



**AGENDA  
FOR  
219<sup>TH</sup> OCC MEETING**

**Date : 24.09.2024**

**Eastern Regional Power Committee  
14, Golf Club Road, Tollygunge  
Kolkata: 700033**

## **Contents**

<b>1. PART-A: CONFIRMATION OF MINUTES .....</b>	<b>1</b>
1.1. Confirmation of Minutes of 218 <sup>th</sup> OCC Meeting held on 23 <sup>rd</sup> August 2024 physically at ERPC Secretariat, Kolkata .....	1
<b>2. PART-B: ITEMS FOR DISCUSSION.....</b>	<b>1</b>
2.1 Feasibility of FGMO under new DSM Regulation: WBPDCCL .....	1
2.2 SPS for 220 kV Maithon-Dumka D/C line: ERLDC .....	1
2.3 SPS for synchronization of 2nd 350 MW Unit at IBEUL: ERLDC .....	2
2.4 Bus split operationalization of Kahalgaon: ERLDC .....	2
2.5 New trip settings in view of increase in line length of Dikchu Teesta Rangpo line.: Dikchu HEP .....	3
2.6 Consideration of Outage taken for the purpose of Insulator cleaning of various Transmission Lines as deemed available: POWERGRID ER-I.....	4
2.7 Formulation of comprehensive guidelines for the usage and sharing of optical fibres of OPGW for power system applications: ERPC .....	4
2.8 Revised connectivity for redundant path of Teesta-III- CTU.....	6
2.9 VOIP Communication system for Grid-Operation of all Five Regions: NR, NER, SR, WR, ER on PAN India basis –CTU .....	8
2.10 Establishment of State-of-the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the Regional UNMS- for ISTS Communication System - CTU .....	14
2.11 Supply & Installation of AMR Compatible ISTS Interface Energy Meters along with AMR (Automatic Meter Reading) System under the scheme “5 min Interface Energy Meter along with AMR system”-For all five regions as PAN India level: CTU	19
2.12 URTDSM (Unified Real Time Dynamic State Measurement) Phase-II Proposal for Implementation through RTM route : POWERGRID .....	23
2.13 Shutdown proposal of generating units for the month of October’2024-ERPC	24
2.14 Time extension of Planned Unit Outages:: ERLDC .....	25
2.15 Submission of Daily Generation details on NPP Portal : ERPC .....	26
2.16 Intra-state transmission system requirement of ER states by 2032: ERPC..	26
2.17 Review of AUFLS in Eastern region: ERPC .....	27
2.18 Ensuring Accurate Data and Telemetry from 132 kV and Above Substations in the Eastern Region for the Effective Operation of Envisaged Tools under the New SCADA/EMS System: ERLDC .....	28
2.19 Submission of Yearly Demand (Hourwise) for 2025-26 by SLDCs for Resource adequacy analysis: ERLDC .....	30
<b>3. PART-C: ITEMS FOR UPDATE/FOLLOW-UP .....</b>	<b>31</b>

3.1.	ER Grid performance during August 2024. ....	31
3.2.	Update on Flexible operation of Coal based Thermal Power Plants: ERPC	31
3.3.	Amendment in ERLDC Operating procedure after implementation of CERC DSM regulation 2024: ERLDC .....	33
3.4.	Update on Implementation of AGC in Intra-state generating units: ERLDC	.34
3.5.	Update on Restriction of Talcher-Kolar HVDC Bi-pole: ERPC .....	35
3.6.	Non-Submission of FRC data in stipulated timeframe: ERLDC .....	36
3.7.	Regarding Non-Submission of Forecasting Data from States: ERLDC .....	37
3.8.	Mock Islanding test: ERLDC .....	38
3.9.	Periodic Mock Drill Exercises in areas of generation, transmission and distribution of the power sector: ERPC .....	40
3.10.	Commissioning Status of ADMS: ERLDC .....	40
<b>4.</b>	<b>PART-D: OPERATIONAL PLANNING.....</b>	<b>41</b>
4.1.	Anticipated power supply position during October-2024 .....	41
4.2.	Major Thermal Generating Units/Transmission Element outages/shutdown in ER Grid (as on as on 13-08-2024) .....	41
4.3.	Commissioning of new units and transmission elements in Eastern Grid in the month of August -2024.....	45
4.4.	UFR operation during the month of August 2024.....	46

# **EASTERN REGIONAL POWER COMMITTEE**

**AGENDA FOR 219<sup>TH</sup> OCC MEETING TO BE HELD ON 24.09.2024 (TUESDAY) AT 10:30 HRS**

## **1. PART-A: CONFIRMATION OF MINUTES**

### **1.1. Confirmation of Minutes of 218<sup>th</sup> OCC Meeting held on 23<sup>rd</sup> August 2024 physically at ERPC Secretariat, Kolkata**

The minutes of 218<sup>th</sup> Operation Coordination Sub-Committee meeting held on 23.08.2024 was circulated vide letter dated 30.08.2024.

**Members may confirm the minutes of 218<sup>th</sup> OCC meeting.**

## **2. PART-B: ITEMS FOR DISCUSSION**

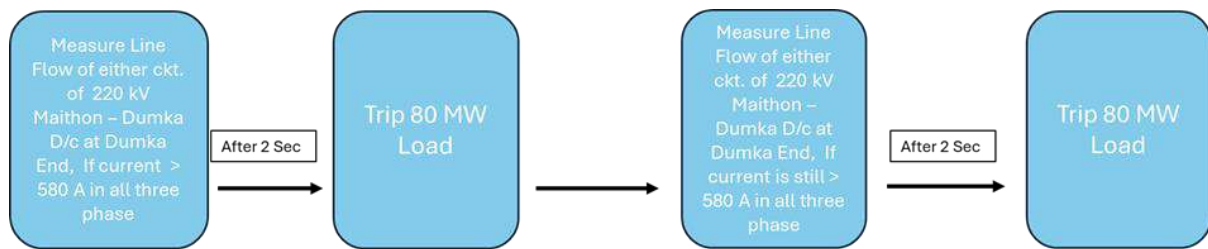
### **2.1 Feasibility of FGMO under new DSM Regulation: WBPDC**

- The generating stations and units shall have electronically controlled governing systems or frequency controllers in accordance with the **CEA Technical Standards** for Connectivity and are mandated to provide PRAS and shall be **under Free Governor Mode of Operation** as per IEGC clause 30(10) (h). In this aspect, primary governor control action shall be fully available for deployment of +/- 5% of MCR within 45 second and to sustain for 5 minutes.
- Under this process, the station may experience a negative deviation in a block by way of under injection in a high frequency regime.
- But as per new CERC regulation followed by WBERC regulation regarding Deviation Settlement Mechanism and Related Matters – 2024, a penalty is imposed on Generating Station for under injection at higher frequency.
- Under such circumstances, we apprehend that the essence of FGMO is somehow compromised in the directives of new regulation.
- So OCC is appealed for further discussion in this matter

**WBPDC may explain. Members may discuss.**

### **2.2 SPS for 220 kV Maithon-Dumka D/C line: ERLDC**

- Total line flow of 220 kV Maithon-Dumka D/c remains on the higher side and violates N-1 criteria for a considerable period. In June 2024, total load remained more than 240 MW for around 87% of the time.
- To prevent cascaded tripping in case of N-1 contingency of either circuit, a SPS scheme for 220 kV Maithon-Dumka D/c was deliberated in **137<sup>th</sup> PCC** meeting held on 30.07.2024. Accordingly, SPS scheme was finalized as below and **PCC advised JUSNL to share details of feeder identified for providing load relief of 160MW.**



\* 580 Amp for 210 MW at 0.95 Power Factor

JUSNL has intimated following load relief in two stages:

**Stage 1:** Tripping of 132 kV Dumka (Madanpur)-Pakur D/c (Load relief of 100 MW)

**Stage 2:** Tripping of 220 kV Dumka (Madanpur)-Godda D/c (Load relief of 40 MW)

JUSNL has suggested load relief of 140 MW only in place of 160 MW citing radial network configuration. Communication received from JUSNL is attached as **Annexure B.2.2**

In 138<sup>th</sup> PCC meeting held on 28.08.2024, JUSNL had also sought technical assistance from Powergrid ER-1 in implementing this SPS scheme.

**ERLDC may explain. JUSNL and Powergrid ER-I may update. Members may discuss.**

### 2.3 SPS for synchronization of 2nd 350 MW Unit at IBEUL: ERLDC

- Synchronization of 350 MW U#2 of IBEUL was discussed in CEA meeting held on 26.07.2024 and subsequently, connectivity was granted by CTU on 20.08.2024 with the existing network of Unit#1. As per discussion in the CEA meeting, SPS at OPGC needs to be implemented to facilitate first-time synchronization of 350 MW U#2 at IBEUL.
- Relevant excerpt from the meeting is as below:  
*“SPS to be implemented with the logic that Main CBs of IBEUL and Jharsuguda circuits at OPGC end to be opened whenever loading on OPGC-Lapanga 400 kV D/c line reaches to 850 MW per circuit. Tie CB of IBEUL and Jharsuguda circuits at OPGC end shall remain closed so as to form IBEUL – Jharsuguda 400 kV 2nd line.”*
- IBEUL may co-ordinate with SLDC Odisha and OPGC. SLDC Odisha and OPGC may facilitate.

**ERLDC may explain. IBEUL.SLDC Odisha and OPGC may update.Members may discuss.**

### 2.4 Bus split operationalization of Kahalgaon: ERLDC

- Bus splitting was proposed at 400kV Kahalgaon switchyard as per CEA recommendation in the standing committee on Power System held on 20.09.2010 to reduce its fault level for safe and reliable operation of the GRID.
- The scheme was approved in the 24th ERPC meeting on 27.04.2013.
- NTPC was requested to carry out bus splitting scheme vide ERPC letter dtd. 24.07.2014.

- Although the bus splitting scheme was implemented in 400kV Switchyard in Feb 2019. However, It has not been operationalized yet due to the non-availability of 400/132kV ICT in Bus sections 3&4 for feeding auxiliary consumption of stg 2 units of KHSTPP.
- As intimated by NTPC, the PO for the purchase of ICT's was placed on M/s EMCO which went bankrupt causing delay in purchase. Later the contract was awarded to M/s BHEL in March 2019. The ICTs are now supplied at Kahalgaon and ICT-3 pedestal support work is in progress as per the latest intimation from NTPC, Kahalgaon.
- Bus splitting at NTPC Kahalgaon is of utmost importance considering increased fault level due to the commissioning of several generating units in this vicinity. Further, as a part of standby ISTS connectivity to Godda Thermal Power project of M/s Adani Power (Jharkhand) Ltd. (APJL) with Indian grid, a proposal for interim connectivity of said plant is under discussion through LILO of 400kV Kahalgaon A – Maithon B, which can be facilitated only after operationalization of Kahalgaon bus splitting.

**NTPC may update. Members may discuss.**

## 2.5 New trip settings in view of increase in line length of Dikchu Teesta Rangpo line.: Dikchu HEP

- After the flooding of the Dikchu HE Plant in Oct 2023, the plant was under restoration and is presently undergoing re-commissioning activities targeting end of Sep 2024 for the commissioning of first unit. The transmission system of Dikchu plant is through a single line LILO arrangement of the Teesta- Rangpoo D/c 400 kV lines. As the Teesta -3 HE plant is under shut down and is not likely to be re-commissioned in near future, the Transmission lines of Teesta 3 plant i.e. Teesta 3 -Rangpo & Teesta 3- Dikchu 400 KV lines , have been interconnected near Teesta 3 Pothead yard, by - passing the GIS .Hence Dikchu- Teesta-3 line (15 kms) shall be effectively extended directly to Rangpoo, (Dikchu-Teesta3-Rangpoo) and the total length of the line shall be around 71 Kms. In view of this, the distance relay settings at Dikchu end needs to be changed.
- Therefore it is requested to give consent for altering the protection settings of Distance protection relays of Dikchu- Teesta 3- Rangpo line (71 Km ), installed at dikchu end. Once Teesta 3 Plant is operational, the settings shall be changed back.
- The other line from Dikchu to Rangpoo (32 km) shall not require any change in trip settings.
- The details of the relays installed are given below:

Distance Protection of Dikchu Teesta 3 line	Relay 1	Relay 2
Relay	Alstom P444	ABB REL670
PTR	400kV/110V	400kV/110V
CTR	3000/1A	3000/1A
Line Length presently considered	15.10 KM	
Line Impedance presently considered	3.825 Ohm	
Line Angle	86.6 Degree	

- The existing settings attached for this line. New protection settings shall be submitted to you for review and approval.
- Test certificate for Distance and BusBar protection attached at **Annex B.2.5**

**Dikchu HEP may explain. Members may discuss.**

## **2.6 Consideration of Outage taken for the purpose of Insulator cleaning of various Transmission Lines as deemed available: POWERGRID ER-I**

- Tripping and insulator de-capping of various Transmission Lines has been observed during winter season in foggy weather condition and resulted in reduced reliability of system.
- The major cause of tripping analyzed as insulator flashover due to pollution deposition. To avoid similar events in the upcoming winter season, vulnerable areas have been identified, where the insulators are getting polluted due to either bird beats, brick kiln, stone quarry, Road construction or industrial area (List enclosed as **Anx-B.2.6**). The insulator under these areas needs to be cleaned as a precautionary measure prior to upcoming foggy weather condition.
- The insulator cleaning activity was also taken up last year (Oct to Dec'23) and same has resulted in improved performance and less tripping of transmission line during foggy weather condition as shown in below table (details attached as **Anx-B.2.6**):

<b>Winter Period'2023</b>	<b>No. of Tripping/AR</b>	<b>Winter Period'2024</b>	<b>No. of Tripping/AR</b>	<b>% Reduction</b>
Dec to Feb	34	Dec to Feb	9	73.50 %

- These trippings / de-capping are occurring due to pollutions and dense fog which is beyond the control of POWERGRID.
- For preventing the unwanted tripping due to pollution, we have planned for cleaning of the insulators of affected locations of Transmission lines as mentioned in **Anx-B.2.6** during **October to December'2024**.
- As these outages are being proposed for preventing from tripping of the Transmission line due to pollution which is beyond the control of POWERGRID and to improve the system reliability during foggy weather condition, the outage may be considered under **force majeure** condition for calculation of **availability**.

OCC is requested to consider the proposal for approval.

**POWERGRID ER-I may explain. Members may discuss.**

## **2.7 Formulation of comprehensive guidelines for the usage and sharing of optical fibres of OPGW for power system applications: ERPC**

- ❖ A Committee has been constituted under the chairmanship of Member (Power System), CEA tasked with formulating comprehensive guidelines for the usage and sharing of optical fibres (OPGW) for power system applications.

### **Composition:**

1. Member (Power System) (Chair) ,CEA
2. Chief Engineer(PCD), CEA
3. Chief Engineer, NPC
4. Chief EngineerET & I,CEA
5. Member Secretary, RPCs

6. Executive Director, CTU
7. Executive Director, Grid India
8. Executive Director, Powergrid
9. Representative of Electric Transmission Association - 2 TSPs ETA
10. Representative (at the level of Chief Engineer or equivalent)
11. Eastern Region states : WBSETCL, OPTCL

**Scope:**

- Sharing of OPGW laid under ULDC scheme on the ISTS lines.
- Sharing of OPGW laid under ULDC scheme on the Intra-State lines.
- Sharing of OPGW laid by STUs on the intra State lines.
- Sharing of OPGW laid by CTU/Powergrid on the Intra State lines.
- Sharing of OPGW on the ISTS lines laid by TSPs under TBCB and RTM projects.
- Investigate the integration of Fiber Optic Terminal Equipment (FOTE) for differential protection in accordance with the C37.94 protocol and bring out recommendations.
- Define the uniform mechanism of routing of OPGW fibers in case of LILO taken up on any transmission line.
- Recommend the scenarios/limit of OPGW fibers beyond which it can be utilized for other commercial purposes

The first meeting of the Committee to formulate comprehensive guidelines for the usage and sharing of optical fibers of OPGW for power system applications was held on 09.08.2024.

Salient decisions in the meeting in are highlighted as follows:

❖ **Need of Guidelines, Allocation Requirements and Sharing Scenarios**

- All the members to submit in written the current practice being followed vis-a-vis their view on the following:

a) Number of fibers to be reserved for power system applications, clearly stating number of fiber cores required for speech, data communication and for catering to teleprotection application including the spare fibers to be kept in case of any damage; future reconfiguration or sharing of OPGW infrastructure among ISTS and STU as required.

While stating the current practice and requirements, members to specify the current OPGW network configuration (whether Multiplex Section Protection (MSP) or Sub-Network Connection Protection (SNCP) protocol is being used)

b) Number of OPGW fiber core to be planned while planning the new transmission scheme or carrying out existing communication infrastructure upgradation.

c) Principle of sharing of fiber cores of OPGW among Powergrid (owner of ULDC fibers), STU's and ISTS licensees (Powergrid as well as other TSPs).

- CTU , Powergrid and GridIndia to submit their inputs in respect of need of utilization of underground fiber optic cable (UGFO) of DISCOMs for grid operation purposes. A separate meeting to be convened with the DISCOMs to deliberate upon principle of sharing of underground fiber optic cable (UGFO) laid by DISCOMs. CTU, Powergrid and GRID INDIA to mobilise their resources to compile the cases requiring the DISCOM's cooperation and coordinate with DISCOMs for the above meeting.



❖ **Integration of Fiber Optic Terminal Equipment (FOTE) for differential protection in accordance with the C37.94 protocol**

Powergrid to submit a report based on use case of LILO of Pugalur (HVDC) – Pugalur (HVAC) line of Powergrid at Kallam PS pertaining to operational nuances and efficiency of carrying out Fiber Optic Terminal Equipment (FOTE) based differential protection in accordance with C37.94 protocol.

(2) The Committee while finalizing the number of fibers to be reserved for power system applications will take into account the length of the line and the feedback from the operational experience of the above used case.

❖ **Uniform mechanism of routing of OPGW fibers in case of LILO/reconfiguration of the transmission line.**

All the members to submit their views regarding the mechanism of routing of OPGW fibers in case of LILO/rerouting is taken up on any existing transmission line. The suggestion needs to be made in light of the fact that routing philosophy will also impact the number of fibers to be kept reserved for future LILOs.

Detailed MOM attached at [Annex B.2.7](#)

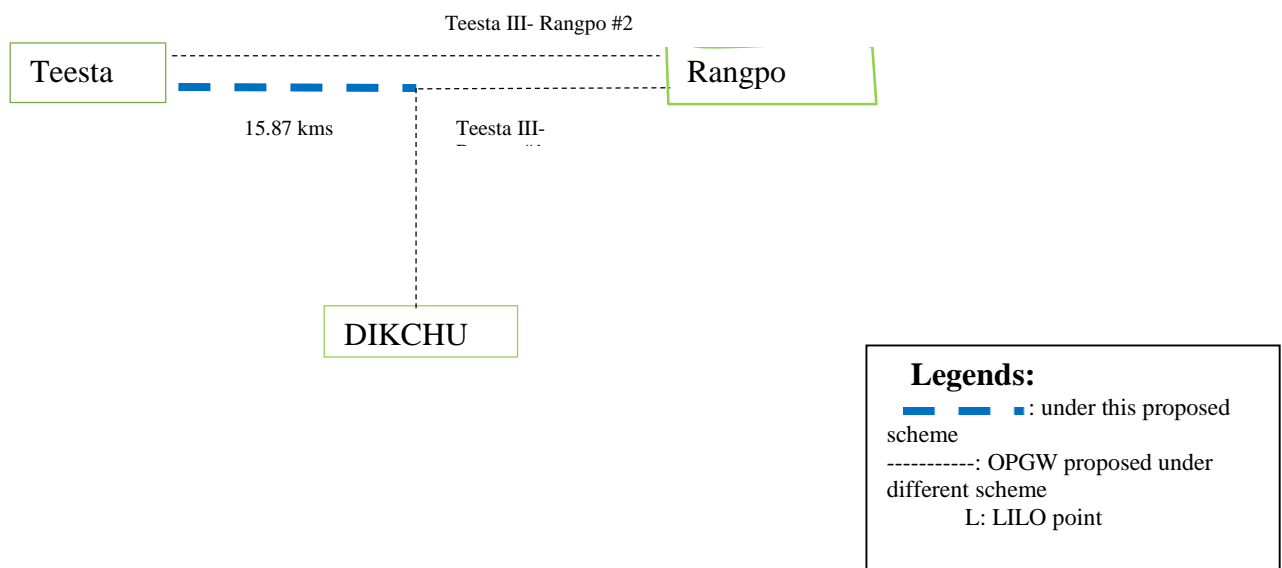
**Members may discuss.**

**2.8 Revised connectivity for redundant path of Teesta-III- CTU**

S. No.	Items	Details
1.	Scope of the scheme	Laying of OPGW with required terminal equipments from Teesta III to LILO point(15.87km) to establish 400kV Teesta III-Rangpo#1link.Presently Teesta III-Rangpo#1line is LILoed at Dikchu HEP.
2.	Objective / Justification	In the 51st ERPC meeting held on 12.01.2024, ERPC gave the decision as follows:  i. The scheme for the revised connectivity of the redundant path of Teesta-III is accorded for in principle approval.  ii. CTU was directed to provide a cost estimate for the revised scheme in the next CCM Meeting of ERPC.  Accordingly, cost estimate is proposed in ERPC CCM meeting.
3.	Estimated Cost	Rs. 1,12,36,000/- (approx.) (One crore Twelve Lakhs Thirty-Six Thousand only)

4.	Implementation time frame	18 months from date of allocation.
5.	Implementation mode and agency	Line Ownership of the proposed section for OPGW laying in the instant scheme is with TPTL.  To be implemented by POWERGRID in RTM mode.
6.	Deliberations	<p>The scheme was revised and OPGW laying is proposed on Teesta III to LILO point for Dikchu HEP (15.87 km) on Teesta III-Rangpo ckt 1. The revised scheme was deliberated in 51st ERPC meeting held on 12.01.2024.</p> <p>In the 51st ERPC meeting held on 12.01.2024, ERPC gave the decision as follows:</p> <p>i. The scheme for the revised connectivity of the redundant path of Teesta-III is accorded for in principle approval.</p> <p>ii. CTU was directed to provide a cost estimate for the revised scheme in the next CCM Meeting of ERPC.</p> <p>As directed in 51st ERPC meeting, the revised scheme with cost estimate is being put up for CCM committee of ERPC for review.</p> <p>This scheme after CCM committee review shall be put up to NCT for approval.</p>

**Schematic diagram of FO connectivity of Teesta III**



In the **51<sup>st</sup> CCM**:

- ◆ Representative of CTU submitted that in-principle approval for the scheme has already been accorded in the 51<sup>st</sup> ERPC meeting. The cost estimate of Rs. 1,12,36,000/- (approx.) (One crore Twelve Lakhs Thirty-Six Thousand only) submitted by Powergrid is also in order.

The 51<sup>st</sup> Commercial Committee agreed with the proposed cost estimate and referred for concurrence of 52<sup>nd</sup> TCC & ERPC.

TCC may concur.

#### **Deliberation in 52<sup>nd</sup> TCC meeting**

- TCC agreed in-principally on the proposed scheme of OPGW connectivity of Teesta-III with cost estimate of Rs. 1,12,36,000/- (One crore Twelve Lakhs Thirty-Six Thousand only).
- However, CTU was advised to explore possibility of implementing the redundant communication link by utilizing the existing fiber optics.
- TCC referred it to ERPC for discussion and approval.

#### **Deliberation in 52<sup>nd</sup> ERPC meeting**

##### **❖ ERPC decision**

- ERPC opined that in view of ROW issues and bleak chance of revival of Teesta-III HEP in near future, Powergrid may explore use of spare fibres of existing OPGW for connectivity of Dikchu(LILOed portion) to Teesta-III .
- Powergrid agreed to the suggestion of ERPC.
- The feasibility of the same needs to be updated by Powergrid in TeST forum of ERPC.

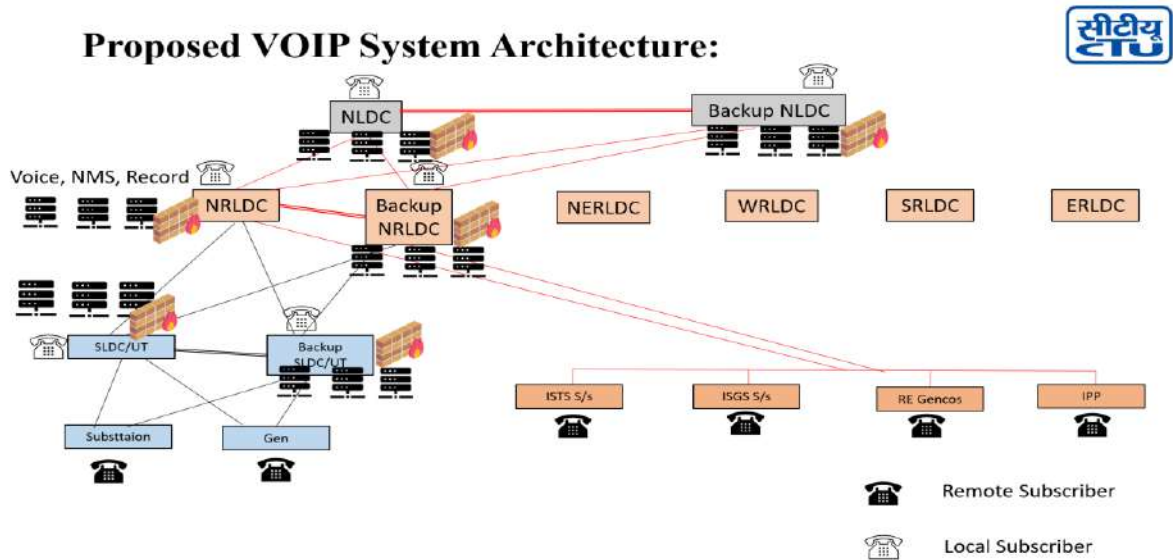
**CTU/Powergrid may update. Members may discuss.**

#### **2.9 VOIP Communication system for Grid-Operation of all Five Regions: NR, NER, SR, WR, ER on PAN India basis –CTU**

- Hot Line Speech Communication System (VOIP based PABX system) was implemented in 2016 by POWERGRID in all five regions after grid disturbance in 2012 where grid operators faced problem of fast communication due to unavailability of dedicated speech communication PAN India between NLDC, RLDCs, SLDCs, important state and ISTS substations and generators. The said PABX was implemented by M/s Orange through Alcatel Lucent as OEM. The lead region for the existing VoIP system is Northern Region of POWERGRID. After execution of the project cost of the same booked under regional communication schemes. As per CERC tariff regulations useful life of system is 15 years.
- In the 67th NRPC meeting dtd. 30.06.2023, POWERGRID representative stated that the scheme executed by M/s ORANGE was with a provision of AMC of 7 years as part of the contract and the same is expiring in July' 2023 for most of the sites.
- AMC of the same was extended and approved in the 67th NRPC for further 2 years upto July'25 with financial implication and shall be booked under ULDC O&M charges as per the CERC norms. After July'25 there is no support shall be extended by Alcatel (OEM).

POWERGRID stated they are not able to maintain the system beyond that AMC expiration. MS-NRPC advised CTU to plan upgradation/ new system in view of expiration of AMC in July'25.

- In this regard CTU discussed the requirements with utilities & various VOIP system suppliers/OEMs and acquired inputs from the utilities in the various meetings of CPM, COM/ TeST/SCADA of all five regions (reference are given in the scheme). For the utilities those have provided inputs we have considered the same in the cost estimate purpose. Further a combined CPM (Communication planning meeting) of all five region was also held on 12.06.2024 to obtain uniformity of features and functions of the VoIP system among all regions. After incorporating the comments of all utilities MoM is issued same is attached at Annexure-2.14.1.
- It is proposed that being a Nationwide PAN India project, the total cost of five regions including NLDC and international Exchange (Cross border links) VoIP system shall be put up in all five regions for RPC/s review followed by NCT approval as single Scheme and package PAN India Basis for seamless integration.



S. No	Present VOIP Exchange	Proposed VOIP system
1	Exchange based system	Server based system
2	Star based architecture and no redundancy between exchanges (SLDC/RLDC/NLDC)	Multiple level of Redundancy kept. At phone level two channels are proposed for main and backup exchanges of SLDCs and RLDCs. For State sector four level Hardware redundancy has been considered as e.g.

		Main SLDC/ Back Up SLDC/ Main RLDC/ Backup RLDC  For Central sector four level Hardware redundancy has been considered as e.g. Main RLDC/ Back Up RLDC/ Main NLDC/ Backup NLDC
3	Proprietary License based system	SIP based open source licenses
4	The IP Phones connected at NLDC, RLDC and SLDC are proprietary IP Phones of Alcatel	IP Phones shall not be proprietary in nature.
5	No PoE Switches	POE switch with dual redundancy considered
6	NA	Firewall are considered for cyber security
7	NA	Cyber Security Audit is considered
8	NA	Provision of video phones at Control Centre for higher officials
9	NA	Sufficient numbers of licenses considered to cater future RE/ ISTS/ ISGS/ IPP and STU substations locations.
10	Recording done at one location	Recording at each Control Centre shall be done locally and later at regular intervals transferred to a backup server for storage and archival

Estimated Cost implication towards Eastern Region is around **Rs 19.76 Cr.** excluding GST/taxes.

Particulars	Cost(Cr.)
Cost(Central Sector)	12.32

State sector Total cost	7.44
ER Region Total (CS+State sector)cost(approx)	19.76

Tentative Region-wise cost breakup of the scheme is given below:

**Cost Breakup Between Regions and Central Sector and State Sector**

Region	Central Sector (ISTS) (in Crs.)	State Sector (in Crs.)	Total (in Crs.)
NR	₹18.54	₹15.92	₹ 34.46
SR	₹15.3	₹ 12.68	₹ 27.98
WR	₹14.61	₹ 11.74	₹ 26.35
ER	₹12.32	₹ 7.44	₹ 19.76
NER	₹16.91	₹5.45	₹ 22.36
National Portion (NLDC Ex, International exchange and Cyber audit)	₹ 6.55	₹ 0	₹ 6.55

**Grand Total: ₹ 137.46 Cr. (excluding GST/TAXES)**

**Central Sector Cost Breakup**

Equipment	Number	Cost (Cr.)
Servers *	2+12*	6.10
NGFW*	2+12*	1.66
Number of VOIP phone Local/Remote including POE switch ,cat-6 cable & Remote phone installation	350	1.28
Analog Phones with Gateway	100	0.08
AMC CS (1+6) years		3.2
<b>Total Cost(Central Sector)</b>		<b>12.32</b>

**National Component of VOIP System**

Utility	Servers	Phones		Cat 6 cable	Total Cost with AMC (6 Yr after 1	
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	Main (No.)	Backup (No.)	VOIP (Local) (No.)	VOIP (Remote) (No.)	Analog Phone (including gateway) (No.)	POE Switch (with dual DC) (No.)	(100m set)incl. installation (No.)	NGFW (No.)	Yr. warranty (in Crs.)	Central Sector (CS)/State Sector (SS)
NLDC	1	1	42	0	400	0	0	2	2.60	CS
International Exchange	1	1	30	0	0	0	0	2	1.19	
Cyber Audit Cost									2.76	
<b>Grand Total = ₹6.55 (including AMC) (excluding GST/TAXES)</b>										

### Cost breakup of Eastern Region

Eastern Region Utility	Servers		Phones			POE Switch (with dual DC) (No.)	Cat 6 cable (100m set)incl. installation (No.)	NGFW* (No.)	Total Cost with AMC (6 Yr after 1 Yr. warranty (in Crs.)	Total cost (in Crs.)	Central Sector (CS)/State Sector (SS)
	Main (No.)	Backup (No.)	VOIP (Local) (No.)	VOIP (Remote) (No.)	Analog Phone (including gateway) (No.)						
ERLDC	1	1	150	200	100	200	200	2	12.32	12.32	CS*
SLDC, Ranchi	1*	1*	10	50	100	60	60	2*	0.58	7.44	SS
OPTCL	1*	1*	16	92	85	92	92	2*	0.84		
SLDC Bihar Patna	1*	1*	30	152	212	152	152	2*	1.59		
SLDC WB Howrah	1*	1*	30	152	212	152	152	2*	1.59		
SLDC DVC backup Maithan	0	1*	17	70	150	70	70	1*	0.70		
SLDC DVC Kolkata	1*	0	27	54	150	54	54	1*	0.60		
SLDC Sikkim	1*	1*	30	152	84	152	152	2*	1.54		

State	Number of VOIP phone Local/Remote including POEswitch ,cat-6 cable & Remotephone installation	Cost (Cr.)	Analog Phone with gateway	Cost (Cr.)	AMC SS (1+6) years Cost(Cr.)	Approx. State Total(Cr.)
SLDC, Ranchi	60	0.36	100	0.08	0.16	0.58
OPTCL ,Bhubneswar	108	0.56	85	0.07	0.22	0.84
SLDC Bihar Patna	182	1.05	212	0.11	0.43	1.59
SLDC WB Howrah	182	1.05	212	0.11	0.43	1.59
SLDC DVC backup Maithan	87	0.44	150	0.09	0.19	0.70
SLDC DVC Kolkata	81	0.36	150	0.09	0.16	0.60
SLDC Sikkim	182	1.05	84	0.07	0.41	1.54

**\*Servers and NGFW shall be physically placed at SLDCs but their cost has been included in Central Sector Portion**

**Grand Total = ₹19.76 Crs. (including AMC) (excluding GST/TAXES)**

➤ **Modalities of Cost sharing:**

❖ There are three types of cost involved, Regional Central Sector, National Central Sector, State Sector. The sharing of cost shall be done as per following mechanism between constituents:

(i) **Regional Central Sector Cost** to be shared by respective region DICs as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 under Regional Component.

(ii) **National Central Sector Cost** to be shared by all regional DICs as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 under National Component.

(iii) **State Sector Cost** shall be shared by respective state/s for their portion as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020.

(iv) **AMC for State Sector** shall be shared by respective states for their portion as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020.

❖ **52<sup>nd</sup> ERPC decision:**

- Taking into account the necessity of VOIP communication for real time grid operation, ERPC in-principle consented to the proposed scheme.
- CTU was advised to furnish details regarding cost of each components in proposed architecture. In this regard, a special meeting shall be convened to re-examine the BOQ of the scheme and requirements submitted by ERLDC/SLDCs.
- In case the timely implementation of proposed VOIP doesn't materialize, Powergrid was



advised on exploring alternate interim arrangement or further extension of existing vendor to sustain seamless VOIP communication, essential for grid operation.

As per deliberation in **special meeting** dated **19.09.2024**:

- ERLDC to submit revised requirement
- SLDC Bihar was advised to furnish final requirement in next OCC.
- Requirement of Sikkim SLDC to be reviewed.
- CTU to submit revised estimate incorporating all the modified/additional requirements so that the quantity may be freezed in consensus of all stakeholders in OCC.

**CTU may further explain. Members may discuss.**

## **2.10 Establishment of State-of-the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the Regional UNMS- for ISTS Communication System - CTU**

### **Background:**

- In line with CERC, CEA Regulations and RPC approvals, the Regional UNMS scheme integrating ISTS communication system along with State sector network, is being deployed in each region.
- Now, all five (5) Regional UNMS servers shall be integrated in the next layer to the National UNMS server integrating all the regional ones; in main & backup configuration.
- This will facilitate centralized reporting/collection of PAN India communication Network of ISTS as well as State level system including cross border links at National Level. The scope & technical aspect of the National UNMS scheme shall be broadly in line with Technical Specification of Regional UNMS while including features for National aspects, as per the deliberations held in all RPC/NCT forums.
- Summary of relevant approvals in various forums:
- The scheme for National UNMS was deliberated in all RPC forums earlier during deliberation of respective Regional UNMS projects.
- Further, the National UNMS scheme was also deliberated in the 14th NPC meeting held on 03.02.2024 in Bangalore.
- It is to be noted that the agenda of N-UNMS has already been approved in NRPC, WRPC and SRPC.

<b>Sl. No.</b>	<b>Items</b>	<b>Details</b>
1.	Name of Scheme	Establishment of State-of- the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the regional UNMSs.
2.	Scope of the scheme	<ul style="list-style-type: none"> <li>• Supply and Installation of Main &amp; Backup National-UNMS system hardware and software along with associated items at respective UNMS Centres. The new system shall be deployed in such a way that the</li> </ul>

		<p>operation of the existing systems should not be disturbed.</p> <ul style="list-style-type: none"> <li>● Supply and Installation of hardware &amp; software for workstation, network switches, firewall &amp; IDPS, Printer, Furniture etc.</li> <li>● Integration of existing Regional UNMS (In Main &amp; Backup config) with Main and Back up N-UNMS System. One channel of each Regional UNMS to Main and Back up UNMS centre shall be used for redundancy of respective UNMS Centres.</li> <li>● Development of complete Database, displays and reports either from scratch or by extracting existing database, displays and reports, also for creating integrated national communication system overview and inter regional system details for the modules.</li> <li>● Supply of all FCAPS features with advance planning tool.</li> <li>● Import and Adaption of database &amp; displays made for Regional UNMS system including import of historical data stored in existing servers for integration in new system also for creating national dashboard and inter regional system dashboards for the required system details.</li> <li>● Auxiliary Power Supply System Comprising of UPS with Battery set along with all necessary distribution board.</li> <li>● Integration &amp; Testing with any new UNMS coming up during implementation and AMC period of this Project.</li> <li>● Supply of Spares identified under AMC along with main items to meet the contingency during installation period and during AMC period.</li> <li>● All cabling, wiring, and interconnections to the items being supplied and to be integrated including power supply.</li> <li>● The project scope shall include customization of its database, such as configuration of database, scan period and all other database parameters required to integrate existing system successfully.</li> <li>● Additional Hardware, software and services necessary to ensure compatibility with existing equipment.</li> </ul>
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		<ul style="list-style-type: none"> <li>• Auditing of Cyber Security implementation by CERT-In listed Auditors during AMC &amp; ensuring its compliance.</li> <li>• Training of personnel and Users of the System.</li> <li>• Comprehensive Maintenance of the supplied system for seven (7) years including one (1) year defect liability period as per specification, including integration with future UNMS (if any), Database configurations, Maintaining Spare inventory etc.</li> <li>• Integration with third party Applications: The N-UNMS Systems being supplied shall have provision to exchange data with the existing and or to be purchased third party applications of in standard formats like ODBC, OPC &amp; XML etc.</li> <li>• GI/Aluminium cable trays/trace ways with covers shall be supplied in the project for laying cables so that cable can be protected from rodents. These cable trays/trace ways shall be screwed/ fixed on the floor.</li> <li>• The system shall have remote console along with connectivity and shall be under AMC for; CEA- PCD &amp; NPC Division, NLDC- Grid India, CTUIL, GA&amp;C- POWERGRID. Additionally, UNMS control room in CTUIL shall be equipped with a 85 Inch TV/Monitor.</li> </ul>
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3.	Architecture	<p style="text-align: center;"><b>Proposed U-NMS Topology for Data Flow (Typical)</b></p>
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4.	Objective/ Justification	<p>□ In line with CERC, CEA Regulations and RPC approvals, the Regional UNMS scheme integrating ISTS communication system along with State sector network, is being deployed in each region. Now, all five (5) Regional UNMS servers shall be integrated in</p>
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		<p>the next layer to the National UNMs server integrating all the regional ones; in main &amp; backup configuration. This will facilitate centralized reporting/collection of PAN India communication Network of ISTS as well as Intra State level system including cross border links at National Level. The scope &amp; technical aspect of the National UNMS scheme shall be broadly in line with Technical Specification of Regional UNMS while including features for National aspects, as per the deliberations held in all RPC/NCT forums.</p> <ul style="list-style-type: none"> <li>□ The proposed National UNMS (N-UNMS) System shall provide the multi-tiered solution for Network Management System Functions with modules such as Network Resource/Discovery/Inventory, configuration management, Planning, Fault/Alarm Management, Performance Management, Trouble Ticket with application security, reporting, simulation, Artificial Intelligence &amp; Analytics etc. and common dashboards also for integrated national network and for inter-regional systems including cross border.</li> <li>□ The N-UNMS shall also provide a Pan India visualization of power system communication network. This shall facilitate Centralized Supervision and Quick Fault detection and restoration for ISTS Communications systems for National, Inter-Regional and Cross-Border communication system and the network. The N-UNMS shall additionally have advanced planning tool having features for Long, Medium &amp; Short-Term Planning for preparing planning projections for ISTS Communication System (for National/ Regional/ State) for 2 years, 5 years and 10 years.</li> <li>□ The proposal of N-UNMS was deliberated in all the RPCs during approval of respective Regional UNMS scheme and the in-principle technical approval has been given by the forum. The relevant extract of 15<sup>th</sup> NCT meeting is also attached as <b>Annexure-2.16</b>.</li> </ul>
5.	Estimated Cost	<p><b>Rs. 101* Crores.</b> (approx.) and <b>19.07 Crores.</b> AMC charges for 7 years. The cost of national UNMS shall be <b>recovered on POC basis.</b></p> <p>*Cost has been derived from awarded package of regional UNMS Scheme</p>
6.	Implementation timeframe	<p><b>24 Months</b> from date of project allocation based on NCT approval.</p>

7.	Implementation Mode	Through <b>RTM</b> to <b>POWERGRID</b>
8.	Location of National UNMS	Main UNMS at <b>NLDC</b> , Katwaria Sarai, and Backup UNMS at <b>ERLDC</b> , Kolkata

**Cost Breakup:**

<b>POWERGRID CORPORATION OF INDIA LTD. ABSTRACT COST ESTIMATE FOR N-UNMS</b>		
<b>(Rs. in Crore)</b>		
<b>Sl. No.</b>	<b>Description</b>	<b>Amount</b>
	<b>Equipment Cost</b>	
<b>A</b>	<b>Supply</b>	<b>67.67</b>
<b>B</b>	<b>Services/Installation incl training, testing and commissioning</b>	<b>1.91</b>
<b>C</b>	<b>Inland Freight and Insurance (@ 4%)</b>	<b>2.71</b>
	<b>Subtotal (A to C)</b>	<b>72.29</b>
<b>D</b>	<b>Taxes and Duties</b>	
i	GST on Supply	12.18
ii	GST on Service / Installation incl. Training	0.34
	<b>Subtotal (D)</b>	<b>12.52</b>
	<b>Subtotal (A to D)</b>	<b>84.81</b>
<b>E</b>	<b>Incidental Expenditure during Construction (@ 10.75%)</b>	<b>9.12</b>
<b>F</b>	<b>Contingency (@ 3%)</b>	<b>2.54</b>
	<b>Total (A to F)</b>	<b>96.47</b>
<b>G</b>	<b>Interest During Construction (IDC)</b>	<b>4.59</b>
	<b>Grand Total</b>	<b>101.06</b>
<b>H</b>	<b>Annual maintenance charges for 1 year during warranty period and 6 years after warranty period incl. GST*</b>	<b>19.07</b>

After detailed deliberations,

- ❖ TCC in principle agreed to the need of National UNMS project.
- ❖ TCC advised CTU to furnish the cost breakup of the National NMS project having detailed scope along with cost allocation for Eastern region.
- ❖ The matter was referred to ERPC for further deliberation.
  
- ❖ **ERPC decision:**
  - ERPC opined to convene a special meeting in presence of CTU and all ER states to finalize the modalities of cost sharing among ER constituents.
  - ERPC accorded in-principle approval to the National UNMS project.
  - CTU was advised to share detailed cost breakup i.r.o proposed N-UNMS project (as per the scope) along with share of Eastern region in the same.
  - CTU was also advised to share the implementation plan of N-UNMS with all RPCs once it gets approved in NCT forum.

Detailed BOQ attached at **Annex B.2.10**

**CTU may explain. Members may note.**

**2.11 Supply & Installation of AMR Compatible ISTS Interface Energy Meters along with AMR (Automatic Meter Reading) System under the scheme “5 min Interface Energy Meter along with AMR system”-For all five regions as PAN India level: CTU**

S. No.	Items	Details
1.	Name of Scheme	Supply and installation of AMR compatible 5 min Interface Energy Meter along with AMR Systems- For all five regions NER, ER, NR, WR & SR.as PAN India.
2.	Scope of the scheme	<ul style="list-style-type: none"><li><input type="checkbox"/> Supply of AMR compatible 5 min Interface Energy Meters for all ISTS metering points of All five regions,</li><li><input type="checkbox"/> Installation of new AMR compatible IEMs by replacing existing meters in case of existing points and for newly added metering points. (Replacement work &amp; New Installation work)</li><li><input type="checkbox"/> Supply and installation of AMR systems in dual LAN configuration at central location along with DCU, Ethernet Switch and other accessories at substation end and AMR software along with servers, consoles, historian software, database, printer, firewall, furniture, etc. at RLDC end to receive 5 min load profile data in auto mode.</li></ul>

		<ul style="list-style-type: none"> <li><input type="checkbox"/> Provision of streaming online instantaneous MW data at a user configurable rate (minimum 1 min) via AMR system for viewing purpose.</li> <li><input type="checkbox"/> AMC includes Operations &amp; Maintenance work (including data processing &amp; report generation from AMR) for complete AMR system for 7 years.</li> <li><input type="checkbox"/> Online Data storage of Raw Data &amp; processed data for three years.</li> <li><input type="checkbox"/> The complete scope of IEM &amp; AMR scheme shall be broadly in line with the Technical Specification (Section 1 &amp; 2 of Part 1) circulated by NPC Division, CEA vide letter dtd. 6th July 2022.</li> <li><input type="checkbox"/> <b>Note: MDP system which is also part of the above TS mentioned shall be implemented by respective RLDC and would match the timeline schedule with IEM &amp; AMR project.</b></li> </ul>
3.	Conceptual Architecture of AMR connectivity of ISTS Meters	<b>Appendix-I</b>
4.	Objective/ Justification	<ul style="list-style-type: none"> <li>• For Indian Power system, commercial settlements of energy generation and consumption are being computed through Availability Based Tariff (ABT) and Deviation Settlement Mechanism (DSM) which are in vogue for energy accounting. Availability Based Tariff was implemented in India in 2002/2003 considering the settlement period as 15-min.</li> <li>• Government of India (GoI) has set a Renewable Energy (RE) target of 500 GW by 2030. In the last few years approximately since a decade, the need for implementing 5-minute meters along with AMR system for regional energy accounting and settlement at the Inter State level has been discussed and deliberated in various apex level forums &amp; Committees.</li> <li>• A PAN India pilot project on 5-minute metering was implemented as per the directive from Hon'ble CERC in 2018. A report on the pilot project covering implementation aspects, challenges and suggested way forward has been submitted by POSOCO for perusal of the Hon'ble Commission</li> <li>• This issue was discussed in OCC/TCC/RPC meetings at regional level and it was discussed to replace the existing SEMs (15-min Block) with AMR compatible Interface Energy Meters (5-min Block)</li> </ul>

and implementation of Automated Meter Reading (AMR) and Meter Data Processing (MDP) system for efficient and faster accounting. Moreover, there is a need expressed by States to get streaming online instantaneous MW data at a user configurable rate (minimum 1 min) at SLDCs via AMR system for viewing purpose to manage their drawl.

- A Joint Committee (JC) comprising the members from each RPC, CEA, CTU/PGCIL & POSOCO has been prepared Technical Specifications (TS) of the “5/15 Minute Interface Energy Meters (IEMs) with Automatic Meter Reading (AMR) and Meter Data Processing (MDP)” for interstate transmission system at PAN India basis. NPC Division, CEA vide letter dated 6th July 2022 had circulated the final copy of the TS.
- This Technical specification includes:
- All the procured IEMs shall be configured as 5 min time block. These meters shall record and send 5 min block data to regional AMR system for necessary computation to convert 5 min Time Block data to 15 min Time block data (in line with regulations).
- Provision of 1 min instantaneous MW power flow data from IEMs to SLDC, for viewing purpose only.
- CTUIL sent a letter dtd. 27.06.2023 to CERC stating that nodal agency for AMR system implementation may be identified. CTUIL also informed NPC division, CEA vide letter dtd. 24.07. that JC TS calls for 5 min Time block recording by ISTS IEMs whereas as per CEA metering regulation it is 15 min time block.
- In this regard, Grid-India NLDC specified to NPC, CEA that 5-minute time block could be considered for procurement of new ISTS IEM, AMR & MDP. Subsequently NPC CEA, coordinated a joint meeting amongst the stakeholders comprising of CERC, Grid India (NLDC, RLDCs) & CTUIL, chaired by CEA Regulatory division dated 18th August’23 to check the feasibility for amendment of the CEA metering regulation in line with the ongoing developments and requirements of 5 min time block recording in IEMs.
- In view of the above-mentioned system requirement of 5 min Time Block, while also complying the present regulations for 15 min time block for Scheduling, Accounting, Metering & Settlement; JC



		TS is being adopted for the above-mentioned project proposal.
5.	Deliberations in RPCs	<p>The PAN India scheme was discussed in all the RPCs and the status is as below:</p> <p><b>50<sup>th</sup> SRPC:</b> In-principle approval accorded.</p> <p><b>49<sup>th</sup> WRPC:</b> In-principle approval accorded with a request to CTU to seek PSDF funding which may be available in the next financial year.</p> <p><b>74<sup>th</sup> NRPC:</b> Approval accorded.</p> <p><b>26<sup>th</sup> NERPC:</b> In-principal approval accorded with a request to CTU to seek PSDF funding for the same for NER as special case.</p>
6.	Estimated DPR Cost	<p><b>Rs. 444.87 Cr.</b> excluding AMC &amp; <b>Rs 152.62 Cr.</b> for 7 yr AMC</p> <p>*Costing to be updated considering latest no. of meters and locations at the time of tendering.</p>
7.	Implementation timeframe	Approx. 24 months from gazette Notification.
8.	Implementation Mode	To be deliberated

Earlier 90% of the project cost was allocated for PSDF grant. But grant for the FY 24-25 is not available as per MoP order. **Accordingly, the modality of funding is also to be deliberated.**

#### **52<sup>nd</sup> TCC Decision:**

- TCC in principally consented to the requirement of 5 min IEMs with AMR, however the exact requirement of meters needs to be worked out on consultation at ER OCC meeting.
- TCC opined:
  - ❖ CTU needs to re-examine the requirement of meters in Eastern region in view of compliance of the existing meters with 5 min data recording to latest technical specifications and also furnish the cost breakup of each metering point along with AMR.
  - ❖ Since AMR is already operational in ER, final cost may be arrived at by considering only those locations where AMR is yet to be implemented.
- TCC referred to ERPC for further deliberation.
- ❖ **52<sup>nd</sup> ERPC decision:**
  - CTU was advised to review the quantity of meters proposed for installation and thereby submit revised BOQ particularly for Eastern region with appropriate cost justification. The

detailed cost breakup should be furnished factoring in the existence of AMR compatible IEMs in major portion of Eastern region.

- ERPC opined that existing AMR integrated meters in ER possessing capability of energy recording at 5 min interval shall not be replaced in implementation phase.
- CTU was also advised to explore minimization of estimated capital cost prior to placing for NCT approval.
- ERPC also opined to convene a special meeting.

As per deliberation in **special meeting** dated **19.09.2024**:

- ER states to confirm the requirement of 1 min instantaneous MW data.
- Powergrid to present upgradation necessary in present AMR network to conform to latest pan-India Technical specifications.

**CTU may explain. Powergrid and states may share views. Members may discuss.**

## **2.12 URTDSM (Unified Real Time Dynamic State Measurement) Phase-II Proposal for Implementation through RTM route :POWERGRID**

- ◆ POWERGRID has been entrusted to prepare the DPR for URTDSM Phase-II project in the **13th NPC** meeting held on **05.07.2023**. The DPR is to be made on basis of '**Report of the Sub-Committee on PMU Placement and Analytics under URTDSM Phase II**' constituted by National Power Committee.
- ◆ Presently **1400PMUs and 32 Control centres** have been established under URTDSM Phase-I project. This project was implemented with **70% of the project cost as PSDF grant and 30% was through POWERGRID Equity (RTM for 30% portion and no tariff for 70% grant portion)**.
- ◆ Similarly, DPR for URTDSM Phase-II Project, which included **4000PMUs(new) and 34 control centres** was prepared with funding pattern of **70% PSDF grant and 30% POWERGRID equity in line with Phase-I**. The DPR with an estimate of Rs.3922 Crores, was submitted to NPC/CEA on 11.03.2024. The scope included replacement of 32 control centres, addition of 2 control centres and supply of 4000 new PMUs including integration of 1400 existing PMUs.
- ◆ In 14th NPC meeting held in Bengaluru on 03.02.2024, DPR status was updated to members. It was suggested to optimise the cost. Various options for optimisation were discussed with GRID-INDIA. The same is enclosed at **Annexure-B.2.12** These Options were presented to NPC on 30.05.2024 for further deliberations.
- ◆ **NPC vide email dated 18.04.2024 has informed that PSDF funding shall not be available for the project and alternate sources of funding shall be explored by POWERGRID. Hence, POWERGRID is approaching all the Constituents in the RPCs for concurrence for execution of the URTDSM Phase-II Project on RTM basis.**
- ❖ **Justification for Phase-II project:**
- ◆ The WAMS system installed under Phase-I project proved its significance and usefulness to the Grid Operators for wide area monitoring of the Grid and Event Analysis. Further, the expanding Indian Power Grid with increased penetration of renewable energy sources and

Govt of India's plan to achieve 500GW RE power by 2030, needs Smart Grid tools to proactively monitor, manage, and operate the Grid.

- ◆ URTDSM Phase-II project also envisages advanced WAMS analytics for Oscillation monitoring, Disturbance analysis, inertia monitoring, measurement of RE generator(inverter) response, which shall enhance the Grid observability for efficient and safe operation of the Grid.
- ❖ **POWERGRID Viewpoint G Proposal:**
  - ◆ The URTDSM phase-1 Control centres are nearing their Operational life and will become technically obsolete. Hence to keep the WAMS URTDSM Control centres functional, the
  - ◆ URTDSM phase 2 project which includes upgrade of existing control centres, is to be implemented on priority.
  - ◆ Increased penetration of Renewable energy has required increase in more monitoring of the regional grids which requires more deployment of PMUs. The URTDSM phase 2 includes installation of PMUs as per Sub-committee report.
  - ◆ Keeping in view of the above factors, POWERGRID proposes to take up URTDSM Phase-II Project on pan India basis (upgradation of all Control Centres, new control centres and installation of new PMUs), on cost sharing mechanism (100% RTM route with 70:30 Debt equity ratio) with the approval of all RPCs and Regulatory Authority.
- ❖ **Status of approval in RPCs:**
  - ◆ DPR for URTDSM Phase-II reviewed by NPC, advised to look for alternate funding sources for the project as PSDF funding is not available.
  - ◆ Accordingly, POWERGRID took up the proposal for implementation of URTDSM Phase-II project under 100% RTM route in following RPCs/OCCs:
    - ☐ 73rd NRPC held on 21.05.2024 – URTDSM Phase-II proposal was technically agreed, but NRPC concurrence for method of implementation (100% RTM route) to be obtained.
    - ☐ 52nd SRPC held during 2-3Aug 2024 – It was suggested to optimise the cost
    - ☐ To be deliberated in WRPC, ERPC, and NERPC.

**Powergrid may explain. Members may discuss.**

### 2.13 Shutdown proposal of generating units for the month of October'2024-ERPC

Maintenance Schedule of Thermal Generating Units of ER during 2024-25 in the month of October'2024							
System	Station	Unit No.	Capacity (MW)	Period (as per LGBR 2024-25)		No. of Days	Reason
				From	To		
DVC	DSTPS	1	500	15-10-2024	18-11-2024	35	COH-Boiler RLA, turbogen., De-Nox &FGD
IPP	MPL	2	525	01-10-2024	14-11-2024	45	COH

	Adhunik TPS	1	270	15-10-2024	13-11-2024	30	Annual Maintenance
<b>CESC</b>	Southern TPS	2	67.5	13-10-2024	27-10-2024	15	PG Test/ Boiler License Renewal
<b>TATA POWER</b>	Jojobera TPS	2	120	15-10-2024	19-11-2024	36	Annual Maintenance

- GMR Unit#3 (350 MW) shutdown was originally approved from **16.09.2024** to **10.10.2024** for 25 days.
- But GMR has later intimated change in shutdown plan due to mobilization constraints of the concerned OEM.
- Thus it is proposed by GMR to postpone the approved shutdown for Annual overhauling from **05.10.2024** for **25 days** i.e upto **30.10.2024**.
- Letter from GMR at **Annex B.2.13**

**Members may discuss.**

#### **2.14 Time extension of Planned Unit Outages:: ERLDC**

- As per the prevailing practice of ER, monthly shutdowns of Generating Units are discussed and approved in OCC meeting of ERPC vis-à-vis approved LGBR.
- **It is observed that certain units are extending the planned outage duration without any prior approval/information.** Details of such unit outage for the period from July'24 to Aug'24 are as below:

Unit	S/D period approved in OCC	Actual Outage Date	Revival date	Reason	Remarks
Mejia U#2 (210MW)	01/08/24 to 28/08/24	28-07-2024	10-09-2024	AOH/BOH	Extension approval not taken
FARAKKA U#5 (500MW)	01/07/24 to 30/07/24	01-07-2024	20-08-2024	Boiler + LPT +Generator	Extension approval not taken

- **For proper load-generation balance and ensuring resource adequacy, prior approval/information for availing/extending Planned outage of units needs to be taken.**

**ERLDC may explain. Concerned GENCOs may update. Members may discuss.**

## 2.15 Submission of Daily Generation details on NPP Portal : ERPC

- Under the relevant provision of The **Electricity Act, 2003, Central Electricity Authority** is entrusted with the responsibility to collect and record the data concerning the generation of power and publish various reports like Daily Generation Report, Monthly Generation Report, Thermal Performance Review etc. All these reports are prepared based on the information furnished by various generating stations/ utilities on a daily, monthly, and yearly basis in a time bound manner.
- In this connection, your attention is invited to Section 74 of The Electricity Act 2003 and CEA (Furnishing of Statistics, Returns, and Information) Regulations, 2007, which stipulate that it shall be the duty of every licensee, generating company or person generating electricity for its or his own use; to furnish to Authority such statistics, returns or other information relating to the generation, transmission, distribution, trading, and use of electricity as it may require and at such times and in such form and manner as may be specified by the Authority.
- **Daily Generation data is required to be submitted online over the National Power Portal, which is not initiated by your organisation as per our records. It is, therefore, requested to submit the Daily Generation Data online over the NPP portal regularly on daily basis.**
- **(Note: User ID & passwords for National Power portal has already been issued to all users. In case details are not available or any other issue regarding NPP, a request for the same with the Name of Nodal officer, email id and mobile no. may be sent to NIC on email id: [npp.support@gov.in](mailto:npp.support@gov.in) with information to OPM Division on email id: [grceaopm@gmail.com](mailto:grceaopm@gmail.com))**

**Members may note.**

## 2.16 Intra-state transmission system requirement of ER states by 2032: ERPC

- A Plan/Report for transmission system requirement of ER states by 2031-32, is to be prepared by CEA in consultation with States of Eastern Region.
- In this regard following information/data of ER states is required:
  1. New proposals of the State regarding intra-state transmission system requirement by 2031-32, including New substation with its associates transmission line(s), evacuation system of new generations stations, Augmentation of existing substation, New transmission lines and Reconductoring of existing line etc.
  2. Justification of each proposal.
  3. Estimated cost of each proposal
  4. Present and proposed conductor details, in case of reconductoring proposals (i.e. Ampacity details, year of commissioning of existing line etc.)
  5. Node wise generation/demand data by 2031-32,
  6. Latest PSS/E load flow files incorporating updated proposals with .idv files,
  7. SLD of the existing and proposed intra-state transmission system,
  8. Plotting of existing as well as planned intra-state transmission system on PM Gatishakti National Master Plan portal.

9. Latest Schedule of Rates (SoR).

**All states are requested to provide requisite details. Members may discuss.**

**2.17 Review of AUFLS in Eastern region: ERPC**

- ◆ A Task Force was constituted by NPC vide letter dated 25.08.2023 on Implementation of AUFLS and df/dt scheme under the chairmanship of Member Secretary, SRPC and comprising members from NPC, RPCs and Grid-India.
- ◆ The Task force after convening meeting on 11.09.2023 submitted its report to NPC in 14th NPC meeting on 05.02.2024, wherein certain recommendations were made.
- ◆ Accordingly, as per decision of 214th OCC meeting, a special meeting was convened on **10.07.2024** to deliberate on successful implementation of Automatic Under Frequency Load Shedding (AUFLS) in Eastern region wherein following course of action was delineated to all constituent ER states.
- ◆ **Action points:**
  - All SLDCs were instructed to shift the load quantum from Stages –III & IV to stage-I & II respectively as an interim measure till new feeders for additional load relief gets identified by individual state DISCOMs.  
This must be implemented at the earliest with necessary changes in frequency settings of the existing UFRs and the same shall be reviewed in upcoming OCC meeting.
  - All SLDCs were advised to share the identified feeders list for revised load relief quantum within a month. The status shall be reviewed in monthly OCC meetings.
  - Curtailment of critical loads should be avoided. However , in stage-III and stage-IV, as it operates only in severe threat to grid stability, industrial loads may also be considered. Accordingly DVC and IPCL ( having dominant industrial consumers) were urged to identify industrial feeders for load relief in stage-III and stage-IV.
  - All SLDCs were urged to expedite and ensure SCADA visibility of existing as well as newly identified feeders under AUFLS for effective supervision of load relief quantum.
- ◆ Based on submission by DVC, revised load relief quantum as follows:

**(Figs in MW)**

Constituent	Stage-1	Stage-2	Stage-3	Stage-4	Total
Bihar	315	379	442	442	<b>1577</b>
Jharkhand	87	105	122	122	<b>437</b>
DVC	172	207	241	241	<b>861</b>
Odisha	306	367	428	428	<b>1530</b>
West Bengal	497	597	696	696	<b>2486</b>
Sikkim	5	6	7	7	<b>25</b>
<b>Total</b>	<b>1383</b>	<b>1660</b>	<b>1937</b>	<b>1937</b>	<b>6916</b>

Constituent wise	Annual Consumption	Consumption factor	Demand met	Peak demand factor	Demand contribution
Bihar	40952	0.220	7578	0.236	0.228
Jharkhand	12391	0.067	1923	0.060	0.063
DVC	26214	0.141	3476	0.108	0.125

<b>Odisha</b>	41142	0.221	7104	0.221	0.221
<b>West Bengal</b>	65009	0.349	11868	0.370	0.359
<b>Sikkim</b>	526	0.003	137	0.004	0.004
<b>Total Consumption</b>	<b>186234</b>	<b>1.000</b>	<b>32086</b>	<b>1.000</b>	<b>1.000</b>

#### 52<sup>nd</sup> TCC Decision:

- ❖ SLDC, Odisha was directed to take up the matter with DISCOM to identify the feeder list and shifting of load at the earliest to implement AUFLS.
- ❖ Director, SLDC Odisha agreed to coordinate with concerned DISCOM and **update in next OCC.**

TCC advised all SLDCs :

- ❖ To expedite the process of implementation of AUFLS in stage I & II by shifting load quantum from stage III & IV at the earliest time possible.
- ❖ who have successfully implemented AUFLS in stage I & II by shifting load quantum from stage III & IV, should explore the identification of new feeders to incorporate AUFLS in stage III & IV.
- ❖ to share the list of newly identified feeders with ERPC Secretariat within One Month for information.
- ❖ to ensure SCADA data mapping from newly identified UFR feeders at ERLDC level & In case of non-availability of SCADA data, anticipated timelines for making availability of SCADA data must be communicated for all applicable UFR feeders.

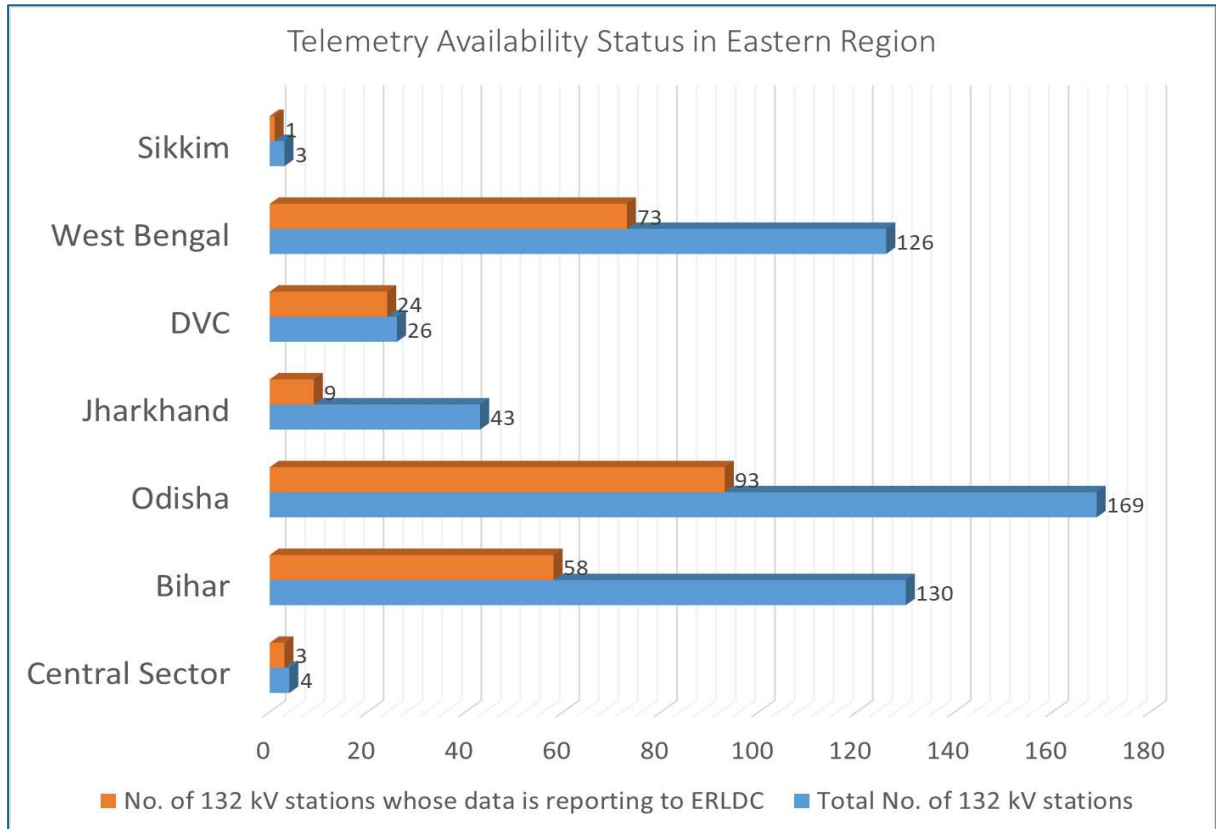
**All SLDCs/STUs and individual state DISCOMs may update action taken/future plan w.r.t AUFLS. Members may discuss.**

#### 2.18 Ensuring Accurate Data and Telemetry from 132 kV and Above Substations in the Eastern Region for the Effective Operation of Envisaged Tools under the New SCADA/EMS System: ERLDC

- New SCADA/EMS system implementation under ULDC Phase III to commence soon, per POWERGRID's letter dated 2nd August 2024. System includes decision-support tools for real-time operations:
  - State Estimator (SE)
  - Real-Time Contingency Analysis (RTCA)
  - Dynamic Security Assessment (DSA)

Success of these tools' hinges on accurate data and telemetry from 132 kV and above substations in the Eastern region. Existing SCADA/EMS system tools (SE, RTCA) face functionality issues due to missing real-time telemetry, particularly:

- Non-reliable data from substation at 132/220 kV levels
- Circuit breaker and Isolator status (132 kV and above substations)
- ❖ Telemetry Availability Status in Eastern Region is shown below:



- At present, the State Estimator and Real-Time Contingency Analysis tools are fully functional only at ERLDC, albeit with ongoing challenges related to the accuracy of analog and digital data. These tools are essential for real-time operators, aiding in decision-making for planned and forced outages, and ensuring network security. Globally, most ISO/TSOs rely on state estimator values for real-time operations.
- **Regulatory Requirements:** Under the new IEGC 2023, Clause 33.1 mandates real-time and intraday operational planning using SE/RTCA for both RLDC and SLDC. Clause 33.2 further mandates the provision of reliable and accurate real-time data to ensure the successful operation of SE and RTCA tools through the SCADA/EMS system at RLDC and SLDC levels. Additionally, the operational performance of these tools and issues related to data and telemetry are to be discussed in OCC meetings on a monthly basis.
- **Current Actions and Ongoing Issues:** Several actions have been undertaken in the Eastern region to ensure accurate data and telemetry, including SAS/STU upgrades and redundancy in telemetry paths. However, there remain significant gaps, particularly with 220 kV substations where real-time data is not consistently available. Additionally, the accuracy of digital status signals, which are critical for the functioning of these tools, remains a concern. ERLDC has also received requests to charge new or modified elements without the required data telemetry, often supported by undertakings.
- This agenda seeks the OCC's deliberation on ensuring the availability of 100% accurate and reliable telemetry data from 132 kV and above substations. This is crucial for the reliable operation of SE, RTCA, and DSA tools at both SLDC and ERLDC levels.



**ERLDC may explain. Members may discuss.**

**2.19 Submission of Yearly Demand (Hourwise) for 2025-26 by SLDCs for Resource adequacy analysis: ERLDC**

- In compliance with the Indian Electricity Grid Code (IEGC) 2023, **NLDC** is in the process of preparing the Short-Term National Resource Adequacy Plan (ST-NRAP) for the financial year 2025-26.
- To support the national-level simulation and ensure the timely completion of the RA plan, SLDCs are kindly requested to submit state-wise data of forecasted hourly demand (MW) for FY 2025-26 by 30th September 2024, as stipulated in IEGC 2023, **Clause 31.2.(h)**.

**Members may note.**

### 3. PART-C: ITEMS FOR UPDATE/FOLLOW-UP

#### 3.1. ER Grid performance during August 2024.

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month August -2024 were as follows:

AVERAGE CONSUMPTION (MU)	MAXIMUM CONSUMPTION(MU)/ DATE	MAXIMUM DEMAND (MW)	MINIMUM DEMAND (MW)	SCHEDULE EXPORT	ACTUAL EXPORT
		DATE / TIME	DATE / TIME	(MU)	(MU)
572.5 MU	622.0 MU, 31.08.2024	28804 MW, 30.08.2024 at 21:56 Hrs.	17492 MW, 03.08.2024 at 06:29 Hrs.	2931	2818

ERLDC/ERPC may highlight the performance of the ER grid.

#### 3.2. Update on Flexible operation of Coal based Thermal Power Plants: ERPC

- ◆ As per gazette notification dated 30.01.2023 issued by CEA regarding flexible operation of coal fired thermal generating units, ramp rate of 2% between 55-70% along with a ramp rate of 3% above 70% was mandated within one year of notification of the regulations, i.e by Jan 2024.
- ◆ The SOP for operating at 55% load with recommendation for necessary training of the plant operators, was also circulated.
- ◆ Relevant communication in this regard was also passed on to State Electricity regulatory Commissions as well as principal secretaries of concerned states outlining measures for execution of CEA regulations.
- ◆ As per above mentioned regulations, coal based thermal generating units, whose implementation shall be as per phasing plan specified by CEA. Implementation plan for unit operation at 40% minimum load in phased manner (pilot+4 phases
- ◆ This phased implementation has been notified, with specific targets and timelines for compliance.
- ◆ A comprehensive report published by CEA on flexible operation coal based thermal power plants highlighting various challenges as well as mitigation plan for achieving 40% minimum technical load

#### ❖ Regarding 55% Minimum Technical Load (MTL)

Thermal GENCOs may share details w.r.t the following:

- a) Whether the target of achieving 55% Technical Minimum Load (MTL) has been met & if not, the reasons for the same & tentative date for achieving the same.

b) Whether the specified ramp rates outlined in the regulations i.e., 3% for 100-70% load & 2% for 70-55% load have been adhered to, if not, the reasons & tentative date for achieving the same.

c) How many operators have been trained in your organisation? (May treat this matter as Most Urgent)

Further, it is requested that attendees bring duly filled progress report (**Annexure- B.2.1.4**) as per enclosed format on the date of meeting.

❖ **Regarding 40% Minimum Technical Load (MTL) & status of units under pilot phase (May,2023-March,2024).**

Phase	Sector	Organization	Name of Project	Unit No.	Capacity (MW)	Region
Pilot	Central	DVC	MEIJA TPS	8	500	ER
Pilot	State	WBPDC	SAGARDIGHI TPS	3	500	ER

Thermal GENCOs may share details w.r.t the following:

- ❖ Whether the target of achieving 40% Technical Minimum Load (TML) has been met and if not, the reasons for the same and tentative date for achieving.
- ❖ Whether the specified ramp rates outlined in the regulations, i.e., **3% for 100-70% load, 2% for 70%-55% load, 1% for 40%-55%** have been adhered to. If not, the reasons for behind and tentative date for achieving the target.
- ◆ It is observed that **most of the plant in ER not achieving 55% despite making full use of available resources**. Even though there is a national need for providing tertiary down services, these left out margin are not being used by state sector generators which are not running at 55%.
- ◆ It is essential to address the challenges faced by **intra-state generators** in operating flexibly **up to 55%** and develop an immediate action plan to enhance this flexibility.
- ◆ Without reducing these state generators to the 55% TM, decommitting units from ISGS could lead to a serious shortage during non-solar hours.

As per deliberation in **52<sup>nd</sup> TCC:**

**Regarding 55% Minimum Technical Limit (MTL):**

- ❖ WBPDC updated that all the thermal generating units including that of Kolaghat, are technically capable to operate at 55% MTDL ,But in absence of appropriate regulations of WBERC, generating units not operating at 55% MTL or below on sustained basis.
- ❖ On behalf of DPL, He informed that DPL Unit #8 is capable of operating at the desired MTL(55%).
- ❖ ED, ERLDC apprised that they have already highlighted the matter to WBERC & WBERC has assured to come up with appropriate regulation to incentivize generators.
- ❖ NTPC, DVC & CESC representatives submitted that all their thermal generating units are technically capable of operating at 55% MTDL on sustained basis.
- ❖ OPGC updated that all Units are technically capable to operate at 55% MTL.
- ❖ Chief Engineer, GM division,CEA suggested that the thermal units make it mandatory to

include the Flexibilization with required ramp rates as per CEA/MOP directives.

### **Regarding 40% Minimum Technical Load (MTL):**

WBPDCCL updated that Sagardighi unit#3 trial run was already done at 40% MTL for a short duration of time & the exact response in continuous operation with specified ramp rates is yet to be ascertained.

- ❖ He further submitted that the unit#3 will be fully capable of operating at 40% MTL at desired ramp rate as per CEA Guidelines by November 2024 after some fine tuning of Governor system by M/S BHEL .
- ❖ DVC updated that the detail report on successful trial operation at 40% MTL of Mejia Unit#8 highlighting the issues faced during trial run, is already shared with CEA & ERPC. However, they are waiting for feedback from M/S BHEL & the same will be updated in the next OCC.
- ❖ OPGC submitted that their 660MW units are technically capable to operate at 40-45% MTL. However, in 210MW units having tube mill boilers, part load operation at 40-45% is not feasible without oil support.
- ❖ GMR also informed that their units are technically capable to operate at 45% MTL without oil support.

### **TCC decision:**

- TCC opined that it would not be prudent to compromise with secure and stable grid operation for commercial considerations. It was further observed that in view of rapid RE capacity addition, flexible operation of existing thermal units is extremely crucial.
- As per MOP letter TCC suggested all states to take up with respective SERCs for implementation of necessary regulations to facilitate flexible operation of intra-state generating units.
- TCC advised the Generators selected under pilot phase as well as phase-1 to expedite their execution process & complete all the required modification within the stipulated timeframe given by CEA.
- TCC advised DVC and WBPDCCL to take up with BHEL for expediting technical feasibility of sustained operation at 40% MTL.
- TCC opined for regular follow-up of status in OCC.

**Thermal GENCOs may update. Members may discuss.**

### **3.3. Amendment in ERLDC Operating procedure after implementation of CERC DSM regulation 2024: ERLDC**

CERC DSM Regulation 2024 has been implemented w.e.f. 16<sup>th</sup> September 2024. Accordingly in line with CERC DSM Regulation 2024, volume slabs for different deviation message types changed for the General seller. Changes were intimated to also stakeholders vide ERLDC letter no **ERLDC/SO/DSM/148-Op.Corr. /2024/640** dated 12-09-2024. The same has been incorporated in the ERLDC operating procedure section 3.5.4 and uploaded in the website in the following link.

**Members may note.**

**3.4. Update on Implementation of AGC in Intra-state generating units: ERLDC**

- ◆ AGC is now operational at most ISGS plants across India, which together have a total installed capacity exceeding 70 GW. However, the dispatchable margin provided through AGC and Secondary Reserve Ancillary Services (SRAS) remains insufficient for maintaining frequency within the IEGC band. With the increasing penetration of renewable energy, managing frequency is expected to become more challenging in the future. Therefore, it is crucial to enhance frequency control and stability through increased participation from intra-state AGC.
- ◆ In response to this need, efforts are underway to encourage more intra-state generators to join the SRAS scheme. Feasibility reports have been prepared, and stakeholder meetings have been held with DVC, West Bengal, and Bihar to explore potential solutions and address any concerns.
- ◆ Present status of **Intra-state AGC integration** process is as follows:

SLDC/State	Generator name	Unit Capacity (MW)	Status
Bihar	Barauni unit # 8 & 9	2x250	Pending discussion between NTPC Barauni, SLDC Bihar and its DISCOM for mutually agreeing to Mechanism for recovery of one-time cost of AGC implementation and Mechanism for Sharing of gains which is to be fixed bilaterally.
DVC	Mejia-B, DSTPS and Koderma	(2x500) (2x500) (2x500)	Final procurement order was awarded to Siemens on <b>7th August 2024</b> with timeline of completion of <b>4 months</b> .
West Bengal	Units of WBPDCCL	-	West Bengal SERC notified WBERC (Ancillary Services) regulation, 2023 dated 26th December 2023. M/s WBPDCCL refers to WBSERC for implementing the AGC server at WBSLDC after which plants will be connected to SLDC one by one.

As per deliberation in **52<sup>nd</sup> TCC**:

- ❖ DVC apprised that final procurement order was awarded to Siemens on 7th August 2024 for all identified six Units & it is expected that within 4 months AGC implementation will be completed.

- ❖ NTPC representative informed that NOC for implementing AGC in its Barauni unit # 8 & 9 is yet to be received from SLDC, Bihar & also discussion is pending between NTPC Barauni, SLDC Bihar and its DISCOM for mutually agreeing to cost recovery and gain sharing mechanism.
- ❖ RED, NTPC mentioned that since the need for AGC Implementation in its Barauni unit # 8 & 9 is principally agreed & for this, a formal clearance from Bihar is required. They will resolve the issue by joint meeting.
- ❖ ED, ERLDC requested SLDC, Odisha to organize a meeting with OPGC to formulate a methodology so that OPGC units can be integrated with AGC.
- ❖ SLDC, Odisha submitted that attempt has been made by OPGC but OEM has not yet responded.
- ❖ OPGC suggested to have a special meeting with M/S BHEL & SLDC, Odisha to finalize the modalities of Implementation of AGC & will update the status within one month.
- ❖ WB SLDC submitted that another meeting shall be convened with WBPDCCL to resolve contractual issues and decide next course of action.

#### **TCC Decision:**

- TCC appreciated efforts of DVC in initiating AGC implementation process
- SLDC Bihar and Bihar DISCOMs were advised to resolve the pending issues with NTPC bilaterally for AGC implementation at the earliest.
- SLDC Odisha was advised to organize meeting with OPGC and ERLDC to resolve AGC implementation in OPGC units.
- WB SLDC was advised to resolve contractual issues with WBPDCCL bilaterally for expediting AGC implementation.
- TCC advised all the concerned utilities to expedite the execution process & complete the AGC Implementation as early as possible.
- Status of AGC implementation to be updated regularly in OCC meetings.

**All concerned may update the status. Members may discuss.**

#### **3.5. Update on Restriction of Talcher-Kolar HVDC Bi-pole: ERPC**

- ❖ On **20th April'24**, ERLDC received one mail from HVDC Talcher stating the requirement of replacement of the R-phase converter transformer necessitating restriction of the power order of HVDC Talcher bi-pole to **1500MW** till the replacement. It was also informed that the spare Converter Transformer of HVDC Kolar is being diverted from HVDC Kolar to HVDC Talcher and is expected to reach HVDC Talcher by **31st May 2024**.
- ❖ Since April'24, either pole of HVDC blocked 5 times out of which, in 4 times the other pole went to ground return mode instead of metallic return mode resulting in overloading of 400kV Talcher-Meeramundali D/C and generation backdown was done either manually or through operation of SPS.

- ❖ Further, while availing the planned shutdown of Pole-2 on 28.04.2024, the other pole didn't go to metallic return mode as the automatic changeover sequence failed and remained in Ground return mode for around 15 minutes.

As per deliberation in **217<sup>th</sup> OCC**:

- ❖ The updated status as per latest communication from Powergrid Odisha dated 22.07.2024:
- Cumulative distance travelled from Kolar is 929 kms against total distance 1910 kms. Balance distance pending to be travelled is 981 kms.
- He further mentioned that the Converter Transformer may tentatively be reached at site by **last week of September** & after reaching at site, it will take another 15 days to complete the commissioning process.

### **OCC Decision**

OCC advised PowerGrid Odisha to expedite the transport of the converter transformer so that it can be commissioned at the earliest to improve stability & reliability of Grid.

**Powergrid Odisha may update the present status of the Converter Transformer. Members may discuss.**

### **3.6. Non-Submission of FRC data in stipulated timeframe: ERLDC**

Adhering to IEGC clauses **30.8** and **30.10.(a)** to **30.10.(q)**, generating stations within the eastern region are required to submit essential data to ERLDC within two days of receiving a notification regarding a reportable frequency event. Additionally, according to clause 30.10.(n), all control areas within the eastern region must assess their frequency response characteristics and share the evaluation, along with high-resolution data, with the ERLDC. If any data is not received or is incomplete, ERLDC resorts to using Scada data (low resolution) to calculate the performance of the respective control area.

Therefore, timely submission of primary response data is crucial for compliance with the **IEGC**.

As per deliberation in **215<sup>th</sup> OCC**:

- All generators whose data submission against frequency events flagged by ERLDC is pending ( detailed above in agenda) were advised to submit the necessary FRC data to ERLDC at the earliest.
- All generators were also advised to regularly share high resolution data against each reportable frequency event with ERLDC on time to facilitate accurate assessment of FRP for respective control areas.

In line with the provisions of IEGC 2023, GRID-INDIA has been assessing the **Frequency Response Characteristics (FRC)** for grid events involving load/generation loss of more than 1000 MW or change in frequency by more than 0.1 Hz. In the month of **July-2024 five of such event was reported**. The Plant-wise average response as observed through 10 second SCADA data available at ERLDC & data received from generators is show in the table below. It may be noted that many power plants' performance was poor / below average and data received status also very poor from most of the plants. Respective plants/State control area may explain reasons behind deficiency in performance and all utilities may follow the timeline.

The latest data receipt status is given below: ( as on **17.09.2024**)

STATIONS		03.04.2024	06.04.2024	19.04.2024	04.06.2024	11.06.2024	17.06.2024	19.06.2024	16.07.2024	23.08.2024	13.09.2024
		05:29	11:24	10:28	10:34	14:10	13:53	12:42	22:10	12:34	13:15
FSTPP #STG 1 & 2	ISGS	Pending	Pending	Pending	Received	Received	Pending	Pending	Received	Pending	Pending
FSTPP #STG3	ISGS	Pending	Pending	Pending	Pending	Received	Pending	Pending	Pending	Pending	Pending
KHSTPP #STG1	ISGS	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
KHSTPP #STG2	ISGS	Pending	Received	Received	Pending	Pending	Received	Received	Received	Received	Received
TSTPP #STG1	ISGS	Received	Received	Received	Received	Received	Received	Pending	Received	Received	Pending
Barh stage-1	ISGS	Pending	Pending	Pending	Received	Received	Received	Received	Received 29.07	Received	Received
Barh stage-2	ISGS	Pending	Pending	Pending	Received	Received	Received	Pending	Received	Received	Received
BRBCL	ISGS	Pending	Pending	Received	Pending	Pending	Pending	Pending	Pending	Received	Received
Darlipalli	ISGS	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
North Karanpura	ISGS	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Received	Received	Received
NPGC	ISGS	Received	Received	Received	Received	Pending	Received	Received	Received	Received	Received
TEESTA V	ISGS	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	Pending	Pending	Pending
GMR	CPP	Received	Received	Received	Received	Received	Received	Pending	Received	Received	Pending
MPL	CPP	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
ADHUNIK	CPP	Received	Received	Received	Received	Received	Received	Received	Received	Received	Pending
JITPL	CPP	Received	Received	Received	Received	Received	Received	Received	Received	Pending	Pending
INDBHARAT	CPP	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
TASHIDING	CPP	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
TEESTA III	CPP	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	Pending	Pending	Pending
DIKCHU	CPP	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	Pending	Pending	Pending
TALCHER STG2	ISGS	Received	Received	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
Bihar	STATE	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
Jharkhand	STATE	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
DVC	STATE	Pending	Pending	Pending	Received	Pending	Pending	Pending	Pending	Pending	Pending
OPTCL	STATE	Received	Received	Received	Received	Received	Received	Received	Received	Pending	Pending
WB	STATE	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending

Hence all are again requested to follow the stipulated timeline and submit the data to ERLDC and also fill the google sheet below to include the email address where notifications of reportable events should be sent.

[https://docs.google.com/spreadsheets/d/1slvAOmQIEQVIMn0LnB78eKMa2sz2QYICZ-sPEpeV\\_jk/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1slvAOmQIEQVIMn0LnB78eKMa2sz2QYICZ-sPEpeV_jk/edit?usp=sharing)

MOM of 02.08.2024 attached at **Annex-B.3.4.**

**ERLDC may explain. Members may discuss.**

### 3.7. Regarding Non-Submission of Forecasting Data from States: ERLDC

The **Clause 2 of Regulation 31** of IEGC 2023 has mandated all the SLDCs to timely submit the demand estimate data to the respective RLDC and RPC.



The demand estimation data provided by SLDCs will be required in resource adequacy planning and regional load forecasts conducted by the RLDC. As a part of Handholding initiative ERLDC has successfully imparted training on forecasting to all the states. Currently, the day ahead data is regularly received from all the states except Sikkim. ERLDC is also not receiving the weekly and monthly data as well from all the states.

The latest Forecast receipt status is shown below:

As on 01.09.2024	Forecast Receipt Status		
Entity Name	Day Ahead	Week Ahead	Month Ahead
Jharkhand	Regular	Regular	Received (1 <sup>st</sup> Time)
West Bengal	Regular	Not Received	Not Received
DVC	Regular	Regular	Not Received
BIHAR	Regular	Regular	Regular
SIKKIM	Regular	Regular	Received (1 <sup>st</sup> Time)
ODSHA	Regular	Not Received	Not Received

As per deliberation in **218th OCC**:

#### OCC decision

- ❖ OCC advised all SLDCs for strictly adhering to the schedule of demand estimation as mandated in IEGC 2023, timely sharing with ERLDC as well as uploading of forecasting error on their respective websites.
- ❖ SLDCs who are submitting day ahead forecast were advised to also share the forecasting data on weekly as well as monthly basis with ERLDC.
- ❖ SLDC Odisha was advised to expedite implementation of the forecasting software
- ◆ Hence it is again requested to all the concerned for timely submission of demand estimation data to ERLDC. This collaboration is essential for effective planning and preparedness to meet the region's electricity demands efficiently and reliably.

**ERLDC may explain and all SLDCs may update. Members may discuss.**

#### 3.8. Mock Islanding test: ERLDC

As per **IEGC cl. 29(11)**, Mock drills of the islanding schemes are to be carried out annually by the respective RLDCs in coordination with the concerned SLDCs and other users involved in the islanding scheme. In case a mock drill with field testing is not possible to be carried out for a particular scheme, simulation testing shall be carried out by the respective RLDC.

Presently, the following islanding schemes are present in the Eastern Region:

Station/System	State/Country	Installed Capacity (MW)
CHPC	Bhutan	84
CESC	West Bengal	750

		(3 x 250 MW)
NALCO	Odisha	1200
ICCL	Odisha	258 (2 x 54 MW + 1 x 30 MW + 2 x 60 MW)
RSP	Odisha	255 (2 x 60 MW + 3 x 45 MW)
Bhushan Power & Steel	Odisha	506
Aryan ISPAT and power Ltd.	Odisha	18
Maithon Ispat Limited	Odisha	30
Hindalco	Odisha	467.5
IMFA	Odisha	258 (2 X 54 MW+ 1 X 30 MW + 2 X 60 MW)
VAL	Odisha	1215 (9 X 135 MW)
Bakreswar Islanding Scheme	West Bengal	1050 (5 x 210 MW)
Tata Power Haldia Islanding Scheme	West Bengal	120 (2 x 45 MW+ 1 x 30 MW)
Bandel Islanding Scheme	West Bengal	215
Narbheram Power & Steel Pvt. Ltd (Dhenkanal) Islanding Scheme	West Bengal	8
CTPS Islanding Scheme	DVC	500

\*CTPS Islanding Scheme was inadvertently missed in the last two agendas.

- ◆ These islanding schemes shall be reviewed and augmented depending on the assessment of critical loads at least once a year or earlier if required.
- ◆ Therefore, all the concerned SLDCs are requested to coordinate with respective users and share a plan for conducting a Mock test or in case a mock test not possible then may share the following data for conducting simulation studies:
  1. **Update Network (in PSSE file)**
  2. **Update LGBR details of the island node wise (in PSSE file)**
  3. **Machine dynamic data as per FTC documents of ERLDC**

#### 4. Islanding logic

Letters have already been issued to the SLDCs regarding the sharing of the above information, but any response is yet to come. It is again requested that all the concerned SLDCs may expedite.

#### 3.9. Periodic Mock Drill Exercises in areas of generation, transmission and distribution of the power sector: ERPC

In compliance to **Disaster Management Plan for Power Sector (2022)** as drafted by CEA( as per Disaster Management Act 2005) and approved by Ministry of Power (Govt. of India) as well as in order to be prepared for any eventuality, periodic mock drill exercises are to be undertaken in various areas of generation, transmission and distribution of the power sector by considering various crisis and disaster situations like an earthquake, floods etc. Depending on the vulnerability of the installations/plant, mock drills to handle such situations need to be undertaken. The utilities are also required to ensure that at least one mock drill exercise for every crisis/disaster situation to which the installation/plant is vulnerable is undertaken in each quarter. The adverse observations made on each event of Mock drill should be taken into account and it should be ensured to prevent occurrence of such undesirable events in the future.

#### □ Action points:

As per deliberation of **1st MEETING ON REGIONAL DISASTER MANAGEMENT (EASTERN REGION)** dated **09.07.2024**:

- ◆ At least one mock drill exercise for every crisis/disaster situation to which the installation/plant is vulnerable must be undertaken in each quarter and quarterly report by the utilities to be shared with CEA for review and onward submission to Ministry of Power (Govt of India) . ( Action: All thermal GENCOs (Central,IPP), all hydro generating stations, all ISTS licensees . SLDCs to coordinate with respective GENCOs,STUs and DISCOMs within their jurisdiction)
- ◆ Utilities are requested to share the experience on the mock drill exercises and scope for improvements.

**All concerned utilities may update action plan.**

#### 3.10. Commissioning Status of ADMS: ERLDC

- ◆ The automatic demand management scheme (ADMS) has been already commissioned in West Bengal, DVC, Odisha, and Jharkhand and partially implemented by Bihar.
- ◆ In the 216th OCC meeting the forum advised Bihar to share detailed action plan for implementation of additional 400 MW load under ADMS.
- ◆ It was also advised by the forum that DVC to share revised feeder list with ERLDC in which ADMS to be implemented after operationalization of Chandrapura islanding scheme.
- ◆ **Current Status (as of July 18, 2024):** No input received from Bihar and DVC.
- ◆ **Bihar & DVC may update the Status.**

#### 4. PART-D: OPERATIONAL PLANNING

##### 4.1. Anticipated power supply position during October-2024

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of October 2024 is prepared by ERPC Secretariat (**Annexure D.1**) on the basis of LGBR for 2024-25 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc.

**Members may update.**

##### 4.2. Major Thermal Generating Units/Transmission Element outages/shutdown in ER Grid (as on as on 13-08-2024)

###### a) Thermal Generating Stations outage report:

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	BARAUNI TPS	BIHAR	NTPC	7	110	Poor condenser vacuum	19-Jul-2023
2	BARAUNI TPS	BIHAR	NTPC	6	110	Low vacuum	22-Jul-2023
3	MEJIA TPS	DVC	DVC	5	250	Boiler Tube Leakage	17-Sep-2024
4	BAKRESH WAR	WEST BENGAL	WBPDC	5	210	Turbine high vibration.	05-Sep-2024
5	Sterlite	ODISHA	SEL	3	600	Ash evacuation problem	18-Sep-2024
6	NABINAGAR(BRBC L)	BIHAR	NTPC	1	250	Generator Protection Operated	15-Sep-2024
7	BARH	BIHAR	NTPC	2	660	Abnormal sound from boiler	17-Sep-2024
8	NABINAGAR(NPGC )	BIHAR	NTPC	1	660	Boiler Tube Leakage	17-Sep-2024
9	NORTH KARANPURA	JHARKHAND	NTPC	1	660	Boiler Tube Leakage	18-Sep-2024
10	KOLAGHAT	WEST BENGAL	WBPDC	6	210	Capital Overhauling	11-Jul-2024
11	SAGARDIGHI	WEST BENGAL	WBPDC	2	300	Annual Overhauling	07-Aug-2024
12	TENUGHAT	JHARKHAND	TVNL	2	210	Annual Overhauling	21-Aug-2024

13	MEJIA TPS	DVC	DVC	1	210	Annual Overhauling	14-Sep-2024
14	KHSTPP	BIHAR	NTPC	6	500	For annual overhauling	20-Aug-2024
15	TSTPP	ODISHA	NTPC	2	500	Annual Overhauling	19-Aug-2024

**All Generating stations are requested to update expected restoration time and reason outage to ERLDC/ERPC on weekly basis in case of any change at their end.**

**b) Major Generating stations Out on Reserve Shutdown due to low system demand:**

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	SOUTHERN	WEST BENGAL	CESC	1	67.5	Low system demand	06-Sep-2024
2	SOUTHERN	WEST BENGAL	CESC	2	67.5	Low system demand	24-Aug-2024

**c) Hydro Unit Outage Report:**

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	TEESTA STG III Hep	SIKKIM	TUL	1-6	200x6	Sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in Teesta River and damage of Teesta III Dam & downstream Powerhouses	04-Oct-2023
2	TEESTA STG III Hep	SIKKIM	TUL				
3	TEESTA STG III Hep	SIKKIM	TUL				
4	TEESTA STG III Hep	SIKKIM	TUL				
5	TEESTA STG III Hep	SIKKIM	TUL				
6	TEESTA STG III Hep	SIKKIM	TUL				
7	DIKCHU Hep	SIKKIM	SKPPL	1-2	48x2	Sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in Teesta River and damage of Teesta III Dam & downstream Powerhouses	04-Oct-2023
8	DIKCHU Hep	SIKKIM	SKPPL				
9	TEESTA HPS	SIKKIM	NHPC	1-3	170x3	Sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in Teesta River and damage of	04-Oct-2023

10	TEESTA HPS	SIKKIM	NHPC			Teesta III Dam & downstream Powerhouses	
11	TEESTA HPS	SIKKIM	NHPC				
12	CHIPLIMA HPS / HIRAKUD II	ODISHA	OHPC	1	24	Capital Overhauling	15-Dec-2023
13	BALIMELA HPS	ODISHA	OHPC	2	60	High Turbine Vibration	19-May-2024

**d)Long outage report of transmission lines (As on 18.09.2024):**

Transmission Element / ICT	Outage From	Reasons for Outage
220/132KV 100 MVA ICT II AT LALMATIA	22.01.2019	Commissioning work of 220/132KV, 100MVA Transformer and its associated control Panel under progress.
220/132KV 100 MVA ICT 3 AT CHANDIL	30.04.2020	Due to Fire hazard ICT damaged and burnt.
220KV-FSTPP-LALMATIA-I	21.04.2021	Transmission line is idle charged between Lalmatia GSS end up to Tower loc no 94 (50.30km)
220KV-WARIA-BIDHANNAGAR-1 & 2	08.06.2022	To control overloading of 220 kV Waria-DSTPS (Andal) D/C line
400/220KV 315 MVA ICT 2 AT PATRATU	27.09.2022	ICT tripped on few occasions due to Buchholz later DGA violation found, internal fault in transformer to be rectified. (DGA violation)
132KV-BARHI-RAJGIR-1	25.03.2023	Dismantling of tower no. 227, 228, and 229 crossing the premises of Mahabodhi Cultural centre along with Destraining of conductor of both circuits and Earth wire between tension tower no. 218-237 in same line.
132KV-NALANDA-BARHI(DVC)-1	25.03.2023	
400KV-RANGPO-TEESTA-V-1 & 2	04.10.2023	Tower near gantry of Teesta V powerhouse collapsed due to sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in TEESTA river and damage of Teesta III Dam & downstream Powerhouses
400KV-TEESTA-III-RANGPO-1	04.10.2023	Hand tripped from Teesta-III end due to sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in TEESTA river and damage of Teesta III Dam & downstream Powerhouses
400KV-TEESTA-III-DIKCHU-1	04.10.2023	

400KV-RANGPO-DIKCHU-1	04.10.2023	Hand tripped from Rangpo end due to sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in TEESTA river and damage of Teesta III Dam & downstream Powerhouses
400KV-KHSTPP-BANKA (PG)-1	24.02.2024	Switchyard bay updation work
400KV-JHARSUGUDA-ROURKELA-3&4	01.04.2024	Reconductoring work
132KV-MADHEPURA (BH)-SAHARSA(PMTL)-1	04.04.2024	To control loading on 132kV Madhepura-Saharsa line
400KV/220KV 315 MVA ICT 2 AT RENGALI	07.05.2024	Commissioning of ICT-2 at Rengali under ADD CAP 2019-24
132KV-RANGPO-SAMARDONG-1	22-05-2024	Rangpo:Y-n fault with fault distance 0.157 km , 14.562kA Samardong: NA
220KV-RAJARHAT-NEW TOWN(AA-II)-2	10-07-2024	Rectification of gas leakage problem from B-Ph breaker pole; Line declared under breakdown after charging attempt after return of shutdown
220KV/132KV 160 MVA ICT 2 AT BIRPARA	30-07-2024	Differential protection operated & On internal inspection, subject Transformer found damaged considerably and can not be taken in service before repairing. Considering the urgency, available spare ICT has already been diverted from Siliguri SS.
132KV-RANGPO-SAMARDONG-2	02-08-2024	132/66/11kV Samardong ss have become inaccessible due to continuous raining and landslides. It is very difficult for round the clock deployment of shift manpower due to road non-accessibility
220KV-DALKHOLA-PURNEA-1	28-08-2024	Replacement of isolators
HVDC 500KV TALCHER POLE 1 & 2	06-09-2024	Line diversion works for facilitating construction of Nadikudi-Srikalahasti Railway crossing.
400KV-TSTPP-TALCHER HVDC-1,2,3 & 4	08-09-2024	Maintenance work

**Transmission licensees/ Utilities are requested to update expected restoration date & work progress regarding restoration regularly to ERLDC/ERPC on monthly basis by 5<sup>th</sup> of each month so that status of restoration can be reviewed in OCC. Utilities are also requested to update outage of any elements within their substation premises like isolator/breaker to ERLDC/ERPC regularly. (Reported as per Clause 5.2(e) of IEGC)**

### 4.3. Commissioning of new units and transmission elements in Eastern Grid in the month of August -2024.

The details of new units/transmission elements commissioned in the month of August-2024 based on the inputs received from beneficiaries:

NEW ELEMENTS COMMISSIONED DURING August, 2024							
GENERATING UNITS							
SL. NO.	Location	Owner/ Unit name	Unit No / Source	Capacity added (MW)	Total/Installed Capacity (MW)	DATE	Remarks
NIL							
ICTs/ GTs / STs							
SL. NO.	Agency/ Owner	SUB-STATION	ICT NO	Voltage Level (kV)	CAPACITY (MVA)	DATE	Remarks
1	PGCIL	ARA (PG)	4	220/132 kV	200	15-08-2024	
TRANSMISSION LINES							
SL. NO.	Agency/ Owner	Line Name	Length (KM)	Conductor Type	DATE	Remarks	
1	BSPTCL	220KV-PUSAULI-NADHOKAR-2	6.504	HTLS Conductor	10-08-2024		
2	OPTCL	132KV-BARIPADA(PG)-BANGIRIPOSHI-2	31.23	ACSR Panther	01-08-2024		
LILO/RE-ARRANGEMENT OF TRANSMISSION LINES							
SL. NO.	Agency/ Owner	Line Name/LILO at	Length (KM)	Conductor Type	DATE	Remarks	
NIL							
BUS/LINE REACTORS							
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks	
NIL							
BUS							
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks	
NIL							
BAYS							



SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks
1	PGCIL	Main Bay of 132KV-BARIPADA(PG)-BANGIRIPOSHI-2 at Baripada(PG)	Baripada	132	01-08-2024	
2	DVC	220KV MAIN BAY OF 315 MVA ICT 2 AT MTPS-B.	MTPS-B	220	22--08-2024	facilitated first time charging of 220kV bay of the ICT-2 at MTPS-B
3	PGCIL	220 kV Main Bay (203) of ICT-4 at ARA Substation.	ARA	220	15-08-2024	
4	PGCIL	132 kV Main Bay (106) of ICT-4 at ARA Substation.	ARA	132	15-08-2024	

**Members may note.**

**4.4. UFR operation during the month of August 2024.**

Frequency profile for the month as follows:

MONTH	MAX	MIN	% LESS IEGC BAND	% WITHIN IEGC BAND	% MORE IEGC BAND
	(DATE/TIME)	(DATE/TIME)			
<b>August, 2024</b>	50.45 Hz on 27-08-2024 at 13:02 hrs	49.56 Hz on 13-08-2024 at 19:20 hrs	4.66	75.02	20.32

Hence, no report of operation of UFR has been received from any of the constituents.

**Members may note.**

\*\*\*\*\*

## Annexure B.2.2

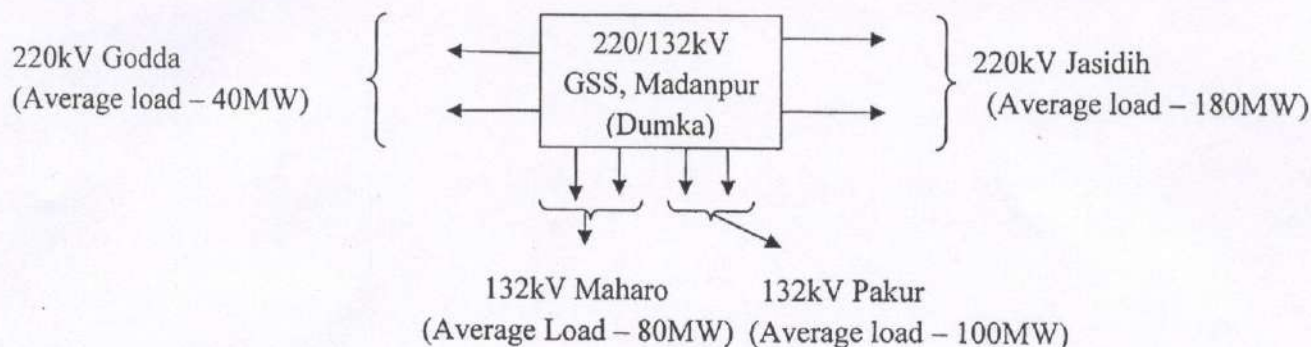
### Detailed report on SPS scheme for 220kV Maithon (PGCIL)-Madanpur (Dumka) D/C Transmission line

220/132kV GSS, Madanpur (Dumka) has incoming source of 220kV Maithon (PGCIL)-Madanpur (Dumka) D/C Transmission line & 220kV Govindpur-Madanpur (Dumka) D/C Transmission line. As GSS, Govindpur is receiving power from TTPS and in case of availability of only one TTPS unit, GSS, Madanpur gets very low feed through Govindpur-Madanpur D/C Transmission line.

At present, during peak hours, the average loading on Maithon (PGCIL)-Madanpur D/C Transmission line is approx. 400MW (200MW on each circuit) at 220/132kV GSS, Madanpur. In this scenario, if any of these circuits trip on fault, then loading on remaining survived circuit goes above 350MW which is far beyond the thermal limit of 580Amp. (Considering 210MW at 0.95 power factor). In this emergency situation, if load relief is not provided at GSS, Madanpur by manual tripping of outgoing feeders, then total power failure may occurs in whole Santhal Pargana areas. As GSS, Madanpur is feeding 12 Nos. of Grid Substations in downstream.

To cater the situation of total power failure at GSS, Madanpur, ERPC planned for designing a SPS scheme for 220kV Maithon (PGCIL)-Madanpur D/C Transmission line.

**The details of outgoing feeders with average loading at GSS, Madanpur is as follows:-**



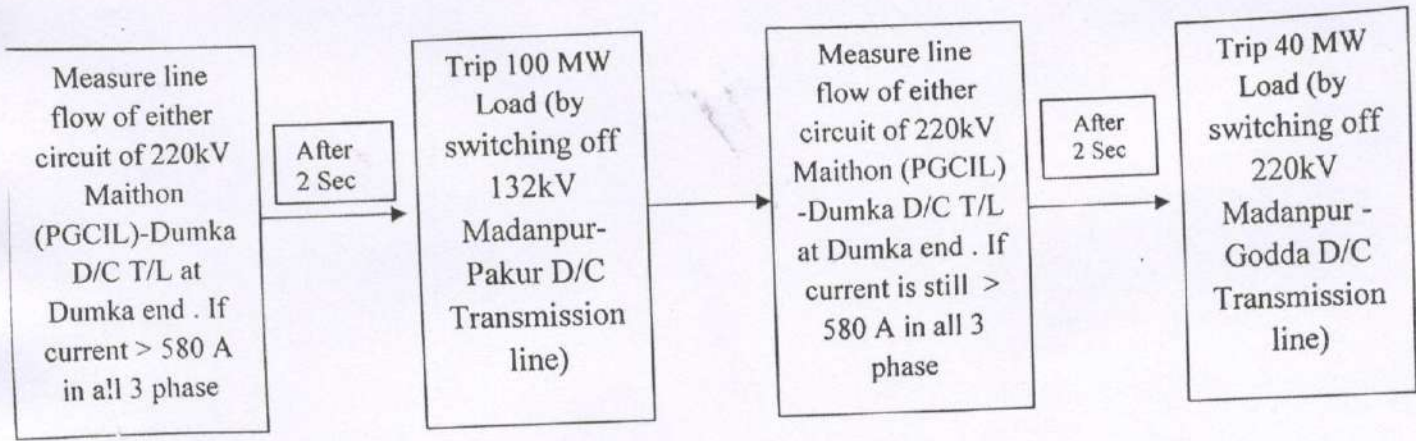
In 137<sup>th</sup> & 138<sup>th</sup> PCC Meeting, ERPC advised JUSNL to share details of feeder identified for providing load relief of 160MW. Accordingly, as per load pattern of outgoing feeders at GSS, Madanpur, it is recommended that in SPS scheme, 100MW of load relief may be provided in stage-1 by switching off 132kV Madanpur-Pakur D/C Transmission line and 40MW of load relief may be provided in stage-2 by switching off 220kV Madanpur- Godda D/C Transmission line.

*[Signature]*

*[Signature]*

*[Signature]*  
10/9/2024

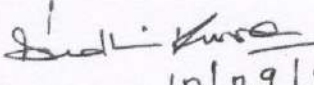
SPS scheme for 220 kV Maithon (PGCIL)-Dumka D/C Transmission line may be given below:-

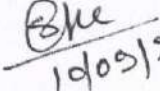


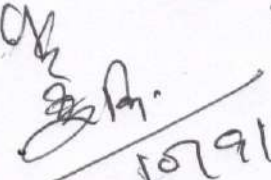
580A for 210MW at 0.95 power factor

**Note :-**

1. As SPS scheme can't be implemented on 132kV Madanpur-Maharo D/C Transmission line because GSS, Maharo regularly runs on synchronization with GSS, Deoghar via GSS, Jarmundi so if load of GSS, Maharo will be cut off from GSS, Madanpur during SPS operation, then it will start drawing power from GSS, Deoghar and thus, no any load relief will be on GSS, Madanpur.
2. As SPS scheme may be implemented on downstream Substations also but providing communication from GSS, Madanpur to downstream Substations may be challenging work.

  
10/09/24  
Manager,  
Trans. Subdivision, Madanpur

  
10/09/24  
Sr. Manager,  
Trans. Division, Dumka

  
10/09/2024  
Dy. General Manager (Op./Projects),  
Transmission Circle, Dumka

## Annex B.2.5

<b>Certificate No</b>	<b>RLC25/BLR/SR/24/68-</b>	<b>Page No</b>	1 of 3
<b>Test Date</b>	03/09/2024	<b>Next Test Date</b>	02/09/2025
<b>Name of the Company</b>	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
<b>Location</b>	400/132KV GIS Sub-Station		
<b>System</b>	400KV Teesta III Line Bay-3 (R3A)		

### Test Certificate For Distance Protection Relay [Main – 1 21M1]

#### 1.0. Details:

Make	Alstom
Type	P444
Model No	P44491656M0710M
Vx	100-250V.DC, 100-120V.AC
In	1/5A
CTR	3000/1A
Line Length	15.10km
Line Impedance	3.825Ω
Line Angle	86.60°
PTR	400KV/110V
Sl. No.	33376271/07/15

#### 2.0. Test Results

##### A) Zone – 1:

Fault Type	Impedance In (Ω)	Pick Up In (Ω)	Time Set In (Sec)	Time Taken In (m. Sec)
RY	3.063	3.063	0.0	38.0
YB	3.063	3.063	0.0	38.0
BR	3.063	3.063	0.0	38.0
Rn	3.063	3.063	0.0	38.0
Yn	3.063	3.063	0.0	40.0
Bn	3.063	3.063	0.0	40.0
RYB	3.063	3.063	0.0	40.0

##### B) Zone – 2:

Fault Type	Impedance (Ω)	Pick Up In (Ω)	Time Set In (m Sec)	Time Taken In (m. Sec)
RY	5.742	5.742	350.0	359.0
YB	5.742	5.742	350.0	356.0
BR	5.742	5.742	350.0	356.0

Rn	5.742	5.742	350.0	357.0
Yn	5.742	5.742	350.0	357.0
Bn	5.742	5.742	350.0	357.0
RYB	5.742	5.742	350.0	360.0

**C) Zone – 3:**

Fault Type	Impedance ( $\Omega$ )	Pick Up In ( $\Omega$ )	Time Set In (Sec)	Time Taken In (Sec)
RY	22.40	22.40	1.0	1.038
YB	22.40	22.40	1.0	1.041
BR	22.40	22.40	1.0	1.042
Rn	22.40	22.40	1.0	1.042
Yn	22.40	22.40	1.0	1.039
Bn	22.40	22.40	1.0	1.042
RYB	22.40	22.40	1.0	1.043

**D) Zone – 4:**

Fault Type	Impedance (m $\Omega$ )	Pick Up In (m $\Omega$ )	Time Set In (m Sec)	Time Taken In (m Sec)
RY	764.8	764.8	500.0	509.0
YB	764.8	764.8	500.0	512.0
BR	764.8	764.8	500.0	510.0
Rn	764.8	764.8	500.0	510.0
Yn	764.8	764.8	500.0	514.0
Bn	764.8	764.8	500.0	516.0
RYB	764.8	764.8	500.0	515.0

**E) Power Swing:**

Phase	Delta R $\Omega$	Delta X $\Omega$	Time Set in (Sec)	Time Taken in (Sec)
RYB	6.158	6.158	3.0	3.024

**Broken Conductor:**

Current Set In (mA.AC)	Pick Up in (mA.AC)	Time Set In (Sec)	Time Taken In (Sec)
200.0	200.0	6.0	6.454

**F) Over Voltage: Stage-1**

Phase	Voltage Set In (KV.AC)	Pick Up in (KV.AC)	Time Set In (Sec)	Time Taken In (Sec)
RYB	440.0	400.0	6.0	6.028

**Stage-2:**

Phase	Voltage Set In (KV.AC)	Pick Up in (KV.AC)	Time Set In (m Sec)	Time Taken In (m Sec)
RYB	560.0	560.0	100.0	148.0

**G) Backup:**

Phase	Current Set In (KA.AC)	Pick Up in (KA.AC)	Time Set In (Sec)	Time Taken In (Sec)
I>	9.0	9.0	3.0	3.085
I>>	7.50	7.50	0.0	49ms

**3.0. Accuracy & Status:**

Accuracy	Status
With In The Limit	Tested Good

<b>Test Engineer</b>	<b>For Customer Representative</b>	<b>For RELTEC Engineers</b> <b>Proprietor</b>
----------------------	------------------------------------	--

<b>Certificate No</b>	<b>RLC25/BLR/SR/24/68-</b>	<b>Page No</b>	1 of 2
<b>Test Date</b>	03/09/2024	<b>Next Test Date</b>	02/09/2025
<b>Name of the Company</b>	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
<b>Location</b>	400/132KV GIS Sub-Station		
<b>System</b>	400KV Teesta III Line Bay-3 (R3A)		

**Test Certificate For Peripheral Unit BB Protn. Relay [PUA]**

**1.0. Details:**

Make	Alstom
Type	P743
Model No.	P743916A6M0510K
In	1/5A
CTR	3000/1A
PTR	400KV/110V
Vx	110 - 250V.DC, 100 -240V.AC
Sl. No.	33402867/08/15

**2.0. Test Results:**

**A) Measurement Current Elements:**

Current Applied In (A. AC)	Measured in (A.AC)		
	R	Y	B
0.5	1500.03	1500.02	1500.054
1.0	3000.04	3000.02	2999.96

**Voltage Elements:**

Phase	Voltage Applied In (V.AC)	Measured in (KV.AC)	
		To Be	Found
RY	110.0	400.0	400.01
YB	110.0	400.0	400.04
BR	110.0	400.0	400.02

**Frequency Test:**

Frequency Applied in (Hz)	Frequency Measured In (Hz)
50	50.02

**B) Dead Zone Protection:**

Current Setting In (KA.AC)	Pick up in (KA.AC)	Time Setting in (m Sec)	Time Taken in (m Sec)
2.760	2.760	50.0	97.0

**c) STABLE CONDITION: (LINE 2 PUA –TIE BAYPUA)**

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	180°	Stable
Y	1.0	-120°	1.0	60°	Stable
B	1.0	120°	1.0	300°	Stable

**d) UNSTABLE CONDITION: (LINE 2 PUA –TIE BAY PUA)**

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	0°	Unstable
Y	1.0	-120°	1.0	-120°	Unstable
B	1.0	120°	1.0	120°	Unstable

**e) CB FAIL:**

Current Setting In (A.AC)	Pick up in (A.AC)	TS1 In (m Sec)	TS2 In (m Sec)	External TS3 In (m Sec)	TS4 In (m Sec)
600.0	600.0	50.0	200.0	50.0	200.0

**3.0. Accuracy & Status:**

Accuracy	Status
With In The Limit	Tested Good

Test Engineer	For Customer Representative	For RELTEC Engineers
		Proprietor



<b>Certificate No</b>	<b>RLC25/BLR/SR/24/68-</b>	<b>Page No</b>	1 of 2
<b>Test Date</b>	03/09/2024	<b>Next Test Date</b>	02/09/2025
<b>Name of the Company</b>	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
<b>Location</b>	400/132KV GIS Sub-Station		
<b>System</b>	400KV GIS Teesta III Line Bay-3 (R3B)		

**Test Certificate For Distance Protection Relay [Main – 2 21M2]**

**1.0. Details:**

Make	ABB
Type	REL670
CTR	3000/1A
PTR	400KV/110V
Sl. No.	I1531036

**2.0. Test Results**

**A) Zone – 1:**

<b>Fault Type</b>	<b>Impedance In (<math>\Omega</math>)</b>	<b>Pick Up In (<math>\Omega</math>)</b>	<b>Time Set In (Sec)</b>	<b>Time Taken In (m. Sec)</b>
RY	3.05	3.05	0.0	39.0
YB	3.05	3.05	0.0	41.0
BR	3.05	3.05	0.0	41.0
Rn	3.05	3.05	0.0	40.0
Yn	3.05	3.05	0.0	39.0
Bn	3.05	3.05	0.0	40.0
RYB	3.05	3.05	0.0	41.0

**B) Zone – 2:**

<b>Fault Type</b>	<b>Impedance In (<math>\Omega</math>)</b>	<b>Pick Up In (<math>\Omega</math>)</b>	<b>Time Set In (m Sec)</b>	<b>Time Taken In (m. Sec)</b>
RY	5.73	5.73	350.0	359.0
YB	5.73	5.73	350.0	360.0
BR	5.73	5.73	350.0	358.0
Rn	5.73	5.73	350.0	358.0
Yn	5.73	5.73	350.0	357.0
Bn	5.73	5.73	350.0	357.0
RYB	5.73	5.73	350.0	358.0

**C) Zone – 3:**

Fault Type	Impedance In ( $\Omega$ )	Pick Up In ( $\Omega$ )	Time Set In (Sec)	Time Taken In (Sec)
RY	22.34	22.34	1.0	1.041
YB	22.34	22.34	1.0	1.039
BR	22.34	22.34	1.0	1.044
Rn	22.34	22.34	1.0	1.045
Yn	22.34	22.34	1.0	1.044
Bn	22.34	22.34	1.0	1.043
RYB	22.34	22.34	1.0	1.042

**D) Zone – 4:**

Fault Type	Impedance In ( $\Omega$ )	Pick Up In ( $\Omega$ )	Time Set In (m Sec)	Time Taken In (m Sec)
RY	0.76	0.76	500.0	510.0
YB	0.76	0.76	500.0	509.0
BR	0.76	0.76	500.0	509.0
Rn	0.76	0.76	500.0	507.0
Yn	0.76	0.76	500.0	511.0
Bn	0.76	0.76	500.0	511.0
RYB	0.76	0.76	500.0	514.0

**F) Over Voltage: Stage-1**

Phase	Voltage Set In (V.AC)	Pick Up in (V.AC)	Time Set In (Sec)	Time Taken In (Sec)
RYB	110.0% UB	110.0% UB	5.0	5.067

**Stage-2:**

Phase	Voltage Set In (V.AC)	Pick Up in (V.AC)	Time Set In (m Sec)	Time Taken In (m Sec)
RYB	140.0%UB	140.0%UB	100.0	179.0

**G) TEF: (DEF) O/C:**

Phase	Current Set In (A.AC)	Pick Up in (A.AC)	TMS	2 Time Taken In (Sec)
E/F	0.20	0.20	0.21	2.390

**3.0. Accuracy & Status:**

Accuracy	Status
With In The Limit	Tested Good

Test Engineer	For Customer Representative	For RELTEC Engineers Proprietor
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<b>Certificate No</b>	<b>RLC25/BLR/SR/24/68-</b>	<b>Page No</b>	1 of 2
<b>Test Date</b>	03/09/2024	<b>Next Test Date</b>	02/09/2025
<b>Name of the Company</b>	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
<b>Location</b>	400/132KV GIS Sub-Station		
<b>System</b>	400KV GIS Teesta III Line Bay-3 (R3B)		

**Test Certificate For Peripheral Unit BB Protn. Relay [PUB]**

**1.0. Details:**

Make	Alstom
Type	P743
Model No.	P743916A6M0510K
Vx	110-250V.DC
	100-240V.AC
In	1/5A
Un.	100/110/115/120V
CTR	3000/1A
PTR	400KV/110V
Sl. No.	33406748/08/15

**2.0. Test Results:**

**a) Measurement Current Elements:**

Current Applied In (A. AC)	Measured in (A.AC)		
	R	Y	B
0.5	1500.04	1500.01	1499.99
1.0	3000.03	3000.04	3000.02

**Voltage Elements:**

Phase	Voltage Applied In (V.AC)	Measured in (KV.AC)	
		To Be	Found
RY	110.0	400.0	400.04
YB	110.0	400.0	400.01
BR	110.0	400.0	399.98

**Frequency Test:**

Frequency Applied in (Hz)	Frequency Measured In (Hz)
50	49.97

## b) Dead Zone Protection:

Current Setting In (KA.AC)	Pick up in (KA.AC)	Time Setting in (m.Sec)	Time Taken in (m.Sec)
2.76	2.76	50.0	77.0

## c) STABLE CONDITION: (ICT 1 PUA –LINE1 PUA)

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	180°	Stable
Y	1.0	-120°	1.0	60°	Stable
B	1.0	120°	1.0	300°	Stable

## d) UNSTABLE CONDITION: (ICT 1 PUA –LINE 1 PUA)

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	0°	Unstable
Y	1.0	-120°	1.0	-120°	Unstable
B	1.0	120°	1.0	120°	Unstable

## e) CB FAIL:

Current Setting In (A.AC)	Pick up in (A.AC)	TS1 In (m Sec)	TS2 In (m Sec)	External TS3 In (m Sec)	TS4 In (m Sec)
600.0	600.0	50.0	200.0	50.0	200.0

## 3.0. Accuracy &amp; Status:

Accuracy	Status
With In The Limit	Tested Good

Test Engineer	For Customer Representative	For RELTEC Engineers
		Proprietor

## Anx-B.2.6

Ref. No.: ER-I/PAT/AM/TL

Date : 20.09.2024

To,  
Member Secretary,  
Eastern Regional Power Committee,  
14, Golf Club Road, Tollygunj, Kolkata-700033

**Sub: Agenda points for 219<sup>th</sup> OCC meeting scheduled to be held on 24.09.2024 at ERPC, Kolkata.**

Dear Sir,

We propose the following agenda points for discussion and clearance in the forthcoming 219th OCC meeting scheduled to be held on 24.09.2024 at ERPC, Kolkata:

**Consideration of outage as deemed available taken for the purpose of Insulator cleaning of various Transmission Lines:** Tripping and insulator de-capping of various Transmission Lines has been observed during winter season in foggy weather condition and resulted in reduced reliability of system. The major cause of tripping analyzed as insulator flashover due to pollution deposition. To avoid similar events in the upcoming winter season, vulnerable areas have been identified, where the insulators are getting polluted due to either bird beats, brick kiln, stone quarry, Road construction or industrial area (List enclosed as Anx-1). The insulator under these areas needs to be cleaned as a precautionary measure prior to upcoming foggy weather condition.

The insulator cleaning activity was also taken up last year (Oct to Dec'23) and same has resulted in improved performance and less tripping of transmission line during foggy weather condition as shown in below table (details attached as Anx-2):


Winter Period'2023	No. of Tripping/AR	Winter Period'2024	No. of Tripping/AR	% Reduction
Dec to Feb	34	Dec to Feb	9	73.50 %

These trippings / de-capping are occurring due to pollutions and dense fog which is beyond the control of POWERGRID. For preventing the unwanted tripping due to pollution, we have planned for cleaning of the insulators of affected locations of Transmission lines as mentioned in Anx-1 during October to December'2024. As these outages are being proposed for preventing from tripping of the Transmission line due to pollution which is beyond the control of POWERGRID and to improve the system reliability during foggy weather condition, the outage may be considered under force majeure condition for calculation of availability.

Kind attention of ERPC and constituents of ER are invited towards approval of the above proposal.

Thanking you.

Yours faithfully,

  
(A.K. Pandey)  
20.09.24  
CGM (AM)

### Shutdown proposed for insulator Cleaning

S.L.	Line Name	No. of Days (ODB)
1	400kV Biharsharif Balia ckt#1	1
2	400kV Biharsharif Balia ckt#2	1
3	400kV Biharsharif Sasaram ckt#1	1
4	400kV Biharsharif Sasaram ckt#2	1
5	400kV Biharsharif Varanasi ckt#1	1
6	400kV Biharsharif Varanasi ckt#2	1
7	400kV Biharsharif Koderma ckt#1	1
8	400kV Biharsharif Koderma ckt#2	1
9	400kV Biharsharif Muzaffarpur ckt#1	1
10	400kV Biharsharif Muzaffarpur ckt#2	1
11	400kV Lakhisarai Biharsharif ckt#1	1
12	400kV Lakhisarai Biharsharif ckt#2	1
13	400kV Sasaram Daltonganj ckt#1	1
14	400kV Sasaram Daltonganj ckt#2	1
15	765kV Gaya Varanasi ckt#1	1
16	765kV Gaya Varanasi ckt#2	1
17	765 Gaya Balia	1
18	400kV Gaya Maithon ckt#1	1
19	400kV Gaya Maithon ckt#2	1
20	400kV Jamshedpur Baripada	1
21	400kV TISCO Baripada	1
22	400kV Jamshedpur TISCO	1
23	400kV Jamshedpur Chaibasa ckt#1	1
24	400kV Jamshedpur Chaibasa ckt#2	1
25	400kV Chibasa Rourkela ckt#1	1
26	400kV Chibasa Rourkela ckt#2	1
27	400kV Ranchi Rourkela ckt#1	1
28	400kV Ranchi Rourkela ckt#2	1
29	765kV New Ranchi-Dharamajayagarh ckt#1	1
30	765kV New Ranchi-Dharamajayagarh ckt#2	1
31	400kV Barh Patna ckt#1	1
32	400kV Barh Patna ckt#2	1
33	400kV Patna Saharsa ckt#1	1
34	400kV Patna Saharsa ckt#2	1
35	400kV Sasaram Varanasi	1
36	400kV Sasaram Allahabad	1
37	400kV Nabinagar Sarsaram ckt#1	1
38	400kV Nabinagar Sarsaram ckt#2	1
39	400kV Ranchi Raghunathpur ckt#1	1
40	400kV Ranchi Sipat ckt#1	1
41	400kV Ranchi Sipat ckt#2	1
42	400kV Naubatpur Balia ckt#1	1
43	400kV Naubatpur Balia ckt#2	1
44	400kV Patna Balia ckt#1	1
45	400kV Patna Balia ckt#2	1
46	400kV Kahalgaon Lakhisarai ckt#1	1
47	400kV Kahalgaon Lakhisarai ckt#2	1

*समीप*

Name of Transmission Line	No. of trippings /AR during winter 2022 (01.12.2022 to 28.02.2023)	No. of trippings /AR during winter 2023 (01.12.2023 to 28.02.2024)
765kV SASARAM-FATEHPUR	5	0
400kV DALTONGANJ- SASARAM-1	0	0
400kV DALTONGANJ- SASARAM-2	1	0
400kV SASARAM-VARANASI	1	0
400kV RANCHI-ROURKELA-2	0	1
400kV RANCHI-ROURKELA-1	1	0
400kV NAUBATPUR BALIA CKT-1	0	0
400kV NABINAGAR(BRBCL)-SASARAM-2	1	2
400kV KISHANGANJ-SAHARSA-2	0	0
400kV KISHANGANJ-SAHARSA-1	0	0
400kV KODERMA(DVC)-BIHARSHARIF-1	2	1
400kV KODERMA(DVC)-BIHARSHARIF-2	4	2
400 kV TATA DVC-BARIPADA-1	5	0
400kV GAYA MAITHON-1	0	0
400kV GAYA MAITHON-2	0	0
400kV BIHARSHARIF-SASARAM-1	0	0
400kV BIHARSHARIF-SASARAM-2	2	1
400kV BIHARSHARIF-MUZAFFARPUR-2	0	1
400 kV BIHARSHARIF-BALIA-1	1	0
400 kV BIHARSHARIF-BALIA-2	4	0
400kV BARH(NTPC)-PATNA-1	3	0
400kV BARH(NTPC)-PATNA-2	0	0
400kV BARH(NTPC)-MOTIHARI(DMTCL)-1	2	0
400kV BARH(NTPC)-MOTIHARI(DMTCL)-2	2	1
Total	34	9
% Reduction in tripping/AR in 2023 w.r.t 2022		73.5

सुदीप

## Annex B.2.7



भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
केन्द्रीय विद्युत प्राधिकरण  
Central Electricity Authority  
विद्युत संचार विकास प्रभाग  
Power System Communication Development Division  
\*\*\*\*\*

To,

As per list enclosed

**Subject: Committee to formulate comprehensive guidelines for the usage and sharing of optical fibers of Optical Ground Wire (OPGW) for power system applications – reg**

महोदय / Sir,

The first meeting of the Committee to formulate comprehensive guidelines for the usage and sharing of optical fibers of OPGW for power system applications was held via VC (MS Teams) on 09.08.2024 (Friday).

The Minutes of the meeting are enclosed herewith.

PCD Division, CEA acknowledges the prompt furnishing of written inputs by SRPC, NERPC and CTU. The same has been examined and will be incorporated in the Draft report.

Encl: As above

भवदीय/Yours' faithfully,

(S K Maharana)  
Chief Engineer (PCD)



To,

1. Member (PS), CEA, New Delhi
2. Chief Engineer , NPC, CEA, New Delhi
3. Chief Engineer, ET&I, CEA, New Delhi
4. Member Secretary, NRPC, New Delhi
5. Member Secretary, WRPC, Mumbai
6. Member Secretary, SRPC, Bengaluru
7. Member Secretary, ERPC, Kolkata
8. Member Secretary, NERPC, Shillong
9. Chairman & Managing Director, POWERGRID
10. Chairman & Managing Director, GRID INDIA
11. Chief Operating Officer. CTUIL
12. Chairman, UPPTCL, Uttar Pradesh
13. Managing Director, RVPNL
14. Chairman-cum-Managing Director, OPTCL, Odisha
15. Chairman & Managing Director, WBSETCL, West Bengal
16. Managing Director, GETCO, Gujarat
17. Managing Director, MPPTCL, Madhya Pradesh
18. Chairman & Managing Director, KSEBL, Kerala
19. Chairman & Managing Director, TANTRANSCO, Tamil Nadu
20. Chairman, AEGCL, Assam
21. Director General, EPTA, New Delhi

## **Minutes of the first meeting of the Committee to formulate comprehensive guidelines for the usage and sharing of optical fibers of OPGW for power system applications held on 09.08.2024**

List of participants is attached at Annexure-A

1.1. Member (Power Systems), CEA welcomed the Committee members and highlighted that on account of absence of any uniform framework regarding usage and sharing of OPGW fiber cores laid on transmission lines, several issues have been raised. This Committee has been constituted to develop comprehensive guidelines for the usage and sharing of optical fibers in power system applications. In this first meeting, the focus will be on reviewing current practices followed across various STUs to optimize fiber usage for power system operations. The Committee's Terms of Reference are to resolve discrepancies in fiber routing, usage, and sharing.

### **1.2. Deliberations held:**

#### **1.2.1. Need of Guidelines, Allocation Requirements and Sharing Scenarios**

CTU made a detailed presentation on the recent issues pertaining to sharing of fibers that necessitates the formulation of uniform guidelines. It stated that arriving at a uniform decision for similar issues pertaining to usage of fibers and sharing in different regions and with different stakeholders becomes difficult on account of absence of any uniform framework. The following issues that have been dealt in recent times were presented by CTU:

- (1) Issues in sharing of requisite number of OPGW fibers by the main line owner after the reconfiguration of main line on account of LILO (Line In Line Out) by the different Licensees.
- (2) Non uniformity in fiber sharing among different TBCB licensees.
- (3) Inconsistency in fiber sharing between ISTS licensee and STUs for data communication and line protection purposes.
- (4) Conflicts in sharing of OPGW fibers laid under Unified Load Dispatch and Communication (ULDC) scheme on Intra-State lines and ownership issues post expiration of useful life of fiber.
- (5) Non availability of spare fibers post damage of fiber core being used for ULDC purposes.
- (6) Sharing of fibers of distribution licensee for ISTS and STU data communication purpose.

#### **Key points that emerged:**

- (1) The issues are being temporary mediated, as of now, at Regional Power Committee (RPC) level. However, in the absence of uniform guidelines, arriving at a decision in different cases becomes difficult.
- (2) Central Electricity Regulatory Commission (Sharing of Revenue Derived from Utilization of Transmission Assets for Other Business) Regulations, with prior intimation, permits the transmission licensee to utilize its transmission assets for other businesses. However, there is a caveat that transmission assets utilised for other businesses shall not, in any manner, adversely affect inter-State transmission of electricity.

- (3) Crucial aspect of Inter State Transmission of electricity is the real time operation and monitoring of grid for which backbone communication network comprising of OPGW fibers is a pre-requisite.
- (4) As far as utilization of fibers of OPGW is concerned, grid operation and reliability are the top most priority and needs to override all other business uses.
- (5) CERC, while approving the use of transmission systems, including OPGW, for commercial purposes, mandates that the safety and security of substations and transmission lines must be maintained. Any security breach is unacceptable and must be reported to the Commission immediately. This underscores the critical need for robust security measures when commercializing or sharing ISTS assets among different entities.
- (6) The issues arising out of inconsistencies in usage of OPGW fibers and sharing needs a streamlined approach. The technical aspect regarding how many fibers need to be kept reserved for grid monitoring, operation and protection purposes (hereafter referred to as power system application) and how many may be allowed for commercial business uses will be covered in Committee's Report and Guidelines. If still the issue arises, resolution needs to be mediated initially on mutual basis followed by escalating it at RPC level. If still unresolved, CEA needs to be approached. Any difference in interpretation of CERC Regulations and commercial grievances arising out of it, can be taken up at CERC level.
- (7) Uniform principle and approach for catering to sharing of OPGW fibers amongst Powergrid (ULDC scheme fibers), TBCB licensees and STU's can be finalized by the Committee. However, sharing of Underground Cable of DISCOMs for grid operation purposes needs separate discussion, with the participation of representatives of DISCOM.
- (8) STUs vary in their practices and opinions on the number of fibers to be reserved for power system applications while ensuring network redundancy. Generally, most of the STUs reserve six fiber cores—two for primary use, two for standby, and two as spares—to meet grid operation needs, excluding differential teleprotection requirements.
- (9) While planning the transmission scheme itself or while going for upgradation of OPGW fibers, enhanced number of cores can be planned, based on the opportunities of commercialization in that region.
- (10) The entity leasing out the OPGW fiber core on commercial basis, while formalizing the commercial arrangement needs to reserve the right to intervene, seek withdrawal or cease utilisation of spare fibers. if the utilization of the same for other commercial purposes adversely affects the grid operation in any manner.

**Decision taken:**

- (1) All the members to submit in written the current practice being followed vis-a-vis their view on the following:
  - a) Number of fibers to be reserved for power system applications, clearly stating number of fiber cores required for speech, data communication and for catering to teleprotection application including the spare fibers to be kept in case of any damage; future reconfiguration or sharing of OPGW infrastructure among ISTS and STU as required.  
While stating the current practice and requirements, members to specify the current OPGW network configuration (whether Multiplex Section Protection (MSP) or Sub-Network Connection Protection (SNCP) protocol is being used)
  - b) Number of OPGW fiber core to be planned while planning the new transmission scheme or carrying out existing communication infrastructure upgradation.
  - c) Principle of sharing of fiber cores of OPGW among Powergrid (owner of ULDC fibers), STU's and ISTS licensees (Powergrid as well as other TSPs).
- (2) CTU , Powergrid and GridIndia to submit their inputs in respect of need of utilization of underground fiber optic cable (UGFO) of DISCOMs for grid operation purposes. A separate meeting to be convened with the DISCOMs to deliberate upon principle of sharing of underground fiber optic cable (UGFO) laid by DISCOMs. CTU, Powergrid and GRID INDIA to mobilise their resources to compile the cases requiring the DISCOM's cooperation and coordinate with DISCOMs for the above meeting.

**1.2.2. Integration of Fiber Optic Terminal Equipment (FOTE) for differential protection in accordance with the C37.94 protocol****Key points that emerged:**

- (1) Need for differential protection arises for transmission lines of short length , primarily at 220 kV level and below . However, sometimes, after reconfiguration on account of LILO of long lines, the need for differential protection on one of the sections arises.
- (2) While STU's like GETCO have implemented Fiber Optic Terminal Equipment (FOTE) based Differential protection utilizing the bandwidth itself; however utilities and licensees like TANTRANSOCO, KSEBL and Powergrid carry out the same using separate fiber cores. For differential protection of a single feeder, 2 pair of fibers are utilized for differential protection after accounting for redundancy.
- (3) Powergrid highlighted one of the use cases wherein M/s Kallam Transmission Limited (KTL) after LILOing of Pugalur (HVDC) – Pugalur (HVAC) line of Powergrid at Kallam Pooling Station (PS) initially implemented differential protection on 400 kV D/C Pugalur (HVDC) - Karur PS section (less than 30 km) using 6 separate fibers. However, subsequently, they followed-up with OEM(s) for carrying out suitable modifications in relay and FOTE to enable differential protection through FOTE over C37.94 protocol.

**Decision taken:**

- (1) Powergrid to submit a report based on use case of LILO of Pugalur (HVDC) – Pugalur (HVAC) line of Powergrid at Kallam PS pertaining to operational nuances and efficiency of carrying out Fiber Optic Terminal Equipment (FOTE) based differential protection in accordance with C37.94 protocol.
- (2) The Committee while finalizing the number of fibers to be reserved for power system applications will take into account the length of the line and the feedback from the operational experience of the above used case.

**1.2.3. Uniform mechanism of routing of OPGW fibers in case of LILO/reconfiguration of the transmission line.****Key points that emerged:**

- (1) As per current practice, STU's like GETCO follows the practice of routing all the fiber cores of OPGW through the LILO node instead of partially splicing the same. However, in cases when few fiber cores of OPGW on the main line are leased out on commercial basis, those commercialized cores are not spliced and are left intact.
- (2) ISTS Licensees like Powergrid carry out routing of all the fiber cores through the LILO node in case of LILO of D/c line as it involves dismantling of few towers as well. However for S/c line, they opt for partial splicing.
- (3) While carrying out routing of fibers through the LILO node, it needs to be ensured that FOTE installed at all the nodes are compatible.
- (4) In case of LILO of the main line at a new node, there are two approaches that can be followed for communication of data and speech signals of new node. Firstly, either the same fibers carrying the communication data of the main line be provisioned to carry the communication data of the new node as well. Second approach is to allocate the separate fiber pairs to the licensee/party implementing the new S/stn and LILO.
- (5) With the implementation of Unified Network Management System (UNMS), the necessity to opt for FOTE of same make may be done away with. However, interoperability of FOTE of different makes and their compatibility to integrate with UNMS will be required.
- (6) While routing the fibers through LILO node, link budget requirement needs to be maintained. TSP implementing the new node needs to provide new suitable optical interfaces/cards in the FOTE at existing nodes as well, in case the link budget requirement is not met with the existing Optical interfaces.

**Decision taken:**

- (1) All the members to submit their views regarding the mechanism of routing of OPGW fibers in case of LILO/rerouting is taken up on any existing transmission line. The suggestion needs to be made in light of the fact that routing philosophy will also impact the number of fibers to be kept reserved for future LILOs.

1.3. With the above key points and corresponding decisions, the meeting concluded with a note that all the members will actively contribute in providing the inputs. Based on the inputs received, CEA will circulate a draft Report which will be deliberated in the next meeting.

The meeting ended with thanks to the chair.

\*\*\*\*\*

**Annexure A****List of Participants**

<b>S.no</b>	<b>Members</b>	<b>Name</b>	<b>Organisation/Association</b>
1.	Member (Power Systems) (Chair)	Shri A K Rajput	CEA
2.	Chief Engineer, PCD	Shri S K Maharana	CEA
3.	Chief Engineer, NPC	Smt. Rishika Saran	CEA
4.	Chief Engineer, ET & I	Not present	CEA
5.	Member Secretary, RPCs	Shri V K Singh,	NRPC
		Shri Asit Singh	SRPC
		Shri Deepak Kumar	WRPC
		Shri N S Mondal	ERPC
		Shri K B Jagtap	NERPC
	Other Representatives from RPCs	Shri D N Gawali	WRPC
		Shri Sandeep	WRPC
		Shri Praveen Jangra	NRPC
		Shri Dilip Khuntia	ERPC
6.	Executive Director, CTU	Shri Shiv Kumar Gupta on behalf of ED, CTU	CTU
7.	Executive Director, Grid India	Shri Ankur Gulati and Shri Paritosh on behalf of ED, GridIndia	GridIndia
8.	Executive Director, Powergrid	Shri Vishal Singh on behalf of Shri Doman Yadav	Powergrid
9.	Representative of Electric Power Transmission Association – 2 TSPs	Shri Sanjay Johari	Adani Energy Solutions
		Shri Vivek Kartikeyan	Sterlite Power
10.	Representative from STUs (at the level of Chief Engineer or equivalent)	Shri B K Mallick	OPTCL
		Shri Prabodh Biswal	OPTCL
		Shri S Kanika Parameswari	TANTRANSCO
		Shri R K Gupta	MPPTCL
		Smt Kshama Shukla	MPPTCL
		Shri Arup Sarmah	AEGCL
		Smt Punam Biswakarma	AEGCL
		Shri Viju Rajan John	KSEBL
		Shri K P Rafeeqe	KSEBL
Shri N K Patel	GETCO		
11	Special Invitee from PSETD Division, CEA	Shri Bhanwar Singh Meena	PSETD, CEA
12	PCD Division Officers	Miss Priyam Srivastava	PCD,CEA
		Shri Akshay Dubey	PCD, CEA
		Shri Arjun Agarwal	PCD, CEA





# Annex B.2.10

Sl.NO	Item Description	Unit	Qty.	Unit Ex-works price (excluding GST)	F&I	Service	Total Supply	total Service
<b>Main Control Centre</b>								
1	NETWORK RESOURCE MANAGEMENT (INVENTORY MANAGEMENT SYSTEM, NETWORK INVENTORY DISCOVERY, NETWORK CIRCUIT/SERVICE DISCOVERY, NETWORK TOPOLOGY DISCOVERY ETC.)	LOT	1	21375000		641250	21375000	641250
2	DESIGN, ASSIGN, ACTIVATION/PROVISIONING, CONFIGURATION, NETWORK PLANNING AUTOMATION AND RE-ENGINEERING SYSTEM (CIRCUIT/SERVICE PATH COMPUTATION SYSTEM, CIRCUIT/SERVICE PATH ACTIVATION SYSTEM, NETWORK RE-ENGINEERING SYSTEM, NETWORK CONFIGURATION SYSTEM, NETWORK PLANNING AUTOMATION SYSTEM ETC.)	LOT	1	33250000		997500	33250000	997500
3	FAULT MANAGEMENT SYSTEM (FAULT MANAGEMENT SOFTWARE, ROOT CAUSE ANALYSIS (RCA), SERVICE IMPACT ANALYSIS (SIA), ANALYTICS WITH PREDICTION ETC.)	LOT	1	21375000		641250	21375000	641250
4	PERFORMANCE MANAGEMENT SYSTEM (PERFORMANCE MANAGEMENT, THRESHOLD BASED MONITORING, SERVICE LEVEL AGREEMENT (SLA) MONITORING ETC.)	LOT	1	19000000		570000	19000000	570000
5	TROUBLE TICKETING SYSTEM (INCIDENT MANAGEMENT SYSTEM AND WEB PORTAL)	LOT	1	10687500		320625	10687500	320625
6	REPORTING & DASH BOARDING SYSTEM	LOT	1	2375000		71250	2375000	71250
7	DATABASE SOFTWARE (DB)	LOT	1	1721059		51632	1721059	51632
8	Operating System for all the servers envisaged and required under the project	LOT	1	2803248		84097	2803248	84097
9	BACKUP & RESTORE SOFTWARE	LOT	1	1582939		47488	1582939	47488
10	HOT BASED IDS FOR ALL MACHINES	LOT	1	2721600		81648	2721600	81648
11	SOFTWARE FOR DATA REPLICATION SERVER	LOT	1	5400000		162000	5400000	162000
12	Software for Configuration management Server cum centralised management console	LOT	1	18035352		541061	18035352	541061
13	Web Server Application Software - Web Server system	LOT	1	1187500		35625	1187500	35625
14	Antivirus Software	LOT	1	250000		7500	250000	7500
15	IDENTITY MANAGEMENT SOFTWARE ALONG WITH PATCH MANAGEMENT SOFTWARE	LOT	1	2483946		74518	2483946	74518
16	SMS/EMAIL ESCALATION SOFTWARE LICENSE FOR ALL U-NMS MODULES (AS APPLICABLE)	LOT	1	475000		14250	475000	14250
17	SOFTWARE ADAPTERS FOR ANY MAKE/TECHNOLOGY NETWORK ELEMENT (NE)	LOT	1	4750000		142500	4750000	142500
18	INTEGRATION BUS FOR CONNECTING ALL OF ABOVE SOFTWARE MODULES	LOT	1			0	0	0
19	SOFTWARE FOR STORAGE AREA NETWORK (SAN) AND NETWORK ATTACHED STORAGE (NAS)	LOT	1			0	0	0
20	Information Storage & Retrieval System - Data Historian Software	LOT	1	4050000		121500	4050000	121500
21	SOFTWARE FOR DEVELOPMENT SERVER FOR SIMULATION, TESTING AND TRAINING	LOT	1	4320000		129600	4320000	129600
22	SERVICES FOR NETWORK RESOURCE (DISCOVERY & INVENTORY) MANAGEMENT	EA	2	640000	8960	19200	1280000	38400
	SERVICES FOR DESIGN, ASSIGN, ACTIVATION/PROVISIONING, CONFIGURATION, NETWORK PLANNING AUTOMATION AND RE-ENGINEERING SYSTEM	EA	2	640000	8960	19200	1280000	38400
23	SERVICES FOR FAULT MANAGEMENT SYSTEM	EA	2	640000	8960	19200	1280000	38400
24	SERVICES FOR PERFORMANCE MANAGEMENT SYSTEM	EA	2	640000	8960	19200	1280000	38400
25	SERVICES FOR TROUBLE TICKETING SYSTEM (ITIL V3 COMPLIANT)	EA	2	640000	8960	19200	1280000	38400
26	SERVICES FOR REPORTING & DASH BOARDING SYSTEM	EA	2	640000	8960	19200	1280000	38400
27	Web Server System	EA	2	640000	8960	19200	1280000	38400
28	Configuration management Server cum centralised management console	EA	2	540000	7560	16200	1080000	32400
29	Data Replica Server	EA	2	640000	8960	19200	1280000	38400
30	ANTIVIRUS MANAGEMENT SERVER	EA	2	540000	7560	16200	1080000	32400
31	IDENTITY AND PATCH MANAGEMENT SERVER	EA	2	540000	7560	16200	1080000	32400
32	Storage Area Network (SAN) based Storage	EA	2	5847672	81867	175430	11695344	350860
33	Data Historian Server	EA	2	640000	8960	19200	1280000	38400
34	DEVELOPMENT SERVER FOR SIMULATION, TESTING AND TRAINING	EA	1	640000	8960	19200	640000	19200
35	Network Attached Storage (NAS)	LOT	1	1100108	15402	33003	1100108	33003
36	POWER CABLES, CONNECTORS , MCBS , UTP CABLE, JACKS, MOUNTING CORDS, PATCH CORDS AND ALL OTHER INSTALLATION HARDWARE/SOFTWARE AND ACCESSORIES REQUIRED FOR SETTING UP THE U-NMS SYSTEM	LOT	1				0	0
37	44U SERVER RACK/PANELS WITH IP Based KVM SWITCH & RACK MOUNTED MONITOR	LOT	1	1000000	14000	30000	1000000	30000
38	Workstation Console integrated with dual 24inchÂ TFT Monitors along with OS & license	EA	2	133591	1870	4008	267182	8016
39	WORKSTATION CONSOLE WITH ONE TFT WITH OS AND LICENSE	EA	1	122654	1717	3680	122654	3680
40	PROCESSOR TERMINAL -LAPTOP	EA	1	302935	4241	9088	302935	9088
41	WAN ROUTERS AT SERVER LOCATION END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS, 8X1 GBPS ETHERNET PORTS)	EA	6	1995184	27933	59856	11971104	359136
42	WAN ROUTERS FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS , 4X1 GBPS ETHERNET PORTS)	EA	4	1995184	27933	59856	7980736	239424
43	24 PORT L-3 LAN SWITCH FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS AND 8X1 GBPS ETHERNET PORTS )	EA	4	185760	2601	5573	743040	22292
44	24 PORT L-3 LAN SWITCH FOR SERVER LOCATION (MINIMUM 8X10 GBPS FIBRE OPTIC PORTS , 16X1 GBPS ETHERNET PORTS )	EA	14	293760	4113	8813	4112640	123382
45	INTERNAL FIREWALL WITH IDPS FOR SERVER LOCATION (MINIMUM 8X10 GBPS FIBRE OPTIC PORTS AND 8X1 GBPS)	EA	2	2400000	33600	72000	4800000	144000
46	EXTERNAL FIREWALL WITH IDPS FOR SERVER LOCATION (MINIMUM 8X10 GBPS FIBRE OPTIC PORTS AND 8X1 GBPS ETHERNET PORTS)	EA	2	10437135	146120	313114	20874270	626228
47	INTERNAL FIREWALL WITH IDPS FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS AND 4X1 GBPS ETHERNET PORTS)	EA	4	1166000	16324	34980	4664000	139920
48	EXTERNAL FIREWALL WITH IDPS FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS AND 4X1 GBPS ETHERNET PORTS)	EA	4	3258452	45618	97754	13033808	391016
49	Color Laser Printer	EA	1	264600	3704	7938	264600	7938
50	U-TYPE OPERATOR MOTORIZED WORKSTATION DESK	EA	1	636123	8906	19084	636123	19084
51	U-TYPE OPERATOR NORMAL WORKSTATION DESK	EA	1	94554	1324	2837	94554	2837
52	Workstation Desk	EA	1	83596	1170	2508	83596	2508
53	Chairs	LOT	3	9229	129	277	27687	831
54	40 KVA (32KW AT 0.8 PF) UPS RUNNING IN PARALLEL	SET	2	507600	7106	15228	1015200	30456
55	VRLA TYPE BATTERY BANKS FOR ABOVE UPS (EACH BANK OF 76.8 KVAH)	LOT	2	1078272	15096	32348	2156544	64696
56	Input ACDB (150 kV A rating)	EA	1	941760	13185	28253	941760	28253
57	Output ACDB (100 kVA rating)	EA	1	278000	3892	8340	278000	8340
58	ACCESSORIES FOR MAINTENANCE OF VRLA TYPE BATTERIES	LOT	1	35640	499	1069	35640	1069
59	POWER DISTRIBUTION AND CABLING WORK REQUIRED TO ESTABLISH UPS	LOT	1	162000		4860	162000	4860
60	UPS Monitoring System	LOT	1	400000	5600	12000	400000	12000
61	Isolation Transformer of double the UPS rating	LOT	1	345600	4838	10368	345600	10368
62	GPS Clock with antenna	EA	1	153360	2141	4601	153360	4601
63	TIME AND SYSTEM AVAILABILITY DISPLAY	EA	1	88981	1246	2669	88981	2669
64	Workstation Console integrated with dual 24inchÂ TFT Monitors along with OS & license	EA	4	133591	1870	4008	534364	16032

66	WORKSTATION CONSOLE WITH ONE TFT WITH OSAND LICENSE	EA	2	122654	1717	3680	245308	7360
67	Color Laser Printer	EA	2	264600	3704	7938	529200	15876
68	U-TYPE OPERATOR NORMAL WORKSTATION DESK	EA	4	94554	1324	2837	378216	11348
69	Workstation Desk	EA	2	83596	1170	2508	167192	5016
70	Chairs	LOT	6	9229	129	277	55374	1662
71	TIME AND SYSTEM AVAILABILITY DISPLAY	EA	2	88981	1246	2669	177962	5338
72	Integration of five Regional main & Backup UNMS with National Main & Backup UNMS-	LOT	5	4000000			40000000	0
73	Reverse proxy system	SET	2					0
74	Forward proxy system	SET	2					0
75	Email security system	SET	2					0
76	Web application and API protection system	SET	2					0
77	Integration of five Regional main & Backup UNMS with National Main & Backup UNMS-	LOT	5					0
78	Advance Planning Tool	LOT	1					0
79	Training- Computer System Hardware	LOT	1			195333	0	195333
80	Training- Service Fulfilment System	LOT	1			142667	0	142667
81	Training Service Assurance System	LOT	1			142667	0	142667
82	Training Reporting & Dash Boarding System, Incident Management System and Web Portal	LOT	1			142667	0	142667
<b>Back-up Control Centre</b>								
84	NETWORK RESOURCE MANAGEMENT (INVENTORY MANAGEMENT SYSTEM, NETWORKINVENTORY DISCOVERY, NETWORK CIRCUIT/SERVICE DISCOVERY,NETWORKTOPOLOGY DISCOVERY ETC.)	LOT	1	21375000		641250	21375000	641250
85	DESIGN, ASSIGN, ACTIVATION/PROVISIONING, CONFIGURATION, NETWORKPLANNING AUTOMATION AND RE-ENGINEERING SYSTEM (CIRCUIT/SERVICE PATHCOMPUTATION SYSTEM, CIRCUIT/SERVICE PATH ACTIVATION SYSTEM, NETWORKRE-ENGINEERING SYSTEM, NETWORK CONFIGURATION SYSTEM, NETWORK PLANNING AUTOMATION SYSTEM ETC.)	LOT	1	33250000		997500	33250000	997500
86	FAULT MANAGEMENT SYSTEM (FAULT MANAGEMENT SOFTWARE, ROOT CAUSEANALYSIS (RCA), SERVICE IMPACT ANALYSIS (SIA), ANALYTICS WITHPREDICTION ETC.)	LOT	1	21375000		641250	21375000	641250
87	PERFORMANCE MANAGEMENT SYSTEM (PERFORMANCE MANAGEMENT, THRESHOLD BASEDMONITORING, SERVICE LEVEL AGREEMENT (SLA) MONITORING ETC.)	LOT	1	19000000		570000	19000000	570000
88	TROUBLE TICKETING SYSTEM (INCIDENT MANAGEMENT SYSTEM AND WEB PORTAL)	LOT	1	10687500		320625	10687500	320625
89	REPORTING & DASH BOARDING SYSTEM	LOT	1	2375000		71250	2375000	71250
90	DATABASE SOFTWARE (DB)	LOT	1	1721059		51632	1721059	51632
91	Operating System for all the servers envisaged and required under the project	LOT	1	2803248		84097	2803248	84097
92	BACKUP & RESTORE SOFTWARE	LOT	1	1582939		47488	1582939	47488
93	HOT BASED IDS FOR ALL MACHINES	LOT	1	2721600		81648	2721600	81648
94	SOFTWARE FOR DATA REPLICIA SERVER	LOT	1	5400000		162000	5400000	162000
95	Software for Configuration management Server cum centralised management console	LOT	1	18035352		541061	18035352	541061
96	Web Server Application Software - Web Server system	LOT	1	1187500		35625	1187500	35625
97	Antivirus Software	LOT	1	250000		7500	250000	7500
98	IDENTITY MANAGEMENT SOFTWARE ALONG WITH PATCH MANAGEMENT SOFTWARE	LOT	1	2483946		74518	2483946	74518
99	SMS/EMAIL ESCALATION SOFTWARE LICENSE FOR ALL U-NMS MODULES (ASAPPLICABLE)	LOT	1	475000		14250	475000	14250
100	SOFTWARE ADAPTERS FOR ANYMAKE/TECHNOLOGY NETWORK ELEMENT (NE)	LOT	1	4750000		142500	4750000	142500
101	NETWORK MANAGER & ELEMENT MANAGER SYSTEM - SOFTWARE	SET	1	10800000		324000	10800000	324000
102	INTEGRATION BUS FOR CONNECTING ALL OF ABOVE SOFTWARE MODULES	LOT	1				0	0
103	SOFTWARE FOR STORAGE AREA NETWORK (SAN) AND NETWORK ATTACHED STORAGE (NAS)	LOT	1				0	0
104	Information Storage & Retrieval System - Data Historian Software	LOT	1	4050000		121500	4050000	121500
105	SOFTWARE FOR DEVELOPMENT SERVER FOR SIMULATION, TESTING AND TRAINING	LOT	1	4320000		129600	4320000	129600
106	SERVERS FOR NETWORK RESOURCE (DISCOVERY & INVENTORY) MANAGEMENT	EA	2	640000	8960	19200	1280000	38400
	SERVERS FOR DESIGN, ASSIGN, ACTIVATION/PROVISIONING, CONFIGURATION, NETWORK PLANNING AUTOMATION AND RE-ENGINEERING SYSTEM	EA	2	640000	8960	19200	1280000	38400
107	SERVERS FOR FAULT MANAGEMENT SYSTEM	EA	2	640000	8960	19200	1280000	38400
108	SERVERS FOR PERFORMANCE MANAGEMENT SYSTEM	EA	2	640000	8960	19200	1280000	38400
109	SERVERS FOR TROUBLE TICKETING SYSTEM (ITIL V3 COMPLIANT)	EA	2	640000	8960	19200	1280000	38400
110	SERVERS FOR REPORTING & DASH BOARDING SYSTEM	EA	2	640000	8960	19200	1280000	38400
111	Web Server System	EA	2	640000	8960	19200	1280000	38400
112	Configuration management Server cum centralised management console	EA	2	540000	7560	16200	1080000	32400
113	Data Replica Server	EA	2	640000	8960	19200	1280000	38400
114	ANTIVIRUS MANAGEMENT SERVER	EA	2	540000	7560	16200	1080000	32400
115	IDENTITY AND PATCH MANAGEMENT SERVER	EA	2	540000	7560	16200	1080000	32400
116	Storage Area Network (SAN) based Storage	EA	2	5847672	81867	175430	11695344	350860
117	Data Historian Server	EA	2	640000	8960	19200	1280000	38400
118	DEVELOPMENT SERVER FOR SIMULATION, TESTING AND TRAINING	EA	1	640000	8960	19200	640000	19200
119	Network Attached Storage (NAS)	LOT	1	1100108	15402	33003	1100108	33003
120	POWER CABLES, CONNECTORS , MCB'S , UTP CABLE, JACKS, MOUNTING CORDS, PATCH CORDS AND ALL OTHER INSTALLATION HARDWARE/SOFTWARE AND ACCESSORIES REQUIRED FOR SETTING UP THE U-NMS SYSTEM	LOT	1	1000000	14000	30000	1000000	30000
121	44U SERVER RACK/PANELS WITH IP Based KVM SWITCH & RACK MOUNTED MONITOR	LOT	1					
122	NETWORK MANAGER & ELEMENT MANAGER SYSTEM - HARDWARE	SET	1	640000	8960	19200	640000	19200
123	Workstation Console integrated with dual 24inch TFT Monitors along with OS & license	EA	4	133591	1870	4008	534364	16032
124	WORKSTATION CONSOLE WITH ONE TFT WITH OSAND LICENSE	EA	3	122654	1717	3680	367962	11040
125	Remote Console wall mounted 55" screen	EA	2	589510	8253	17685	1179020	35370
126	PROCESSOR TERMINAL - LAPTOP	EA	1	302935	4241	9088	302935	9088
127	55 INCH (4*3) VIDEO WALL WITH CPU (WITH PROPER MOUNTING)	EA	1	5940000	83160	178200	5940000	178200
128	Workstation Console integrated with dual 24inch TFT Monitors along with OS & license	EA	8	133591	1870	4008	1068728	32064
129	WORKSTATION CONSOLE WITH ONE TFT WITH OSAND LICENSE	EA	4	122654	1717	3680	490616	14720
130	WAN ROUTERS FOR STATE END (MINIMUM 4X10GBPS FIBRE OPTIC PORTS ,A, 4X1GBPS ETHERNET PORTS)	EA	8	1995184	27933	59856	15961472	478848
131	WAN ROUTERS AT SERVER LOCATION END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS ,A, 8X1 GBPS ETHERNET PORTS)	EA	6	1995184	27933	59856	11971104	359136
132	24 PORT L-3 LAN SWITCH FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS AND 8X1 GBPS ETHERNET PORTS )	EA	8	185760	2601	5573	1486080	44584
133	24 PORT L-3 LAN SWITCH FOR SERVER LOCATION (MINIMUM 8X10 GBPS FIBRE OPTIC PORTS, 16X1 GBPS ETHERNET PORTS)	EA	14	293760	4113	8813	4112640	123382
134	INTERNAL FIREWALL WITH IDPS FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS AND 4X1 GBPS ETHERNET PORTS)	EA	8	1166000	16324	34980	9328000	279840
135	EXTERNAL FIREWALL WITH IDPS FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTIC PORTS AND 4X1 GBPS ETHERNET PORTS)	EA	8	3258452	45618	97754	26067616	782032
136	INTERNAL FIREWALL WITH IDPS FOR SERVER LOCATION (MINIMUM 8X10 GBPS FIBRE OPTIC PORTS AND 8X1 GBPS)	EA	2	2400000	33600	72000	4800000	144000
137	EXTERNAL FIREWALL WITH IDPS FOR SERVER LOCATION (MINIMUM 8X10 GBPS FIBRE OPTIC PORTS AND 8X1 GBPS ETHERNET PORTS)	EA	2	10437135	146120	313114	20874270	626228
138	Color Laser Printer	EA	1	264600	3704	7938	264600	7938
139	Color Laser Printer	EA	4	264600	3704	7938	1058400	31752
140	U-TYPE OPERATOR MOTORIZED WORKSTATION DESK	EA	2	636123	8906	19084	1272246	38168
141	U-TYPE OPERATOR NORMAL WORKSTATION DESK	EA	1	94554	1324	2837	94554	2837
142	Workstation Desk	EA	4	83596	1170	2508	334384	10032
143	Chairs	LOT	7	9229	129	277	64603	1939
144	U-TYPE OPERATOR NORMAL WORKSTATION DESK	EA	8	94554	1324	2837	756432	22696

146	Workstation Desk	EA	4	83596	1170	2508	334384	10032
147	Chairs	LOT	12	9229	129	277	110748	3324
148	40 KVA (32KW AT 0.8 PF) UPS RUNNING IN PARALLEL	SET	2	587500	8225	17625	1175000	35250
149	VRLA TYPE BATTERY BANKS FOR ABOVE UPS (EACH BANK OF 76.8 KVAH)	LOT	2	1078272	15096	32348	2156544	64696
150	Input ACDB (150 kV A rating)	EA	1	941760	13185	28253	941760	28253
151	Output ACDB (100 kV A rating)	EA	1	278000	3892	8340	278000	8340
152	ACCESSORIES FOR MAINTENANCE OF VRLA TYPE BATTERIES	LOT	1	35640	499	1069	35640	1069
153	POWER DISTRIBUTION AND CABLING WORK REQUIRED TO ESTABLISH UPS	LOT	1	162000		4860	162000	4860
154	UPS Monitoring System	LOT	1	400000	5600	12000	400000	12000
155	Isolation Transformer of double the UPS rating	LOT	1	345600	4838	10368	345600	10368
156	GPS Clock with antenna	EA	1	153360	2147	4601	153360	4601
157	TIME AND SYSTEM AVAILABILITY DISPLAY	EA	1	88981	1246	2669	88981	2669
158	TIME AND SYSTEM AVAILABILITY DISPLAY	EA	4	88981	1246	2669	355924	10676
159	WAN ROUTERS FOR STATE END (MINIMUM 4X10GBPS FIBRE OPTIC PORTS ,Ä, 4X1GBPSETHERNET PORTS)	EA	2	1995184	27933	59856	3990368	119712
160	INTERNAL FIREWALL WITH IDPS FOR STATE END (MINIMUM 4X10 GBPS FIBREOPTIC PORTS AND 4X1 GBPS ETHERNET PORTS)	EA	2	2400000	33600	72000	4800000	144000
161	24 PORT L-3 LAN SWITCH FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTICPORTS AND 8X1 GBPS ETHERNET PORTS )	EA	2	185760	2601	5573	371520	11146
162	WORKSTATION CONSOLE WITH ONE TFT WITH OSAND LICENSE	EA	1	122654	1717	3680	122654	3680
163	U-TYPE OPERATOR NORMAL WORKSTATION DESK	EA	1	83596	1170	2508	83596	2508
164	Chairs	LOT	1	9229	129	277	9229	277
165	WAN ROUTERS FOR STATE END (MINIMUM 4X10GBPS FIBRE OPTIC PORTS ,Ä, 4X1GBPSETHERNET PORTS)	EA	2	1995184	27933	59856	3990368	119712
166	INTERNAL FIREWALL WITH IDPS FOR STATE END (MINIMUM 4X10 GBPS FIBREOPTIC PORTS AND 4X1 GBPS ETHERNET PORTS)	EA	2	2400000	33600	72000	4800000	144000
167	24 PORT L-3 LAN SWITCH FOR STATE END (MINIMUM 4X10 GBPS FIBRE OPTICPORTS AND 8X1 GBPS ETHERNET PORTS )	EA	2	185760	2601	5573	371520	11146
168	WORKSTATION CONSOLE WITH ONE TFT WITH OSAND LICENSE	EA	1	122654	1717	3680	122654	3680
169	U-TYPE OPERATOR NORMAL WORKSTATION DESK	EA	1	83596	1170	2508	83596	2508
170	Chairs	LOT	1	9229	129	277	9229	277
171	Integration of five Regional main & Backup UNMS with National Main & Backup UNMS-	LOT	5			40000000	40000000	0
172	Advance Planning Tool						0	0
173	Training- Computer System Hardware	LOT	1			390667	0	390667
174	Training- Service Fulfillment System	LOT	1			285333	0	285333
175	Training Service Assurance System	LOT	1			285333	0	285333
176	Training Reporting & Dash Boarding System, Incident Management System and Web Portal	LOT	1			285333	0	285333
<b>Total</b>							<b>676783523</b>	<b>19773548</b>

**Annexure BE-12**

Ref: CC-GA&C-URTDSM-Phase-II

3<sup>rd</sup> May 2024

To

The Chief Engineer & Member Secretary,  
National Power Committee Division, CEA,  
1<sup>st</sup> Floor, Wing-5, West Block-II, R K Puram,  
New Delhi-66

Kind attention: Smt. Rishika Sharan

**Subject: - Regarding optimization of DPR Cost for URTDSM Phase-II project.**

**Ref: Minutes of Meeting of 13<sup>th</sup> and 14<sup>th</sup> NPC and E-mail from NPC/CEA dated 18.04.2024.**

Respected Madam,

This is with reference to the 13<sup>th</sup> NPC meeting wherein POWERGRID was asked to prepare the DPR of URTDSM Phase-II project as per the recommendations in the report of "Sub-committee on uniform policy of PMU locations, new analytics and requirement of upgradation of control center".

POWERGRID has prepared the DPR and submitted to your good office vide our letter Ref no. C/CP/URTDSM Ph-II dated 11.03.2024. The DPR cost is estimated at Rs. 3922 Crores which includes AMC for 7 years also.

As advised during 14<sup>th</sup> NPC meeting held on 03.02.2024, POWERGRID deliberated with Grid-India for optimization of DPR cost on the points 9(d) to 9(h) of the 14<sup>th</sup> NPC Minutes. Grid-India has provided their inputs as per letter ref: GRID-INDIA/CC/Engineering dated 22.03.2024 (copy attached at **Annexure-I**). GRID India has proposed to fund their portion of control centers (NLDCs & RLDCs) through fees and charges mechanism.

Further, as per NPC Email dated 18.04.2024, the proposed modifications are attached as **Annexure-II**. The same shall be included in DPR after concurrence from NPC.

The following three options are proposed for optimization of the DPR cost estimate of URTDSM phase-II project.

<i>(Cost in Rupees Crores)</i>				
S No	Options	Brief Scope	Approximate DPR Cost incl. AMC	DPR Cost without the cost of NLDCs & RLDCs
1	Option-I	Upgradation of 34 Control centers with full system sizing and infrastructure and approx. 3000 No's new PMUs at only existing locations as per the PMU placement philosophy of Sub-committee report	Rs.3622 Cr	Rs. 2995 Cr
2	Option-II	Upgradation of 34 Control centers with full system sizing and infrastructure and without new PMUs.	Rs.2463 Cr	Rs.1836 Cr
3	Option-III	Implementation of approx. 3000 No's new PMUs at only existing locations as per the PMU placement philosophy of Sub-committee report	Rs.1159 Cr	

It is requested that a meeting may be arranged at NPC Level to deliberate and finalize the above suggested options so that DPR Cost shall be revised and put up to NPC again.

Thanking You.

Yours faithfully,



**Dr Sunita Chohan**  
 (Chief General Manager, GA&C)

**Copy to:**

1. ED, Engg Dept/NLDC, Grid-India
2. ED, GA&C Dept, POWERGRID.

# GMR Kamalanga Energy Limited

Ref: GKEL/GRIDCO/PPA/2024-25/0161

Date: 09.09.2024

Chief General Manager (PP),  
Grid Corporation of Orissa Ltd. (GRIDCO),  
Janpath, Bhoi Nagar,  
Bhubaneswar – 751022

Corporate Office:  
New Shakti Bhawan, Building  
No. 302 New Udaan Bhawan  
Complex  
Opp. Terminal-3, IGI Airport  
New Delhi – 110037  
CIN U40101KA2007PLC044809  
T +91 11 49882200  
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W www.gmrgroup.in

**Sub.: Intimation regarding change in Annual Overhauling Plan of Generating Unit of GKEL- regarding**  
**Refer: GKEL Letter of intimation no. GKEL/GRIDCO/PPA/2024-25/0147 dated 28.08.2024**

Dear Sir,

We would like to inform you that during the Financial Year 2024-25, the annual shutdown of Unit#3 had been planned from 16<sup>th</sup> September'24 for 25 days as intimated earlier (*refer Sl.No. 1*). However, due to mobilization constraint of GE India (Turbine Specialist Service), we are forced to postpone the AOH schedule to 5<sup>th</sup> October 2024.

Please find below the revised schedule of the AOH:

Unit	Capacity	Shutdown Period			Reason
		From	To	No of Days	
Unit#3	350 MW	05-10-2024	30-10-2024	25	Annual Overhauling

We request you to kindly take note of the above shutdown plan for your load planning during the shutdown period.

Thanking you

Yours Sincerely,  
For **GMR Kamalanga Energy Ltd.**



(Santu Pal)  
Head – PPA Management



CC: 1. CLD, SLDC



# Annex- B.2.15



भारत सरकार/ Government of India  
विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

प्रचालन निष्पादन प्रबोधन प्रभाग / Operation Performance Monitoring Division

File No. 15/2/CEA/GO&D/OPM/ 266-268

Dated: 10/09/2024

To,

Shri Pradyuman Prasad Sah,  
Chief General Manager & Project Head,  
Mejia Thermal Power Station,  
Durlavpur, P.O. MTPS, Bankura, West Bengal-722 183.

**विषय:** Online submission of Daily Generation Details over NPP Portal – के संबंध में।

Sir/Ma'am,

Under the relevant provision of The Electricity Act, 2003, Central Electricity Authority is entrusted with the responsibility to collect and record the data concerning the generation of power and publish various reports like Daily Generation Report, Monthly Generation Report, Thermal Performance Review etc. All these reports are prepared based on the information furnished by various generating stations/ utilities on a daily, monthly, and yearly basis in a time bound manner.

2. In this connection, your attention is invited to Section 74 of The Electricity Act 2003 and CEA (Furnishing of Statistics, Returns, and Information) Regulations, 2007, which stipulate that it shall be the duty of every licensee, generating company or person generating electricity for its or his own use; to furnish to Authority such statistics, returns or other information relating to the generation, transmission, distribution, trading, and use of electricity as it may require and at such times and in such form and manner as may be specified by the Authority.

3. **Daily Generation data is required to be submitted online over the National Power Portal, which is not initiated by your organisation as per our records. It is, therefore, requested to submit the Daily Generation Data online over the NPP portal regularly on daily basis.**

(Note: User ID & passwords for National Power portal has already been issued to all users. In case details are not available or any other issue regarding NPP, a request for the same with the Name of Nodal officer, email id and mobile no. may be sent to NIC on email id [npp.support@gov.in](mailto:npp.support@gov.in) with information to OPM Division on email id [dgrceaopm@gmail.com](mailto:dgrceaopm@gmail.com).)

Regards,

(अरुण कुमार / Arun Kumar)

निदेशक/ Director

प्रचालन निष्पादन प्रबोधन प्रभाग / OPM Division

Copy to:

1. Member Secretary (ERPC)
2. SA to Member (GO&D), CEA

20/9  
3/2(0)



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

प्रचालन निष्पादन प्रबोधन प्रभाग / Operation Performance Monitoring Division

File No. 15/2/CEA/GO&D/OPM/ 269-271

Dated: 10/09/2024

To,

The Chief Engineer,  
State Load Despatch Centre,  
Howrah, West Bengal-711 109.

**विषय:** Online submission of Daily Generation Details over NPP Portal – के संबंध में।

Sir/Ma'am,

Under the relevant provision of The Electricity Act, 2003, Central Electricity Authority is entrusted with the responsibility to collect and record the data concerning the generation of power and publish various reports like Daily Generation Report, Monthly Generation Report, Thermal Performance Review etc. All these reports are prepared based on the information furnished by various generating stations/ utilities on a daily, monthly, and yearly basis in a time bound manner.

2. In this connection, your attention is invited to Section 74 of The Electricity Act 2003 and CEA (Furnishing of Statistics, Returns, and Information) Regulations, 2007, which stipulate that it shall be the duty of every licensee, generating company or person generating electricity for its or his own use; to furnish to Authority such statistics, returns or other information relating to the generation, transmission, distribution, trading, and use of electricity as it may require and at such times and in such form and manner as may be specified by the Authority.

3. **Daily Generation data is required to be submitted online over the National Power Portal, which is not initiated by your organisation as per our records. It is, therefore, requested to submit the Daily Generation Data online over the NPP portal regularly on daily basis.**

(Note: User ID & passwords for National Power portal has already been issued to all users. In case details are not available or any other issue regarding NPP, a request for the same with the Name of Nodal officer, email id and mobile no. may be sent to NIC on email id [npp.support@gov.in](mailto:npp.support@gov.in) with information to OPM Division on email id [dgrceaopm@gmail.com](mailto:dgrceaopm@gmail.com).)

Regards,

  
(अरुण कुमार / Arun Kumar)

निदेशक/ Director

प्रचालन निष्पादन प्रबोधन प्रभाग / OPM Division

Copy to:

1. Member Secretary (ERPC)
2. SA to Member (GO&D), CEA



## Annexure D.1

### Anticipated Peak Demand (in MW) of ER & its constituents for October 2024

1	<b>BIHAR</b>	Demand (MW)	Energy Requirement (MU)
	NET MAX DEMAND	7097	3801
	NET POWER AVAILABILITY- Own Sources	429	340
	Central Sector+Bi-Lateral	6690	4771
	SURPLUS(+)/DEFICIT(-)	22	1310
<b>2</b>	<b>JHARKHAND</b>		
	NET MAXIMUM DEMAND	2166	1167
	NET POWER AVAILABILITY- Own Source	464	210
	Central Sector+Bi-Lateral+IPP	1318	865
	SURPLUS(+)/DEFICIT(-)	-365	-92
<b>3</b>	<b>DVC</b>		
	NET MAXIMUM DEMAND	3427	2125
	NET POWER AVAILABILITY- Own Source	5879	3420
	Central Sector+MPL	353	278
	Bi- lateral export by DVC	2131	1586
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	674	-13
<b>4</b>	<b>ODISHA</b>		
	NET MAXIMUM DEMAND (OWN)	5300	3423
	NET MAXIMUM DEMAND (In Case of CPP Drawal of 900 MW(peak) and average drawl of 700 MW)	5716	3143
	NET POWER AVAILABILITY- Own Source	4456	3212
	Central Sector	1959	1427
	SURPLUS(+)/DEFICIT(-) (OWN)	1115	1217
	SURPLUS(+)/DEFICIT(-) (I(In Case of CPP Drawal of 950 MW(peak) and average drawlm of 700 MW)	699	1496
<b>5</b>	<b>WEST BENGAL</b>		
	WBSEDCL		
<b>5.1</b>	<b>NET MAXIMUM DEMAND</b>	8175	4853
	NET MAXIMUM DEMAND (Incl. Sikkim)	8180	4857
	NET POWER AVAILABILITY- Own Source (Incl. DPL)	5471	3348
	Central Sector+Bi-lateral+IPP&CPP+TLDP	2654	1839
	EXPORT (To SIKKIM)	5	4
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	-55	330
<b>5.2</b>	<b>CESC</b>		
	NET MAXIMUM DEMAND	2000	994
	NET POWER AVAILABILITY- Own Source	765	516
	IMPORT FROM HEL	541	353
	TOTAL AVAILABILITY OF CESC	1306	869
	SURPLUS(+)/DEFICIT(-)	-694	-125
		765	-125
	WEST BENGAL (WBSEDCL+CESC+IPCL) (excluding DVC's supply to WBSEDCL's command area)		
	NET MAXIMUM DEMAND	10175	5847
	NET POWER AVAILABILITY- Own Source	6236	3864
	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	3195	2192
	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT	-744	209
	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT	-749	205
<b>6</b>	<b>SIKKIM</b>		
	NET MAXIMUM DEMAND	104	51
	NET POWER AVAILABILITY- Own Source	378	239
	Central Sector	197	135
	SURPLUS(+)/DEFICIT(-)	471	323
	<b>EASTERN REGION</b>		
	NET MAXIMUM DEMAND	27714	16413
	NET MAXIMUM DEMAND (In Case of CPP Drawal of 800 MW(peak) and average drawl of 700 MW)	28122	16134
	BILATERAL EXPORT BY DVC (Incl. Bangladesh)	2131	1586
	EXPORT BY WBSEDCL TO SIKKIM	5	4
	EXPORT TO B'DESH & NEPAL OTHER THAN DVC	642	478
	NET TOTAL POWER AVAILABILITY OF ER (INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)	29423	19368
	SURPLUS(+)/DEFICIT(-)	1704	2951
	SURPLUS(+)/DEFICIT(-) (In Case of CPP Drawal for Odisha)	1296	3230