सत्यमेव जयते
भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
पूर्वी क्षेत्रीय विद्युत समिति
Eastern Regional Power Committee
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सं. /NO. ERPC/Op/SCADA/2025/531 **दिनांक/DATE: 06.06.2025**

सेवा में/To,

संलग्न सूची के अनुसार/As per list enclosed.

विषय: 27.05.2025 (मंगलवार) को आयोजित ईआरपीसी की 17वीं TeST (Telecommunication, SCADA & Telemetry) उप-समिति की बैठक का कार्यवृत्त
Sub: Minutes of 17th TeST (Telecommunication, SCADA & Telemetry)Sub-Committee Meeting of ERPC held on 27.05.2025 (Tuesday)

Please find enclosed **Minutes of 17th Telecommunication, SCADA & Telemetry (TeST) sub-committee meeting of ERPC** held on **27.05.2025 (Tuesday) virtually** on **MS Teams platform** at **10:30 hrs** for your kind information and necessary action. The same is also available at ERPC website (www.erpc.gov.in).

कृपया अपनी जानकारी और आवश्यक कार्रवाई के लिए **27.05.2025 (मंगलवार)** को 10:30 बजे वस्तुतः **MS Teams** प्लेटफॉर्म पर आयोजित ईआरपीसी की **17वीं Telecommunication, SCADA & Telemetry (TeST) उप-समिति** की **बैठक** के संलग्न **कार्यवृत्त** देखें। यह ईआरपीसी वेबसाइट (www.erpc.gov.in) पर भी उपलब्ध है।

इसे सदस्य सचिव के अनुमोदन से जारी किया जाता है।
This issues with the approval of Member Secretary.

टिप्पणियाँ, यदि कोई हों, कृपया यथाशीघ्र इस कार्यालय को अग्रेषित करें।
Observations, if any, may please be forwarded to this office at the earliest.

@kattija
06/06/2025

for (S.Kejriwal)
SE(Operation)
एसई (ऑपरेशन)

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37. RUDRESHA MV, MANAGING DIRECTOR, PROJECT DELIVERY, OSI DIGITAL GRID SOLUTIONS, UNIT NO. 29, LOWER GROUND FLOOR, INTERNATIONAL TECH PARK BANGALORE(ITPB), WHITEFIELD, BANGALORE 560066
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MINUTES

OF

17th TeST MEETING

Date: 27.05.2025

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700033

Contents

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 17th TeST MEETING TO BE HELD ON 27.05.2025(TUESDAY) AT 10:30 HRS

List of participants attached at ***Annex-A.***

17th TeST *Meeting was chaired by* ***Member Secretary, ERPC.*** *On welcoming all the participants, he stressed the significance of robust and reliable communication network in seamless operation of interconnected electrical grid in real time.*

He also underscored the need for periodic assessment of healthiness of Communication System to bring down instances of forced outage of equipment,non-availability of channels in service or intermittent data telemetry.

1. PART-A: CONFIRMATION OF MINUTES

1.1. Confirmation of Minutes of 16th TeST Meeting held on 22nd January 2025 virtually through Microsoft Teams online meeting platform

The minutes of 16th TeST Sub-Committee meeting held on 22.01.2025 was circulated vide letter dated 30.01.2025.

Members may confirm the minutes of 16th TeST meeting.

Deliberation in the meeting

All members confirmed the Minutes of 16th TeST Meeting.

2. PART-B: ITEMS FOR DISCUSSION/UPDATE

2.1 Availability for Communications Systems: ERPC

- As per **Regulation 7.3** of the Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity), Regulations, 2017, National Power Committee (NPC) has been entrusted to prepare Guidelines on Availability of Communication System in consultation with RPCs, RLDCs, CTU and other stakeholders.
- Accordingly, NPC prepared Guidelines on “Availability of Communication System” in consultation with the stakeholders and submitted the same for approval of the Commission. The said Guidelines was approved in **January 2024** and published in public domain as “Guidelines on Availability of Communication System” Regulations.
- Availability of Communication System adhere to *Regulation 6(3) of the CEA (Technical Standards for Connectivity to the Grid), Regulation 5(1) of the CEA (Technical Standards for Communication System in Power System Operations) Regulations, 2020 and Regulation 11 of the Indian Electricity Grid Code (IEGC) 2023.*

➢ Applicability of Guidelines:

- Applicable to CTU for the Communication System Infrastructure of inter-State Transmission System.

- Applicable to STU for the Communication System Infrastructure of intra-State Transmission System, till appropriate regulation on Communication is framed by the respective State Electricity Regulatory Commission.

➢ Communication System outages:

- Outage time of communication system elements (i.e. channels) due to acts of God and force majeure events beyond the control of the communication provider shall be considered as deemed available.
- Any outage of duration more than one (01) minute in a time-block shall be considered as not available for the whole time-block.
- Any outage of duration less than or equal to one (01) minute in a time-block shall be treated as deemed available provided such outages are not more than ten (10) times in a day.
- Since presently **UNMS** system is under control of the POWERGRID and it was commissioned in **December 2023** and more over said availability calculation is to be generated from system hence it is proposed that said calculations are to be generated and submitted by the POWERGRID to ERPC/ERLDC for further necessary action.

As per deliberation in **16th TeST** meeting:

✓ CTU raised concerns regarding Clause 3.4 of the Guidelines and has filed a petition seeking a revision of roles and responsibilities. The petition hearing is scheduled for **13/02/2025.**

✓ In the meantime, CTU has proposed POWERGRID to utilize their Regional Unified Network Management System (UNMS) to assume the role of the network management team. The UNMS currently maintains comprehensive details of all communication links within the Eastern Region (ER).

✓ CTU will provide the methodology for sharing link downtime data with RPC after the petition hearing.

✓ CTU apprised that feature of outage management of communication system is to be deployed in upcoming National UNMS and thereafter in all regional UNMS.

16th TeST Decision:

✓ TeST committee felt that under the existing regulatory guidelines it would not be appropriate to put the availability certification on hold.

✓ Since the guidelines for availability calculation as finalized by NPC are already in vogue, POWERGRID was advised to utilize the regional UNMS for furnishing the channel availability details to ERPC & ERLDC for validation and certification.

Latest update:

➢ A demonstration/discussion meeting was held at ERPC on 14.05.2025 on availability reports in UNMS.

➢ The draft availability format circulated by CTU (SRPC format) was discussed in detail in presence of OEM NMSWorks.

➢ The formulae for calculation of availability in timeblock basis was also deliberated.

➢ POWERGRID also showed the interim availability format that has been updated in UNMS System with type of service & proper naming of channels till finalisation of the report alongwith flowchart part.

- On enquiry, OEM confirmed that they are able to develop the availability module with necessary development in software based on approval of the availability report.

- POWERGRID along with UNMS Application vendor M/s. NMS works representative demonstrated availability of channel in UNMS system and discussion on the formats, as same formats were adopted at SRLDC. ERLDC has also agreed to adopt the same . In the meeting representatives from CTU were also present virtually.
- ERLDC has requested to depute L2 lever vendor representative for 2-3 weeks for monitoring of events in UNMS system in correlation with real time grid-operation data. POWERGRID/CTU are agreed for the same.
- ☐ In view of above POWERGRID/ CTU is requested by ERLDC to depute their suitable vendor representative from first week of **June 2025**.

CTU/Powergrid may update. Members may discuss.

Deliberation in the meeting

Powergrid clearly demonstrated the features of presently deployed process for computation of availability of Communication system on UNMS portal.Details including ownership, specific service catered to and bandwidth of all channels can be easily fetched from channel nomenclature.Time block wise availability computation is deployed in UNMS in line with "Guidelines on Availability of Communication system".

CTU informed:

- *After receiving inputs from Grid-India, concerned vendors have been intructed to impolement them in respective regions maintaining an uniform approach so that all regional UNMS can be seamlessly integrated with upcoming National UNMS.*
- *All ER states are required to nominate a nodal officer for Network monitoring team(NMT) of UNMS who will be monitoring the compliance of extant guidelines on Testing & Maintenance of ISTS Communiocation system.*
- *Any observations on latest availability report shared may be submitted by ERPC/ERLDC.*

TeST Decision

- *TeST committee opined in favor of an uniform format for availability of Communication system on Pan-India basis to avoid repeated modifications.CTU wast thereby advised to convene a meeting for finalizing the uniform format in coordination with all RPCs at the earliest.Implementing agency and concerned vendors may also be consulted in this regard.*
- *CTU was also advised to communicate through official letter seeking nomination of nodal officers for NMT from each ER state.*
- *Powergrid was suggested on labelling the communication channels with alphanumeric codes to facilitate easy identification of ownership of individual channels.Powergrid agreed to implement the same within a month.*

2.2 Commencement of outage planning for communication system in ER: ERLDC

As per the clause 7.3 of Communication System for inter-State transmission of electricity) Regulations, 2017, "*the RPC Secretariat shall be responsible for outage planning for communication system in its region. RPC Secretariat shall process outage planning such that uninterrupted communication system is ensured* ".

Moreover, it is to bring your notice that such outage planning (Planned and Forced just like transmission system) is essential for review and verification of availability of communication system calculations submitted by the CTU/Transmission license. (ex. Power supply outages, NMS system outage, management channel outages, RTU or PMU outages, fiber cuts etc. such faults will not be recorded properly in the UNMS system.)

Hence It is requested to commence Communication outage planning in ER as per prevailing regulations and approved guidelines.

ERLDC may explain.Members may discuss.

Deliberation in the meeting

ERLDC emphasized the need of outage planning for verification of availability of communication system i.r.o reason for outages.

It was also underlined that if periodic maintenace of auxillary equipment like Battery bank or DCPS is taken into consideration, there would be substantial frequency of requisition for planned outage. Intimation on these maintenance activities should be made in advance for proper planning.

TeST Decision

- *TeST committee suggested ERLDC to analyze frequency of requests i.r.o planned outage of communication links/ equipment, accordingly the Communication System Outage Planning meeting may be convened for approval of proposed outages.*
- *All constituents were advised to furnish details of links/equipment outage (if any) planned in a particular month latest by 2nd week of the preceding month for necessary approval in Communication System Outage Planning meeting.Details may be shared at mail id: erpcscada@gmail.com The meeting shall be convened solely on the basis of requisition for planned outage received from respective ER constituents.*

2.3 Workshop on adoption of MPLS technology in ISTS network by CTU/POWERGRID:ERPC

NPC vide letter ref. CEA-GO-15-14/1/2021-NPC Division/256-277 dtd. 14.09.2023, constituted a Joint-Committee to assess Feasibility, Integration & Roll-out of MPLS in ISTS Communication System. CEA had nominated personnel for the Joint-Committee from CEA, all RPCs, CTU, GRID-INDIA, POWERGRID, CSPTCL-Chhattisgarh, KSEB-Kerala, RVPNL-Rajasthan and WBSETCL-West Bengal. Total Seven Joint Committee Meetings have been held on introducing MPLS technology in ISTS network.

After the last 7th MPLS Joint Committee Meeting held on 20.12.2024 on Virtual Mode, JC **Report on Introduction of MPLS technology in ISTS Communication System** was finalized by CTU in consensus with all members.

16th TeST Decision

- ✓ Since real time data and voice from all SLDCs, IPPs, ISGS is to be integrated with respective RLDCs, emphasis should be laid on seamless integration of constituents' data and voice with the ISTS communication network in presence of MPLS technology. CTU along with pan-India Joint Committee should duly take care of these aspects before introduction of MPLS.
- ✓ Upon finalization of the JC report on usage of MPLS in ISTS communication by the Joint Committee, CTU will initiate training sessions for entities to ensure a smooth transition to MPLS technology
- ✓ TeST committee opined that a comprehensive workshop involving ER states, SLDCs, and RLDC shall be convened by CTU to address the potential issues as well as apprising of the modalities of deploying MPLS Technology in ISTS communication network.

  Since all the SLDCs, IPPs, ISGS real time data and voice is to be integrated with respective RLDC, a workshop is proposed to be conveyed by the POWERGRID/CTU on said technology with emphasis on integrating constituents' data and voice with the ISTS communication network.

ERLDC has requested a signed letter from every state in ER regarding implementation of MPLS technology.

CTU may update. Members may discuss.

Deliberation in the meeting

CTU submitted:

- ➢ *JC report on MPLS is finalized and pending for NPC approval, has taken into consideration all interoperability issues i.r.o MPLS-IP and MPLS-TP. Plan for combating the potential challenges has also been delineated in the JC report.*
- ➢ *A comprehensive analysis on impact of deploying MPLS in ISTS network is being presently carried out in North-Eastern region.*
- ➢ *All SDH equipment which have their useful life remaining along with newly procured SDH under different schemes will remain in service after introduction of MPLS in ISTS network. Later these SDH equipment will be phased out after completion of respective useful life and gradually replaced with MPLS technology.*
- ➢ *During the initial phase, a separate network in parallel with pre-existing network will be laid out using separate pair of fibres for MPLS. Thereafter, all proprietary challenges i.r.o interoperability will be dealt with and accordingly necessary adaptation in the network shall be planned.*
- ➢ *Implementing agency of ER-UNMS project may conduct workshop for ER constituents upon approval of JC report in NPC forum.*

TeST Decision

- *TeST committee opined that since real time data and voice from all SLDCs, IPPs, ISGS is to be integrated with respective RLDCs, emphasis should be laid on seamless integration of constituents' data and voice with the ISTS communication network in presence of MPLS technology. These aspects should be duly taken care of by CTU and Implementing agency.*
- *CTU was advised to arrange workshop for for all entities in ER to address the potential issues as well as apprising of the modalities of adopting MPLS Technology in ISTS communication network. Plan for the same should be reverted to ERPC within a week.*

2.4 Furnishing of inputs for maintaining database of fiber uses as per Fiber sharing guidelines: CTU

CEA has issued "Comprehensive guidelines for the usage and sharing of fiber cores of Optical Ground Wire (OPGW)/ Under Ground Fiber Optic (UGFO) Cable for power system applications" 2025. As per clause no. 7 of said guidelines, CTU for ISTS/ STUs for InSTS shall maintain a comprehensive database for uses of fibers of OPGW laid by TSPs. to ensure availability of adequate no of fibers for critical GRID operation. Accordingly, it is suggested that all the TSPs shall provide the data to CTU as format enclosed**.(Annex B.2.4**)

CTU may explain. Members may discuss.

Deliberation in the meeting

CTU representative explained the Format on sharing of optical fibres to all ER states.Similar details for ISTS network are being collated in coordination with powergrid.

TeST Decision

- *CTU was advised to revise the format and have additional columns including "healthiness of the fibers" & "No. of fiber out of order at present" and rename Dark fiber column as unallocated no. of fibers .*
- *The revised format may be shared with all stakeholders to bring uniformity in collection of data and preparation of Database on pan-india basis.*
- *All ER states were advised to submit the details w.r.t respective fibre communication network with CTU as and when the revised format is shared.*

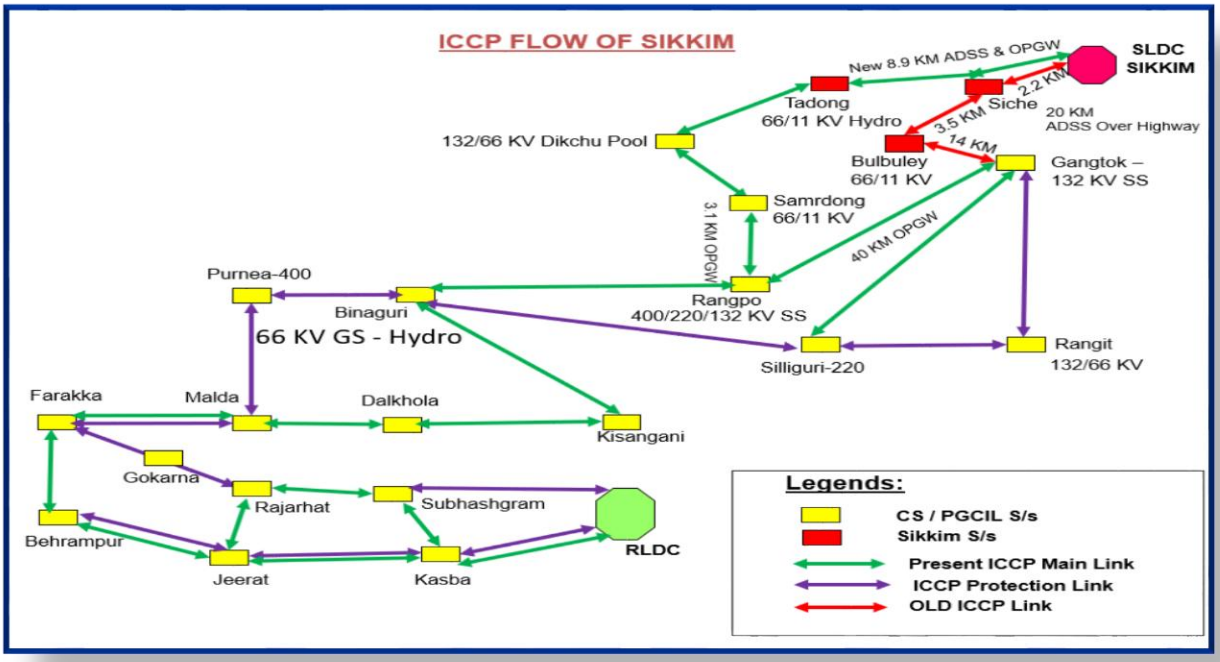
2.5 Strengthening of last mile connectivity of Sikkim SLDC: ERLDC

In the last 16th Test meeting (and in the CPM meeting held in December 2024) issue of strengthening of Sikkim SLDC last mile connectivity is discussed due to very frequent failure of Gangtok to Sikkim SLDC link. In the said meeting Sikkim SLDC intimated that alternate FO link from Rangpo - Samardong – Dikchu Pool -Tudong - Sichey - Sikkim SLDC will be commissioned in three-month's time and existing FO link will be restored soon.

However, on 23.04.2025 complete ICCP and voice link was down due to damage of ADSS cable between Gangtok – Sikkim SLDC. The link was damaged due to heavy storms and Overhead ADSS needs replacement as per informed received from Sikkim officials. The alternate link were restored via Rangpo – Dikchu Pool - Samardong – Tudong - Sichey - Sikkim SLDC route on 9th May 2025. However, due to some technical configuration issues data was

not reported and the same was subsequently restored on 11th May 2025, however due to landslide at Sichey Station, ICCP and voice link were again down.

Sikkim Communication network



Accordingly, a meeting had been held on 12.05.2025 in virtual mode among ERPC, Sikkim SLDC, CTU, POWERGRID & Grid-India for restoration of said links and strengthening of their network..

In the meeting the following emerged:

a.For restoration of Sikkim SLDC- Gangtok communication link permanently, near about 6 Km of ADSS cable needs to be procured which will take considerable amount of time around 6 months, however Sikkim SLDC is ready to make some interim arrangement of laying of spare FO cable on said towers. Provided FO cable is provided from ongoing CSTDSS Project on requisition by Sikkim through POWER Department, Sikkim.

b.Restoration of Sikkim, SLDC- Rangpo FO link by-passing through Sichey node through patching Fo cable at Sichey.

c.However, both the links passing through Sichey need route diversity.

In the meeting, it is discussed that both the links are prone to frequent cuts due to various reasons pertaining to geographically difficult conditions viz. frequent rain, landsliding etc. So further strengthening of last mile connectivity to Sikkim SLDC is required for critical grid-operational point of view.

Moreover, as per guidelines from the technical manual for communication systems, the same is to be strengthened with redundant communication links.

Hence, it is proposed to CTU to take up said issue as priority for providing alternate link (viz. Aerial cable /UGFO cable/ Microwave communication point to point link with proper cyber security) to said link.

ERLDC may explain.CTU may update. Members may discuss.

Deliberation in the meeting

CTU submitted :

Sikkim SLDC, not being part of ER-UNMS, quick fault detection and restoration is not possible.Thereby Sikkim SLDC was requested for integration in UNMS.

ERLDC submitted:

- *Due to frequent outage in ICCP link connecting Sikkim SLDC to ERLDC, reliability of bidirectional communication is compromised with ISTS drawl data being intermittently not visible at Sikkim SLDC and thus may pose significant financial implications. Most of the time both links to Sikkim SLDC via Sichey are not available.This calls for planning of redundancy i.r.o ICCP link on priority basis.*
- *Network strengthening should be given higher preference than visibility in UNMS in case of Sikkim with small-scale intra-state communication network.*
- *Point to point Microwave communication was suggested as alternate path.*

Sikkim SLDC submitted :

- *Presently last mile communication is being done from Sikkim SLDC via ADSS cable.During outage in Gangtok-Bulbuley fibre link, alternate route via Rango-Samardong-Tadong-Siche was used as emergency resort.This alternate route has been commissioned by Powergrid but not handed over to Sikkim for routine operation. However, since both the routes pass through common node of Sichey,redundancy is required from Sichey to Sikkim SLDC.Accordingly, two separate links have been planned from Sichey to Sikkim SLDC.*
- *Restoration of Gangtok-Bulbuley fibre link is under progress.*
- *RTU and other communication equipment at Sichey node have also been damaged that has impeded data availability from Sichey at Sikkim SLDC.*
- *By the end of 2025, dedicated communication link will be established from Sikkim SLDc for ICCP communication which is presently under tendering process.*

TeST Decision

- *TeST committee recommended to explore the possibility of deploying point-to-point microwave link as alternate to fibre communication in view of cybersecurity concerns.However, the best optimal solution should be figured out keeping in consideration the inherent challenges in Sikkim network.*
- *CTU was advised to carry out detailed study on alternate communication link in consultation with Sikkim SLDC.Operational feedback from ERLDC should be considered in study and accordingly feasibility of deploying alternate route may be explored . Study report should be shared with ERPC/ERLDC within a month.*

- *Sikkim SLDC was requested to consider integration into UNMS project for better network visibility and optimal resource utilization in the long-term.*

2.6 Deviation in SCADA Vs SEM data: ERLDC

As per **226th OCC**:

- ERLDC was advised to submit a report on SCADA vs SEM deviations for tie lines experiencing more than 3% deviation along with comparison of deviations both before and after implementing corrective measures. A detailed report on all corrective actions taken must also be included. The same shall be discussed in next OCC.
- For tie lines with fluctuating SCADA vs SEM deviations, the deviation must be plotted on a trend chart and justified with proper reasoning.
- Powergrid was advised to collect SEM and SCADA data from ERLDC and conduct a similar study to analyze the deviations.
- SLDC Ranchi was advised to cooperate with Powergrid and compare the data deviation on the opposite ends of tie lines with data from Powergrid and ERLDC.
- All ER states were advised to identify, track and analyze tie lines that consistently exhibit deviation in SCADA vs SEM.

ERLDC publishes deviation in tie-lines data of SCADA system while comparing with SEM meter data every week and shares it with all associated utilities and SLDCs for corrective actions to ensure correct SCADA data availability to ERLDC in line with IEGC. This is also for improvement of SCADA data accuracy and to minimize error in real time decision support tool for deviation management and ensuring grid reliability.

A presentation on SCADA vs SEM comparison is attached in **Annexure-B.2.6.**

ERLDC may explain.Powergrid and all states may update. Members may discuss.

Deliberation in the meeting

- *SEM vs SCADA comparision is carried out by ERLDC on weekly basis and accordingly constitent wise comparison was presented for the week 28.04.2025 to 04.05.2025. (**Annexure-B.2.6**)*
- *ERLDC explained the persistent deviation in tie-lines in various states of ER.SCADA vs SEM data of each end of individual tie-lines is compared to accurately assess the magnitude of deviation. Highest amount of deviation(8%) was recorded in Odisha while no such deviation has been witnessed in the tie-lines under Powergrid ER-II. Time drift mostly w.r.t L&T meters whose replacement is under progress, MFT(multi-function transducer) issues, mismatch & SCADA mapping issues etc are few reasons for such deviations.*
- *In case of 765 kV New Ranchi-Dharmajaygarh line, deviation(~10%) has been observed particularly during peak loading i.e more than 200 MW.Powergrid ER-I was requested to look into this by checking healthiness of MFT.*

OPTCL affirmed of resolving the cause for such deviations within a week.

NTPC representative was not present in the meeting.

TeST Decision

- *TeST committee opined that addressing SCADA vs SEM deviations is critical, as they have a significant impact on real-time grid operation and deviation management by the constituents.*
- *Line-wise details of deviation percentage may be shared with concerned entities along with required corrective actions by ERLDC on regular basis.This should also include the make of interface meters installed at respective ends of the tie-lines.*
- *It was emphasized to check the make of interface energy meters in lines experiencing more than 3% deviation at present. L&T make meters should be replaced immediately with Genus meter having in-built auto-correction features.*
- *TeST forum emphasized prompt action to be taken by all transmission and generation utilities, at both intra-state and inter-state levels, regarding SCADA data issues reported by ERLDC based on SEM vs. SCADA data analysis. Persistent deviation in SEM vs SCADA should be restricted within 2% band.*
- *TeST forum also advised respective SLDCs of ER to undertake SEM vs. SCADA data comparison activities at their end to improve accuracy of SCADA data.*
- *Errors w.r.t CT/PT associated with the SEMs may also be checked by all transmission utilities to minimize the magnitude of SEM vs SCADA deviation.*

2.7 Agenda by WB SLDC

2.7.1 Discrepancy in FTC due to erroneous ICCP data

- On 09.05.2025, FTC charging clearance of Satgachia 400 KV substation was delayed due to ICCP data failure at ERLDC end but no abnormalities was found at WBSLDC end.
- M/S Commtel and M/S Chemtrols: Request both vendors to provide a detailed explanation of the root cause of the problem and propose measures to prevent such incidents in the future.

Deliberation in the meeting

WB SLDC highlighted:

- ✓ *Delay caused in FTC of Satgachia 400 KV substation due to failure of ICCP link with ERLDC*
- ✓ *Attempts were made to find the root cause of this event however no conclusive problems could be identified at WB SLDC end.*
- ✓ *In spite of having healthy channel, ICCP server was not in "UP" condition.*
- ✓ *Existing AMC with M/S Chemtrols is valid upto October 2025 under extension.*

ERLDC informed:

- ✓ *ICCP link with Sikkim was also down during the same time.Though exact cause could not be found, discrepancy i.r.o IP address or path may be attributed for outage of WB SLDC ICCP link in tandem with that of Sikkim SLDC. However, due to existing old software system of M/S Chemtrol,this technical glitch may have occurred.*
- ✓ *Regarding ULDC Phase-III project, FAT of equipment has started, DRS of most equipment have been approved. Expected date of complete upgradtation is Feb, 202*

Powergrid updated that ULDC Phase-III project will be made operational by Feb 2026.

TeST Decision

- *ERLDC was advised to pin-point root cause behind the failure of ICCP link.At the same time,AMC with vendors of existing SCADA system may be reviewed for extension.Recuurent failure of ICCP link should be avoided so that FTC activities may be done on time henceforth.*
- *Powergrid was urged to strictly adhere to the committed timeline for making the ULDC Phase-III project operational i.e Feb 2026.*

2.7.2 Erroneous recording of demand data

- It may please be noted that the transmission network of DVC for the State of West Bengal, as reflected in WB SLDC Control Room SCADA system is not in updated condition. The demand of DVC WB was also erroneous.
- With the help of ERLDC, only the the total value was corrected. The network of DVC West Bengal part is also needed to be modified as per latest transmission network. Competent authority may please arrange the same at the earliest.

WB SLDC may explain. ERLDC may update. Members may discuss.

Deliberation in the meeting

WB SLDC apprised:

Demand recording of DVC control area is erroneous within West Bengal geographical area.

Details of network upgradation in DVC control area were not updated in WB SCADA system leading to erroneous demand recording.

DVC informed:

Demand data in West Bengal area has been shared with WB SLDC.Technical feasibility of sharing node-wise data shall be checked based on availability of ICCCP addresses.

TeST Decision

TeST Committee suggested to convene a separate meeting between ERLDC,DVC and WB SLDC to resolve the erroneous recording of DVC demand in WB geographical area.

2.8 Non availability of VOIP system in ER: ERLDC

It has been observed that VOIP system ER is not available for many ISTS sites which may hamper real time Grid operation. List of sites where VOIP issues persist are detailed below:

VOIP Status of ISGS, ISTS, SLDC, RTAMC & IPP.

S.No	Station Name	VOIP Nos	Remarks	Check at ERLDC again on 28042025	Check at ERLDC again on 09052025	Check at ERLDC again on 13052025	Check at ERLDC again on 20052025
1	BANKA 400KV	20330044	Link healthy. Communicated to POWERGRID ER 1 for checking VOIP at local end	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
2	BIHARSARIF 400KV	20330034	Link healthy. Communicated to POWERGRID ER 1 for checking VOIP at local end	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
3	CHANDAUTI 400KV	20330080	Link healthy. Communicated to POWERGRID ER 1 for checking VOIP at local end	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
4	CHUJACHEN CONTROL ROOM	20330602	Link healthy.May be checked at local end by IPP	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
5	DIKCHU CONTROL ROOM	20330703	Link healthy.May be checked at local end by IPP	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
6	DURGAPUR 400KV	20330028	Link healthy. Being checked at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
7	JEYPORE 400KV	20330048	Link healthy. requested POWERGRID Odisha for checking VOIP at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
8	PATNA 400KV	20330038	Link healthy. requested POWERGRID ER I for checking VOIP at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
9	PURNIA 220 KV	20330030	Link healthy. requested POWERGRID ER I for checking VOIP at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
10	PURNIA 400 KV	20330025	Link healthy. requested POWERGRID ER I for checking VOIP at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
11	OPGC 400KV	20330073	Link healthy.May be checked at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
12	RANCHI 765 KV	20330035	Link healthy. requested POWERGRID ER I for checking VOIP at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
13	SAHARSA 400KV	20330082	Link healthy. requested POWERGRID ER I for checking VOIP at local end.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
14	TEESTA III CONTROL ROOM	20330701	Plant is under shut down	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
15	TEESTA CONTROL ROOM	20330062	Plant is under shut down	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
16	WB SLDC CONTROL ROOM	20330425	WB site to be taken up with WBSETCL	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
17	JITPL CONTROL ROOM	20330706	Link healthy. requested to check VOIP at local end by IPP.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
18	BARKRESHWAR	23219474	WB site to be taken up with WBSETCL	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
19	ARAMBAGH	23219714		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
20	KHARAGPUR	23219994		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
21	KOLAGHAT	23219544		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
22	NEW CHANDITALA	23219814		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
23	NEW PPSP	23219914		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
24	PPSP	23219844		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
25	BOKARO	23260520	DVC site to be taken up with DVC	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
26	DSTPS	23260591		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
27	KODERMA	23260142		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
28	MEJIA-B	23260533		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
29	RAGHUNATHPUR	23260565		NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
30	JITPL CONTROL ROOM	20330706	Link healthy. requested to check VOIP at local end by IPP.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
31	Sikkim SLDC	23592008	To be taken up with Sikkim	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING
32	Samardong	23592009	OPGW is in progress.	NOT WORKING	NOT WORKING	NOT WORKING	NOT WORKING

POWERGRID is requested to restore the same at the earliest.

ERLDC may explain Members may discuss.

Deliberation in the meeting

- *Powergrid ER-II updated that VOIP communication from 400 kV Durgapur station has been restored.*
- *Powergrid Odisha assured of restoring VOIP link at Jeyporae station within 3 days.*
- *DVC affirmed of restoring VOIP link from all generating stations within a week.*
- *WBSETCL apprised that VOIP link at all locations is now healthy except for Bakreshwar having cable issue, which will be resolved within shortest time.*

TeST Decision

- *In view of critical role of VOIP in real-time Grid operation, all concerned utilities were urged to restore VOIP connectivity at ISTS locations (as detailed above) positively within a week.*
- *Periodic maintenance and testing of VOIP systems should be carried out by the utilities to avert recurrent failure.Also, in case of any unavoidable network failure in future, restoration must be done on priority basis.*
- *Healthiness of all ISTS VOIP eqipment should be ensured by Powergrid.*

2.9 Progress Update on Replacement of old RTUs with Upgradation of RTUs/SAS in the Central sector stations: ERLDC

The report on "Replacement/up-gradation of old RTUs in Eastern Region" for Real Time data transfer to ERLDC Main and Back-up Control Center over IEC104 protocol was approved by ERPC in 36th ERPC meeting held at Bhubaneswar on 14th September 2017. Further, in 39th ERPC meeting project on 'Upgradation of SCADA/RTUs/SAS in Central Sector stations and strengthening of OPGW network in Eastern Region' was approved.
As per the information received from POWERGRID, the following substations' work are is yet to be completed as provided in the below table:

Sr No.	S/s Name	Utility	Updates in 53rd ERPC meeting	Expected completion date
1	400/220 kV Durgapur	ER-2	Upgradation of entire Durgapur Substation into a SAS based station (Distributed control) is being undertaken under ADDCAP 2024-2029 tariff block and it is expected that the work will be completed by March-2026. (Deliberated in 53rd ERPC MEETING held on 11.02.2025)	To be updated
2	400/220/132 kV Rangpo	ER-2	Approved under Add Cap in 53rd ERPC MEETING held on 11.02.2025	To be updated

ERLDC may explain. Members may discuss.

Deliberation in the meeting

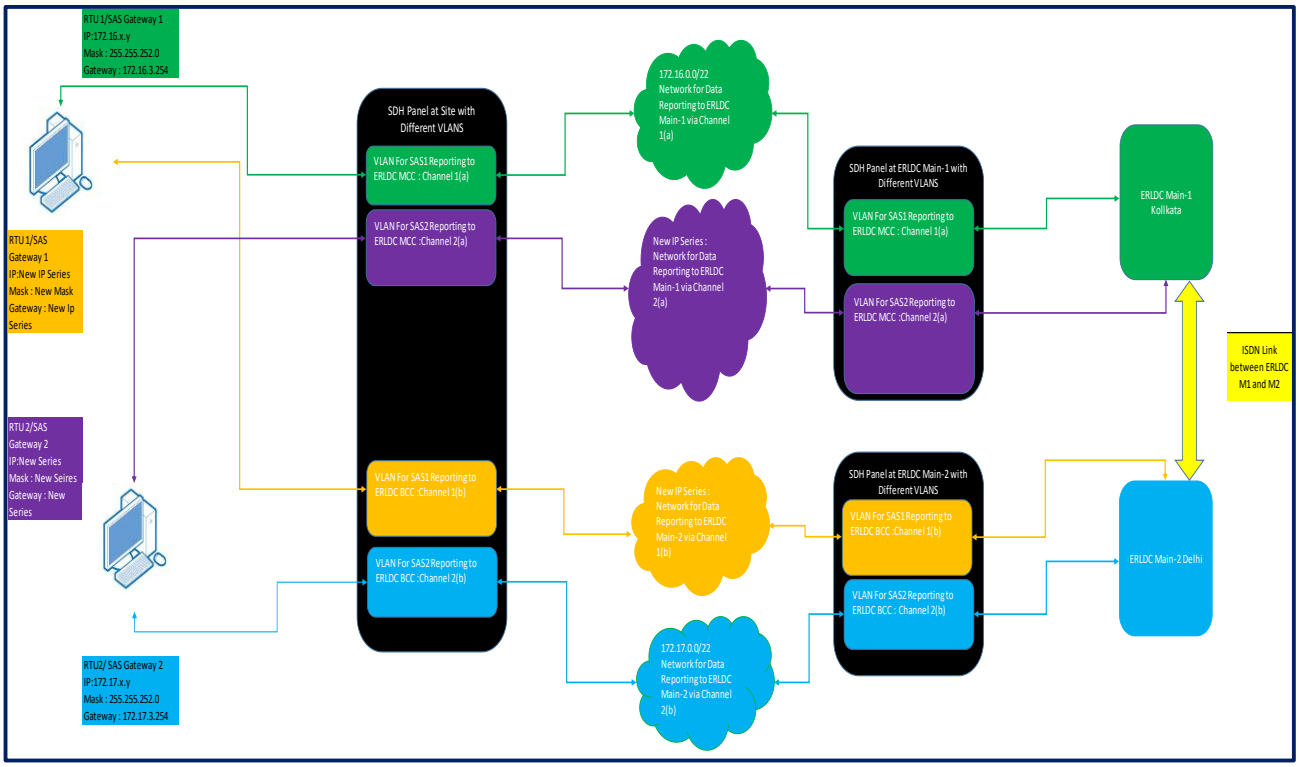
Powergrid updated that RTU replacemet at both 400 kV Durgapur & 400 kV Rangpo stations shall be completed by March 2026.Presently the RTU upgradation work is under tendering process with different packages for both the stations.

TeST Decision

Powergrid was advised to share monthly progress on RTU replacement with ERPC/ERLDC.

2.10 Dual channel reporting from ISGS/IPPs/private transmission licensees: ERLDC

- In the upcoming ULDC phase-III SCADA/EMS upgradation project, dual reporting of all central sector RTUs/SAS gateways is required for greater redundancy of central sector SCADA data reporting to ERLDC.
- For this purpose, four channels are to be configured - one channel for RTU-1/gateway-1 reporting to ERLDC Main-1, second for RTU-1/gateway-1 to ERLDC Main-2, third for RTU-2/gateway-2 to ERLDC Main-1 and the fourth for RTU-2/gateway-2 to ERLDC Main-2. The proposed architecture is shown below:



- These four channels are in addition to the two existing channels reporting to the present SCADA system at ERLDC MCC and ERLDC BCC. The existing channel will remain in service till taken over by New SCADA implementation in Eastern region which is expected to be completed by March 2026.

- Therefore, it is requested to ensure that the requirements for dual reporting of RTUs/SAS gateways can be achieved before commissioning of the upcoming SCADA/EMS upgradation project.

ERLDC may explain.ISGS, IPPs, Private licensees and POWERGRID may update. Members may discuss.

Deliberation in the meeting

ERLDC stressed on the need of dual reporting to both Main-I & Main-II control centres fromRTU/SAS itself without any additional router.

TeST Decision

- *TeST Forum advised all ISGS/IPP/ Private licensees to assess the feasibility of dual-channel reporting to ERLDC and confirm their progress to ERPC and ERLDC.The feasibility of dual reporting must be assessed and put in place prior to commissioning of upcoming SCADA/EMS project in ER.*
- *Further, all utilities were advised to promptly initiate actions to replace old RTUs under the following conditions and communicate the same to ERPC and ERLDC:*

  - *RTUs with limitations in reporting all required analog/digital data to ERLDC.*
  - *RTUs with obsolete technology or those that have completed their useful life of 7 years (as per CERC Tariff Regulation 2024–29).*
  - *RTUs still reporting in the IEC 101 protocol and not supporting the IEC 104 protocol.*

2.11 Status of RTU upgradation of ISGS/IPPs/Private Transmission Licenses in Eastern region: ERLDC

The report on “Replacement/up-gradation of old RTUs in Eastern Region” for Real Time data transfer to ERLDC Main and Back-up Control Center over IEC104 protocol was approved by ERPC in 36th ERPC meeting held at Bhubaneswar on 14th September 2017. Further, in 39th ERPC meeting project on ‘Upgradation of SCADA/RTUs/SAS in Central Sector stations and strengthening of OPGW network in Eastern Region’ was approved.

At ISTS level, most of the substations have been upgraded while some work is under progress for RTU/SAS replacement/upgradation. However, some of the ISGSs and IPPs substations as given in table are still reporting in IEC 101 protocol and there is a need to expedite on the required fiber optic communication and subsequent RTU upgradation activity by respective owners.

Sr No.	Substation Name	Voltage Level (kV)	Protocol Reporting	Ownership	Availability of Fiber Optic communication	Updated progress
1	BRBCL-NTPC	400	IEC101	NTPC	Yes	BRBCL To Share update.
2	Teesta 3	400	IEC101	SUL	Yes	Presently Plant is under outage due to physical damage

3	JITPL	400	IEC101	JITPL	Completion by Feb 2025	Distance between SDH panel and RTU is approximately 220 Meter. So, more than 100-meter Fibre Optical cable and converter required. Quotation and approvalawaited– **Tentative completion date – May 25**
4	Chuzachen	132	IEC101	Greenko	No	CHEP to update.

In the **220th OCC** meeting held at ERPC Secretariat, Kolkata on 28/10/2024, the above-mentioned point was discussed and the following was decided:

BRBCL(NTPC) along with other IPPs (Teesta 3, JITPL, Chuzachen) were directed to execute RTU upgradation and fibre optic communication works on priority to facilitate seamless data transfer to ERLDC (Main and backup) via IEC 104 protocol.

ERLDC may explain.BRBCL(NTPC), Teesta 3, JITPL, Chuzachen may update on present progress.POWERGRID may update on communication link availability.

Deliberation in the meeting

Representatives from NTPC, Teesta III, JITPL and Chuzachen were not presentin the meeting.

TeST Decision

- *BRBCL(NTPC), Teesta 3, JITPL and Chuzachen were advised to expedite RTU/SAS replacement/upgradation so as to ensure seamless data reporting to ERLDC (Main and backup) via IEC 104 protocol.*
- *Fortnightly progress report regarding the same should be shared with ERPC/ERLDC.*
- *Powergrid was advised to assess the availability of communication link and revert to ERPC/ERLDC within a week.*

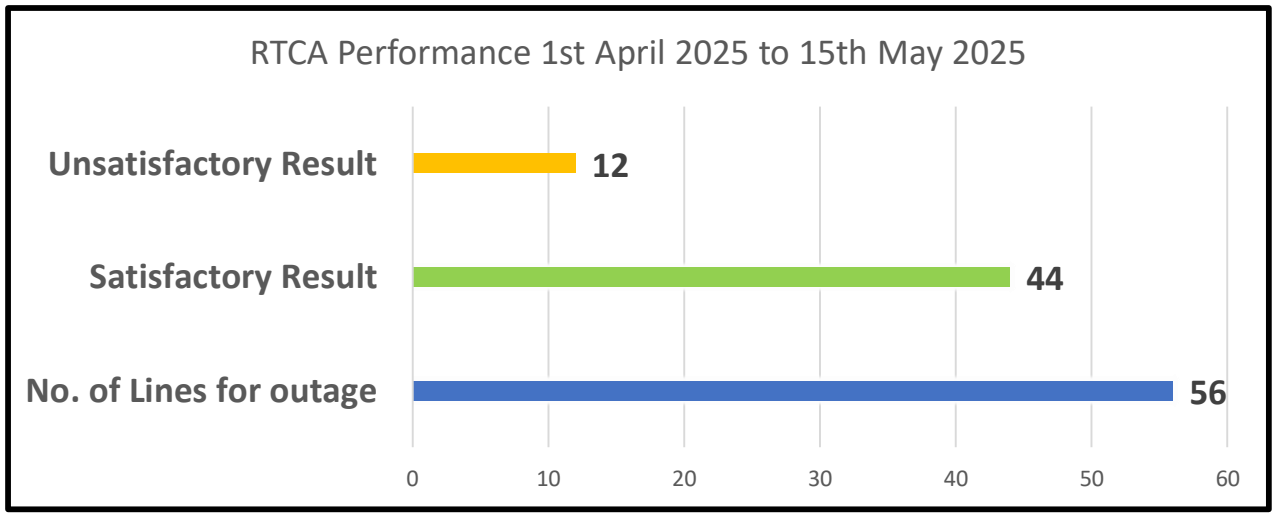
2.12 Ensuring Accurate data and Telemetry for the Proper functioning of State Estimator in ERLDC:: ERLDC

Present SCADA/EMS in SLDCs and ERLDC has State Estimator (SE) and Real-Time Contingency Analysis (RTCA) which are important for real time decision support for providing any planned outage or accessing impact of any forced outage on the grid. Presently SE and RTCA is functioning only at ERLDC and are not properly functional in SLDCs. At ERLDC it is truncated at 220 kV levels due to poor reliability of data at 132 kV levels. Major reasons for non-working of SE and RTCA at SLDCs and truncation at ERLDC at 220 kV level are nonavailability of reliable data and telemetry of 132 kV substations specially breaker/isolator status. However, ERLDC is supporting states so that these can be made functional to some extent.

Now new SCADA/EMS system implementation under ULDC Phase III has already commenced in Eastern Region. The new SCADA/EMS system includes several additional decision-support tools apart from SE/RTCA for real-time operations, of which some of prominent ones are listed below:

- Automatic Demand Management System (ADMS)
- Load Forecasting
- Transmission Loss Sensitivity Factors (TLSF)
- Network Sensitivity Applications (LODF, GSDF, LSDF)
- Optimal Power Flow (OPF)
- Short Circuit Analysis (SCA)
- Transmission Line/Corridor Capability Monitor (TCM) for Real time ATC/TTC calculation
- Dynamic Security Assessment (DSA)

Successful integration of these tools at SLDCs as well as ERLDC hinges on accurate data and telemetry from 132 kV and above substations in the Eastern region.



During this, out of 12 results major three outages where times SE and RTCA function at ERLDC did not provide satisfactory results due to data availability issues as quoted below. It can be seen that, how analog as well digital status input can impact decision support tools non-availability during real time grid operation. In coordination with SLDCs and Utilities, these observed issues have been rectified bilaterally.

Date	Description of SCADA/EMS Data Issue	Impact on SE/RTCA Performance at ERLDC	Remarks/Corrective Action
22-04-2025	Non-update of correct Status data of 400 kV Sitamarhi Station	Non-Satisfactory result in RTCA	Corrected in coordination with POWERGRID
25-04-2025	Data Quality issue from Maithon for Analog and Status Points	Non-Satisfactory result in RTCA	Corrected in coordination with POWERGRID
11-05-2025	Data Quality issue from Farakka NTPC for Analog and Status Points	Non-Satisfactory result in RTCA	Corrected in coordination with NTPC Farakka

In view of the above, following points may be discussed:

- SLDCs should utilize existing SCADA SE/RTCA tools for real time contingency analysis and outage processing.
- SCADA data telemetry monitoring and compliance status for all 132 kV and above substations in OCC and TEsT meeting of Eastern region.
- All SLDCs to share the complete substation based RTU wise list and its communication availability, integration and reporting in SLDC SCADA, protocol (101/104), RTU/SAS upgradation plan, Communication system under planning, timeline for completion of activities and any other relevant details
- All SLDCs at present should ensure station wise checking of all analog and status point, checking of suspected isolator/breaker status and its correction at field levels.
- Ensuring integration of all required digital and analog data during new SAS/RTU upgradation work to ensure function of these tools at SLDC level.

ERLDC may explain. Members may discuss.

Deliberation in the meeting

TeST decision:

- *TeST Forum opined to establish a core working group under leadership of ERLDC comprising members from SLDCs and ERLDC(SCADA and Communication personnels for monitoring progress of RTU upgradation, actions required to enhance SCADA/EMS data quality, availability and reporting from the sites. The working group is expected to convene meeting every months wherein the group will review progress, discuss improvements, and identify challenges. The updated status and key issues will then be presented in the subsequent TeST meeting for further review and necessary action.*
- *TeST committee advised all SLDCs to provide substation-wise updated status for RTU/SAS covering the following details:*

1. ***Voltage Levels**: Availability of RTU/SAS for 132 kV and above (66 kV and above for Sikkim).*
2. ***RTU Details**: Make of RTU, commissioning date, and the need for upgradation after completing 7 years of service life.*
3. ***Protocol Information**: Reporting protocols being used (IEC 101/IEC 104).*
4. ***Dual channel reporting feasibility to SLDC***
5. ***Communication System**: Availability of the communication system and the plan for upgradation if any.*

This information is critical for ensuring smooth grid operation and planning and the details must be shared with ERPC/ERLDC within a week.

2.13 Ensuring Accurate data and Telemetry for Newly added/Modified Transmission and Generation Elements with ERLDC for Real time operation and SCADA/EMS Decision support tools functioning: ERLDC

In the fiscal year 2024-25, numerous requests have been received at ERLDC from ISTS-connected users and users under SLDC jurisdiction for the integration of newly added or modified transmission and generation elements. However, these requests often lack ensured real-time data telemetry prior to first-time charging. Users are then providing undertakings from their management stating that real-time data telemetry will be made available within a time-bound manner. Based on the undertaking, though ERLDC has allowed charging of such elements for overall improvement of power supply position in respective control area, but the commitment made in such undertaking are not fulfilled. This is resulting in violation of data availability commitment for reliable and secure grid operation, affecting state estimation accuracy, and the effectiveness of the real-time contingency analysis tool within the SCADA/EMS system at the ERLDC level. A list of applications received in year 2024-25 where charging has been allowed based on undertaking for data and telemetry are listed below where undertaking timelines have not been adhered to.

Applicant	FTC Application	Substation Name/Element Name	Date mentioned for compliance in Undertaking	Compliance Status
SLDC Jharkhand	FTC of LILO 132KV Sonenagar-	132 kV Nagaruntari (JUSNL)	SCADA (02.07.2024) and VOIP	Not complied

	Nabinagar-Nagaruntari TL at GSS Nabinagar		(04.12.2024)	
SLDC Odisha	33kV-Darlipalli (Ntpc)-Manoharpur1	33 KV Manoharpur	SCADA (09-03-2025)	Not complied
Power Deptt, Govt. of Sikkim	132kV-Rangpo-Samardong-1 & 2	132 KV Samardong	VOIP (31-05-2024)	Not complied
Indian Railway (DFCCIL)	Main Bays of Pusauli(PG)to Durgawati(DFCCIL)	220 kV Durgawati	SCADA (30-10-2023)	Not complied

It has been informed to all users that as per the below mentioned regulations, all users, including generating plants and transmission licensees under the control areas of RLDC and SLDCs, must ensure the integration of SCADA and telemetry for real-time data for grid operations at SLDC and RLDC levels as required.

- IEGC Clauses 8.2.3, 8.2.4, 11.1, 11.3
- CERC (Communication System for Inter-State Transmission of Electricity) Regulations 2017, Clause 7.8.i
- CEA (Technical Standards for Connectivity to the Grid) Regulations 2007, Clauses 6.3 and 6.5
- CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, Clauses 10.1.b, 40.1.c.i & ii, 43.4
- IEGC Clause 33.2, which mandates reliable and accurate real-time data for successful state estimation and real-time contingency analysis through the SCADA/EMS system at RLDC and SLDC levels.
  Members may discuss these issues and the necessary steps to ensure compliance and improve real-time operations.

ERLDC may explain. Indian Railway, SLDC Jharkhand, SLDC Sikkim and SLDC Odisha may update on progress of making data availability to ERLDC. Members may discuss.

Deliberation in the meeting

TeST decision:

- *TeST emphasized all utilities that SCADA/EMS data reporting to SLDC and ERLDC must strictly adhere to regulatory compliance and meet the requirements for real-time grid operation. Data availability of the bays/new elements should be ensured to prior to applying for first time charging (FTC) clearance.*
- *TeST forum opined to avoid FTC of new elements/bays based on any undertaking or commitments.*

- *To inculcate the importance of above decision, it is imperative to communicate SCADA data availability requirement, associated regulatory compliance and its fulfillment effectively to site executives via respective SLDCs/constituents. This will ensure that the critical role of SCADA/EMS data reporting is taken seriously and properly integrated during project commissioning activities itself.*

2.14 Non availability of SCADA telemetry in Eastern region: ERLDC

- SCADA/EMS system has been installed at SLDC and RLDC and real time operators are performing grid management activities based on real time SCADA data. Further, State Estimation (SE) application and real time contingency analysis (RTCA) application in SCADA/EMS system also utilize these data for decision making. It may kindly be noted that as per **clause 33.2 of IEGC 2023.**
- *"SLDCs, RLDCs and NLDC shall utilize network estimation tool integrated in their EMS and SCADA systems for the real time operational planning study.* ***All users shall make available at all times real time error-free operational data for the successful execution of network analysis using EMS/SCADA. Failure to make available such data shall be immediately reported to the concerned SLDC, the concerned RLDC and NLDC along with a firm timeline for restoration.*** *The performance of online network estimation tools at SLDC and RLDC shall be reviewed in the monthly operational meeting of RPC. Any telemetry related issues impacting the online network estimation tool shall be monitored by RPC for their early resolution."*
- However, it is observed that several important stations under SLDC jurisdiction in Eastern Region are not reporting to respective SLDCs (as shown in table below) and hence ERLDC is also not getting data through ICCP. SLDC wise list of substations is tabulated below. Substations with voltage level 220 kV and above are listed below.

Table: Area wise no of station without data telemetry as on 08-01-2025 for 220 KV and above level.

SLDC Responsible for data integration	No of SS/GS without data Telemetry
BSPTCL	06
JUSNL	09
OPTCL	05
WBSETCL	03

Details of stations, which are not reporting or yet to be integrated at SLDC for 220 KV and above level stations is provided below along with status update:

Table: Non availability of SCADA Data Telemetry of Bihar Substations

SL No.	BSPTCL	Last Reported	15th TEsT Meeting Status	Current Status
1	BUXAR TPP_400	02-04-2025		SAS Issue

2	FATUHA_220	27-02-2024, Bus and Feeder Data are not reporting	Not reporting due to Node issue of RTU	SAS Issue
3	BEGUSARAI_220	16-05-2024, Bus and Feeder Data are not reporting	Analog data partially reporting. Issue of communication cable which is rectifying at the field end	Station data suspected
4	SONENAGAR_NEW_220	15-04-2025, Bus data not updating and Status Points are set to manual	Bus and Status Points are now reporting at Bihar SLDC	Station data suspected
5	LAUKAHI_220	12-09-2024	Partial data were being reported at Bihar SLDC	SAS Issue
6	GARAUL_220	Analog points reporting	Partial data were being reported at Bihar SLDC	Status points data suspected

Table: Non availability of SCADA Data Telemetry of Jharkhand Substations

SL No.	JUSNL	Last Reported	15th TEsT Meeting Status	Current Status
1	BURMU_220	INTEGRATION ISSUE	Burmu will be reporting in next 2 months	Not reporting to SLDC
2	CHATRA_220	16-01-2024	Additional Time required	Not reporting to SLDC
3	GIRIDIH_220	INTEGRATION ISSUE	Additional Time required	Not reporting to SLDC
4	GODDA_220	05-02-2023	Additional Time required	Not reporting to SLDC
5	JASIDIH_220	01-06-2023	Additional Time required	Not reporting to SLDC
6	GARHWANEW_220	28-02-2022	Additional Time required	Not reporting to SLDC
7	SMARTCITY_220	23-03-2023	Additional Time required	Not reporting to SLDC
8	DUMKA_220	23-05-2025	Additional Time required	Not reporting to SLDC
9	CHAIBASA_220	29-10-2022	Additional Time required	Not reporting to SLDC

Table: Non availability of SCADA Data Telemetry of Odisha Substations

SL No.	OPTCL	Last Reported	15th TEsT Meeting Status	Current Status
1	NALCO_220	10-01-2025	Earlier it was reporting in 101 protocol. NALCO is in the process of data transmission over IEC 104 protocol . 11 KM of OPGW link is already established. It will be completed within 3 months	Not reporting to SLDC due to ongoing upgradation work of IEC 101 to 104 protocol.
2	PARADEEP_ESSAR_220	10-11-2021	RTU upgradation for data transmission over IEC 104 is under process. This matter has been already taken up with M/s Essar.	Not reporting to SLDC due to ongoing upgradation work of IEC 101 to 104 protocol.
3	EMAMI_220	01-11-2021	Letter from CGM (Tel), OPTCL & SLDC has already been issued to EMAMI for rectification of data link to SLDC. EMAMI yet to respond.	Not reporting to SLDC due to ongoing upgradation work of IEC 101 to 104 protocol.
4	PARADEEP_IOCL_220	01-11-2021	Because of obsoletion of PLCC equipment, IOCL has already been given BOQ to migrate to 104 communication. Their response is awaited	Not reporting to SLDC due to ongoing upgradation work of IEC 101 to 104 protocol.
5	TELKO_220	INTEGRATION ISSUE	220KV Telkoi SAS has been failed since dt 17.06.2023 due to GE SAS gateway issue. This matter has-been already taken up with M/s-GE	Issue in gateway at field, data not reporting to SLDC.

Table: Non availability of SCADA Data Telemetry of West Bengal Substations

SL No.	WBSETCL	Last Reported	15th TEsT Meeting Status	Current Status
1	TLDP4_220	28-08-2023	To be restored within 3 months	Station data suspected
2	KLC_Bantala_220	16-07-2022	Reporting at SLDC level	Not reporting to ERLDC
3	HALDIA TPP_400	MB1, MB2 and TB isolator Status Points are not reporting		

Looking at above aspects, SLDCs may kindly provide a firm timeline for restoration of data from these 220 kV and above level Substations.

Moreover, Few important **Central Sector /IPP** stations under ERLDC jurisdiction in Eastern Region reporting through **IEC:104** Protocol are either not reporting or reporting intermittently (< 90%) during **10 March** to **10 May** (2 months):

CS/IPP RTU NAME	VOLTAGE LEVEL(KV)	OWNER	% AVAILABILITY
CHANDWA	400	POWERGRID	**83%**
NPGC	400	NTPC	**87%**
JEERAT	765/400	POWERGRID	**87%**
RANGIT	132	NHPC	**30%**
TASHIDING	220	IPP	**85%**
GMR	400	IPP	**81%**

Concerned Utilities may update.

ERLDC may explain Members may discuss.

Deliberation in the meeting

TeST decision:

- *TeST committee expressed serious concern on absence of data telemetry from a large number of stations(S/S or generating stations) at 132 kV level which is hampering proper utilization of network estimation tool in SCADA.*
- *BSPTCL, JUSNL, OPTCL and WBSETCL were directed to share the updated status along with action plan of restoring SCADA data telemetry from all substations as listed above in the agenda.This must be furnished to ERPC/ERLDC positively within a week.*

2.15 Non-reporting of PMUs: ERLDC

PMU data are used at ERLDC for real-time monitoring as well as post-facto analysis of faults and other events. At present, 4 number of physical PMUs from multiple central sector stations are not reporting to ERLDC. Respective Utilities has been informed over mail and other communication about these issues.

List of non-reporting Central Sector PMUs are tabulated below:

PMU ID	PMU Address	Station	Feeder(s)	Issue	Last reported on
5675 - 5676	ER1KISHN_ PGPM05	Kishanganj	400DARB H_PG1	Waiting for configuratio n frame	23-02-2024
5678 - 5679	ER1KISHN_ PGPM06	Kishanganj	400DARB H_PG2	Waiting for configuratio n frame	23-02-2024
5762 - 5763	ER1DARBH_ PGPM01	Darbhanga	400SITA M_PG2	Waiting for configuratio n frame	16-05-2024
5765 - 5766	ER1DARBH_ PGPM02	Darbhanga	400SITA M_PG1	Waiting for configuratio n frame	16-05-2024

Further, PMUs at **Alipurduar** and **Birpara** are dropping significant numbers of frames:

ERLDC may explain. POWERGRID ER-1 and 2, may update.Members may discuss.

Deliberation in the meeting

Powergrid ER-I informed that one PMU is healthy at Kishanganj and the other is under process of restoration. Thereafter restoration of PMUs at Darbhanga will be taken up.All PMUs will be in service latest by June 2025.

Powergrid ER-II affirmed of tracing out the root cause and restoring the PMUs at Alipurduar and Birpara at the earliest.

TeST Decision

Considering the importance of PMUs in fault anlysis and real time grid operation, Powergrid was advised to take corrective measures as per committed timeline for uninterrupted reporting of PMU data.

2.16 Non-reporting of DVC PDC to PDC data stream to ERLDC: ERLDC

The DVC PDC input data stream plays a crucial role in real-time monitoring and post-event analysis of faults and other occurrences for geographical region under their jurisdiction. At present, the DVC PDC data stream is not being transmitted to ERLDC. This disruption has been communicated to the respective utility and PDC stream reported on 28-04-2025 after manual intervention for some time and again went down. Details are as follows:

STREAM ID		PDC NAME	No. of PMU in stream	Issue	Last reported on
37990		DVC PMU	68	Connection issue	25-04-2025

The PDC stream has been down since then.

ERLDC may explain.DVC may update on restoration of PDC stream to ERLDC.

Deliberation in the meeting

ERLDC briefly explained non-reporting of PDC data stream.

DVC updated that the issue has cropped up due to new vendor and will be resoved by first week of June 2025.

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

3.1 Submission of MAC/IP address of all end user communication equipment's: ERLDC

TeST committee in 15th TeST Meeting opined that remaining utilities may submit the details to ERLDC in prescribed format. Status of Constituents wise list is attached at **Annexure 3.1.**

ERLDC may explain. Members may discuss.

Deliberation in the meeting

TeST Decision

*TeST committee advised all ER constituents to submit details of MAC/IP addresss of end user communication equipment with ERLDC to aid in troubleshooting in the event of any contingency in communication network. Details of MAC/IP addresss need to be furnished by all utilities (**Annexure 3.1**) within a month.*

3.2 Commencement of third-party cyber security audit as mentioned in the communication system audit procedure: ERLDC

All Utilities are requested to inform the status of third-party cyber security audit of communication system under their jurisdiction and if Third party cyber security audit is conducted then its report and compliance status for information to forum.

ERLDC may explain. Members may discuss.

Deliberation in the meeting

TeST Decision

TeST committee advised all ER constituents to carry out third-party cyber security audit of their respective communication system as mentioned in SOP on Communication Audit and update with compliance status in subsequent TeST meeting(s).

3.3 SOC Implementation at SLDCs: ERLDC

As per Information Technology (Information Security Practices and Procedures for Protected System) Rules, 2018, all constituents whose assets have been declared as CII/protected systems need to implement SOC.

BSPTCL has already implemented SOC.

All other SLDCs are requested to expedite the process for SOC Implementation.

Deliberation in the meeting

TeST Decision

All SLDCs(except Bihar) were advised to expedite implementation of SOCs at the earliest and may approach PSDF in this regard.

3.4 Integration of missing communication nodes in UNMS: ERLDC

List of communication node are not reporting to UNMS system is as follows.

1.STERLITE

2.JSPL

3.JITPL

4.KALINGANAGAR

5.HALDIA

6.ANGUL (FIBCOM)

7.GMR (FIBCOM)

POWERGRID/SLDC's/Concerned Utilities are requested to restore the same at earliest please.

Deliberation in the meeting

TeST Decision

Powergrid, as implementing agency of ER-UNMS project, was requested to ensure integration of above mentioned communication nodes. In case of persistent hindrance, the same may be brought to notice of ERPC for further course of action.

3.5 Findings from Communication audit in ER: ERPC

As per regulations and NPC procedure for communication system audit , a committee comprising of ERPC, ERLDC ,DVC has conducted the audit of communication system at 400 KV Subhasgram and 765 kV New Jeerat, stations of POWERGRID.

Key Findings are as follows:

765 KV New Jeerat Substation (POWERGRID)	
Sl. No.	**Observation**
1	Approach cable is common for Communication, protection & Commercial application.
2	Non-availability of third-party Cyber Security audit reports.
3	Data reporting from both Main & Standby SAS Gateway is intermittent and needs to be regularized.
4	Preventive Maintenance reports are not available for Auxiliary Power Supply.
5	SAT reports for SDH Equipment is not available.
6	01 No: supply of Station aux Transformer is available from station source, remaining 01 No: supply from WBSETCL is in progress.
7	DG sets with AMF panels was found in manual mode.
8	Tagging of E1 card for DTPC application was not found.
9	Spare Availability records need to be maintained.
10	Two no:s of 0 dB connectors for New Jeerat-Subhasgram link were not found in order.

400 KV Rajarhat GIS Substation (POWERGRID)	
Sl. No.	**Observation**
1	Approach cable is common for Communication, Protection & Commercial application.
2	Non-availability of third-party Cyber Security audit reports.
3	Utilization of 01 nos. PDH make – LOOP may be explored .
4	SAT reports for SDH Equipment is not available.
5	Record on Discharge voltage of Battery bank is not present in Preventive Maintenance report.
6	Battery Charger alarms is not integrated in Local annunciator.
7	Spare Availability records need to be maintained.

Compliance reply has been submitted by Powergrid ER-II .

Members may discuss.

Deliberation in the meeting

TeST Committee noted the key observations pointed out by Communication Audit Committee and thereby advised Powergrid along with other ER constituents to adopt necessary corrective measures at the respective communication nodes under their jurisdiction for ensuring optimal availability and reliability of ER communication network.

3.6 Information on Trial Operation Certificate issued for various OPGW links and AGC FOTE in ER: ERLDC

ERLDC issues trial operation certificates for the OPGW links in line with the length and other parameters as approved in ERPC forum. A brief overview of the OPGW links with their commercial operation dates provided below:

a. Farakka- Sagadighi-Subashgram OPGW link

b. Part of Srikakulam- Angul OPGW link.

c. JITPL- Angul OPGW link.

This is for information to the forum.

ERLDC may elaborate. Members may note.

Deliberation in the meeting

Members noted.

3.7 Final list of executed link under the Project "Reliable Communication Scheme under Central Sector for Eastern Region": Powergrid Odisha Projects

Approval was accorded in the 36th TCC meeting(MOM at **Annex B.3.5**) of ERPC for establishment of fiber optics connectivity of various stations/lines under central sector as part of subject project. Following is the final list of executed link under the Project.

Name of the Link	Approved Link Length (in KM)	Executed Link length (in KM)	DOCO Date	Remarks
Jindal-Angul	55	75.186	07-03-2025	**Commissioned**
GMR-Angul	30	30	16-02-2024	**Commissioned**
Part of Angul - Srikakulam (Angul portion)	120	121.19	19-02-2025	**Commissioned**
Alipurduar - Salakati	42	109.264	23-02-2022	**Commissioned**
IB Valley-Bhudhipadar	26	00	NA	OPGW exist, State owned Line. Proposed for deletion.
NALCO-Meeramundali	12	00	NA	NALCO owned line. NALCO, not an IPP, proposed for deletion.
LANCO-Angul	24	00	NA	Transmission Line does not exist. Proposed for deletion as per recommendation in 36th ERPC meeting.
Monet-Angul	31	00	NA	Transmission Line does not exist. Proposed for deletion as per recommendation in 36th ERPC meeting.
Indbhart-Jharsuguda	50	00	NA	Line belongs to Indbharth & Line was in break-down condition during execution period.

				IBEUL under NCLT.
TT Pool-New Melli	25	00	NA	Transmission Line does not exist. Proposed for deletion as per recommendation in 36th ERPC meeting.
Mangon-Rangpo	70	00	NA	Transmission Line does not exist. Proposed for deletion as per recommendation in 36th ERPC meeting.
Sterlite-Jharsuguda	40	00	NA	OPGW exist, Line belongs to Sterlite. Proposed for deletion.
Total	**525**	**335.64**		

Deliberation in the meeting

Members noted.

Additional Agenda

3.8 AMR Network Upgrade (Layer3/Layer4) Project status update: POWERGRID ER-II

In 52nd TCC ERPC meeting, members approved the technical solution for Layer3/Layer4 network upgradation in the existing AMR system. Members have provided their consent to carry out the job through M/S TCS in single tender via consultancy mode under AMR Phase5 scope addition with cost implication of 69,96,263.00 INR without taxes. (for Supply of hardware, Installation & Commissioning).

LOA was awarded on 27.01.2025 with timeline of 06 months implementation and another 06 months warranty services. Necessary activities were initiated, and PO was placed to CISCO for the Network Routers.

Delivery of Routers was competed on 21-Apr-2025 and the configuration setup was completed in another 07 days. WB States were planned for 1st round of router installation vis-à-vis upgradation of AMR Network for SEM data communication. Router was installed at WB SLDC office on 30-Apr-2025 and it was connected with the DCUs and the Central AMR router at ERLDC. The IP subnet was changed for WB locations DCUs. Total 23 number of DCUs are migrated to the upgraded AMR network and 58 number SEM data flow started from station to

ERLDC over the upgraded network system. This was the 1st Live implementation of AMR Network Upgrade which was under discussion for quiet a time.

The further plan for AMR Network upgradation is mentioned below:

Location/Zone	Total DCU	Total SEM	NW Upgrade Status	Planned Completion Date
WB	23	58	Completed	30-Apr-2025
Generator,IPP, Others	43	384	WIP	15-May-2025
DVC	18	50	Planned	21-May-2025
Odisha	21	44	Planned	28-May-2025
Jharkhand	17	38	Planned	04-Jun-2025
Bihar	54	143	Planned	11-Jun-2025
PG + Sikkim	89	825	Planned	18-Jun-2025

Deliberation in the meeting

TeST Decision

- *TeST Committee noted the update as well as future action plan shared by Powergrid i.r.o AMR network upgradation to layer 3/layer 4 across all ER constituents as detailed above.*
- *TeST Committee advised SLDCs of Bihar, Jharkhand, Sikkim and Odisha to arrange for single dropping point i.r.o AMR data communication to ERLDC. All SLDCs were urged to extend assistance to Powergrid in this regard.*
- *In regard to long pending LAN connectivity at KLC Bantala(WB),WBSETCL was urged to resolve the issue of non-functional SDH immediately.*

3.9 Commissioning of 400kV Bokaro A- Kodarma line under ER1 before the scheduled completion: POWERGRID ER-I

- **Installation & Commissioning of OPGW in 400kV Bokaro (A)- Kodarma link in ER1 has been completed on 30.05.2025.**
- " Scheme for OPGW laying work on 400kV Bokaro-Kodarma line in Eastern Region'
  - ☐ The above ISTS link comes as per the consideration of 51th ERPC and Approval of NCT in its 18th meeting held on 31.01.2024 in line with MoP office order no. 15/03/2017-Trans-Pt (1) dated 09.03.2022 regarding "Guidelines on Planning of Communication System for Inter-State Transmission System (ISTS)". The OPGW laying work has been awarded to CTUIL for implementation under RTM mode. POWERGRID is the implementing agency for the above link. As per the approval the link lenght of 400kV Bokaro (A) - Kodarma link is 104km with financial implication of the above link is 6.83 Cr. and the tentative completion schedule is 18 months (i.e. up to 11.09.2025) from the date of approval of the scheme dated 12.03.2024.
  - ☐ On approval, the implementing agency has taken necessary action for installation & Commissioning of 400kV Bokaro (A) -Kodarma link on priority and accordingly, the link has been commissioned successfully on 30.03.2025 which is before the deadline for completion of above link as mentioned in the Investment Approval (i.e. up to 11.09.2025).

This is for information to the forum.

Deliberation in the meeting

TeST Committee noted.

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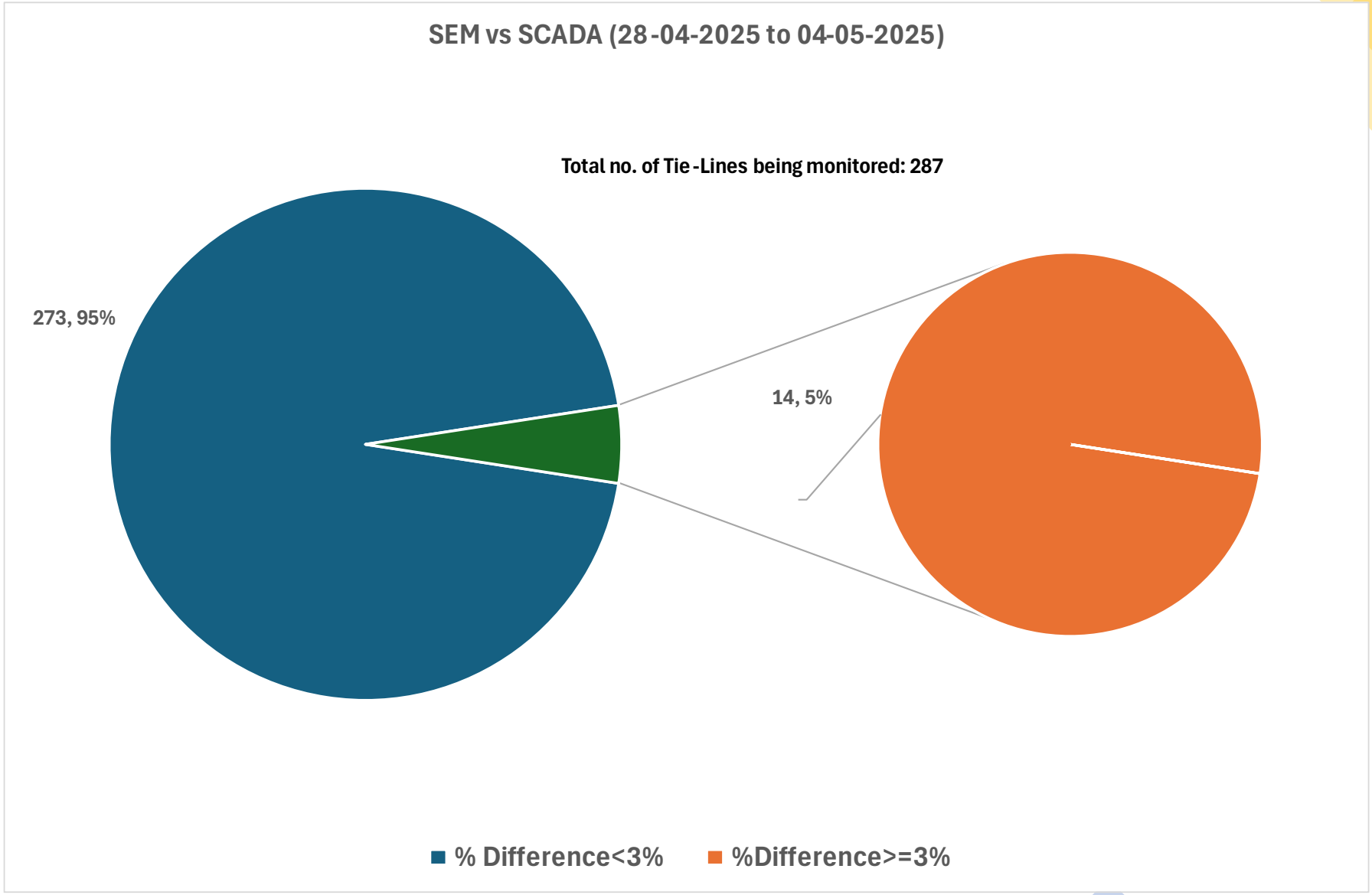
Annex A

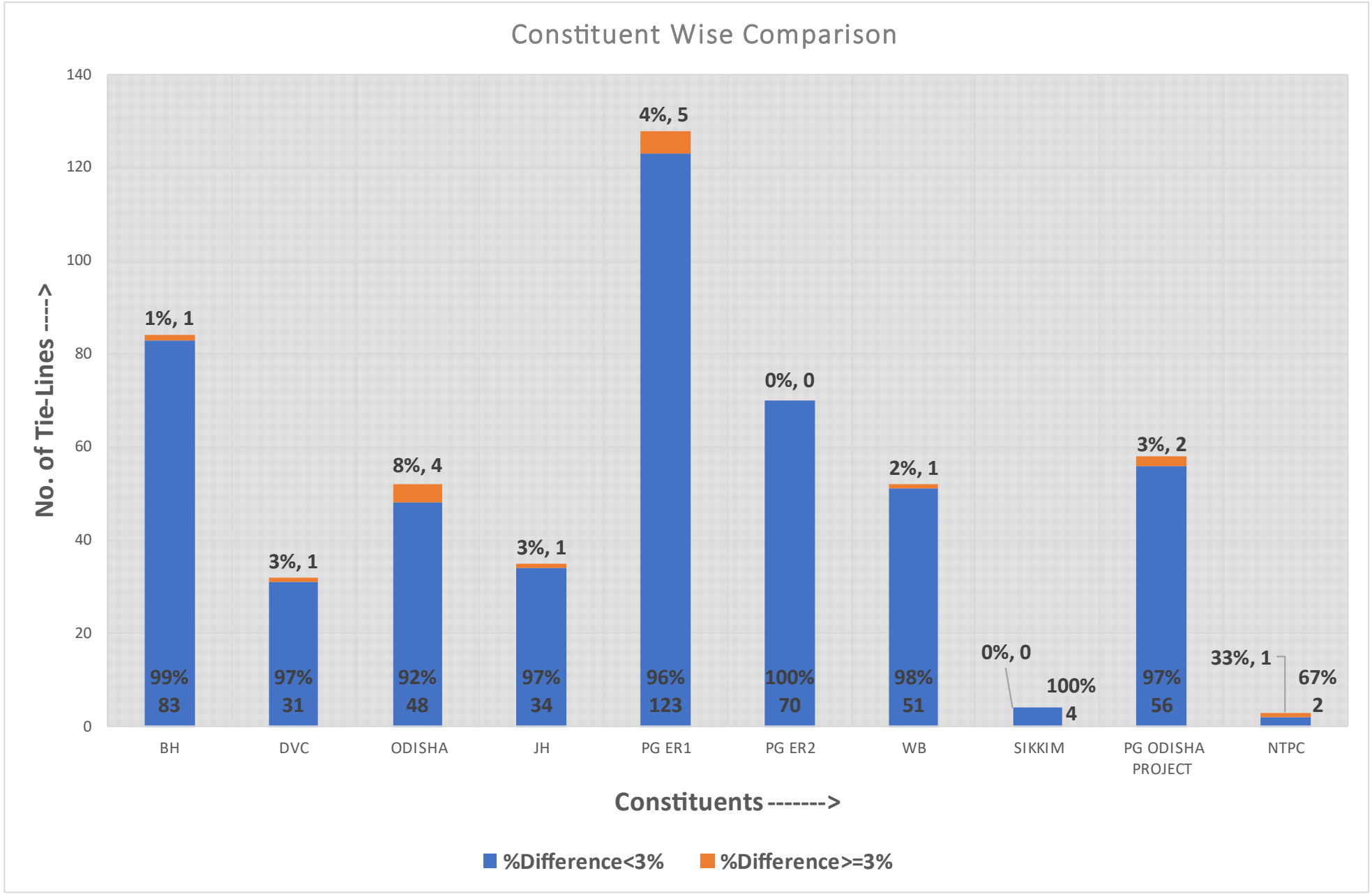
List of Participants				
Name	**First Join**	**Last Leave**	**In-Meeting Duration**	**Email**
ERPC Kolkata	5/27/25, 10:11:55 AM	5/27/25, 1:57:30 PM	3h 45m 34s	ERPC@KolkataMST.onmicrosoft.com
Kaushal Suman {कौशल सुमन} (External)	5/27/25, 10:16:48 AM	5/27/25, 1:57:30 PM	3h 40m 41s	k.suman@powergrid.in
AE, ERPC (Unverified)	5/27/25, 10:21:49 AM	5/27/25, 1:57:30 PM	3h 35m 40s	
RITISHA GARGI (External)	5/27/25, 10:25:08 AM	5/27/25, 1:57:08 PM	2h 46m 15s	STD4219@loretodoranda.onmicrosoft.com
Mamidi Prasad {मामिडी प्रसाद} (External)	5/27/25, 10:26:20 AM	5/27/25, 1:57:30 PM	3h 31m 9s	mamidi.prasad@powergrid.in
Amita Nand, CE (Telecom & OPGW), BSPTCL (Unverified)	5/27/25, 10:29:06 AM	5/27/25, 10:29:25 AM	19s	
Nishant Kumar Shankwar	5/27/25, 10:30:14 AM	5/27/25, 1:57:10 PM	3h 26m 55s	Nishant.Kumar@energy-sel.com
Murali. ERLDC (Unverified)	5/27/25, 10:30:16 AM	5/27/25, 1:57:10 PM	3h 26m 54s	
Priya JUSNL	5/27/25, 10:31:41 AM	5/27/25, 11:44:07 AM	1h 12m 26s	
Vivek_ERLDC (Unverified)	5/27/25, 10:32:10 AM	5/27/25, 1:57:30 PM	3h 25m 19s	
BIDYUT BISWAS (External)	5/27/25, 10:32:34 AM	5/27/25, 12:41:51 PM	2h 9m 17s	
HOWRAH COMMUNICATION	5/27/25, 10:32:35 AM	5/27/25, 1:57:19 PM	3h 24m 44s	bidyut.biswas@dvc.gov.in
Rishav Kumar (External)	5/27/25, 10:33:03 AM	5/27/25, 1:57:06 PM	3h 22m 12s	
PRADHAN SOREN (External)	5/27/25, 10:33:21 AM	5/27/25, 1:57:30 PM	3h 24m 8s	rishav@erldc.onmicrosoft.com
Bedashruti Das {वेदश्रुति दास} (External)	5/27/25, 10:33:29 AM	5/27/25, 1:57:30 PM	3h 24m	pradhan.soren@dvc.gov.in
sldc (Unverified)	5/27/25, 10:33:52 AM	5/27/25, 1:57:16 PM	3h 23m 24s	bedashrutidas@powergrid.in
B Madhu (Unverified)	5/27/25, 10:36:06 AM	5/27/25, 11:30:39 AM	54m 33s	
Santanu Rudrapal {सान्तनू रूद्रपाल} (External)	5/27/25, 10:36:34 AM	5/27/25, 11:13:18 AM	36m 43s	
sonam ongchuk lepcha	5/27/25, 10:37:45 AM	5/27/25, 1:57:05 PM	3h 19m 20s	santanu.rudrapal@powergrid.in
Naveen Kumar {नवीन कुमार} (External)	5/27/25, 10:39:21 AM	5/27/25, 12:48:33 PM	2h 9m 11s	
Sundeep Kr Gupta {संदीप कुमार गुप्ता} (External)	5/27/25, 10:39:44 AM	5/27/25, 1:57:22 PM	3h 17m 38s	naveenkumar@powergrid.in
MS ERPC (Unverified)	5/27/25, 10:41:34 AM	5/27/25, 1:57:30 PM	3h 15m 55s	sundeep.gupta@powergrid.in
RAJESH KUMAR (External)	5/27/25, 10:42:28 AM	5/27/25, 1:57:01 PM	3h 14m 16s	
himanshu erldc (Unverified)	5/27/25, 10:43:11 AM	5/27/25, 1:57:09 PM	3h 13m 58s	rajeshkumar@dvc.gov.in
JAYANTA BANERJEE (External)	5/27/25, 10:44:34 AM	5/27/25, 10:44:57 AM	23s	
Rakesh Kumar Singh (External)	5/27/25, 10:46:05 AM	5/27/25, 1:57:30 PM	3h 11m 24s	jayanta.banerjee@dvc.gov.in
Shiv Kumar Gupta {एस.के. गुप्ता} (External)	5/27/25, 10:47:38 AM	5/27/25, 1:57:05 PM	3h 9m 27s	rksingh@erldc.onmicrosoft.com
Ajay Kumar Sau (Odisha-ULDC) (Unverified)	5/27/25, 10:47:40 AM	5/27/25, 1:05:32 PM	2h 17m 51s	shivkumar@powergrid.in
Chandan kumar (External)	5/27/25, 10:49:19 AM	5/27/25, 1:57:25 PM	3h 8m 6s	
SR.GM(Telecom), OPTCL (Unverified)	5/27/25, 10:51:17 AM	5/27/25, 1:57:30 PM	3h 6m 12s	chandan@erldc.onmicrosoft.com
MANOJ KUMAR (External)	5/27/25, 10:52:07 AM	5/27/25, 1:57:03 PM	3h 4m 55s	
SHUBHRANIL DHARA (External)	5/27/25, 10:59:43 AM	5/27/25, 12:35:47 PM	1h 36m 4s	manoj.kumarcomm@dvc.gov.in
Uldc,bsptcl (Unverified)	5/27/25, 11:00:32 AM	5/27/25, 12:57:44 PM	1h 57m 12s	shubhranil.dhara@dvc.gov.in
Partha Ghosh {पार्थ घोष} (External)	5/27/25, 11:02:54 AM	5/27/25, 1:06:21 PM	2h 3m 26s	
ctuil (Unverified)	5/27/25, 11:03:43 AM	5/27/25, 1:57:07 PM	1h 5m 44s	partha.ghosh@powergrid.in
D.Biswas (Unverified)	5/27/25, 11:09:25 AM	5/27/25, 12:47:49 PM	1h 38m 24s	
Basudeo Mahato (Unverified)	5/27/25, 11:14:45 AM	5/27/25, 1:57:30 PM	2h 42m 20s	
S C De(MO, SCADA, TS, Communication) group ERLDC (Unverified)	5/27/25, 11:14:55 AM	5/27/25, 1:57:30 PM	2h 42m 34s	
Roshan Jaiswal (External)	5/27/25, 11:18:52 AM	5/27/25, 1:57:13 PM	2h 38m 21s	
Murali, ERLDC (Unverified)	5/27/25, 11:23:37 AM	5/27/25, 1:57:30 PM	2h 33m 52s	roshanjaiswal@erldc.onmicrosoft.com
Meeting Guest (Unverified)	5/27/25, 11:47:18 AM	5/27/25, 11:51:13 AM	3m 54s	

List of Participants				
Name	**First Join**	**Last Leave**	**In-Meeting Duration**	**Email**
Murali (Unverified)	5/27/25, 11:51:26 AM	5/27/25, 11:54:48 AM	3m 22s	
Lade Muralikrishna (External)	5/27/25, 11:58:06 AM	5/27/25, 12:08:41 PM	10m 35s	
Rakesh Kr Pradhan (External)	5/27/25, 11:58:57 AM	5/27/25, 1:01:02 PM	53m 17s	lmuralikrishna@erldc.onmicrosoft.com
AEE BSPTCL (Unverified)	5/27/25, 12:05:59 PM	5/27/25, 1:57:11 PM	1h 51m 11s	rkpradhan@erldc.onmicrosoft.com
Sweta (Unverified)	5/27/25, 12:20:17 PM	5/27/25, 1:18:42 PM	58m 25s	
Sundeep Gupta (Unverified)	5/27/25, 12:42:05 PM	5/27/25, 1:57:16 PM	1h 15m 10s	
murali,ERLDC (Unverified)	5/27/25, 12:47:02 PM	5/27/25, 1:57:09 PM	1h 10m 7s	
Kavita Parihar (Unverified)	5/27/25, 12:50:43 PM	5/27/25, 1:57:30 PM	1h 6m 46s	

Annexure-B.2.6



*offset of 20MW is used in computing these Stats


Constituent Wise Comparison
140
120
100
80
60
40
20
0
No. of Tie-Lines ---->
1%, 1
99%
83
3%, 1
97%
31
8%, 4
92%
48
3%, 1
97%
34
4%, 5
96%
123
0%, 0
100%
70
2%, 1
98%
51
0%, 0
100%
4
3%, 2
97%
56
33%, 1
67%
2
BH
DVC
ODISHA
JH
PG ER1
PG ER2
WB
SIKKIM
PG ODISHA PROJECT
NTPC
Constituents ------->
%Difference<3%
%Difference>=3%

List of Lines having % Difference >=3% for the week 28-04-2025 to 04-05-2025

Constituent	Tie-Lines	Reason	Corrective Action taken(or)to be taken
BH	132_SABOUR(BH)_BANKA(PG)_1	Scada Data Error	Incorrect Mapping at BSPTCL End
DVC	400_JAMSHEDPUR(PG)_DSTPS(DV)_1	Scaling issue	Tuning required at RTU level
ODISHA	220_TALCHER(PG)_TTPS(GR)	ICCP data issue	ICCP DB mismatch,rectified
	220_TARKERA(GR)_ROURKELA(PG)_1	Time Drift B/W SEM and SCADA	Time settings may be checked
	220_RENGALI S/S(GR)_RENGALI(PG)_1	Time Drift B/W SEM and SCADA	Time settings may be checked
	220_RENGALI S/S(GR)_RENGALI(PG)_2	Time Drift B/W SEM and SCADA	Time settings may be checked
WB	400_KHARAGPUR(WB)_KALABADIA(PG)	Time Drift B/W SEM and SCADA	Time settings may be checked
PG ER1	765_NEW RANCHI(PG)_DHARMJAIGHAR(WR)_2	Difference is observed during Peak loading(>200MW)	MFT may be checked
	400_RANCHI(PG)_RAGHUNATHPUR(DV)_2	Time Drift B/W SEM and SCADA	Time settings may be checked
	400_MUZAFFERPUR(PG)_GORAKHPUR(NR)_1	Time Drift B/W SEM and SCADA	Time settings may be checked
	400_BIHARSHARIFF(PG)_BALIA(NR)_1	Time Drift B/W SEM and SCADA	Time settings may be checked
	220_DALTONGANJ(PG)_CHATRA(JH)_1	Time Drift B/W SEM and SCADA	Time settings may be checked
JH	220_RAMCHANDRAPUR(JH)_JODA(GR)	ICCP issue and time drifting	Time settings may be checked
NTPC	400_TALCHER(PG)_MERAMANDALI(GR)_1	Scaling issue	Tuning required at RTU level
PG ODISHA PROJECT	220_RENGALI(PG)_RENGALI S/S(GR)_1	Time Drift B/W SEM and SCADA	Time settings may be checked
	220_RENGALI(PG)_RENGALI S/S(GR)_2	Time Drift B/W SEM and SCADA	Time settings may be checked

List of Lines having % Difference >=3% recurring over past 3 weeks

CONSTITUENT	TIE LINE	DIFFERENCE (IN %)		
		14-04-2025 to 20-04-2025	21-04-205 to 27-04-2025	28-04-2025 to 04-05-2025
JUSNL	220_RAMCHANDRAPUR(JH)_JODA(GR)	4.11	3.51	4.21
DVC	400_DSTPS(DV)_JAMSHEDPUR(PG)_1	3.43	3.37	3.48
OPTCL	220_TARKERA(GR)_ROURKELA(PG)_1	5.77	5.78	7.7
	220_RENGALI S/S(GR)_RENGALI(PG)_2	6.79	7.21	5.89
	220_RENGALI S/S(GR)_RENGALI(PG)_1	5.18	5.49	8.63
WBSETCL	400_KHARAGPUR(WB)_KALABADIA(PG)	3.8	3.99	3.62
POWERGRID ER1	765_NEW RANCHI(PG)_DHARMJAIGHAR(WR)_2	9.77	9.89	9.89
	400_MUZAFFERPUR(PG)_GHORAKPUR(NR)_1	4.23	3.99	3.75
NTPC	400_TALCHER(PG)_MERAMANDALI(GR)_1	8.13	5.66	6.81

Annexure 3.1

Summary of IP & MAC addresses of the end user equipment connected in Data & voice Network.									
S.N.	**Constituents**	**RTU/SAS /GATEWAY DEVICE**	**ROUTER / FIREWALL**	**VOIP**	**AMR/DCU**	**PMU**	**URTDSM**	**SWITCH**	**Any Other device.**
1	POWERGRID ER-I	MAC & IP	Not Submitted	MAC & IP	MAC & IP (56)	MAC & IP	Submitted but not in format	Not Submitted	No Details is reccived.
2	POWERGRID ER-II	MAC & IP (18 No. Stations)	Not Submitted	MAC & IP	MAC & IP(48)	MAC & IP	Submitted but not in format	Not Submitted	No Details is reccived.
3	POWERGRID ODISHA PROJECT	MAC & IP (10 No. Stations)	MAC & IP	MAC & IP	MAC & IP(18)	MAC & IP	Submitted but not in format	Not Submitted	No Details is reccived.
4	BIHAR	MAC & IP	IP	Not Submitted	MAC & IP (Submitted by POWERGRID)	Not Submitted	Not Submitted	IP	No Details is reccived.
5	JHARKHAND	MAC & IP	Not Submitted	Not Submitted	MAC & IP (Submitted by POWERGRID)	Not Submitted	Not Submitted	Not Submitted	SDH/PDH IP&MAC
6	ODISHA	MAC & IP	MAC & IP	MAC & IP	MAC & IP (Submitted by POWERGRID)	MAC & IP (Submitted by POWERGRID)	MAC & IP	Not Submitted	No Details is reccived.
7	WEST BENGAL	Not Submitted	Not Submitted	Not Submitted	MAC & IP (Submitted by POWERGRID)	MAC & IP (Submitted by POWERGRID)	Not Submitted	Not Submitted	No Details is reccived.
8	SIKKIM	Not Submitted	Not Submitted	Not Submitted	MAC & IP (Submitted by POWERGRID)	Not Submitted	Not Submitted	Not Submitted	No Details is reccived.
9	DVC	IP	IP	IP	MAC & IP (Submitted by	MAC & IP (Submitted	IP	IP	No Details is reccived.

					POWER GRID)	by POWERGRID)			
10	RONGNICHU	MAC & IP	MAC & IP	MAC & IP	IP	Not Submitted	Not Submitted	Not Submitted	No Details is reccived.
11	JORETHANG	MAC & IP	MAC	MAC	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Ethernet adapter MAC & IP
12	TASHIDING	MAC & IP	MAC & IP	MAC & IP	Not Submitted	Not Submitted	Not Submitted	Not Submitted	No Details is reccived.
13	ADHUNIK	IP	Not Submitted	Not Submitted	MAC & IP (Submitted by POWER GRID)	Not Submitted	Not Submitted	Not Submitted	(DAC & BDAC) IP
14	BARH	MAC & IP	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Not Submitted	No Details is reccived.
15	GMR	IP	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Not Submitted	No Details is reccived.
16	NKTL DHANBAD	MAC & IP	Not Submitted	MAC & IP	Not Submitted	Not Submitted	MAC & IP	Not Submitted	No Details is reccived.
17	MPL	IP	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Not Submitted	IP	(DC/DR PC & SUX) IP
18	DARLIPALI	MAC	Not Submitted	MAC	Not Submitted	Not Submitted	Not Submitted	Not Submitted	No Details is reccived.

Apart from this, No MAC/IP Data has been received from FARAKKA, KAHALGAON NTPC, NABINAGAR, KBUNL, BRBCL, RANGIT, TEESTA V, DIKCHU, DMTCL, CHUJACHEN, IBEUL, BTPP, CHUJACHEN, TEESTA III, PMJTL & NORTH KARANPURA.