

## **Stakeholders Comments on ISTS schemes evolved from Aug'23 to Jan'24**

**Date: 20-02-2024**

ISTS network expansion schemes to be included in Final Rolling Plan Report 2028-29 (to be published by Mar'24) are enclosed herewith.

Stakeholders (Generators, STUs, RLDCs, SLDC & Distribution Licensees) may give their observations, if any, latest by 05.03.2024 at mail ids [chinmays@powergrid.in](mailto:chinmays@powergrid.in) and [shashankshekhar@powergrid.in](mailto:shashankshekhar@powergrid.in)

## ISTS Schemes evolved from Aug'23 to Jan'24

### Contents

1. ISTS Network Expansion Scheme in Eastern Region .....	3
1.1. Odisha.....	3
2. ISTS Network Expansion Scheme in North Eastern Region.....	5
2.1. Assam.....	5
2.2. Assam & Meghalaya .....	10
3. ISTS Network Expansion Scheme in Western Region.....	12
3.1. Gujarat.....	12
3.2. Maharashtra.....	30
3.3. Madhya Pradesh .....	33
4. ISTS Network Expansion Scheme in Southern Region.....	41
4.1. Karnataka .....	41
4.2. Telangana .....	50
4.3. Andhra Pradesh .....	51
4.4. Tamil Nadu.....	55
5. ISTS Network Expansion Scheme in Northern Region.....	60
5.1. Rajasthan .....	60
5.2. Jammu & Kashmir .....	91
5.3. Delhi .....	96
5.4. Uttar Pradesh.....	98
5.5. Haryana .....	99

## ISTS Schemes evolved from Aug'23 to Jan'24

### 1. ISTS Network Expansion Scheme in Eastern Region

Various transmission schemes have been discussed/finalized in the Consultative Meeting for Evolution of Transmission System of Eastern Region (CMETS-ER) from Aug 2023 to Jan 2024. The details of the schemes are summarized below:

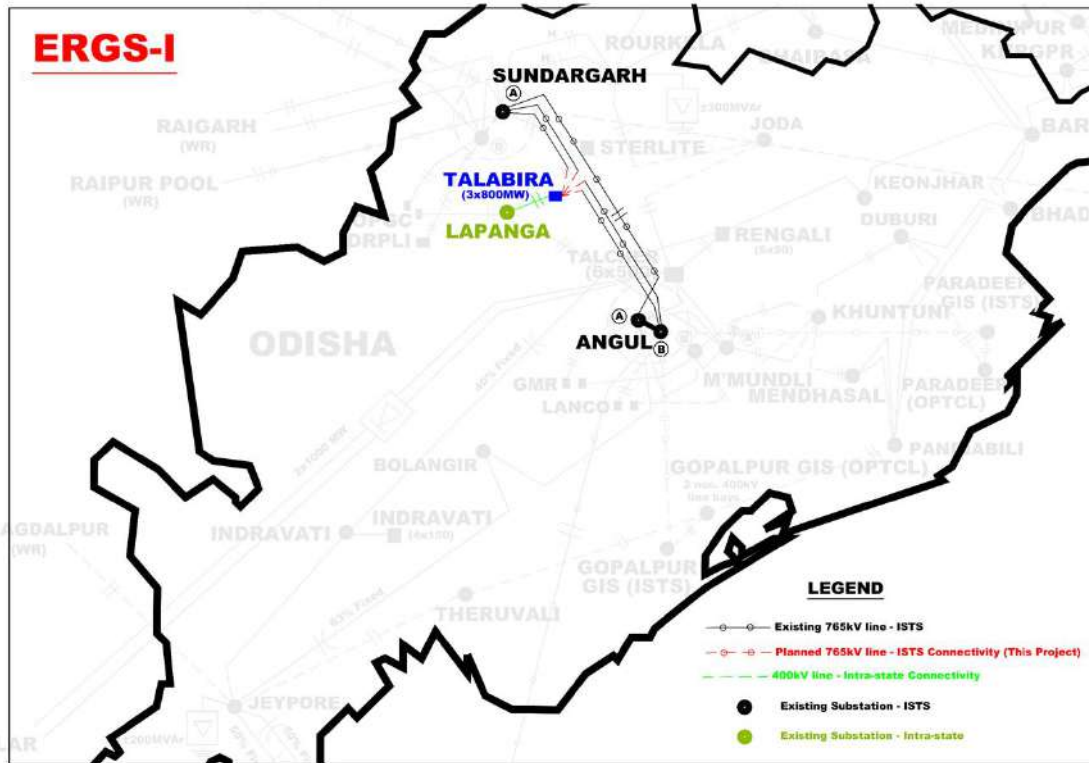
#### 1.1. Odisha

##### (a) ERGS-I – Talabira Connectivity

NLC India Ltd. had applied ISTS connectivity for 2000MW and intra-state connectivity for 400MW for its upcoming generation plant of 2400MW (3x800MW) at Talabira, Odisha. Alternatives for providing Connectivity to this generation project at nearby ISTS substations viz. Angul (POWERGRID), Sundargarh-A (Jharsuguda) (POWERGRID) & Sundargarh-B (Jharsuguda) (POWERGRID), were explored. Considering future generation project and load demand in Odisha, system studies were carried out for 2027-28 timeframe for providing ISTS Connectivity to Talabira and planning of evacuation system for upcoming intra-state generations in Odisha and discussed in the joint study meeting among ERPC, CTU, ERLDC, OPTCL and NLC on 11-07-2023. As decided in the 20th Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER) held on 28-06-2023 and based on the outcomes of the joint study meeting held on 11-07-2023, ISTS Connectivity of 2000MW was provided to NLCIL for it Talabira generation project through LILO of both circuits of Angul – Sundargarh (Jharsuguda) 765kV 2xS/c lines at NLC-Talabira generation switchyard. It was agreed that the LILO line shall be implemented in ISTS as ATS under the Eastern Region Generation Scheme-I (ERGS-I).

Further, as per request of NLCIL regarding implementation modalities of line reactor (including spare reactor, NGR bypass scheme) and communication /protection related matters, a meeting was held on 24-08-2023 between CTU and NLCIL. Based on discussion, final scope of works under Eastern Region Generation Scheme-I (ERGS-I) was agreed in the 22nd Consultation Meeting for Evolving Transmission Schemes in Eastern Region (CMETS-ER) held on 29-08-2023.

For 400MW intra-state Connectivity, OPTCL has planned Talabira – Lapanga 400kV D/c (Quad) line (to be implemented by NLC).



Sl. No.	Scope of the Transmission Scheme	Capacity (MVA) / Line length (km)/ Nos.
1.	LILO of both circuits of Angul – Sundargarh (Jharsuguda) 765kV 2xS/c lines at NLC-Talabira generation switchyard	50km (25km Loop in and 25km Loop out)

**Implementation time-frame:** 01-05-2027

**Note:**

NLC India Ltd. shall provide following at 765kV level its Talabira generation switchyard:

- 2 no. 765kV GIS line bays with PIR in different diameters for termination of Talabira – Sundargarh (Jharsuguda) 765kV D/c line.
- 2 no. of 765kV GIS line bays with PIR in different diameters for termination of Talabira – Angul 765kV D/c line, each with 765kV, 1x240MVAR (3x80MVAR single phase units) switchable line reactor along with 400ohm NGR (with NGR bypass arrangement). There shall be total 7x80MVAR single phase units against 2x240MVAR line reactors and the 7th 1-phase unit shall be spare as hot stand by. The spare 1-phase shunt reactor unit shall be placed and connected in such a way that the spare unit can be utilized without its physical movement. Further, the connection arrangement of switchable line reactors shall be such that it can be used as line reactor as well as bus reactor with suitable NGR bypass arrangement.

## 2. ISTS Network Expansion Scheme in North Eastern Region

Various transmission schemes have been discussed/finalized in the Consultative Meeting for Evolution of Transmission System of Eastern Region (CMETS-NER) from Aug 2023 to Jan 2024. The details of the schemes are summarized below:

### 2.1. Assam

#### (a) NERES-XXII (Bongaigaon bus reactor)

Presently, 2x50MVAR + 2x80MVAR (installed in parallel) + 1x125MVAR bus reactors are available at Bongaigaon (POWERGRID) S/s at 400kV voltage level. Out of which 50MVAR Bus Reactors - I & II were commissioned in 1987 & 1994 respectively. After serving more than 29 years, it has been observed that the reactors are continuously giving problems. For further assessment of the health, matter was referred by POWERGRID to CPRI, Bangalore for Residual Life Assessment. After reviewing all parameters, CPRI has opined for replacement of the subject bus reactor.

On annual basis at Bongaigaon 400kV bus, average of minimum voltage is about 402kV, and average bus voltage is about 409kV. Accordingly, in order to keep the bus voltage near nominal levels, the existing quantum of reactive compensation is required to be maintained. As per the study, it was observed that new reactors of 50MVAR may not be installed due to their reduced capability in changing bus voltage upon switching. Thus, a new 125MVAR bus reactor has been planned to be installed in one of the vacated bus reactor bays after decommissioning of old 2x50MVAR bus reactors. Further, as the existing 2x80MVAR bus reactors are installed in parallel, one of these 80MVAR bus reactors is planned to be installed in the other vacated bay after decommissioning of 2x50MVAR bus reactors. After decommissioning of old 2x50MVAR bus reactor and commissioning of new 1x125MVAR, there would be 2x80MVAR + 2x125MVAR bus reactors at Bongaigaon (POWERGRID) S/s and all bus reactors would be installed in separate bays.

The above proposal was agreed in the 22<sup>nd</sup> CMETS-NER held on 28-08-2023.

Sl. No.	Scope of the Transmission Scheme	Capacity/ km
1.	Decommissioning of existing 420kV, 2x50MVAR bus reactors at Bongaigaon (POWERGRID) S/s	-
2.	Installation of a new 420kV, 1x125MVAR bus reactor at Bongaigaon (POWERGRID) S/s in one of the vacated bays after decommissioning of above mention 420kV, 2x50MVAR bus reactors.  <i>Note: The new 1x125MVAR bus reactor would be installed in one of the 400kV bays (1<sup>st</sup> bay) vacated after decommissioning of existing 420kV,</i>	Bus reactor: 420kV, 1x125MVAR – 1 no.