



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
पूर्वी क्षेत्रीय विद्युत समिति

Eastern Regional Power Committee
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NO. ERPC/SE/OPERATION/2021/

DATE: 08.07.2021

To

As per list enclosed.

Sub: Minutes of 9th Telecommunication, SCADA and Telemetry (TeST) Sub-Committee Meeting held on 16.06.2021 (Wednesday) through MS Teams Platform- reg.

Sir,

Please find enclosed minutes of 9th TeST Meeting held on 16.06.2021 (Wednesday) through MS Teams Platform for your kind information and necessary action, available at ERPC website (www.erpc.gov.in).

Observations, if any, may please be forwarded to this office at the earliest.

Regards,

Yours faithfully,

(D.K. Bauri)
SE (O & PS)

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**MINUTES
OF
9th TeST MEETING**

Date: 16.06.2021

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

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 9th TeST MEETING HELD ON 16.06.2021(WEDNESDAY) AT 10:30 HRS

PART – A

ITEM NO. A.1: Confirmation of Minutes of 8th TeST Meeting held on 11th March 2021 through MS Teams online platform.

The minutes of 8th Telecommunication, SCADA and Telemetry Sub-Committee meeting held on 11.03.2021 circulated vide letter dated 16.04.2021.

Members may confirm the minutes of 8th TeST meeting.

Deliberation in the meeting:

Members confirmed the minutes of 8th TeST Meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Major communication outage in Eastern Region

In line with ISTS Communication regulation 2017, the following are the major OPGW link outage in Eastern Region during April 2021 & May 2021:

1. Kahalgaon - Lakhisarai OPGW link was out due to signal degradation, as per information received from ULDC since 13th April 2021 to 16th May 2021 due to the non operation of stand by link of Bihar SLDC which was later diverted to alternate path manually by ULDC team.
2. Muzzaffarpur- Dharbanga (DMTCL) OPGW fiber was out of service from 3rd May 2021 to 19th May 2021. Due to unavailability of this link SCADA data of Darbhanga DMTCL was not updating at ERLDC.

Members may note/update.

Deliberation in the meeting

1. *Kahalgaon- Lakhisarai OPGW link: Powergrid representative informed that the OPGW link was not completely out of service, however signal degradation was observed for this link and simultaneously NLDC as well as ICCP links were working. But Bihar ICCP link was not reporting to RLDC at that time. He informed that there are two nos. of ULDC links and one no. of Powertel link between Bihar SLDC and ERLDC and at any given instance one network is kept out by Bihar. He further told that in case Powertel link is out, there would still be one standby link, however in this case due to signal degradation alarm, disruption in SCADA data transmission was observed but MSP did not switchover as no "loss of signal" was recorded. In order to avoid this interrupted data flow, ULDC team diverted link to alternate path manually on 13th April 2021.*

Powergrid representative informed that they tried to address the issue of signal degradation during that time as they were experiencing some losses in the fibre but the concerned engineer of their OPGW AMC Team could not attend due to Covid related issues. He further informed that once the engineer was available they rectified the signal degradation issue and both the main and standby links have been working fine since 16th May'2021.

ERLDC submitted that end to end communication was affected due to non operation of standby link of Bihar SLDC. During further discussion, ERLDC also pointed that Powergrid had disconnected the Powertel link between Bihar SLDC and ERLDC without prior intimation to them.

Powergrid told that there is already one main link and one standby link between Bihar SLDC and ERLDC; so they had disconnected the Powertel link, however if it is required to provide the 3rd link (Powertel link) it can be done with some financial implications.

Test Committee advised Powergrid that if they want to remove any such link the same may be discussed at TeST forum. Disconnecting such links without any prior information to respective utilities may hamper the data availability of associated utilities to a great extent. TeST Committee opined that if utilities want to have third link, they can share their views to ERLDC and ULDC Powergrid and the issue can be placed in upcoming TeST Meeting.

2. Muzzaffarpur- Dharbhanga OPGW link: DMCTL representative informed that there were two issues observed with respect to the incident:

- a) Port issue in backup link at ATL end
- b) Issue with FODP panel at Muzzaffarpur end

He informed that they had communicated with M/S GE and M/S Comtel regarding this incident, however delay in data restoration was caused due to Covid-19 pandemic. He further informed there was some communication gap from both ATL and Powergrid end.

TeST Committee advised Powergrid to properly coordinate with DMCTL while doing any work at DMCTL end in order to avoid such misunderstanding.

TeST Committee opined that in order to analyse and discuss such issues in upcoming meetings, the concerned utilities should prepare a brief report of the incident after thorough investigation and should mention their findings, remedial measures taken etc. in the report and share it with ERPC and ERLDC.

Further, TeST committee advised Powergrid and DMCTL to prepare a report and share it to ERPC and ERLDC for both the above incidents.

ITEM NO. B.2: Draft Procedure on Monthly Outage Planning for Communication System of Eastern Region
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As stated vide clause 10 of Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020, "Monthly outage shall be planned and got approved by the owner of communication equipment in the concerned regional power committee, as per detailed procedure finalized by the respective regional power committee". It is to ensure reliable speech and data communication systems on path diversified data links and data exchange / supervision / control of the grid by the NLDC, RLDC and SLDC in accordance

with CERC (Communication System for Inter-State Transmission of Electricity) Regulations, 2017 and CEA (Technical Standards for Communication System in Power System Operations) Regulations, 2020.

In line with the above cited clause, ERPC has prepared a draft procedure on "Monthly Outage Planning of Communication System of Eastern Region".

The Constituents / Owners / Users of the communication equipment/links are requested to go through the attached procedure (**Annexure-B2.1**) and formats(**Annexure-B2.2**) and to suggest for improvement / modification of the procedure and formats, if any, by 25.06.2021 so that the final procedure and formats can be circulated to all Constituents / Owners / Users of the communication equipments/links.

Deliberation in the meeting

ERLDC and Powergrid representatives informed that they would provide their observations on the draft procedure by 25.06.2021.

Test Committee advised all utilities to provide their observations to ERPC latest by 25.06.2021 so that the procedure can be finalized.

ITEM NO. B.3: Database and Display update related issues with OPTCL

It has been observed while validating ERLDC SCADA displays as a precautionary measure for "Yaas Cyclone" that few 220kV stations (Jaypatna, Kasipur etc.) have been charged in OPTCL without SCADA data, including display & Database, integration with ERLDC. Total 67 nos. of substations under OPTCL jurisdiction have been identified which are either not integrated in OPTCL SCADA or the updated database and display is not shared with ERLDC. List is attached at **Annexure B.3**. Due to poor SCADA data visualization in OPTCL area, ERLDC operators are facing difficulties in real time Grid operations.

OPTCL SCADA team is requested to please take necessary action towards integrating SCADA displays and database including real time data with ERLDC. OPTCL is also requested to integrate SCADA data prior to charging of any stations in line with IEGC clause 4.6.2.

OPTCL may explain.

Deliberation in the meeting

OPTCL representative informed that database has been updated for 8 nos. of S/S. He further informed that some of stations are coming under railway stations where RTU is not available so SCADA data including display and database of those substations are not maintained by OPTCL.

On query, he told that in case of around 20 nos. of substations, new feeders have been integrated so updation of database for such substations are in process and the same would be completed within 15 days.

He submitted that some substations had been charged without SCADA integration due to delay in commissioning of ABB RTUs. OEM is having issue to visit S/S due to Covid pandemic. The

issues of SCADA integration of such substations are expected to be resolved in 4 to 5 month of time.

ERLDC stated that they had not received any updated database of the 8 nos. of substations as mentioned by OPTCL.

OPTCL informed that they would share the updated database of the 8 nos. of substations within 2-3 days to ERLDC.

ED, ERLDC expressed that the onus of coordination with RTS stations in order to install RTUs lies upon SLDC Odisha so that data integration can be done for such stations too.

OPTCL representative submitted that for 50 nos. of S/S database is already available and 9 out of remaining 17 nos. of S/S have issue with OPGW link and 8 out of remaining 17 nos. of S/S do not have RTUs.

ERLDC asked OPTCL to synchronize data base of those 50 nos. of substations with ERLDC at the earliest.

TeST Committee advised OPTCL to share the updated database of 50 nos. of S/S with ERLDC within two weeks and share target plan of integrating remaining 17 S/S with ERLDC at the earliest.

ITEM NO. B.4: Complete failure of OPTCL MCC SCADA system and failure of restoring BCC as master during the event

On 27.05.2021 from 11:57 hrs to 21:00 hrs ERLDC was not getting any SCADA data from OPTCL area. As per the information received from OPTCL SCADA team ,due to power supply issue at OPTCL MCC locations complete failure of communication with MCC OPTCL occurred and at the same time OPTCL were unable to set BCC system as master CC.

OPTCL may explain.

Deliberation in the meeting

OPTCL representative informed that station transformer was tripped on 27.05.2021 due to which all 48 Volt DC equipments were damaged. Besides, the SDH (STM 16) was so severely damaged that they could not restore it. It took them around 3 to 4 hours to substitute the existing SDH by two spare SDH (STM 4).He informed that the Powertel link was not available at that time and BCC link also did not operated during that period. He further submitted that a similar kind of incident took place again after 3 to 4 days after this incident and it was found that the BCC link was operational at that time.

Test Committee advised OPTCL to investigate the reason for non- operation of BCC link during the event on 27.05.2021 and share a report of complete event with ERPC and ERLDC at the earliest.

ITEM NO. B.5: Non availability of PMU from Tenughat TPS

Two numbers of PMUs, installed at Tenughat, are not reporting due to communication failure since 14:49 Hrs of 15th April 2021. As per observation from ULDC POWERGRID team this is due to communication failure. JUSNL team was requested on several occasions to restore the communication. But the same is yet to be restored.

JUSNL may explain.

Deliberation in the meeting

JUSNL representative informed that some damage in the fibre link was reported due to dismantling work was going on at Tenughat plant. He further informed that they have been trying to locate the fault location but the same is yet to be traced. Besides, due to Covid-19 pandemic the work is getting delayed too.

ERLDC representative submitted that due to non availability of fiber link both SCADA data and PMU data are affected. So the restoration of the same may be expedited.

JUSNL informed that the issue would be resolved by 30th June 2021.

ITEM NO. B.6: Non availability of Farakka STPS data at ERLDC

Farakka STPS has upgraded their old RTU data to report it over IEC 104 protocol. After up-gradation, Farakka data was not updating at ERLDC. With the continuous effort from Farakka STPS, most of the data has been restored but still around 50 nos. of digital and 25 nos. of Analog data are not updating at ERLDC.

It is learnt that there are some feeders like Rajarhat, New Purnea, Berhampur etc is owned and maintained by POWERGRID and ERLDC is not getting those feeder data as well.

NTPC and POWERGRID may update the current status and data restoration plan.

Deliberation in the meeting

NTPC representative informed that generating units as well as feeders data of Farakka STPS had already been updated with ERLDC; however, SCADA data is pending from Powergrid end which has to be configured and sent to ERLDC.

On enquiry, ERLDC confirmed that they are getting generating units as well as feeders' data from NTPC, however still around 50 nos. of digital and 25 nos. of analog data are not updating at ERLDC.

Powergrid representative informed that upgradation of RTU of Farakka STPS had been done over IEC 104 protocol however no physical changes like field side wiring had been changed at RTU so SCADA data is available at SAS which NTPC has to send to ERLDC.

NTPC representative updated that after upgrading from IEC 101 to IEC 104 protocol there were some issues with the database due to problem in analog card. He further told that Powergrid had sent another analog card however it was not compatible with M/s GE RTU at Farakka end.

NTPC representative requested Powergrid to send SCADA engineer at the site to rectify the issue.

TeST Committee advised NTPC and Powergrid to coordinate with each other and resolve the issue at the earliest.

ITEM NO. B.7: Remote Display of ERLDC at POWERGRID

B 7.1 Provision for availability of Remote Display of ERLDC at POWERGRID ERTS-I in the upcoming SCADA/EMS Upgradation project of ERLDC

POSOCO/ERLDC will be upgrading its SCADA/EMS System in the next six months. ERLDC is requested to kindly keep provision to provide minimum 3 nos. of Remote Display Units/Licenses for ERTS-I, in order to provide POWERGRID with better Grid. Visibility and enable ULDC team to upkeep the Telemetry System is an organized

ERLDC may update.

Deliberation in the meeting

ERLDC representative informed that for upcoming SCADA project the design document for PAN India had already been finalized at their corporate center engineering wing. He further told that if Powergrid wants remote display unit /licenses then their LDMC team at corporate can approach corporate office of POSOCO to discuss and resolve the same.

ED, ERLDC further intimated that due to cyber security issues no provision of display connections to the utilities has been kept by their corporate office engineering team.

Powergrid requested ERPC to refer this issue to upcoming Standing Committee on Communication Systems Planning.

TeST Committee advised Powergrid to take up the issue with the POSOCO corporate team to resolve it bilaterally and further, if required, an agenda may be placed before the Standing Committee on Communication Systems Planning.

B 7.2 Non-working of Remote Display provided for ER-II RTAMC

Remote display (licensed) of ERLDC was provided by ERLDC at ER-II RTAMC which helps in visualization of entire ER grid in a common network. The remote display has not been functioning since 14.03.2021. Matter has been informed to ERLDC several times but the issue is not yet resolved. ERLDC is kindly requested to make it operational.

ERLDC may explain.

Deliberation in the meeting

ERLDC representative informed that due to cyber security issue, Remote display license had been stopped since 14.03.2021. He further added that that if Powergrid wants remote display it can be provided through web client services.

B 7.3 Non-availability of Remote Display of ERLDC provided to RTAMC Patna (erstwhile CPCC)

Remote Display of ERLDC was provided to ER-I/RTAMC, which enables POWERGRID the visibility of all Central Sector Stations and ER-GRID. The remote display is not functioning since 14.03.2021. The matter has already been informed to ERLDC but the same is yet to be resolved.

ERLDC in turn has proposed to provide web-client to POWERGRID/ER-I to enable ER-Grid visibility. However, the same is very slow and doesn't give real time information.

ERLDC may explain.

Deliberation in the meeting

ERLDC representative informed that due to cyber security issue, Remote display license had been made non functional since 14.03.2021. However, the remote display is available through web client.

Powergrid submitted that web client provided by ERLDC is too slow due to low bandwidth so they want remote display unit for better Grid visibility.

TeST Committee further advised ERLDC to increase bandwidth of web client so that ER-Grid visibility becomes better for Powergrid.

ITEM NO. B.8: Replacement of UPS Battery bank installed at SLDC Ranchi

Replacement of UPS battery bank (Make-Delta) is needed because the SCADA server and VPS system is frequently getting shutdown for past few months. The shutdown is occurring due to non switching action of UPS battery bank to back up mode at the time of power cut. Several correspondence and discussion made with M/s Chemtrols in this regard but no positive step has been taken yet. Moreover, M/s Chemtrols informed vide their letter no.UEX130005/SBU5/JUSNL/001/2021; dated 30.05.2021 that procurement of 1 set of battery bank is under process but it will take 6 to 8 weeks and the delivery time may be extended further due to COVID pandemic.

M/S Chemtrols may update.

Deliberation in the meeting

M/S Chemtrols representative informed that order for UPS Battery bank had already been placed for both Bihar and Jharkhand and it would be delivered by end of September 2021. He told that delay in placement of order was caused due to delayed confirmation by vendor due to Covid-19 pandemic.

He further informed that they are facing this issue of UPS Battery bank from every utility like Bihar, Jharkhand, West Bengal etc and replacement of one UPS Battery bank would cost around Rs 9 Lac so replacing all the battery banks would bear huge cost implication.

ERLDC representative submitted that average life of UPS Battery bank is of 5- 6 years be it of any make. M/S Chemtrols had to consider these financial issues in pre bid meeting with the vendors. He further submitted that all the concerned utilities are bound by the terms and conditions of the contractual agreement.

ITEM NO. B.9: Agenda by WBSETCL

B 9.1 Battery bank- II , make M/S HBL installed at Howrah SLDC has been out of order since 15.02.2021 but still no fruitful action has been taken by M/S Chemtrols , as a result only Battery bank – I make M/S Exide are now in working condition . Some abnormalities are noticed in battery bank – I. It is requested to depute Battery maintenance service engineer for thoroughly checking of all battery cell of battery bank – I.

B 9.2 Video controller at SLDC Howrah is out of service.

Members may discuss.

Deliberation in the meeting

B 9.1 M/S Chemtrols representative informed that battery bank would be provided by December 2021.

B 9.2 M/S Chemtrols representative informed that main video controller had been replaced by backup video controller. He further told that issue with backup video controller would be resolved by this month. It was delayed due to Covid-19 pandemic.

ITEM NO. B.10: Compliance of Cyber Security Audit of SCADA/EMS System for Main and Back up control centres of ERLDC located at ERLDC and New Delhi respectively

Cyber security audit and its compliance plays very crucial role in ensuring system security in cyber space. Cyber security audit was conducted during October 2020 but compliance of cyber security audit in Eastern Region, including ERLDC BCC, is yet to be implemented. ERLDC has informed the matter to M/s Chemtrols several times but the same is yet to be completed.

M/S Chemtrols may update.

Deliberation in the meeting

M/S Chemtrols representative told that most of the work of compliance of cyber security audit of ERLDC MCC had been completed and issue with ERLDC BCC and pending work of ERLDC MCC would be resolved by 30th June 2021.

ERLDC told that they are in process of checking the compliance work done by M/S Chemtrols and would provide their observation/feedback within 2-3 days to M/s Chemtrols so that the pending issues could be resolved soon.

TeST Committee advised M/S Chemtrols to resolve the pending compliance work of ERLDC

MCC by 30th June 2021. Further, TeST Committee advised M/S Chemtrols to submit the compliance report of ERLDC BCC latest by 30th June 2021.

ITEM NO. B.11: Disruption in real time SCADA, URTDSM, VoIP communication in Eastern Region.

On 10th February at 08:20 PM entire data communication in Eastern region got disrupted which leads to outage of SCADA data, URTDSM data and Voice communication. The matter was informed to Powergrid ULDC team immediately after occurrence of the event.

Powergrid ULDC team has taken prompt action and deployed communication expert towards restoration of communication links in Eastern region. At present, few SCADA, URTDSM and VoIP communication links are yet to be restored. Since data and voice communication are the basic needs for smooth operation of the real time grid, root cause of such unwanted event needed to be identified and addressed with proper remedies.

In 6th TeST Meeting, it was decided that a technical committee comprising of the members from POWERGRID, ERPC, ERLDC, DVC, OPTCL, JUSNL, BSPTCL and Sikkim analyse the event and submit a detailed report in next TeST meeting.

In the 8th TeST meeting, the Technical Committee submitted the detailed report. The recommendations were discussed in detail and TeST Committee felt that the following recommendations maybe implemented on priority basis so as to avoid such further disturbances:

SL No	Recommendation	Details
01	*RTU/SAS specification regarding NIC and Ethernet Port.	RTUs/SAS gateway should be having separate NIC for each required Ethernet port
02	Interfacing of Main and Standby channel in MUX	Main and stand by channel interfacing at each site is to be done in separate Ethernet card in MUX
03	Connectivity of LDMS at Substations	LDMS network IP series different from LDCs SCADA RTU network and to be connected to RTU/SAS gateway in dedicated Ethernet port.
04	Unused Ethernet/LAN ports shall be kept administratively down.	Cyber Security norm also mandates that to keep IT/OT system secure in cyber space all unused Ethernet/LAN ports shall be kept administratively down. Authorized log in to all the devices connected to the communication network is also mandatory to safeguard OT/IT system.

Regarding recommendation No.1, a detailed deliberation took place and the committee advised the utilities to prepare a list of RTU/SAS with the facility of dual network interface cards and a list of the same without the facility of dual network interface cards. All the utilities were advised to implement the recommendation no. 1 wherein the provision for dual network interface cards is available and also to initiate necessary implementation action plan for the RTU/SAS wherein the provision of dual network interface cards is not available.

The committee also advised all the utilities to prepare an action plan for implementation of recommendations no 2, 3 and 4.

Further, the TeST Committee opined that the recommendations no. 5, 6 9 & 10 may be implemented after receiving necessary approval from Standing Committee on communication system planning.

In 43rd TCC Meeting, TCC accepted all the recommendations and advised all the utilities to implement the recommendations nos. 1, 2, 3 and 4 on priority basis.

Members may update the status.

Deliberation in the meeting

Powergrid representative informed that regarding recommendation no 1, upgradation of RTU/SAS related to separate NIC card for each required Ethernet Port is in progress. Regarding recommendation no. 2 , he informed that two different MUX for main and standby channel is in practice however in order to have two separate Ethernet cards for Main and Standby channels they need to take up this matter with their engineering wing. Regarding recommendation no. 3, Powergrid representative informed that it is not applicable for them. Lastly regarding the recommendation no. 4, he informed that unused Ethernet / LAN ports are always kept administratively down.

OPTCL representative informed that upgradation of 78 RTUs are already in progress and once upgradation work is completed separate NIC card for each required Ethernet Port would be upgraded in RTU/SAS.

ERLDC representative asked OPTCL to share the list of RTUs and SAS having multiple Ethernet ports availability for IEC 104 to ERLDC. He told that provision of separate Ethernet Cards in MUX needs to be checked and different IP series for LDMS network from LDCs SCADA RTU network also need to be checked by OPTCL. He further told OPTCL to follow the norms of cyber security as mentioned.

On query, OPTCL representative informed that they would share the requisite port details by 30th June 2021 and MAC address details within 1 month.

Jharkhand representative informed that related to RTU/SAS upgradation it would take around one month for completion of the same. He further informed that in order to check separate Ethernet card for main and standby link, it would take around 20 days. Related to LDMS connectivity issue, they would coordinate with M/S Chemtrols for checking IP series of old RTUs.

Bihar representative informed that 101 RTUs of M/S Chemtrols make, extra hardware need to be installed in order to have separate NIC card. He further informed that in rest of the RTUs, which are of Synergy make, provision of different IP series for LDMS network from LDCs SCADA RTU network has been kept in place.

M/S Chemtrols representative opined that extra router needs to be installed in order to have two separate NIC cards as well different IP series for LDMS network and RTU network.

TeST committee advised Bihar to coordinate with M/S Chemtrols to resolve the issue at the earliest.

TeST Committee advised ERLDC to make a uniform format regarding the above recommendations so that it can be shared among the concerned utilities to collect the requisite details.

ERLDC representative agreed to prepare a format for all recommendations and share it with all concerned utilities.

TeST Committee advised all the concerned utilities to share requisite details as per the format prepared by ERLDC as well as their issues, if any in implementing these recommendations to ERPC and ERLDC at the earliest.

ITEM NO. B.12: Guidelines regarding use of ULDC network for other purposes.

The services identified as per the communication network (CEA Notification 27th February, 2020) for ISTS & State network are as follows:

1. SCADA (RTU/SAS Data)
2. Inter-Control Centre Communication Protocol (ICCP)
3. Phase Measurement Unit
4. Digital Protection used by Substation
5. Travelling Wave Fault Locator
6. Voice Over Intranet Phone
7. EPAX
8. Automatic (Energy) Meter Reading
9. Automatic Gain Control (of Gen. Stations)
10. Video Conferencing (between users)

Any services other than the above need permission of ERPC. Further, usage of the network for the purpose of internetting, which is a public network, will have an extremely high security threat to the power operation.

As the ISTS communication network of Central Sector is integrated with that of State Network, this type of breach of going beyond the envisaged usage of services by any one user may jeopardise the operation and security of the entire national grid. Going by the sensitive nature of this issue, a guideline may please be issued at the earliest regarding the restricted usage of this network.

Further as per draft communication regulation, 2017 (CI.10), ERPC is required to frame the procedure to conduct audit of communication system on an annual basis. Pending finalisation of the regulation, it is requested to carry out this exercise of identifying the services being used by all users (including MAC ID and IPs) as a first step towards audit. A guideline to be used in this regard shall help in improving the uninterrupted availability of services.

In 7th TeST Meeting, POWERGRID informed that the dedicated communication link which is important for transfer of SCADA data and PMU data was being used for internet access. Powergrid added that it would be a high security threat to the power system operation therefore a standard operating procedure is needed to be prepared for the utilization of the communication network. The same has to be followed by all the constituents.

TeST Committee opined that since the issue is also related to disruption of real time data, TeST Committee advised to include the issue in the scope of work of the Committee formed for Disruption in real time SCADA, URTDSM, VoIP communication in Eastern Region.

In the 8th TeST Meeting, the Technical Committee submitted the recommendations regarding Periodic Audit for Communication system in line with CERC regulation and Guidelines for

utilization of Inter-state OPGW network which are as follows:

SL No	Recommendation	Details
07	Periodic Audit for Communication system in line with CERC regulation	Periodic audit must be carried out in all sub-stations, generating stations, SLDCs, RLDC, RTAMCs etc. in line with CERC Communication regulation-2017. Cyber security audit shall also be conducted out periodically for the Communication System as decided by RPC in line with CERC Communication regulation-2017. The audit shall be conducted by CERT-In certified third-party auditors.
08	Guidelines for utilization of Inter-state OPGW network.	<p>Any services, other than the listed OT applications, needs permission of ERPC. Further, usage of the Inter-state OPGW network for the purpose of internet access, which is a public network, will have an extremely high security threat to the power operation.</p> <ol style="list-style-type: none"> 1. SCADA 2. Inter-Control Centre Communication Protocol (ICCP) 3. Phase Measurement Unit 4. Digital Protection used by Substation 5. Travelling Wave Fault Locator 6. Voce Over Intranet Phone 7. EPAX 8. Automatic (Energy) Meter Reading 9. Automatic Gain Control (of Gen. Stations) 10. Video Conferencing (between users) 11. Security Constrained Economic Dispatch 12. Disturbance Recorder relay data for centralize acquisition. 13. ADMS 14. SAMAST 15. UNMS 16. Centralize monitoring of Firewall in all site locations. <p>Note: Any of the above OT system LAN should not be having connection with IT network.</p>

TeST Committee accepted the procedure for periodic audit for communication system as well as guidelines for utilization of Inter-state OPGW network. Further, TeST Committee advised all the utilities to follow the guidelines for utilization of Inter-state OPGW network to prevent any interruption in the availability of services.

In 43rd TCC Meeting, TCC accepted the procedure for periodic audit for communication system as well as guidelines for utilization of Inter-state OPGW network. Further, TCC advised all the concerned utilities to follow the guidelines for utilization of Inter-state OPGW network to prevent any interruption in the availability of services

Members may update.

Deliberation in the meeting

TeST Committee advised ERLDC to share the formats to all the concerned utilities so that they can submit the requisite details for initiation of Phase –I of Audit i.e. scrutiny of information.

All utilities are advised to furnish the detailed information to ERPC and ERLDC at the earliest.

Also, ERPC Secretariat should constitute a Communication System Audit Sub-Group comprising one member each from ERPC, ERLDC, CEA and One of the Eastern Region SLDCs who will scrutinize all the information received and identify the nodes for physical inspection. TeST Committee advised SLDC Bihar (chosen alphabetically), ERLDC and ERPC to nominate one person each from their respective organizations for this Phase-I of Audit.

For Phase-II of Audit, ERPC Secretariat would constitute the Audit committees for various utilities based on the recommendations of the sub-group and the nodes for physical inspection. The audit should be carried out in a planned manner by a team of three auditors.

Further TeST Committee advised all the utilities to follow the guidelines for utilization of Inter-state OPGW network to prevent any interruption in the availability of services.

ITEM NO. B.13: OPGW Installation in Eastern Region

B 13.1 Issues related to OPGW Installation in Teesta III –Kishanganj line

POWERGRID is implementing OPGW on Teesta III-Kishanganj TL under Fiber Optic Expansion Package (Additional Requirement). Out of total 215 Km, 151 Km work has been completed. But following issues are causing hindrance towards completion of the work.

A. ROW issues / Old compensation issues:

POWERGRID is implementing OPGW on Teesta III- Kishanganj TL under Fiber Optic Expansion Package (Additional Requirement). Out of total 215 Km, 151 Km work has been completed. But severe ROW issues are being faced at site due to old compensation issues causing hindrance towards completion of the work.

The status of ROW issues occurred till date is detailed as under:

Sl. No.	RoW Location/Drum no	ROW Since	Contact Person, site	Status
I)	272/3 (Drum No: 42; T No. 270 to 273)	11.02.2020	Ganesh Kumar Roy Hatidoba,Kharibari, Ragali	Pending due to old compensation demand during TL Construction by villager.
II)	T No. 274 (Drum No: 43; T No 274/5 to 273)	06.11.2019	Appu Datta Buraganj, Darjeeling	Resolved. Issue resolved on 18.04.2021 with help of Administration. Work completed 20.04.2021.
III)	T No 290A/0 (Drum No 50- T No 290/3 to 294B)	19.10.2019	Tejabpur,Kishanganj	Resolved. Issue resolved on 05.04.2021 with help of Administration. Work completed 12.04.2021.

IV)	T No. 294B/1,294B/4,294B/5 (Drum No 51: T. No 294B to 294D/1)	03.12.2019	Md Ezaz Pothiya, Kishanganj	Resolved. Issue resolved on 05.04.2021 with help of Administration. Work completed 12.04.2021.
v)	T No 308,311/2 (Drum No 58; T No 305/1 to 311/5)	09.01.2020	Nur Ishlam, Umar Ali, Bhola Lahara, Kishanganj	Resolved. Issue resolved on 16.03.2021 with help of Administration. Work completed 19.03.2021.
vi)	316/1 (Drum No 59; T No 311/5,316/1)	27.02.2020	Mansur Ali, Zamuruddin Rahaman, Afroj Alam (MarwaToli, Khiridoho), Kishanganj	Resolved. Issue resolved on 21.03.2021 with help of Administration. Work completed 26.03.2021.
vii)	AP321N,AP319N,AP32 0 Drum-60	15.12.2020	Kamal Kumar Ghosh, Hazi Mubarak Hussain at Kochadhaman	Resolved. Issue resolved on 01.04.2021 with help of Administration. Work completed 03.04.2021.
viii)	AP 56, AP56/1 & AP57 Drum-9	07.02.2021	PhalBahadur (Vill- Tumin&Kokaley)	Pending due to old compensation demand during TL Construction by villager.
ix)	AP72 to AP73 Drum-11	08.02.2021	Vill-Singbel, PS- Singtam, East Sikkim	Pending due to old compensation demand during TL Construction by villager.
x)	AP77 Drum-12	09.02.2021	Vill-Ralap, PS- Singtam, East Sikkim	Pending due to old compensation demand during TL Construction by villager.
xi)	Location number AP 195 to AP 197/1 (Drum- 27B, 28 & 29)	11.03.2021	Satish Pokhrun Vill,PS&PO:Relling Dist.: Darjelling Pin: 734201	Pending due to old compensation demand during TL Construction by villager.

In 8th TeST Meeting, TeST Committee advised Powergrid to expedite the work and complete it at the earliest as it would be difficult to allow shutdown during the rainy season. TeST Committee further advised TPTL to coordinate with Powergrid to resolve ROW issue.

TPTL & Powergrid may update.

Deliberation in the meeting

Powergrid representative informed that ROW issues of Bihar region had already been resolved. He further informed that there are pending ROW issues in West Bengal and Sikkim. However Powergrid submitted that as per TPTL's confirmation ROW issues of Sikkim had been resolved. Powergrid representative further added that pending work of OPGW would be completed in 3 months if lockdown restriction eases for mobilization of the team.

Test Committee advised Powergrid to coordinate with TPTL to resolve ROW issues at the earliest.

On query, Powergrid representative informed that OPGW work of LILO section of Teesta-III-Kishanganj line (to be LILOed at Rangpo) would also be completed before commissioning of the LILO section.

Powergrid was also advised to share the status of OPGW work of 400 kV Teesta-III-Dikchu-

B 13.2 Status of OPGW of Motihari- Gorakhpur T/L under DMTCL jurisdiction

OPGW Installation has been completed in Motihari- Gorakhpur Ckt-2 (153 km), under POWERGRID jurisdiction in Jan'21. Post permanent restoration of 400 kV D/C Motihari- Gorakhpur T/L in Gandak river by DMTCL, POWERGRID intends to commission of the said OPGW link on immediate basis and deputation of communication vendor has already been tied up.

DMTCL is requested to confirm the readiness of the OPGW & Approach Cable in its own jurisdiction, so that mobilization of Communication Engineer for commissioning of the Motihari- Gorakhpur OPGW link may be carried out on immediate basis.

DMTCL may update.

Deliberation in the meeting

Powergrid representative requested DMTCL to confirm the readiness of the OPGW & approach Cable in its own jurisdiction, so that mobilization of Communication Engineer for commissioning of the Motihari- Gorakhpur OPGW link may be carried out on immediate basis.

DMTCL representative informed that ROW issues would be resolved within one week. He further told that DMTCL would coordinate with their team for approach cable and would inform the same to Powergrid accordingly.

TeST Committee advised Powergrid and DMTCL to coordinate with each other to expedite the process.

Further on enquiry, Powergrid representative informed that out of 201 km of Barh- Gorakhpur OPGW work, 85 km of OPGW work is pending and would be completed in three months.

B 13.3 Issuance of Commissioning Certificate for Purnea- Saharsa link by BSPTCL

Request for issuance of Trail Operation Certificate of ten (10) nos. links including 132 kV Purnea- Saharsa link (103.605 km) was made to BSPTCL vide letter dtd. 21.01.2021. BSPTCL has issued Commissioning Certificate for all the links except Purnea- Saharsa link.

It is worth to mention that the OPGW Installation has been completed in the said link along with installation of Approach Cable and FODP at both ends, installation & commissioning of Communication Equipments at both ends, in May'2019 itself. It is learnt that BSPTCL has diverted the Purnea- Saharsa T/L, near its Purnea S/s. POWERGRID is yet to get the Commissioning Certificate for the said link despite completion of scope. End- to – End commissioning of the link is pending due to diversion of T/L by BSPTCL.

BSPTCL may update.

Deliberation in the meeting

Powergrid representative submitted that OPGW Installation was completed in the 132 kV Purnea-

Saharsa link along with installation of Approach Cable and FODP at both ends, installation & commissioning of Communication Equipments at both ends, in May'2019 itself however Commissioning certificate is yet to be issued by BSPTCL. He further added that that BSPCTL had diverted the Purnea- Saharsa T/L, near its Purnea S/s.

BSPTCL representative told that commissioning certificate to Powergrid would be issued once SAT is completed.

B 13.4 Entry permission at NTPC Kahalgaon for completion of balance OPGW installation in Kahalgaon (NTPC) - Kahalgaon (BH) link of BSPTCL

Entry permission for completion of balance work of BSPTCL's OPGW link between Kahalgaon NTPC - Kahalgaon (BH) has been requested vide email dtd. 27.04.2021. However, the issuance of permission is still pending.

It is pertinent to mention that OPGW erection of only 1 span (175 m) and installation of HDPE Duct, Approach Cable and FODP and Commissioning of the link is pending for want of the entry permission.

NTPC may update.

Deliberation in the meeting

NTPC representative submitted that some safety related documents and Covid negative report of manpower is required for entry in NTPC Kahalgaon as per their new safety policy and security norms of CISF.

Powergrid representative told that not only Covid negative report but also various other documents like police verification certificate etc are being asked for entry in the premises of NTPC Kahalgaon which is causing trouble to them and it is also difficult to manage manpower for long time due to such restrictions.

TeST Committee advised NTPC to coordinate with CISF and extend support to Powergrid in getting entry pass at NTPC Kahalgaon for completion of balance OPGW installation in Kahalgaon (NTPC) - Kahalgaon (BH) link of BSPTCL.

B 13.5 Provisioning of STM-16 Channel between Darbhanga (ATL-Coriant) - Darbhanga (PMTL-ECI)- Muzaffarpur (PG-Coraint) Equipments

A redundant path of Malda- Farakka was provisioned by POWERGRID as per advice of the forum, in the form of Kishanganj (PG-Coriant) - Darbhanga (ATL- Coriant) STM-16 link and Darbhanga (ATL- Coriant) - Muzaffarpur (PG-Coriant) STM-4 link. An SLD of OPGW Connectivity is attached at **Annexure-13.5.1**.

The capacity of STM-4 provisioned between Darbhanga (ATL- Coriant) - Muzaffarpur (PG-Coriant) & Kishanganj (PG-Coriant)- Dalkhola (PG-Coraint) is becoming a bottleneck in utilization of optimum capacity of Kishanganj (PG-Coriant)- Darbhanga (ATL- Coriant) STM-16 link and providing redundancy with optimum capacity.

It is proposed to provision a new STM-16 Connectivity between Darbhanga (ATL-Coriant)-

Darbhanga (PMTL-ECI) - Muzaffarpur (PG-Coraint) Equipments & Kishanganj (PG-Coriant)- Dalkhola (PG-Coraint) STM-4 link may be upgraded to STM-16, which will enable use of the network for redundancy purpose at optimum capacity i.e.STM-16. A revised schematic of the proposed Upgradation is shown at **Annexure-13.5.2**. The tentative cost of the proposed Upgradation will be 3.5 Lacs approx.

Members may discuss.

Deliberation in the meeting

Powergrid representative submitted that the capacity of STM-4 provisioned between Darbhanga (ATL- Coriant) - Muzaffarpur (PG-Coriant) & Kishanganj (PG-Coriant)- Dalkhola (PG-Coraint) is becoming a bottleneck in utilization of optimum capacity of Kishanganj (PG-Coriant)- Darbhanga (ATL- Coriant) STM-16 link and providing redundancy with optimum capacity. He further submitted that provision of a new STM-16 connectivity between Darbhanga (ATL-Coriant)- Darbhanga (PMTL-ECI) - Muzaffarpur (PG-Coraint) Equipments & Kishanganj (PG-Coriant)- Dalkhola (PG-Coraint) is required for providing redundancy with optimum capacity.

Powergrid representative stated that upgradation from STM-4 link to STM-16 link would help enabling the use of the network for redundancy purpose at optimum capacity i.e.STM-16.

On query, Powergrid representative further informed that the tentative cost of proposed upgradation would be around Rs 3.5 Lacs.

TeST Committee agreed to the proposal and referred it to CCM and TCC for further approval.

B 13.6 Commissioning of Ranchi- Maithon RB OPGW link

OPGW Installation has been completed in the 400 kV Ranchi- Maithon RB Ckt-2 in Feb'21. However, commissioning of the same couldn't be done due to non-mobilization of vendor citing resurgence of CODIV-19 infections.

The mobilization of Communication Engineer has been tied up and the said link is expected to be commissioned by 20th June 2021.

This is for kind information.

Deliberation in the meeting

Powergrid informed that mobilization of team had been done and link would be commissioned within 1-2 days.

B 13.7 Delay in completion of OPGW Installation work Under ER-Additional Project link

Eastern Region Fiber Optic Expansion Project (Additional Requirement) has been awarded on M/s ZTT vide for Supply, Installation & Commissioning of OPGW in three (03) links of ER-I namely 400 kV Kishanganj- Patna, 400 kV Barh- Motihari- Gorakhpur & 400 kV Ranchi- Maithon RB, with a scheduled completion of 26.03.2020.

The status of OPGW Supply & Installation is mentioned hereunder:

Sl. No.	Link Name/Name of Trans. Line (with 24 F OPGW)	Approved Route Length (km)	Material Available (km)	Erection Completed (km)	Erection Balance (km)
1	400 kV Kishanganj- Patna Ckt-2	346.67	346.67	315.37	31.31
2	400 kV Barh- Motihari & 400 kV Motihari- Gorkahpur Ckt-2	353.02	353.02	270.19	82.83
3	Ranchi- Maithon RB Ckt-2	187.94	187.94	187.94	0.00
	Grand- Total	887.62	887.62	773.50	114.13

It is pertinent to mention that supply of all OPGW Cable & hardware fittings and associated communication equipments have been completed with the scheduled completion period. However, the OPGW Installation has got delayed due to the following reasons:

- a. Delay due to out-break of COVID-19 pandemic and imposition of Nation-wide Lockdown (Mar'20- Sep'20). All the aforementioned 3 links got affected.
- b. Delay due flooding of Bihar post monsoon between Jun'20- Nov'20. Both Kishanganj- Patna and Barh-Motihari link got affected due to the flood and water logging.
- c. Delay due to stoppage of OPGW Installation work in Barh- Motihari section of Barh- Gorakhpur link, owing to outage of Barh- Motihari- I and Motihari- Gorakhpur I & II (DMTCL section- Gandak river tower collapse) and DMTCL Motihari operating on single source i.e. Barh-Motihari Ckt-2. The work was stopped w.e.f 16.01.2021- 31.03.2021 as per advice of the forum in 176th OCC.
- d. Delay due to resurgence of COVID-19 cases w.e.f 01.04.2021 and ongoing Lockdown in Bihar/Jharkhand. The agency is yet to mobilize its team to take up balance OPGW installation activity in Kishanganj- Patna and Barh-Motihari links as its manpower is afraid of getting COVID-19 infected.

This is for kind information.

Deliberation in the meeting

TeST committee advised Powergrid to resume the work as soon as the current situation improves and all out efforts to be made to complete the work at the earliest.

ITEM NO. B.14: Agenda by BSPTCL

B14. 1 Pending Critical Issues:

- a. Compliance Report of Cyber Security Audit of 2019 is pending since 30th December 2020.
- b. One no. of SMPS of VCS is defective since 23.03.2020 is required to be replaced. As discussed in previous meetings, M/s Chemtrols agreed to replace the SMPS in August 2020 but the issue is yet not closed.

B14. 2 New Critical Issues:

- a. Battery bank- 2 and display of UPS -2 is defective since 24th May 2021.

- b. Phase sequence corrector is defective since 19th May 2021.
- c. Charger of battery (150 AH) of DG Set is defective since 15th May 2021.
- d. Controllers of VPS is Defective since 20th April 2021.
- e. One No. of External Firewall SMPS Defective since 15th January 2021.
- f. Three no. of SAN (900 GB) of SCADA is defective since 13th January 2020 is required to be replaced.
- g. Six no. of Server Rack Fan is defective since December 2020.
- h. GPS Antenna is defective since December 2020.
- i. Nine no. of Server Fan is defective since August 2020.

B14. 3 General/Other Issues:

- a. Integration of new bay:-
As per AMC contracts Chemtrols has to integrate 50 nos. of new bays in to RTU and the work is still pending since long.
- b. The following materials are faulty which are required to be replaced at the earliest:
 - MFT – 06 pcs
 - Node –23 Pcs
 - Decode Modem- 10 pcs
 - DI Card- 10 Pcs
 - DO Card- 03 Pcs
 - Ethernet Card- 02 Pcs
 - Two nos. of Dell Monitors are faulty at GSS Lakhisarai and Masaudhi since last one year.
- c. One no. of SCADA Workstation and one no. of DTS Workstation are defective since 05.11.2020.
- d. KVM Monitor and switch of one server is out of service since 3 years.
- e. SCADA Data explorer showing error: “Not connected to Data Explorer Adaptor” since May 2020.
- f. MP 2355 RICOH printer is defective since November 2020.
- g. Ethernet port of Laptop is not working.

B14. 4 RTU:

RTU of Kishanganj, Madhubani, Chandauti, Khagaria, Banjari, Runisaidpur and Samastipur is not working.

B14. 5 LDMS:

36 no. of LDMS is not working due to various issues. The list is attached at **Annexure B.14.5.**

B14. 6 List of defective materials sent to M/s Chemtrols but yet not handed over to BSPTCL:

- Node –17 Pcs
- DI Card- 10 Pcs
- DO Card- 03 Pcs
- Ethernet Card- 02 Pcs
- KVM Monitor and switch- 01 Pcs
- CPU at GSS Sheikhpura handed over to your representative.
- Codec of VCS handed over on dated 09.04.2021.

M/S Chemtrols may update.

Deliberation in the meeting

M/S Chemtrols representative submitted the followings:

B14. 1 Pending Critical Issues:

- a. Draft report had been submitted and patches would be installed by next week.*
- b. They had already sent faulty SMPS to the OEM and it would be rectified in 10-15 days as informed by the OEM.*

B14. 2 New Critical Issues:

- a. Order would be placed by 17.06.2021 and delivery of battery bank is expected by end of September 2021.*
- b. M/s Delta had been contacted and the issue would be resolved in a week.*
- c. Order had been placed and supply is expected within 2-3 days.*
- d. Issue would be resolved within 2-3 days.*
- e. Issue would be resolved at the earliest.*
- f. They had already received 900 GB SAN of SCADA and the same would be delivered to BSPTCL within one week.*
- g. Their office had been closed till 15.06.2021 due to lockdown restriction in Kolkata. They would provide the server rack fans at the earliest.*
- h. Spare had already been provided to BSPTCL and installation would be done once BSPTCL provides access to spare store room to M/S Chemtrols.*
- i. Their office had been closed till 15.06.2021 due to lockdown restriction in Kolkata. They would provide the server fans at the earliest.*

B14. 3 General/other Issues:

Regarding general / other issues M/S Chemtrols representative informed that spares had already been provided to BSPTCL and if BSPTCL provides access of store to M/S Chemtrols they would resolve the issues accordingly.

BSPTCL representative requested M/S Chemtrols to provide the contractual document wherein details regarding spares provided to BSPTCL are mentioned.

TeST Committee advised M/S Chemtrols to provide the contractual document to BSPTCL. TeST Committee further advised BSPTCL to allow access of the spares to M/S Chemtrols after necessary verification.

ITEM NO. B.15: Additional Agenda

1. Scheme Commissioning and integration of 2 nos. of PMUs to the ER URTDSM

02 nos. of PMUs were supplied under switchyard package of Darlipali Super Thermal Power Project for 765kV Line#1 and #2. For integration of PMU with ERLDC a set of data is required to be provided by PGCIL. The data set, as requested by OEM, is attached at **Annexure-1**. Communication has already been sent by ERLDC to Powergrid for necessary co-ordination vide mail dated 08.04.2021. Till now no data has been received.

Powergrid may update.

Deliberation in the meeting

Darlipali representative informed that the data had been received and the PMU commissioning would be done within 15-20 days.

2. Mapping of Feeders of Automatic under Frequency Load Shedding(AUFLS) Scheme

In 8th NPC held on 30th November 2018, it was decided that each RPC would submit the details / progress of feeder mapping to NPC secretariat on a regular basis (quarterly).

In 154th OCC, DVC informed that mapping of the UFR feeders had already been implemented in DVC system.

In 40th TCC, Bihar and Jharkhand have confirmed that mapping of the UFR feeders has been implemented.

In 155th OCC Meeting, ERLDC informed that acquiring the UFR feeders data from SLDCs to ERLDC is in process.

In 10th NPC Meeting held on 09.04.2021, it was decided that each RPC would submit the present status/progress of feeder mapping to NPC secretariat.

Members may update.

Deliberation in the meeting

*The present status of mapping of UFR feeders as available with ERLDC is given at **Annexure-B15.2**.*

TeST Committee advised West Bengal, Odisha, DVC and Jharkhand to send the status of mapping of pending UFR feeders to ERPC and ERLDC at the earliest

PART C: ITEMS FOR UPDATE

ITEM NO. C.1: Status of implementation of AGC for ISGS stations

In 2nd Test Meeting, NLDC informed that, as a part of pilot project of AGC, all generating stations' AGC data would be directly reporting to NLDC for first 3 years and the same would be diverted to respective RLDCs after SCADA up gradation.

NLDC informed that all generating stations must make arrangement for extending the AGC data signals to the nearest Powergrid node and Powergrid shall make available two Ethernet ports (main & its redundant) so that AGC signal from generating stations should reach to NLDC.

ERLDC suggested that firewalls should be available at both end i.e. at Generator end as well as NLDC end. NLDC informed that they have a firewall at their end in their system.

All generating stations agreed to install adequate level of firewall at their end for extending the AGC signals.

In 8thTeST Meeting members updated the status as follows:

SI No	Station	Status of Communication link from plant substation to PGCIL node	Status of communication system integration from unit to plant substation	Target date for implementation of AGC at plant
1	Farakka STPS - I & II	Both links established	Pending	May 2021
2	Kahalgaon STPS – II	Both links established	Pending	Completed and running since Dec 2020
3	Barh STPS	Both links established	Installed	Running since August 2019
4	NPGC, Nabinagar	Links from Gaya and Patna has been established.	NPGC, Nabinagar informed that OPGW is available but end equipment need to be procured and installed to establish communication link from their station to NLDC. NTPC further informed that they have place order for providing the end equipment.	May 2021
5	Maithon Power Limited	One link established. Other link, Ranchi-Maithon(RB) would complete by March, 2020.	Completed	
6	Talcher STPS – I	Both links established.	Contract awarded to ABB and mobilization of team is under progress	May 2021
7	Kahalgaon STPS – I	Both links established.	NTPC informed that they approaching CERC for exemption. NTPC informed that issue is being taken up with O&M for maintenance of old equipments.	
8	Nabinagar Thermal Power Project – BRBCL	Only one link Sasaram-Nabinagar OPGW installation is pending. It would take two years for completion.		May 2021
9	Darlipalli STPS	Communication established.	Integration is in progress	May 2021
10	Teesta – V	One link established		
11	Farakka STPS – III	Link established		May 2021
12	MTPS Stage – II (Kanti)	Link established		May 2021
13	Rangit HPS	One link established		

Members may update.

Deliberation in the meeting

In 9th TeST Meeting members updated the status is as follows:

SI No	Station	Status of Communication link from plant substation to PGCIL node	Status of communication system integration from unit to plant substation	Target date for implementation of AGC at plant
1	Farakka STPS - I & II	Both links established	<i>NTPC representative informed that material has been received at Farakka. However, due to Covid-19 pandemic, ABB Engineers are unable to visit the site and therefore the commissioning of AGC is pending.</i>	
2	Kahalgaon STPS – II	Both links established	Installed	Completed and running since Dec 2020
3	Barh STPS	Both links established	Installed	Running since August 2019
4	NPGC, Nabinagar	Links from Gaya and Patna has been established.	<i>NPGC, Nabinagar representative informed that the material has been received but due to Covid-19 pandemic, ABB Engineers are unable to visit the site. Hence commissioning of AGC is pending. He further told that NTPC OPGW link is ready for testing. ERLDC representative informed that contact details of concerned person would be shared with NTPC to do testing of OPGW link.</i>	
5	Maithon Power Limited	One link established. Other link, Ranchi-Maithon(RB) would complete by March, 2020.	Completed	
6	Talcher STPS – I	Both links established.	<i>Talcher STPS-I representative informed that material has been received and erection is also completed , however commissioning of AGC is pending due to difficulties faced by ABB Engineers to visit the site due to Covid-19 pandemic.</i>	
7	Kahalgaon STPS – I	Both links established.	<i>NTPC representative informed that they had already applied CERC for exemption. He further submitted that hydraulic units are present in Kahalgaon stage 1 , so it is quite difficult to implement AGC at Kahalgaon stage – 1</i>	
8	Nabinagar Thermal Power Project – BRBCL	Only one link Sasaram-Nabinagar OPGW installation is pending. It would take two years for completion.	<i>Powergrid representative informed that for OPGW installation, NIT had been floated and two packages are under technical evaluation right now.</i>	
9	Darlipalli STPS	Communication established.	<i>Darlipalli representative informed that material has been received however due to Covid-19 pandemic, ABB Engineers are unable to visit S/S and hence commissioning</i>	

			<i>of AGC is pending.</i>	
10	Teesta – V	One link established		
11	Farakka STPS – III	Link established		
12	MTPS Stage – II (Kanti)	Link established		
13	Rangit HPS	One link established		

ITEM NO. C.2: Replacement of old RTU in Eastern Region for reporting of RTU / SAS to back-up Control Centre.

Present status, as updated in the 8th TeST Meeting, of RTU/SAS replacement / up-gradation:

Utility	Status	Deliberation in 8 th TeST meeting	Target
POWERGRID	Pending	In 8 th TeST Meeting, Powergrid told that LOA for replacement of the old RTUs was awarded on 31 st Dec 2020 with 21 months time frame and the time frame for completion of first phase is of 1 year. TeST Committee advised Powergrid to send the list of RTUs which would be replaced on priority basis for first phase to ERPC and ERLDC.	
Maithon Right bank (MPL)	RTU/SAS Upgraded		
NTPC, Farakka (Stage I & II)	Pending		April, 2021
Talcher STPS	RTU Upgraded		
Kahalgaon STPS	Pending		March 2021
Chuzachen HEP	Pending	ERLDC informed that Chuzachen upgraded their RTUs for reporting it to IEC 104 but the same could not be operationalized due to non-availability of last mile fibre connectivity and in absence of standby link to ERLDC BCC.	With the availability of OPGW between Chuzachen – Rangpo by April 2021
JITPL	Pending	POWERGRID informed that OPGW related work at JITPL would be completed by April 2021.	April 2021
GMR	Pending	POWERGRID informed that OPGW related work at GMR would be completed by April 2021.	April 2021
JUSNL	Pending	In 8 th TeST Meeting, JUSNL informed that pending work would be completed by end of March 2021. TeST Committee asked JUSNL to share the updated list of RTUs to	March 2021

		ERPC and ERLDC.	
OPTCL	Pending	OPTCL informed that out of 78 nos. of RTUs to be replaced, despatch instruction for 52 nos of RTUs had already been placed. OPTCL added that RTU replacement work would be completed by June, 2021.	September 2021
WBSETCL	Pending	In 8 th TeST Meeting, WBSETCL informed that NIT would be floated after election.	
NHPC (Teesta – V & Rangit)	Pending	ERLDC informed that Teesta-V up-graded their RTUs for reporting it to IEC 104 but the same could not be operationalized due to non-availability of last mile fibre connectivity and in absence of standby link to ERLDC BCC.	
DMTCL Motihari	Pending		OPGW not available
BRBCL Nabinagar	Pending		OPGW not available
Teesta – III	Pending		OPGW not available April 2021
Dikchu	Pending		OPGW not available April 2021
Jorethang	Pending		OPGW not available April 2021
New Farakka (Stage III)	Completed	---	---
APNRL	Completed	---	---
Barh	Completed	---	---

Members may update the latest status.

Deliberation in the meeting

In 9th TeST Meeting members updated status is as follows –

Utility	Status	Deliberation in 9thTeST meeting	Target
POWERGRID	Pending	<i>Powergrid representative told that LOA had been awarded to Siemens on 31st Dec 2020 and subsequently submission of engineering documents had been completed at corporate level. Hetold that surveys had been done for 18 nos. of SAS stations out of 19 SAS stations and 2 nos. of RTU stations out of 11 RTU stations. The work had been stoooped after that due to Covid-19 pandemic and mobilisation would be done again once</i>	

		<i>situation normalizes. He further informed that meeting was done with Siemens and M/S Siemens had informed that survey of remaining S/S would be started by next week.</i>	
Maithon Right bank (MPL)	RTU/SAS Upgraded		
NTPC, Farakka (Stage I & II)	Pending	<i>Upgraded</i>	
Talcher STPS	RTU Upgraded		
Kahalgaon STPS	Pending	<i>NTPC representative informed that erection work had been completed and commissioning would be done once SCADA engineers visit the site after lockdown restriction eases.</i>	
Chuzachen HEP	Pending	<i>ERLDC informed that Chuzachen upgraded their RTUs for reporting it to IEC 104 but the same could not be operationalized due to non-availability of last mile fibre connectivity and in absence of standby link to ERLDC BCC.</i>	<i>With the availability of OPGW between Chuzachen – Rangpo by April 2021</i>
JITPL	Pending	<i>Powergrid representative informed that team had been mobilised and work would be started by 17.06.2021 and it would take around 4 months to complete the work.</i>	October 2021
GMR	Pending	<i>Powergrid representative informed that team had been mobilised and work would be started by 17.06.2021 and it would take around 4 months to complete the work.</i>	October 2021
JUSNL	Pending	<i>JUSNL representative informed that almost all RTU work had been completed however there are certain communication issues and fibre loss issues at certain locations. TeST committee advised JUSNL to share the updated list of RTUs to ERPC and ERLDC.</i>	
OPTCL	Pending	<i>OPTCL representative informed that despatch instruction for 26 nos. of RTUs and 78 nos. of cables had been placed and the same would be received in July 2021. He further told that 52 nos. of RTUs are have been received.</i>	September 2021

WBSETCL	Pending	<i>WBSETCL representative informed that NIT would be floated in next week.</i>		
NHPC (Teesta – V & Rangit)	Pending	<i>ERLDC representative informed that RTU upgradation had been done for Teesta – V, however they are yet to receive any information regarding the same from Rangit.</i> <i>NHPC representative was not present in the meeting.</i> <i>ERPC to communicate with NHPC to get status of RTU upgradation work at Rangit</i>		
DMTCL Motihari	Pending	<i>DMTCL representative informed that RTU upgradation work had been completed at Motihari.</i>	OPGW available	not
BRBCL Nabinagar	Pending		OPGW available	not
Teesta – III	Pending		OPGW available	not
Dikchu	Pending		OPGW available	not
Jorethang	Pending		OPGW available	not
New Farakka (Stage III)	Completed	---	---	---
APNRL	Completed	---	---	---
Barh	Completed	---	---	---

ITEM NO. C.3: Redundancy of communication links for ICCP between control centers.

Redundancy of ICCP communication links from all state control centres including their back-up to Main ERLDC are already implemented. Redundancy of ICCP communication links from all state control centers except DVC-MCC (Andul Road) & WBSETCL-BCC (Abhikshan Bhawan) to back-up ERLDC located at NLDC, New Delhi is yet to be provided.

In the 8th TeST Meeting, the members updated the status as follows:

Sl. No.	Link Path	Issue	Deliberation in the 8 th TeST meeting
1.	<p>DVC MCC located at Andul Road to ERLDC BCC at New Delhi - DVC requested to include underground OFC in Howrah (WB) to Howrah (DVC) under the scope of upcoming project – ‘Strengthening of Inter-regional & Intra-regional OPGW Communication Links for Strengthening of Eastern Region’ and also requested WBSETCL to provide necessary permission & space for laying of Underground OFC and terminal equipment.</p>	<p>Powergrid informed that provision for laying of OPGW communication link between DVC, Howrah and WBSETCL, Howrah is being created in upcoming project. Powergrid further informed that they require necessary help from WBSETCL to make provision of OPGW communication link up to WBSETCL, Abhikshan Bhawan.</p> <p>In 5thTeST Meeting, SLDC West Bengal informed that the space may be available at the Ground Floor for installation of necessary equipment for providing the communication link between DVC, Howrah and WBSETCL, Howrah.</p>	<p>WBSETCL informed that the joint site visit is scheduled on 18th March 2021.</p>
2.	<p>WBSETCL BCC Abhikshan Bhawan to ERLDC BCC located at New Delhi</p>	<p>Powergrid requested ERLDC to provide space for installation of ULDC equipment at Backup ERLDC (NLDC) so that link may be configured in ULDC network.</p> <p>ERLDC informed that necessary space has been provided and installation work is in progress.</p> <p>In 5thTeST Meeting, Powergrid informed that necessary equipment has been installed and configured at backup ERLDC located at NLDC, New Delhi.</p>	<p>ERLDC informed that Powergrid had already shared the necessary port details.</p>
3.	<p>Rourkela to Bhubaneswar SLDC - Powergrid informed that presently, FO link connectivity between Rourkela to Bhubaneswar SLDC is available through TSTPS, Meeramundali&Mendhasal which doesn't have route diversity.</p>	<p>OPTCL informed that Jagatsinghpur to Paradeep OPGW is pending due to Tower shifting work, which is the requirement of Indian Railways. Once the tower shifting work will be completed by Indian Railways, OPTCL will start their work.</p> <p>OPTCL informed that 17 Nos. of towers are being diverted and same would be expected to get completed by May, 2020.</p>	<p>OPTCL informed that OPGW work would be completed by April 2021.</p>

4.	Ranchi 400 kV (PG) to JUSNL SLDC (Kushai Colony) - Powergrid informed that presently, FO link connectivity between Ranchi 400 kV (PG) to JUSNL SLDC is available through Hatia 220 kV which doesn't have route diversity.	JUSNL informed that they have received approval for PSDF funding for providing protection channel for redundancy between Chandil to JUSNL SLDC (Kushai Colony) and have received the cabinet approval but could not proceed further due to model code of conduct due to state assembly elections in their state.	JUSNL informed that work would be completed by June 2021. They further told that work got delayed due to issue in tendering.
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Members may update the latest status.

Deliberation in the meeting

In 9th TeST Meeting the respective utilities updated status is as follows:

1. *WBSETCL representative informed that joint visit with Powergrid had already been completed; however, they had not received any further communication from Powergrid.*

Powergrid representative updated that space is available and link can be made between DVC MCC, Howrah and WBSETCL Howrah, however they require help from WBSETCL to extend link from WBSETCL to ERLDC BCC.

WBSTECL representative told that already all necessary communications had been made with Powergrid related to the above issue.

TeST Committee advised Powergrid to check all the details as provided by WBSETCL and coordinate with WBSETCL and DVC for further needful.

2. *Test Committee advised ERLDC to share the latest status to ERPC at the earliest.*
3. *OPTCL representative informed that OPGW work would be completed by 15th July 2021.*
4. *JUSNL representative informed that some alternate path may be made for OPGW between Ranchi (PG) to SLDC JUSNL as the subjected link would take long time to get connectivity through Chandil because of delay in tendering work.*

TeST Committee advised JUSNL to share details of alternate path to ERPC and ERLDC and coordinate with Powergrid to commission the alternate path.

ITEM NO. C.4: URTDSM Project installed in Eastern Region

C4.1 Issues related to analytics application

The URTDSM project is installed and being used by ERLDC RTSD operators since January 2019. Few observations need to be attended for better utilization of the system.

Sl. No.	Issue	Deliberation in last TeST meeting	Latest Status
1	Powergrid analytics application analytical	In 8 th TeST Meeting, POWERGRID informed that the said module had already been	

	software, which was supposed to be installed under URTDSM project, is yet to be made functional at SLDCs.	developed by IIT Mumbai but field testing for the same is pending due to ongoing Covid-19 restrictions. POWERGRID further informed that since IIT Mumbai campus is closed, they couldn't proceed further with the issue. They told that once the restriction is removed, they would take up the issue with IIT Mumbai and complete the work within one month.	
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Powergrid may update.

Deliberation in the meeting

Powergrid representative informed that prototype had been installed at ERLDC and training would be provided in the 3rd week of June 2021 to ERLDC. He further told that after the receipt of feedback from ERLDC, the software would be finalized.

C4.2 URTDSM Project Summary

Under URTDSM project, 12 nos. PMUs could not be commissioned due to various reasons as mentioned below:

- a. Bankruptcy/admin. issue : 2 PMUs (IPPs - Monnet & Ind Bharat)
- b. Non-availability of
Communication link : 8 PMUs (GMR IPP & JITPL IPP)
: 2 PMUs at Tenughat
- c. Substation not ready: 3 PMU at Patratu

Powergrid requested to consider for short-closing of the contract with as-is-where-is basis (excluding erection cost, wherever applicable).

In 42ndTCC/ERPC meeting, followings were decided:

- Short closing of URTDSM project shall be allowed only after integration of PMUs including its data transfer at GMR, JITPL & Tenughat.
- Since Patratu substation is not yet ready, 3 nos. of PMUs at Patratu station shall be kept as spare.
- 2 nos. of PMUs meant for Monnet and IND Bharat can't be commissioned due to bankruptcy issue.

In 6thTeST Meeting, Powergrid informed that integration of PMUs at GMR and JITPL would be completed by December 2020. The same at Tenughat would be completed by July 2020.

GMR, JITPL & Tenughat may update.

Deliberation in the meeting

Powergrid representative informed that OPGW work had been started for JITPL and GMR links and it would take around 3 to 4 months to complete the work considering the monsoon. He further informed that integration of PMU at Tenughat had been completed on 31st March 2021.

Regarding Sterlite, OPTCL representative informed that M/S GE is not responding and hence PMU integration work is getting delayed.

TeST Committee advised OPTCL to coordinate with M/S GE and resolve the issue at the earliest.

ITEM NO. C.5: Non availability of SCADA in Eastern Region

SCADA/EMS system has been installed at SLDC and RLDC and real time operator are performing grid management activity based on real time data available with this SCADA system. But, it is observed that several important stations under state SLDC jurisdiction in Eastern Region are not reporting to respective state SLDC (as shown in table below) and hence ERLDC is also not getting data through ICCP.

Area of Responsibility	No of station without data telemetry	No of station commissioned without data integration
OPTCL	10	08
WBSETCL	06	01
JUSNL	12	00
BSPTCL	06	00

Table: Area wise no of station without data telemetry as on 10-03-2021.

Members updated the following in the 8thTeST Meeting:

AOR	Station level (In kV)	Current Status	Deliberation in 8 th TeST meeting	Comments
WBSETCL	Dharampur 220 Kv	Yet to be integrated.	WBSETCL informed that M/s Schneider engineers are not coming to Dharampur due to covid-19 pandemic.	
	Egra 220 kV	Yet to be integrated	WBSETCL informed that discussion related to cost estimate is in progress with M/S Chemtrols.	
	Bantala 220kV	Not Available	WBSETCL informed that technical issues of SDH are observed at Bantala.	M/s Commtel informed that data is not available due to breakdown of their equipment.
	Alipurduar 220kV	Yet to be integrated	WBSETCL informed that the work is getting delayed due to ROW issue.	
	Rishra 220kV	Not Available since July 2020		
	DPL TPS_WB 220 kV	Not Available since Jan 2021		
JUSNL	Hatia New 220 kV	Not Available	JUSNL informed that issue at Hatia is already resolved.	
	Patratu 220 kV	Not available since Feb 2020	JUSNL informed that control room issue present at Patratu would	

			be rectified soon.	
	Tenughat 220kV	Not available since Feb 2020	JUSNL informed that issue at Tenughat would be rectified by March 2021	
	Chandil 220 kV	Not available since Sept 2019	JUSNL that PLCC installation is under progress at Chandil, Jamtara ,Garwa, Deoghar and Kendposi and issue would be rectified by July 2021	
	Jamtara 132kV	Not Available		
	Garwa 132kV	Yet to be integrated		
	Deoghar 132kV	Not Available		
	Kendposi 132 kV	Not Available		
	Lalmatia 220 kV	Not Available		JUSNL informed that issue at Lalmatia would be rectified by March 2021.
	Giridih 220 kV	Not Available	JUSNL informed that link issue is present at Giridih and would be rectified soon.	
	Godda 220 kV	Not available since Jan 2021	JUSNL informed that issue at Godda would be rectified by March 2021	
	Jasidih 220 kV	Not available since August 2020	JUSNL informed that issue at Jasidih is already solved.	
OPTCL	Malkangiri 220 kV	Data integration and database creation not yet done.	OPTCL informed that data base creation is completed for Malkangiri, Jeypatna and Kashipur substations.	
	Jaypatna 220			
	Kasipur 220			
	Damanjodi 220			
	Cuttack 220			
	Utkal AI 220			
	Narsingpur 220kV	Station commissioned at 220kV without data telemetry	OPTCL informed that pending issues at Narsingpur S/S would be resolved by May 2021	
	Bargarh 220	Station commissioned at 220kV without data telemetry	OPTCL informed that the issues would be resolved by Sep 2021.	
	Paradeep 220 kV	Not available		
	Vedanta 220 kV	Not available since Nov. 2020		
BSPTCL	Gopalganj 220	No available since July 2019	BSPTCL informed that issue at Gopalganj is already solved.	
	Samastipur New 220	Not available since 22-02-2021	BSPTCL informed that M/S GE was already informed for issues at Samastipur.	
	Khagaul 220 kV	No available since Jan 2021	BSPTCL informed that issue at Khagaul is	

			already solved.	
	Motipur 220 kV	No available since 05-03-2021	BSPTCL informed that M/S GE was already informed for issues at Motipur.	
	Laukhai 220 kV	No available since 13-02-2021	BSPTCL informed that M/S GE was already informed for issues at Laukhai.	
	Dumraon 220 kV	No available since 22-01-2021	M/S ABB was also informed for issue at Dumraon and issues would be solved at earliest.	
DMTCL	Motihari 400 kV	Not available since Sept 2019	---	

Members may update the latest status.

Deliberation in the meeting

In 9th TeST Meeting, members updated status as follows:

AOR	Station level (In kV)	Current Status	Deliberation in 9 th TeST meeting	Comments
WBSETCL	Dharampur 220 Kv	Yet to be integrated.	<i>WBSETCL representative informed that M/s Schneider engineers are unable to come to Dharampur due to Covid-19 pandemic.</i>	
	Egra 220 kV	Yet to be integrated	<i>WBSETCL representative informed that discussion related to cost estimate is in progress with M/S Chemtrols.</i>	
	Bantala 220kV	Not Available	<i>WBSETCL representative informed that some technical issues of SDH are observed at Bantala.</i>	M/s Commtel informed that data is not available due to breakdown of their equipment.
	Alipurduar 220kV	Yet to be integrated	<i>WBSETCL representative informed that ROW issues had been resolved and communication link has been established. He further informed that commissioning work would be completed once M/S Siemens Engineer would visit the site after lockdown restriction eases.</i>	
	Rishra 220kV	Not Available since July 2020		
	DPL TPS_WB 220 kV	Not Available since Jan 2021		
JUSNL	Hatia New 220 kV	Not Available	<i>JUSNL representative informed that issue at Hatia has been resolved.</i>	

	Patratu 220 kV	Not available since Feb 2020	<i>JUSNL representative informed that control room issue present at Patratu would be rectified soon.</i>	
	Tenughat 220kV	Not available since Feb 2020	<i>JUSNL representative informed that the work had been completed on 31st March 2021.</i>	
	Chandil 220 kV	Not available since Sept 2019	<i>JUSNL representative informed that PLCC installation is under progress at Chandil, Jamtara, Garwa, Deoghar and Kendposi and the issue would be rectified by July'2021</i>	30 th July 2021
	Jamtara 132kV	Not Available		
	Garwa 132kV	Yet to be integrated		
	Deoghar 132kV	Not Available		
	Kendposi 132 kV	Not Available		
	Lalmatia 220 kV	Not Available	<i>JUSNL representative informed that issue at Lalmatia would be rectified by June'2021.</i>	June 2021
	Giridih 220 kV	Not Available	<i>JUSNL representative informed that link issue is present at Giridih and would be rectified soon.</i>	June 2021
	Godda 220 kV	Not available since Jan 2021	<i>JUSNL representative informed that issue at Godda would be rectified by June '2021.</i>	June 2021
	Jasidih 220 kV	Not available since August 2020	<i>JUSNL representative informed that issue at Jasidih has already been solved.</i>	
OPTCL	Malkangiri 220 kV	Data integration and database creation not yet done.	<i>OPTCL representative informed that data base creation has been completed for Malkangiri, Jeypatna and Kashipur substations.</i>	
	Jaypatna 220			
	Kasipur 220			
	Damanjodi 220		<i>OPTCL representative informed that the issues would be resolved by Sep' 2021.</i>	
	Cuttack 220			
	Utkal AI 220			
	Narsingpur 220kV	Station commissioned at 220kV without data telemetry	<i>OPTCL representative informed that pending issues at Narsingpur S/S would be resolved by May' 2021</i>	
	Bargarh 220	Station commissioned at 220kV without data telemetry	<i>OPTCL representative informed that the issues would be resolved by Sep' 2021.</i>	
	Paradeep 220 kV	Not available		
Vedanta 220 kV	Not available since Nov. 2020			
BSPTCL	Gopalganj 220	No available since July 2019	<i>BSPTCL representative informed that issue at Gopalganj has already been</i>	

			<i>solved.</i>	
	Samastipur New 220	Not available since 22-02-2021	<i>BSPTCL representative informed that they had already informed M/S GE regarding issues at Samastipur.</i>	
	Khagaul 220 kV	No available since Jan 2021	<i>BSPTCL representative informed that issue at Khagaul has already been solved.</i>	
	Motipur 220 kV	No available since 05-03-2021	<i>BSPTCL representative informed that they had already informed M/S GE regarding issues at Motipur.</i>	
	Laukhai 220 kV	No available since 13-02-2021	<i>BSPTCL representative informed that they had already informed M/S GE regarding issues at at Laukhai.</i>	
	Dumraon 220 kV	No available since 22-01-2021	<i>BSPTCL representative informed that M/S ABB was also informed regarding issue at Dumraon and issues would be solved at the earliest.</i>	
DMTCL	Motihari 400 kV	Not available since Sept 2019	<i>ERLDC representative informed that work had been completed.</i>	
