of such ISTS substations as per available information is given at **Annexure-IV**.

11.2. Status of the bays allocated at ISTS S/s as updated by STUs in the meeting is given at **Annexure-IV**.

Annexure-I

List of participants of 9th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER)

Sl. No.	Name	Designation	Organization	Email id
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25.	Sh. Swarup Kumar Pal	Sr. Div. Engg.	DVC	swarup.pal@dvc.gov.in
26.	Sh. Preetosh Ghosh	EE, SLDC	DVC	Preetosh.ghosh@dvc.gov.in
27.	Sh. C. R. Mishra	CGM (CP)	OPTCL	
28.	Sh. A. K. Banerjee	DGM	OPTCL	ele.akbanerjee@optcl.co.in
29.	Sh. Ajit Kumar Bhagat	Sr Manager	JUSNL	cetjusnl@gmail.com
30.	Sh. Gagan Kumar	E. Ex. E. SLDC	BSPTCL	gagankmishra@gmail.com
31.	Sh. Sunil gupta	ESE, SLDC	BSPTCL	
32.	Sh. Deepak	SLDC	BSPTCL	
33.	Sh. Praveen Kumar	EEE(STU)	BSPTCL	stubsptcl2019@gmail.com
34.	Sh. Abhishek Kumar	EEE(P&E)	BSPTCL	abhishek.bsptcl@hotmail.com
35.	Sh. Nisit Gupta		BSPTCL	
36.	Ms. Sarita Kumari		BSPTCL	
37.	Ms. Shweta Rani		BSPTCL	
38.	Ms. Sweety Kumari		BSPTCL	
39.	Sh. Sunil Barai	CE, EHV	Sikkim	
40.	Sh. Sudipta Mukherjee	ED (Gen)	HEL	sudipta.mukherjee@rpsg.in
41.	Sh. Chiranjiv Bhomi		HEL	
42.	Sh. Sanjoy Mukherjee		CESC	
43.	Sh. Santanu Sen		CESC	
44.	Sh. Manoj Kumar			
45.	Sh. Bibhuti Bhushan Bhoi			
46.	Sh. Perwez Alam			
47.	Sh. Purn Prakash Chand			
48.	Ms. Shweta Nirmata			

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 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. Price bid opened. Additional funds are required, proposal sent to state govt. for approval	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		220kV Baruipur substation charged. 132kV downstream delayed due to RoW. Expected by Oct 2022.
6.	Rajarhat	West Bengal	400/220kV, 2x500MVA	220	2	Existing bay	Rajarhat (POWERGRID) – New Town AA2C 220kV D/c		Cabling of 0.5km is remaining which is expected by Sep 2022. Line would be charge upon completion of same. Substation is expected by Dec 2022.

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
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 Mar 2023
8.	Saharsa (New)	Bihar	400/220/132kV, 2x500MVA + 2x200MVA	220	2	Existing bay	Saharsa (New) - Begusarai 220kV D/c line		Charged on 21st July 2022
				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 Sep 2022, and balance two in Nov 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. Tender documents ready	Expected by Mar '24

Annexure-III

Status of 400kV 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	SOR rates increased. Cabinet approval to be taken up.
a)	LILO of 400 kV Barh (NTPC) - Motihari (DMTCL) D/C (Quad) transmission line at Chappra	400kV 2xD/c	Funds not yet tied up	SOR rates increased. Cabinet approval to be taken up.
B	**Odisha (to be implemented by OPTCL)**			
I	**Digapahandi**	400/220kV, 2x500MVA	Tendering activity to be taken up	2025-26
a)	Digapahandi – Therubali – Jeypore 400kV D/c line	400kV D/c	Tendering activity to be taken up (*in first phase: Pandiabil – Digapahandi 400kV D/c line portion would be taken up*)	2025-26
II	**Therubali**	400kV switching station along with 420kV, 1x125MVAr bus reactor	Survey completed. Land schedule is under preparation	2026-27
III	**Bhadrak**	400/220kV, 2x500MVA	Tendering in progress	2024-25
a)	LILO of Baripada – Duburi and Baripada – Pandiabili 400kV line sections at Bhadrak	400kV D/c	Tendering in progress	2024-25
IV	**Paradeep***	400/220kV, 2x500MVA		24 months
a)	Paradeep – Duburi 400kV D/c line	400kV D/c	Line package awarded May'22and substation award is expected by Aug 2022	24 months

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
V	**Paradeep***	765/400kV, 2x1500MVA	Survey completed. Land schedule is under preparation	2026-27
a)	Angul (POWERGRID) – Paradeep (OPTCL) 765kV D/c line	765kV D/c	Survey completed. Land schedule is under preparation	2026-27
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
C	**Jharkhand (to be implemented by JUSNL)**			
I	**Chandil (New)**	400/220kV, 2x500MVA	Bid opened on 13-07-2022. Technical Evaluation of entire scope has been started.	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**			
a)	Patratu – Latehar 400kV D/c line	400kV D/c	Forest Stage-I clearance is awaited.	Feb 2023
b)	Latehar – Chandwa (POWERGRID) 400kV D/c line	400kV D/c	All clearances have been obtained. Works for 20km is pending due to theft of line.	Dec 2022
IV	**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)	-	
V	**Mander**	400/220kV, 2x500MVA	-	
a)	LILO of Patratu – Ranchi (New) 400kV D/c line at Mander	400kV 2xD/c	-	
VI	**Dumka (New)**	400/220kV, 2x500MVA	-	

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
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	Initial civil works have been started	Mar 2024
a)	LILO of Birpara – Alipurduar 220kV D/c line at Falakata substation	220kV 2xD/c		Mar 2024

* ***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-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.	Angul (POWERGRID)	2 nos. 765kV lines bays for termination of Angul (POWERGRID) – Paradeep 765kV D/c line (including suitable switchable line reactors)		Survey is going on. Expected by 2025-26	1st
2.	Rourkela (POWERGRID)	2 No. 220kV lines bays for termination of Rourkela (POWERGRID) – Tarkera 220kV D/c (HTLS) line		Would be taken up after reconductoring of 1st D/c line	1st & 7th
3.	Keonjhar (POWERGRID)	2 No. 220kV lines bays for termination of Keonjhar (POWERGRID) – Tikarpada 220kV D/c line	NIT yet to be taken up	Expected by 2024-25	1st
4.	Maithon (POWERGRID)	2 No. 220kV lines bays for implementation of Maithon (POWERGRID) – Asansol 220kV D/c line		Survey has started.	7th

Annexure-V

PRESENTATION ON INTRA-STATE NETWORK OF SIKKIM FOR 2026-27 TIME-FRAME

DURING

9TH CMETS-ER

Presented by:

Power Department

Government of Sikkim

Dated:- 29.07.2022

TRANSMISSION

EXISTING TRANSMISSION LINES UNDER POWER DEPARTMENT

220KV and Above	**132KV TL**	**66KV TL**
(Nil)	5 Nos of TL with 102.55 Ckm	26 Nos of TL with 386 Ckm

EXISTING SUBSTATIONS UNDER POWER DEPARTMENT

220KV and Above

(Nil)

132/66KV SS

01 no. of SS under Central sector with 100MVA Transformation Capacity.

02 nos. of SS under State sector with 120MVA Transformation Capacity.

66/11KV SS

25 nos. of SS under State sector with 292.5MVA Transformation Capacity.

EXPECTED ADDITION OF TRANSMISSION LINES BY 2026-27

220KV and Above

01 nos of TL with 10.34 Ckm

132KV TL

08 nos of TL with 110.4 Ckm

66KV TL

21 nos of TL with107.81 Ckm

DETAILS OF NEW TRANSMISSION LINES 132KV AND ABOVE

Sl. No	Name of Transmission Line	Line length in KM	Date of Commissioning
01	220 kV D/C Legship Pool-New Melli TL	10.34	Completed in Oct 2017
02	220 kV D/C Rangpo-Samardong TL (initially to be charged at 132KV voltage level)	2.26	September 2022
03	220kV D/C Samardong-Dikchupool TL (initially to be charged at 132KV voltage level)	23.10	September 2022
04	220 KV D/C Dikchu-Singhik TL (initially to be charged at 132KV voltage level)	22.44	December 2022
05	220 kV D/C Singhik-Chungthang TL (initially to be charged at 132KV voltage level)	29.53	December 2022
06	132 kV D/C Dikchu-Perbing TL	25.48	December 2022
07	Lilo of 132 KV S/C Rangit-Melli line at Legship pool	2.66	Completed in Dec'21
08	Termination of Sagbari-Geyzing 132 kV S/C line at Legship pool so as to form Legship pool Geyzing 132 kV S/C line	2.63	Completed in Mar'21
09	LILO of 132 kV S/C Rangit-Melli line at Namchi	2.30	Completed in Mar'22

EXPECTED ADDITION OF SUBSTATIONS BY 2026-27

220/132KV

01 nos of SS with 200 MVA transformation capacity.

132/66KV SS

06 nos of SS with 710 MVA transformation capacity.

66/11KV SS

12 nos of SS with 160 MVA transformation capacity.

DETAILS OF NEW SUBSTATIONS 132KV AND ABOVE

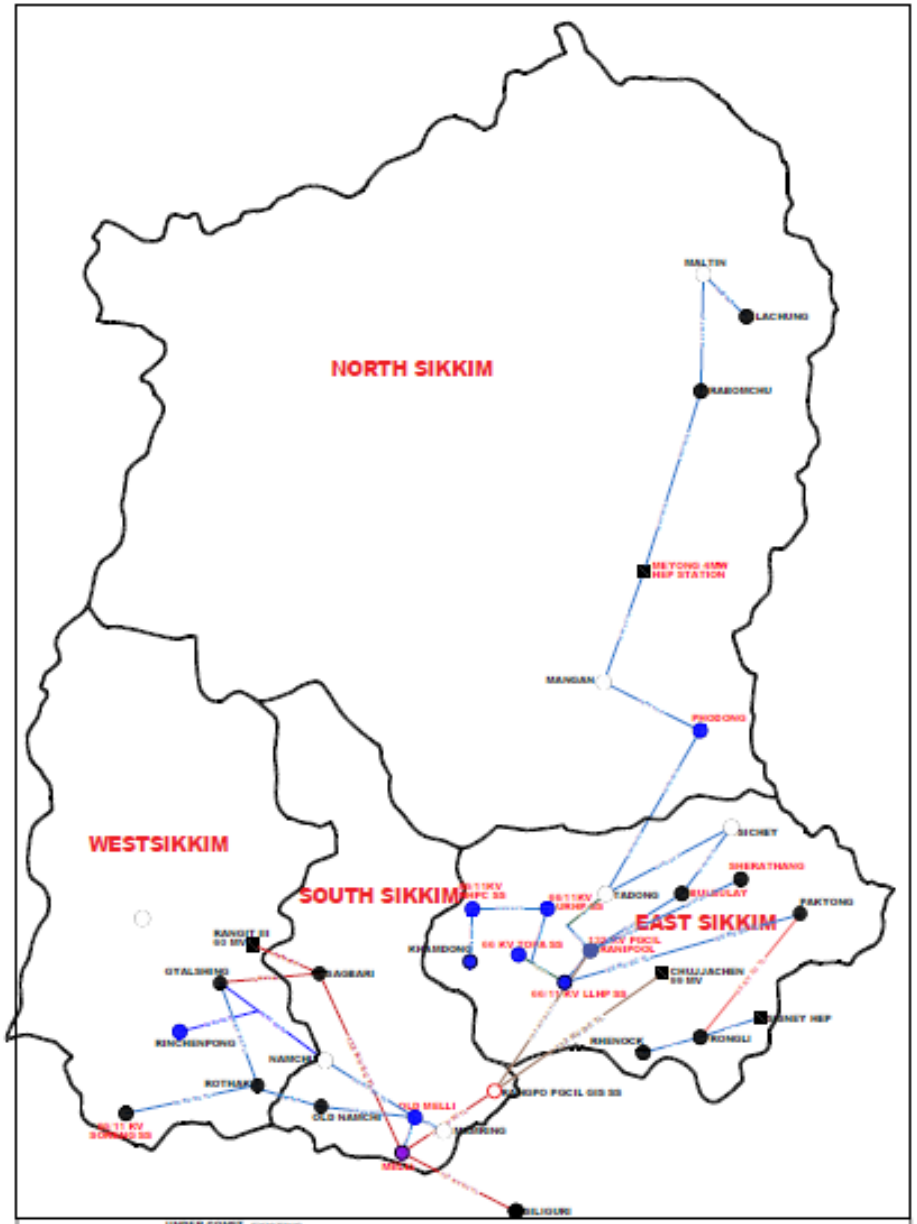
Sl. No	Name of Substation	Transforming Capacity (MVA)	Date of Commissioning
01	220/132kV Legship Pool SS	200 MVA	September 2022
02	132/66/11 kV Dikchu Pool New AIS	100 MVA	December 2022
03	132/66kV Namchi (New) Sub-station	50 MVA	September 2022
04	132/66/11kV Chungthang new SS	70 MVA	December 2022
05	132/66/11kV Singhik new SS	70 MVA	December 2022
06	132/66kV Rangpo GIS Substation Extn.	--	Completed in May 2022
07	132/66kV GIS Substation Parbing	100 MVA	December 2022
08	132/66kV New GIS Substation Samardong	120 MVA	December 2022

OTHER TRANSMISSION RELATED MATTERS

Important transmission related issues for Sikkim are:

- **Re-conductoring of old and frayed conductors and its accessories.**
- **Re-conductoring with HTLS conductor to reduce transmission congestion.**
- **Improvement of ground clearances at many locations.**
- **Interconnection of new 132/66 kV sub-station under CSSTDS with existing 66 kV network at few critical centres.**
- **Addition of new 66 kV transmission lines and substations for better connectivity at areas not covered under CSSTDS.**
- **Upgradation of 132/66 kV, 2x50 MVA sub-station at Melli.**
- **Upgradation of 132/66 kV PGCIL sub-station at LLHP.**

EXISTING TRANSMISSION LINES UNDER POWER DEPARTMENT, SIKKIM



GENERATION

HYDRO PROJECTS IN SIKKIM

TOTAL INSTALLED CAPACITY:

Sl. NO.	SECTOR	CAPACITY (MW)
1	POWER DEPARTMENT	31
2	SPDCL	13
3	INDEPENDENT POWER PRODUCERS (IPP)	512
4	JOINT VENTURE (TUL)	1200
5	NHPC	570
	T O T A L	2326

COMMISSIONED PROJECTS.

Sl. No.	Name of the Projects	Project Developer	Remarks
1	1200 MW Teesta State-III	Teesta Urja Limited	Commissioned on 02/2017.
2	96 MW Dikchu HEP	Sneha Kinetic Power Project Ltd.	Commissioned on 04/2017.
3	60 MW Rangit-III HEP	NHPC Ltd.	Commissioned on 02/2000.
4	510 MW Teesta-V HEP	NHPC Ltd.	Commissioned on 04/2008.
5	110 MW Chuzachen HEP	Gati Infrastructure Ltd.	Commissioned on 06/2013.
6	96 MW Jorethang Loop	DANS Energy Pvt. Ltd.	Commissioned on 2008.
7	97 MW Tashiding HEP	Shiga Energy Pvt. Ltd.	Commissioned on 10/2017.
8	113 MW Rongnichu HEP	Madhya Bharat Power Corp. Ltd.	Commissioned on 06/2021.

ONGOING PROJECTS.

Sl. No.	Name of the Projects	Project Developer	Remarks
1	500 MW Teesta Stage-VI	Lanco Teesta Hydro Project Pvt. Ltd. (NHPC).	Project acquired by NHPC. Works restarted. Expected CoD Aug. 25.
2	300 MW Panan HEP	Himagiri Hydro Energy Pvt. Ltd.	Financial Closure at final stage. Works to resume from Oct. 22. Expected CoD Sept 2025.
3	66 MW Rangit-II HEP	Sikkim Hydro Ventures Ltd.	CIRP withdrawn on June 22. Developer has been asked to attend office for resumption of work. CoD extended till Dec. 25.
4	120 MW Rangit-IV HEP	Jal Power Corporation Ltd. (NHPC).	Project acquired by NHPC. Works restarted. Expected CoD Aug. 24.

EXPECTED GENERATION ADDITION BY 2026-27

Sl. No.	Particulars	Capacity (MW)
01	Total Installed Capacity of State	2326 MW
02	Capacity Addition through on-going projects	986 MW
03	Total Expected Generation by 2026-27	3312 MW

STATE LOAD DESPATCH CENTRE (SLDC)

PRESENT LOAD GENERATION BALANCE

ENTITLEMENT_SIKKIM			
ISGS	Thermal	Daripalli	11.9875
		NPGC	3.378375
	HYDRO	Chukha	1.554
		Rammam	10
		Rangit	7.5981
		Teesta-V	66.4776
FREE SHARE_STOA	HYDRO IPPs	Dikchu HEP	12.5
		Jorethang HEP	12.5
		Tashiding HEP	13.7
TOTAL			**139.695575**

LOAD_GENERATION BALANCE DURING PEAK HYDRO SEASON

	ISGS	FREE SHARE IPPS	TOTAL	STATE DEMAND	STOA TRADE (DAY AHEAD)	TOTAL SURPLUS	IEX	DEVIATION
OFF PEAK HRS	101.03	38.7	139.73	35.6932	65	39.0368	30	9.0368
PEAK HRS	101.03	38.7	139.73	84.44	45	10.29	0	10.29

LOAD_GENERATION BALANCE DURING LEAN HYDRO SEASON

	ISGS	FREE SHARE_IPPs	TOTAL	STATE DEMAND	STOA_(DAY AHEAD)	TOTAL DEFICIT	IEX BUY	DEVIATION
OFF PEAK HRS	10.52	0	10.52	50	40	0	0	0
PEAK HRS	47	16	63	150	50	87	80	-7

EXPECTED LOAD GENERATION BALANCE BY 2026-27

		ISGS	RE	FREE SHARE_IPPs	TOTAL	STOA_(DAY AHEAD)	IEX	TOTAL	STATE DRAWAL	DEVIATION
PEAK HYDRO	OFF PEAK HRS	101.03	36	38.7	175.73	-	-	-	47.76555	128
	PEAK HRS	101.03	36	38.7	175.73	-	-	-	113.7492	61.99
LEAN HYDRO	OFF PEAK HRS	10.5205	0	0	10.5205	-	-	-	66.91128	-56
	PEAK HRS	47	0	16	63	-	-	-	196.7192	-133

TOTAL TRANSFER CAPABILITY(TTC) AND AVAILABLE TRANSFER CAPABILITY(ATC)

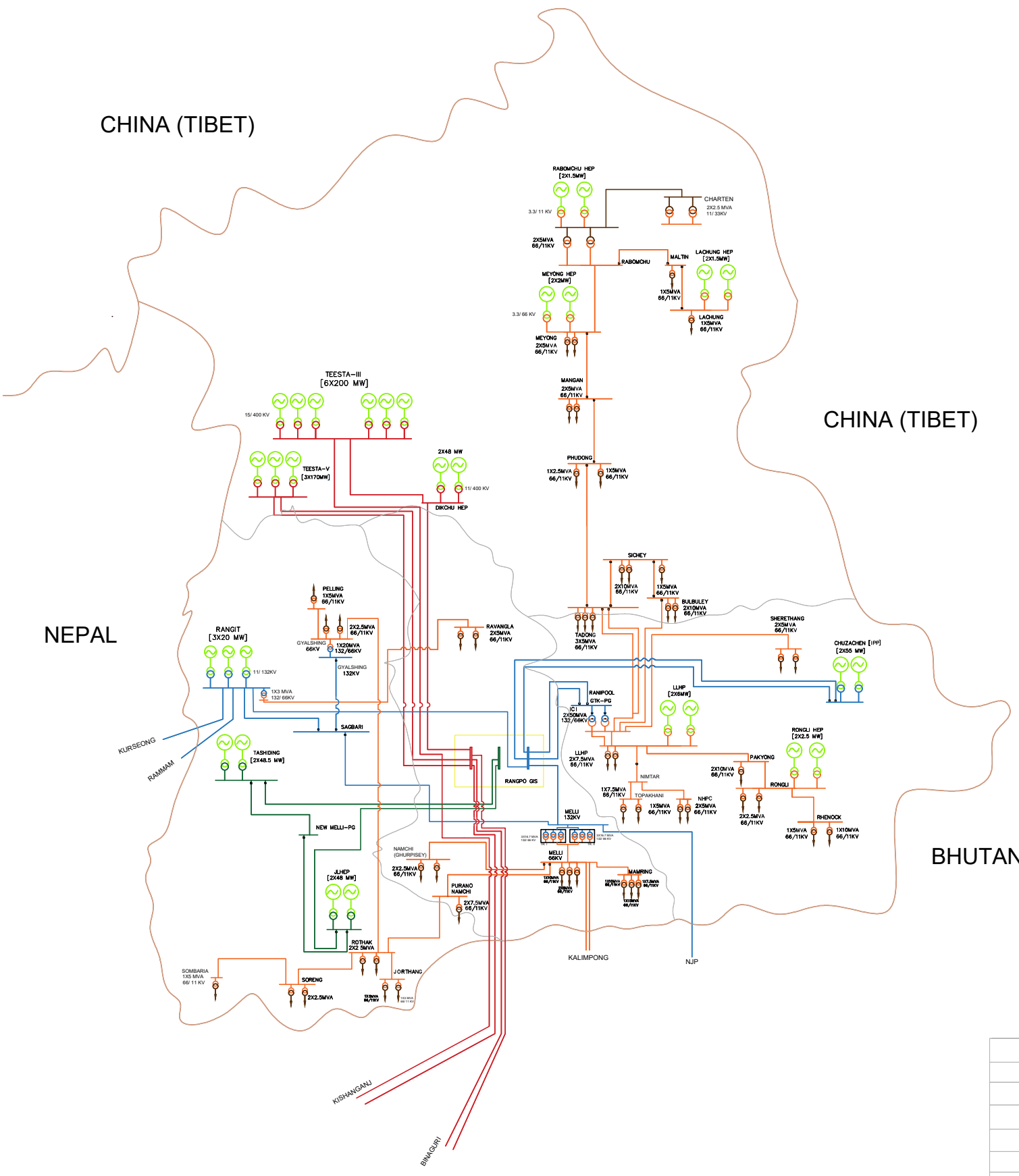
- **Current TTC and ATC of Sikkim State Network (OCT 2022)**
- Total Transfer Capability: 169 MW
- Total Reliability Margin= 2.28 MW
- Available Transfer Capability:166.72 MW
- Peak Load for FY 2021-22= **147 MW**
- **Imminent Constraints:**
- 2X 50 MVA 132/66 KV Transformer overloading due to Thermal Limit.
- PGCIL Ranipool_LLHP S/C 66KV HTLS Dog Tx Line overloading due to its Thermal Limit.

THANK YOU

GOVERNMENT OF SIKKIM

STATE LOAD DESPATCH CENTRE

POWER MAP OF SIKKIM

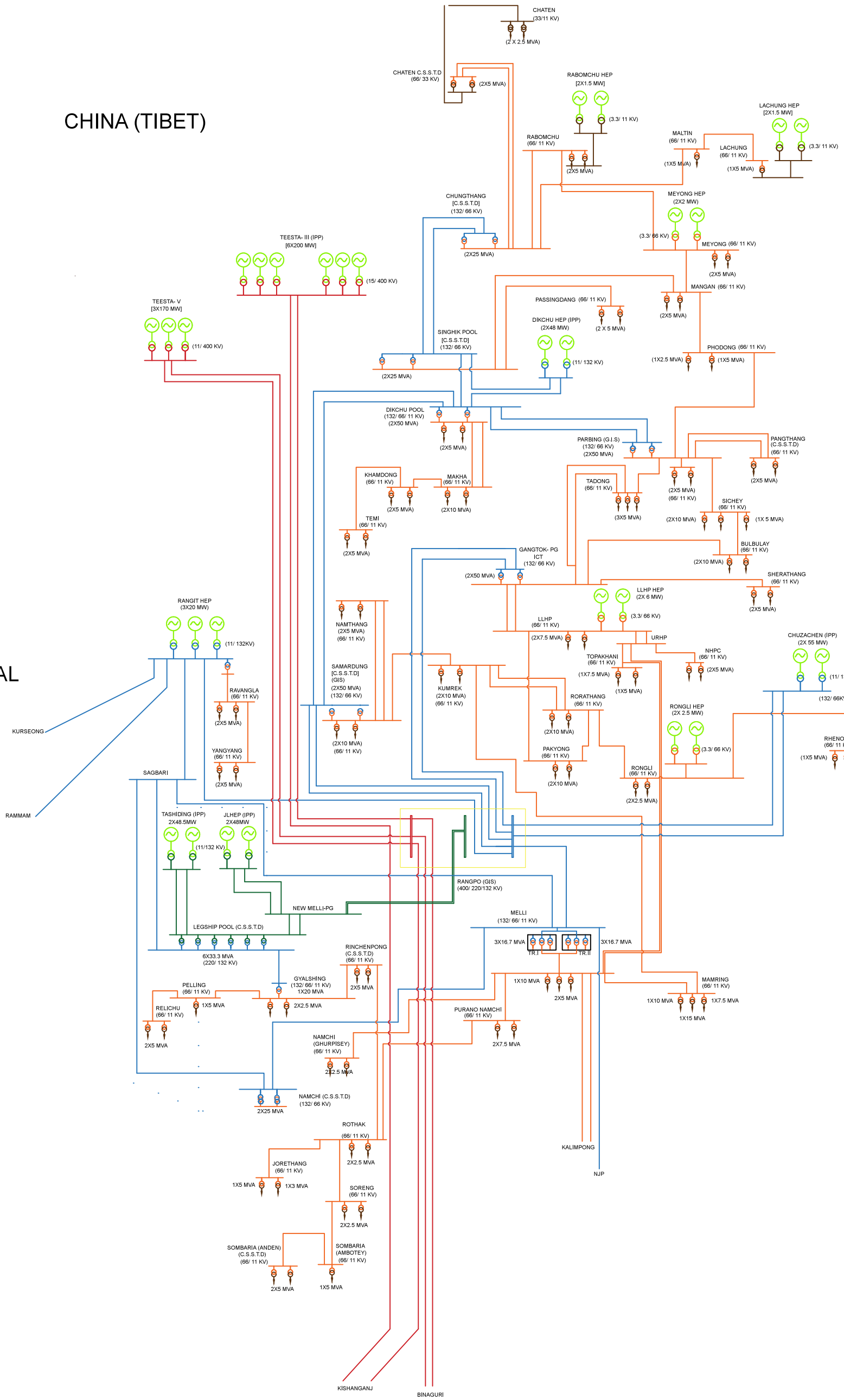


LEGEND	
PARTICULARS	SYMBOL
400 KV Tx LINE	
220 KV Tx LINE	
132 KV Tx LINE	
66 KV Tx LINE	
HYDRO GENERATING SS	
11 KV LOAD	
400/220/132 KV POOLING STATION RANGPO GIS	

NOT TO SCALE

PROPOSED POWER MAP OF SIKKIM WITH C.S.S.T.D.

CHINA (TIBET)



NEPAL

CHINA (TIBET)

BHUTAN

LEGEND	
PARTICULARS	SYMBOL
400 KV Tx LINE	
220 KV Tx LINE	
132 KV Tx LINE	
66 KV Tx LINE	
HYDRO GENERATING SS	
11 KV LOAD	
400/220/132 KV POOLING STATION RANGPO GIS	

C.S.S.T.D - Comprehensive Scheme for Strengthening of Transmission and Distribution System

NOT TO SCALE

STATE LOAD DESPATCH CENTRE

GOVERNMENT OF SIKKIM