AGENDA

FOR

10th TeST MEETING

Date: 01.11.2021

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 10th TeST MEETING TO BE HELD ON 01.11.2021(MONDAY) AT 10:30 HRS

PART – A

ITEM NO. A.1: Confirmation of Minutes of 9th TeST Meeting held on 16th June 2021 through MS Teams online platform.

The minutes of 9th Telecommunication, SCADA and Telemetry Sub-Committee meeting held on 16.06.2021 circulated vide letter dated 08.07.2021.

Members may confirm the minutes of 9th TeST meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Separate Display of Islanding Schemes (IS) on SCADA of respective state LDCs/Sub SLDs and RLDCs

Hon'ble Minister for Power and New & Renewable Energy had taken a meeting to review the Islanding Schemes in Indian Power system on 28th December 2020. Further, on 19th August 2021 Secretary, Ministry of Power had taken another meeting in this regard wherein it was decided that for real time monitoring of participating generators & critical loads of Islanding schemes, a separate display of Islanding Schemes on SCADA of respective states LDCs/Sub SLDs and RLDCs may be prepared. Delhi SLDC and NAPS IS had already prepared the display page on their SCADA. Separate displays of the Islanding Schemes on SCADA may be set up in the SLDCs/Sub SLDs and RLDCs.

Members may discuss.

ITEM NO. B.2: Implementation of ULDC SCADA Phase-III by Powergrid

The 1st and 2nd phase of ULDC SCADA Project has been executed and successfully commissioned by POWERGRID in the year 2005 and 2015 respectively. The up-gradation of SCADA/EMS systems will be due for ER Constituents in year 2022-23. It is proposed for unified implementation of the Upgradation of ULDC SCADA System (Phase-III) of Eastern Region considering optimum pricing due to economy of scale and seamless integration.

Following are the key points & major benefits of execution of the work through POWERGRID:

- Implementation of SCADA Up-gradation Project (Phase-III) in an integrated manner for getting economy of scale.
- POWERGRID has been successful in implementation and maintenance of ULDC Phase-I & Phase-II for last 20 years and would be willing to implement the ULDC Phase-III on similar lines as well. Since POWERGRID has implemented both the phase of SCADA Project earlier, more expertise with respect to any other entity which will enable smooth implementation
- No investment to be made by States/Constituents. POWERGRID will fund the project and the cost will be recovered through tariff as done in earlier ULDC scheme.
- Only two contracts (Supply and Service) shall be signed instead of 12 nos. (2 x 6 constituents).

- Since states/constituents have signed the maintenance contract themselves in ULDC phase-II and are facing lot of issues, POWERGRID is willing to cover the O&M part as well during ULDC Phase-III.

POWERGRID approached all the constituents with the above proposal. DVC, WBSETCL & JUSNL showed willingness and BSPTCL & OPTCL informed that they are also agreed for the unified implementation if all other constituent agrees.

In Northern Region, the up-gradation project is being taken up by POWERGRID after deliberation in TeST committee and subsequent approval in NRPC meeting.

All Constituents of Eastern Region may kindly provide consent regarding implementation of the ULDC SCADA Phase-III by POWERGRID.

Members may discuss.

ITEM NO. B.3: Requirement of Shutdown and Data Outage for RTU replacement/SAS Upgradation Package for Eastern Region under Upgradation of SCADA/RTUs/SAS in Central Sector Stations and strengthening of OPGW network in Eastern Region

The installation & Commissioning work under RTU Replacement/SAS Upgradation Package for Eastern Region is expected to start. Data outage & Shutdown of feeders during integration works is expected as detailed below.

RTU Data Outage:

i) RTU Locations where separate place has been identified for placement of new RTU

a) Binaguri
b) Dalkhola
c) Durgapur
d) Maithon
e) Subhasgram

No. of days for which RTU data outage is expected for above stations for cabling termination works: 07 days

ii) RTU locations where new RTU has to be placed in place of existing RTU due to space constraint and site conditions

a) Malda.
b) Gangtok

No. of days for which RTU data outage is expected for above stations for cabling termination works: 15 days

Requirement of Shutdown

For SAS Stations (Birpara, Siliguri, Behrampore, New Melli, Rangpo) : 3-4 hrs S/D is required for each bay

For RTU based stations: On SOS basis

Powergrid may explain. Members may discuss.

ITEM NO. B.4: Non-availability of A/R in non-auto mode in 220KV Alipurduar –Salakati TL

The A/R in non-auto mode has been approved in OCC for the entire month of October-2021. However, A/R in non-auto mode was disallowed by ERLDC from 11/10/2021 to 16/10/2021 on account of Durga Puja and from 25.10.2021 to 31.10.2021 due to non-availability of PTW. Due to this disallowance, the ropes remained stuck in the line which may burn and cause tripping of the line. Such disallowance of permission to work is also causing delay in completion of the work and idling of man-hours.

It is proposed that A/R in non-auto mode (not being a shutdown) shall be allowed OR allowing the A/R permission till the ongoing OPGW drum is completed (may take 2-3 days).

Powergrid may explain. Members may discuss.

ITEM NO. B.5: Non-working of ERLDC Web Client at RTAMC ER-II

Frequent disruption in Web Client provided by ERLDC has been observed at RTAMC ER-II (PGCIL). ERLDC is requested to kindly resolve these frequent disruptions.

ERLDC may respond.

ITEM NO. B.6: Frequent outage of Remote Display of ERLDC provided to RTAMC Patna

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. Further, the web-client provided by ERLDC is getting frequently out of service due to issues at ERLDC end causing hindrance in ER-GRID monitoring. The web-client got out of service on 17.09.2021, 29.09.2021, 19.10.2021 & 21.10.2021. ERLDC may revive the Remote Display provided earlier to POWERGRID at the earliest or may ensure reliable availability of Web-Client.

ERLDC may respond.

ITEM NO. B.7: Proposal of setting up a Backup/Redundant SDH (Coriant Make) at ERLDC

Presently, all the station data & voice reporting at ERLDC including from Bhutan and Nepal & ICCP links is through Coriant SDH at ERLDC. The bandwidth utilization of the existing SDH is almost 90%. To ensure redundancy of system and expansion of bandwidth, there is requirement of installation of redundant SDH on priority as failure of existing SDH may lead to entire data outage at ERLDC. It is proposed for setting up a redundant Coriant SDH at ERLDC under Fiber Optic Expansion Project (additional Requirement) Project in Eastern Region. Approx. Cost is Rs. 90 Lakhs. Schematic Diagram is enclosed in **Annexure-B7.**

Powergrid may explain. Members may discuss.

ITEM NO. B.8: Cyber Security Audit schedule of SCADA/EMS System for MCC & BCC of ERLDC located at Kolkata and New Delhi respectively for the year 2021.

Cyber security audit and its compliance plays very crucial role in ensuring system security in cyber space. Schedule for Cyber security audit for the year 2021 is yet to be provided by M/S Chemtrols.

M/S Chemtrols may update.

ITEM NO. B.9: Compliance of Cyber Security Audit of SCADA/EMS System for Back up control center of ERLDC located at New Delhi.

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 complied.

M/S Chemtrols may update.

ITEM NO. B.10: Non Availability of Farakka STPS Data at ERLDC

Farakka STPS has upgraded their old RTU to report it over IEC 104 protocol during April-2021. On completion of upgradation of the said RTU, most of the data from Farakka STPS were not updating at ERLDC. Even after continuous persuasion with Farakka STPS, around 50 nos. of digital and 25 nos. of Analog data are yet to be reported at ERLDC. It is learnt that telemetry of 4 nos. line bays namely Rajarhat, New Purnea, Berhampur I & II (owned and maintained by POWERGRID) are reporting on temporary arrangements for MW value only, balance analog and digital data are not reporting.

Further the Real Time Telemetry for Farakka STPS is highly intermittent in nature. Average data availability per day is around 40-45%. SCADA data availability for last ten days is shown in **Annexure-B.10**.

NTPC Farakka had been requested repeatedly but the matter is yet to be resolved.

In 9th TeST 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.

NTPC and Powergrid may update.

ITEM NO. B.11: 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. Muzaffarpur- 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.

In 9th TeST Meeting following deliberations took place:

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 Muzaffarpur 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-19pandemic.He further informed there was some communication gap from both ATL and Powergrid end.

TeST Committee advised Powergrid to properly coordinate with DMTCL while doing any work at DMTCL 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 DMTCL to prepare a report and share it to ERPC and ERLDC for both the above incidents.

Report related to incidence of Kahalgaon- Lakhisarai OPGW link was received to ERPC from Powergrid on July 05, 2021. The same is placed at **Annexure-B11.**

Powergrid and DMTCL may update.

ITEM NO. B.12: Draft Procedure on Monthly Outage Planning for Communication Systems of Eastern Region

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-B12.1)** and formats**(Annexure-B12.2)** 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.

In 9th TeST 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.

Members may update.

ITEM NO. B.13: 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.

In 9th TeST Meeting, OPTCL representative informed that station transformer was tripped on 27.05.2021 due to which all 48 Volt DC equipment 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 operate 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.

OPTCL may update.

ITEM NO. B.14: 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.

In 9th TeST 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 said 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 30thJune 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.

Members may update the status.

ITEM NO. B.15: Guidelines regarding use of ULDC Network for other purposes

The services identified as perthe 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. Voce 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 a extremly 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 entire national grid. Going by the sensitive nature of this issue, guideline may please be issued at earliest regarding the restricted usage of this network.

Further as per draft communication regulation, 2017 (Cl.10), ERPC is required to frame the procedure to conduct audit of communication system on annual basis. Pending finalisation of the regulation, it is requested to carry out this execise of identifying the services being used by all users (Including MAC ID and IPs) as a first step towards audit. 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 high security threat to the power system operation therefore 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-	Any services, other than the listed OT applications, needs

	state OPGW network.	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. 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. Note: Any of the above OT system LAN should not be having connection with IT network.

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

In 9th TeST 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.

Members may update.

ITEM NO. B.16: OPGW Installation in Eastern Region

B 16.1 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, 152 Km work has been completed. But following issues are causing delay as well as adverse commercial impact towards completion of the work.

A. Non-availability of A/R in non-auto mode: Non-availability of work permit result in delay of project and idling of man-hours which has adverse commercial impact to the executing agency. Following is the summary:

Duration	Non-availability Hours	Status of Permission of A/R in non-auto mode for OPGW work	References
01.11.2019 to 24.03.2020	486 Hrs (Correspond to 49 Days)	Permission with restricted timing (effective working time of 4-5 hrs in average)	Letter to ERLDC dtd 28.11.2019
25.03.2020 to 29.06.2020		Work stopped due to Outbreak of Covid-19	
30.06.2020 to 31.10.2020	1240 Hrs (124 Days)	Permission disallowed due to high hydro scenario.	Letter to ERLDC dtd 29.06.20 Letter from ERLDC dtd 01.07.20
08.12.2020 to 20.01.2021	134 Hrs (Correspond to 13 Days)	Permission with restricted timing (effective working time of 4-5 hrs in average)	Letter to ERLDC dtd 12.12.20
01.07.2021 to 31.10.2021	1230 Hrs (123 Days)	Permission disallowed due to high hydro scenario.	Letter to ERLDC dtd 31.07.20 & OCC shutdown list.
05.11.2019, 22.11.2019, 18.12.2019, 08.01.2020, 08.12.2020, 18.01.2021, 21.01.2021, 16.03.2021	80 Hrs (8 Days)	In addition to above, Permission not received for entire day	
Total Non-available Period	3170 Hrs (317 Days)		

Extending the work beyond a certain period inflicts heavy commercial loss to the executing agency. As this type of work usually awarded with no PV clause, the agency loses interest for the work.

B. ROW issues / Old compensation issues: Severe ROW issues are being faced during execution of the work hampering the work and causing delay to the work. During erection of OPGW, work has been stopped at various locations due to ROW issues/Old compensation issues. In all locations, local villagers are demanding payment of old pending compensation from TPTL. ROW issues have been resolved at some places however based on past experience, owner of the line, M/s TPTL is requested to provide necessary support for resolving the ROW issue. Following is the summary:

SL	RoW Location/Drum no	ROW Since	Contact Person, site	Status
I)	272/3 (Drum No: 42; T No.	11.02.2020	Ganesh Kumar Roy Hatidoba,Kharibari,	**Resolved.** Issue resolved on 13.08.2021

	270 to 273)		Ragali	with help of Administration. Work completed 17.08.2021.
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 (Marwa Toli, Khirdoho), Kishanganj	**Resolved.** Issue resolved on 21.03.2021 with help of Administration. Work completed 26.03.2021.
vii)	AP321N,AP319N,AP 320 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	Phal Bahadur (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.

Powergrid may explain. TPTL may respond.

B 16.2 ROW Issues related to OPGW Installation in 132kV Rangpo - Chuzachen line:

Out of 22 km of stringing work, 19km of OPGW had been installed. Severe ROW is being faced in pending 03 km section (T-33 to T-43) and work is stopped since April-2021. Matter has been taken up with Energy & Power Dept,Sikkim and Dist. Administration, however the issue is yet to be resolved. Energy and Power Dept.,Siklkim, being the owner of the line, is requested to extend necessary support in resolution of ROW issues at the earliest.

Powergrid may explain. Sikkim may respond.

B 16.3 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 of400 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.

In 9thTeST 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.

DMTCL and Powergrid may update.

B 16.4 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 BSPCTL 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.

In 9thTeST 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 said that commissioning certificate to Powergrid would be issued once SAT is completed.

BSPTCL may update.

B 16.5 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. It is pertinent to mention that OPGW erection of only 1 span (175 mtrs) and installation of HDPE Duct, Approach Cable and FODP and Commissioning of the link is pending for want of the entry permission. NTPC may expedite the issuance of permission.

Powergrid may explain. NTPC may update.

B 16.6 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:

Eastern Region Fibre 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: 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:

1. 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.
2. 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.
3. 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.BarhSl. 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-2 346.67 346.67 324.15 22.52 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 887.63 887.63 782.28 105.35 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.
4. 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.
5. Delay due to flooding of Ganga and Gandak rivers and other tributary rivers namely Parman, Kankai, etc. causing fresh water logging and non-workable conditions in Patna-Kishanganj (now Patna- Saharsa Kishanganj) and Barh- Motihari links. While the water logging conditions have now improved in Patna Saharsa-Kishanganj line and the agency will be mobilizing its team to carry out the balance OPGW Installation work (i.e. 22.52 km), the non-availability of work front due to prevailing water logging conditions as on date in Barh-

Motihari link is causing delay in completion of the balance OPGW Installation in the said link. Some site photographs of Barh- Motihari link is furnish at **Annexure-16.6.**

This is for the kind information of the forum and record please.

Members may note.

ITEM NO. B.17: Issuance of Gate Pass for taking out defective PMU material from NTPC Kahalgaon

PMUs and associated materials have been installed at NTPC Kahalgaon under the URTDSM package of ER. One No. PMU (Sl. 502894V) and RT-430 (Sl. No. 291321) unit has got defective at Kahalgaon in Feb' 2020. The same has been replaced with spares available with POWERGRID in Feb'2020 itself. However, the defective PMU & RT-430 unit could not be taken out from Kahalgaon due to non issuance of Gate pass. It is worth to mention that non-issuance of defective units for repair will hinder maintenance of ample spares with the AMC agency which may cause problem in ensuring healthiness of URTDSM system.

Powergrid may explain. NTPC may respond.

ITEM NO. B.18: Shifting of temporary UPS Room (URTDSM Backup NLDC Project) to permanent location at ERLDC

UPS Room for Backup NLDC URTDSM (at ERLDC) is presently operating from a temporary space provided by ERLDC. Single Air-conditioner became faulty twice in last one month causing high temperature in this room, although the same has been repaired and put to use, ERLDC is requested to provide permanent space on urgent basis for housing of UPS and battery system.

ERLDC may respond.

ITEM NO. B.19: Proper space for housing of NMS Systems

NMS System is installed for better management of the communication equipment and oversight of network. Under Fiber Optic Expansion Project. NMS system has been supplied at ERLDC. Proper permanent space is yet to be received at ERLDC for installation of the NMS system.

ERLDC may respond.

ITEM NO. B.20: Rectification of faulty UPS: JUSNL

Due to fault in UPS at SLDC, SCADA/ EMS system got severely interrupted on several occasions. At present only one UPS (UPS-1) is in working condition and the other UPS (UPS-2) had become faulty and is not in working condition. Several requests have been made to M/s Chemtrols for its rectification however, neither the issues have been rectified nor any response is being received from M/s Chemtrols.

M/S Chemtrols may update.

ITEM NO. B.21: Replacement of Battery Bank.

JUSNL has already given approval to M/s Chemtrols for replacements of battery bank at SLDC vide letter no. 89 SLDC, Ranchi; dated 11.06.2021. In the 9thTeST meeting, M/s Chemtrols assured to replace the battery bank by the end of September 2021. However, replacement has not been done yet. Further, even after several correspondences made vide letters and e-mails for getting status of replacement work, M/s Chemtrols has not reverted back.

M/s Chemtrols may update.

ITEM NO. B.22: Faulty 2x12 Volt 400 kVA DG Battery Starter

Out of two numbers of 24 Volt DG starter battery set, one of the batteries set of 400 kVA DG installed at ERLDC, POSOCO is not working for last 6 weeks due to its lower battery voltage. M/S Chemtrols has been intimated about the issue but issue yet to be attended by the concerned.

M/S Chemtrols may update.

ITEM NO. B.23: Non-availability of Spare Materials.

Spare materials required for attending faults at GSS and at SLDC are unavailable with M/s Chemtrols personnel deputed at SLDC Ranchi. In this regard request has been made to M/s Chemtrols vide e-mail dated 28.09.2021 enlisting details pertaining to material requirements at different GSS and at SLDC Ranchi. However, arrangement for making available these materials had not been done yet.

M/s Chemtrols may update.

ITEM NO. B.24: Preventive Maintenance of DG Set.

Preventive maintenance of DG set had not been carried on since the previous quarter. B-check had also been not done since more than one and half year.

JUSNL may explain. M/s Chemtrols may update.

ITEM NO. B.25: Issues of M/S Chemtrols by BSPTCL

B 25.1 Pending Critical Issues

a) Compliance Report of Cyber Security Audit of 2019 is pending since 30th December 2020.
b) One no. of codec of VCS is defective since February 2020 and handed over to M/s Chemtrols on dated 09.04.2021 however it is yet not sent back.
c) Battery bank- 2 and display of UPS -2 is defective since 24th May 2021 and back up of Battery Bank-1 is also less than 5 minutes.
d) One no. of Phase sequence corrector is defective since 19th May 2021.
e) Charger of battery (150 AH) of DG Set is defective since 15th May 2021.
f) Both graphic card and one no. of 500 GB Hard disk of controllers of VPS is Defective since 20th April 2021.
g) One No. of External Firewall SMPS Defective since 15th January 2021.

h) GPS Antenna is defective since December 2020.
i) Fifteen no. of Server Fan is defective since August 2020.
j) Oil pressure transducer of DG Set is defective since 30th July 2021.

B 25.2 General/Other Issues

a) Integration of new bay: -

As per AMC contract, 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 – 10 pcs
- Node –25 Pcs
- Decode Modem- 10 pcs
- DI Card- 10 Pcs
- DO Card- 03 Pcs
- Ethernet Card- 02 Pcs
- Mini DP to DVI Cable – 02 Pcs
- Two No. of Dell Monitor is faulty at GSS Lakhisarai and Masaudhi and handed over to M/s Chemtrols since last one year.

c) One no. of SCADA Workstation and one no. of DTS Workstation are defective since 05.11.2020.

d) SCADA Data explorer showing error: "Not connected to Data Explorer Adaptor" since May 2020.

e) MP 2355 RICOH printer is defective since November 2020.

B 25.3 RTU

RTU of Kishanganj, Baisi, Katihar, Jainagar and Samastipur, Kataiya, Purnea, Naugachhia, Harnautand Sitamarhi is not working.

B 25.4 LDMS

41 no. of LDMS is not working due to various issues whose details are attached at **Annexure B25.4.**

B 25.5 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
- CPU at GSS Sheikhpura handed over to your representative.
- Codec of VCS handed over on dated 09.04.2021.

M/S Chemtrols may update.

ITEM NO. B.26: Issues of M/S Fibcom by BSPTCL

a) Standby path of 09 links of BSPTCL is not working/ configured.
b) Major alarm is observed in 21 No. of cards at 21 sites on NMS.
c) DCPS of 11 sites is faulty. (Khagaul, Khagaria, Madhubani, Ara (BH), Mohania, Samastipur, Karamnasa, Jehanabad, Motihari, Gangwara and Banjari.)

d) Battery bank at GSS Motihari, Gangwara and Banjari is faulty.
e) Two no. of 230 V AC to 48 V DC adapters is defective since August 2020.
f) Power adapter of craft terminal is defective since 10.09.2021.

Details of faulty standby path of links of BSPTCL and alarm observed at sites on NMS are attached at **Annexure B26.**

M/S Fibcom may update.

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 9thTeST Meeting members updated the status is as follows:

Sl 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	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.	
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.	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.	
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.	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.	

7	Kahalgaon STPS – I	Both links established.	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	
8	Nabinagar Thermal Power Project – BRBCL	Only one link Sasaram-Nabinagar OPGW installation is pending. It would take two years for completion.	Powergrid representative informed that for OPGW installation, NIT had been floated and two packages are under technical evaluation right now.	
9	Darlipalli STPS	Communication established.	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 of AGC is pending.	
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		

Members may update.

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

In 9thTeST Meeting members updated status is as follows:

Utility	Status	Deliberation in 9thTeST meeting	Target
POWERGRID	Pending	Powergrid representative said that LOA had been awarded to Siemens on 31st Dec 2020 and subsequently submission of engineering documents had been completed at corporate level. He told 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 stooped after that due to Covid-19 pandemic and mobilisation would be done again once 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.	
Maithon Right bank (MPL)	RTU/SAS Upgraded		
NTPC, Farakka (Stage I & II)	Pending	Upgraded	
Talcher STPS	RTU Upgraded		
Kahalgaon STPS	Pending	NTPC representative informed that erection work had been completed and commissioning would be done once SCADA engineers visit the site after lockdown restriction eases.	
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 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.	October 2021
GMR	Pending	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.	October 2021
JUSNL	Pending	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.	
OPTCL	Pending	. 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.	September 2021
WBSETCL	Pending	WBSETCL representative informed that NIT would be floated in next week.	
NHPC (Teesta – V &Rangit)	Pending	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. NHPC representative was not present in the meeting. ERPC to communicate with NHPC to get status of RTU upgradation work at Rangit	
DMTCL Motihari	Pending	DMTCL representative informed that RTU upgradation work had been completed at Motihari.	OPGW not available
BRBCL Nabinagar	Pending		OPGW not available
Teesta – III	Pending		OPGW not available
Dikchu	Pending		OPGW not available
Jorethang	Pending		OPGW not available
New Farakka (Stage III)	Completed	---	---
APNRL	Completed	---	---
Barh	Completed	---	---

Members may update the latest status.

ITEM NO. C.3: Database and Display 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 C3.** 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.

In 9thTeST 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 months 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.

OPTCL may update.

ITEM NO. C.4: 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.

In 9thTeST 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.

JUSNL may update.

ITEM NO. C.5: 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 feeder 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.

In 9thTeST Meeting following deliberations took place

The present status of mapping of UFR feeders as available with ERLDC is given at **Annexure-C5.**

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

Members may update.

ITEM NO. C.6: 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 9thTeST meeting
1.	**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.	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. In 8thTeST Meeting, WBSETCL informed that the joint site visit is scheduled on 18th March 2021.	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.

Joint Site visit of POWERGRID & WBSETCL completed and space has been identified. WBSETCL agreed for providing space & power supply but could not provide requested bandwidth from Howrah(WB) to Durgapur(PG). DVC confirmed that total requirement of bandwidth is 45 Mbps. Accordingly offer collected from POWERTEL and the annual recurring service fee(Excl. of GST) will be INR 2,22,944/-.

Members may update.

ITEM NO. C.7: 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.

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

AOR	Station level (In kV)	Current Status	Deliberation in 9th TeST meeting	Comments
WBSETCL	Dharampur 220 Kv	Yet to be integrated.	*WBSETCL representative informed that M/s Schneider engineers are unable to come to Dharampur due to Covid-19 pandemic.*	
	Egra 220 kV	Yet to be integrated	*WBSETCL representative informed that discussion related to cost estimate is in progress with M/S Chemtrols.*	
	Bantala 220kV	Not Available	*WBSETCL representative informed that some 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 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 visitthe site after lockdown restriction eases.*	

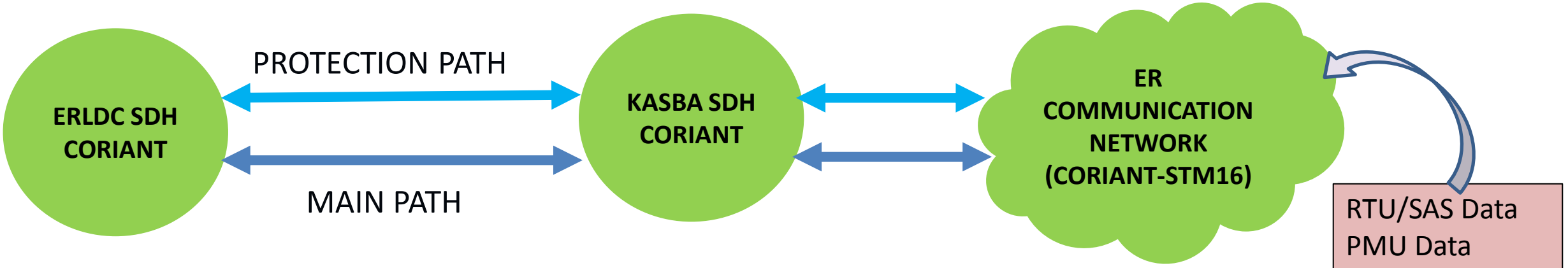
	Rishra 220kV	Not Available since July 2020		
	DPL TPS_WB 220 kV	Not Available since Jan 2021		
JUSNL	Hatia New 220 kV	Not Available	*JUSNL representative informed that issue at Hatiahas been resolved.*	
	Patratu 220 kV	Not available since Feb 2020	*JUSNL representative informed that control room issue present at Patratu would be rectified soon.*	
	Tenughat 220kV	Not available since Feb 2020	*JUSNL representative informed that the work had been completed on 31st March 2021.*	
	Chandil 220 kV	Not available since Sept 2019	*JUSNL representativeinformedthat PLCC installation is under progress at Chandil, Jamtara ,Garwa, Deoghar and Kendposi and the issue would be rectified by July'2021*	30th 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 representativeinformed that issue at Lalmatia would be rectified by June'2021.*	June 2021
	Giridih 220 kV	Not Available	*JUSNL representative informed that link issue is present at Giridih and would be rectified soon.*	June 2021
	Godda 220 kV	Not available since Jan 2021	*JUSNL representative informed that issue at Godda would be rectified by June '2021.*	June 2021
	Jasidih 220 kV	Not available since August 2020	*JUSNL representative informed that issue at Jasidih has already been solved.*	
OPTCL	Malkangiri 220 kV	Data integration and database creation not yet done.	*OPTCL representativeinformed that data base creation has been completed for Malkangiri, Jeypatna and Kashipur substations.*	
	Jaypatna 220			
	Kasipur 220			
	Damanjodi 220		*OPTCL representativeinformed that the issues would be resolved by Sep' 2021.*	
	Cuttack 220			
	Utkal Al 220			
	Narsingpur 220kV	Station commissioned at 220kV without data telemetry	*OPTCL representative informed that pending issues at Narsingpur S/S would be resolved by May' 2021*	
	Bargarh 220	Station commissioned at 220kV without data telemetry	*OPTCL representative informed that the issues would be resolved by Sep' 2021.*	
	Paradeep 220	Not available		

	kV			
	Vedanta 220 kV	Not available since Nov. 2020		
BSPTCL	Gopalganj 220	No available since July 2019	*BSPTCL representative informed that issue at Gopalganj has already been solved.*	
	Samastipur New 220	Not available since 22-02-2021	*BSPTCL representativeinformed that they had already informed M/S GE regarding issues at Samastipur.*	
	Khagaul 220 kV	No available since Jan 2021	*BSPTCL representativeinformed that issue at Khagaul has already been solved.*	
	Motipur 220 kV	No available since 05-03-2021	*BSPTCL representative informed that they had already informed M/S GE regarding issues at Motipur.*	
	Laukhai 220 kV	No available since 13-02-2021	*BSPTCL representative informed that they had already informed M/S GE regarding issues at atLaukhai.*	
	Dumraon 220 kV	No available since 22-01-2021	*BSPTCL representative informed that M/S ABB was also informed regarding issue at Dumraon and issues would be solved at the earliest.*	
DMTCL	Motihari 400 kV	Not available since Sept 2019	*ERLDC representativeinformed that work had been completed.*	

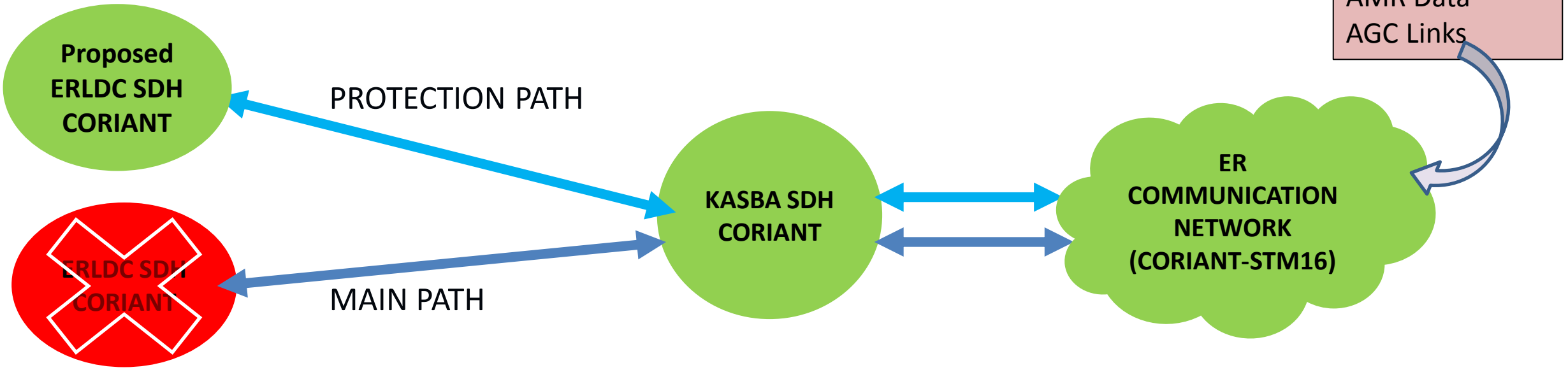
Members may update the latest status.

****

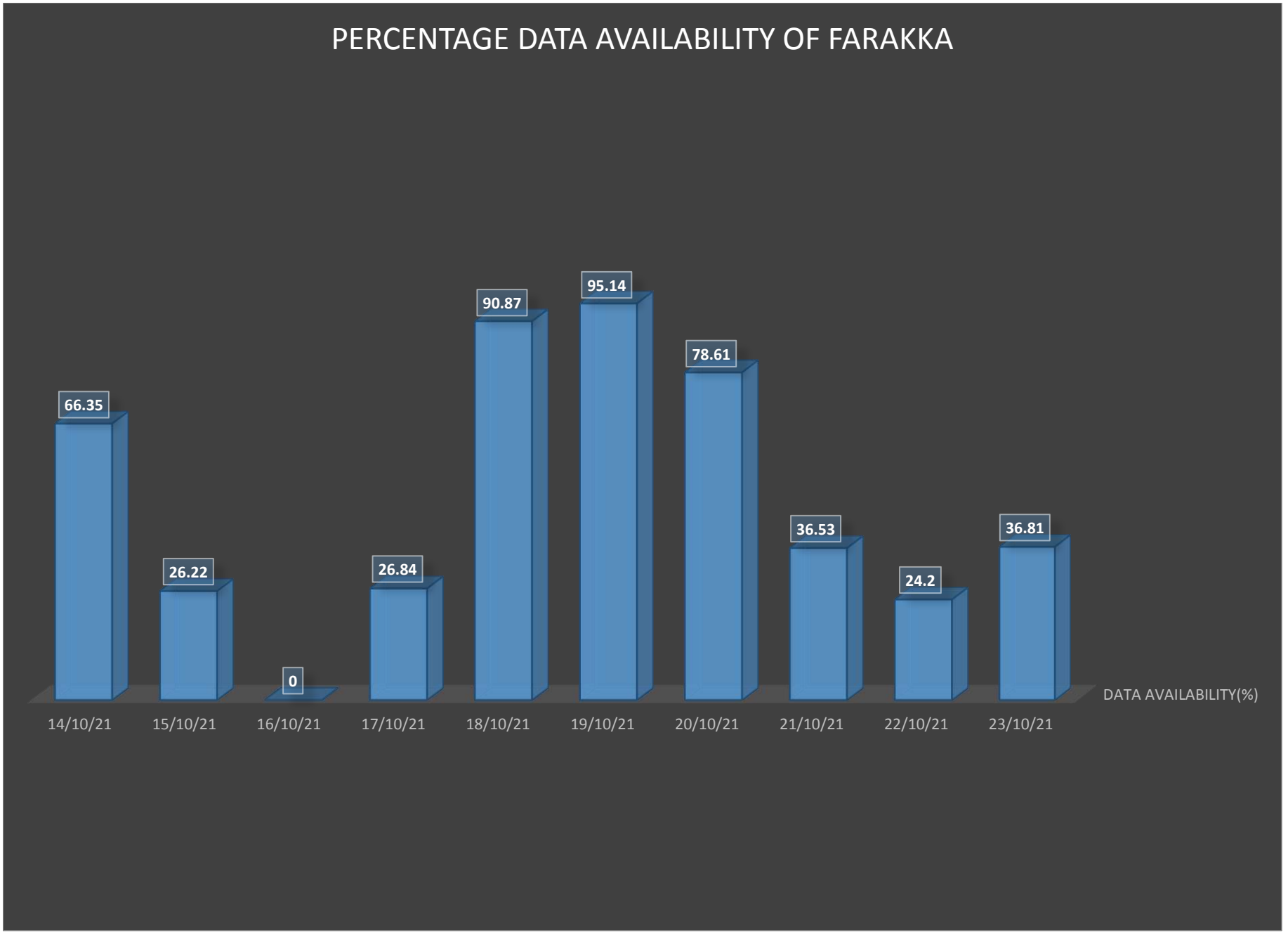
Equipment Connectivity at Present



Equipment Connectivity Proposed



Annexure-B10



Report on Kahalgaon- Lakhisarai Fiber Link degradation:

(In response to discussion held in 9th TeST Meeting dtd. 16.06.2021 i.r.o Item No. B.1.1 of the agenda.)

Quote:

"**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."

Unquote

Incident:

Report regarding unstable ICCP link of BSPTCL was informed by ERLDC to ULDC team on 13/04/2021. While all the links riding on the ULDC network was in healthy state, the BSPTCL's ICCP link was found fluctuating.

The detailed % availability of ICCP links at ERLDC, between 13/04/2021 to 26/04/2021 is furnished at **Table-1.** As per the details shown in Table-1, the availability of BSPTCL ICCP link was below 100% on various dates as highlighted in the table.

	ER_WEST BENGAL ICCP LINK	ER_BIHAR ICCP LINK	ER_DVC ICCP LINK	ER_JHARKHAND ICCP LINK	ER_SIKKIM ICCP LINK	ER_GRIDCO ICCP LINK
07-04-2021	99%	99%	99%	99%	50%	99%
08-04-2021	100%	100%	99%	97%	99%	100%
09-04-2021	100%	100%	100%	93%	95%	100%
10-04-2021	100%	100%	99%	74%	0%	100%
11-04-2021	100%	100%	100%	58%	32%	100%
12-04-2021	100%	100%	100%	97%	100%	100%
13-04-2021	100%	94%	100%	80%	100%	100%
14-04-2021	100%	95%	100%	100%	100%	100%
15-04-2021	99%	99%	100%	96%	100%	100%
16-04-2021	100%	98%	100%	83%	100%	100%
17-04-2021	100%	85%	100%	100%	100%	100%
18-04-2021	100%	96%	100%	100%	100%	100%
19-04-2021	100%	97%	100%	100%	100%	100%
20-04-2021	100%	96%	100%	100%	100%	100%
21-04-2021	100%	100%	100%	100%	100%	100%
22-04-2021	100%	100%	100%	100%	100%	100%
23-04-2021	100%	98%	100%	100%	100%	100%
24-04-2021	100%	92%	100%	100%	100%	100%
25-04-2021	100%	95%	100%	100%	100%	100%
26-04-2021	100%	91%	100%	100%	89%	100%

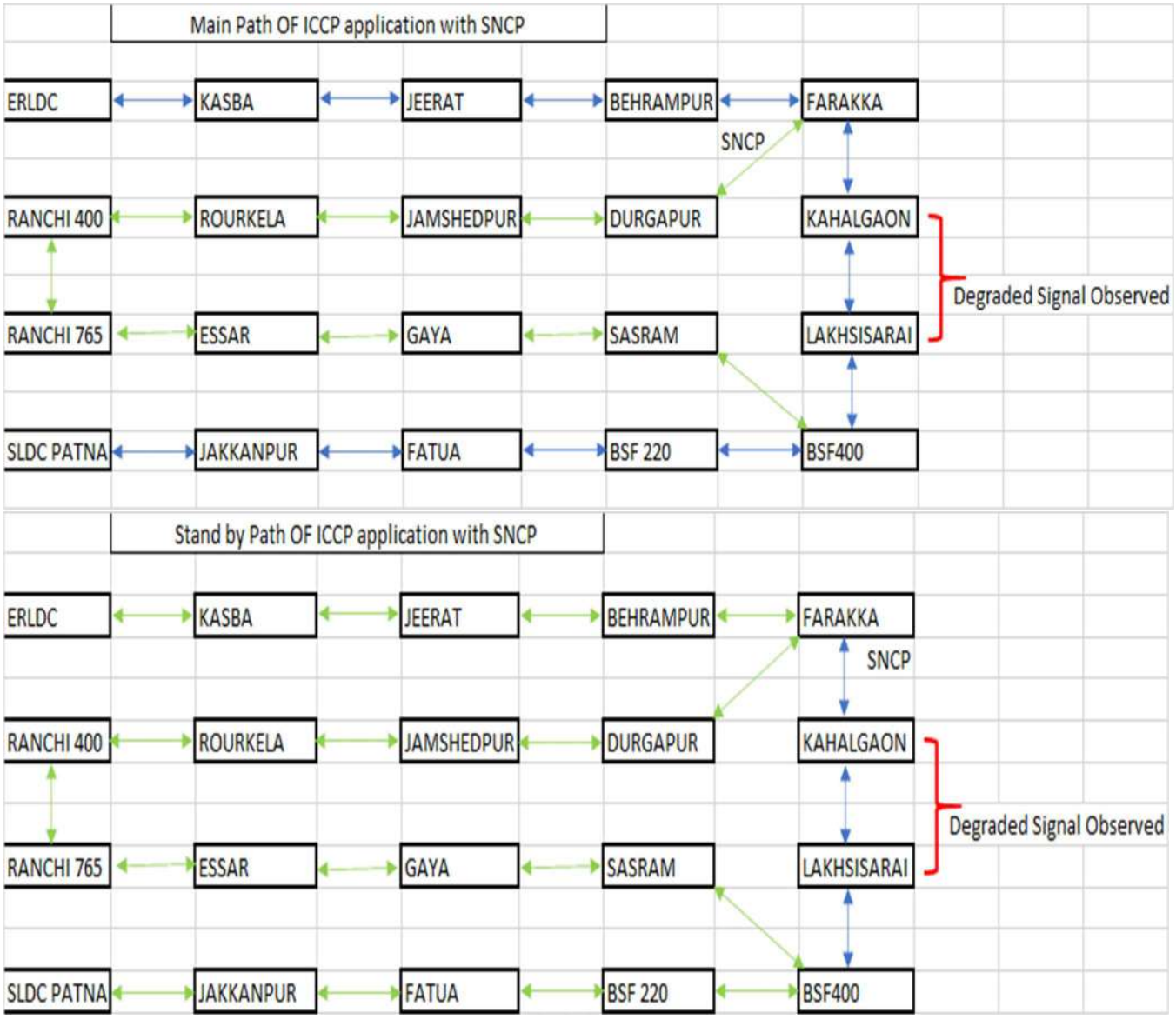
Table-1: The detailed % availability of ICCP links at ERLDC

On dated 13.04.2021, it was observed that the optical link between Kahlagaon- Lakhisarai is fluctuating. NMS engineer monitored the link on NMS and found that Degraded Signal alarm is intermittently flapping on the optical port.

As per the methodology of ICCP application, there is provision of two links i.e. Main and Standby and these two links are further protected via different path through SNCP.

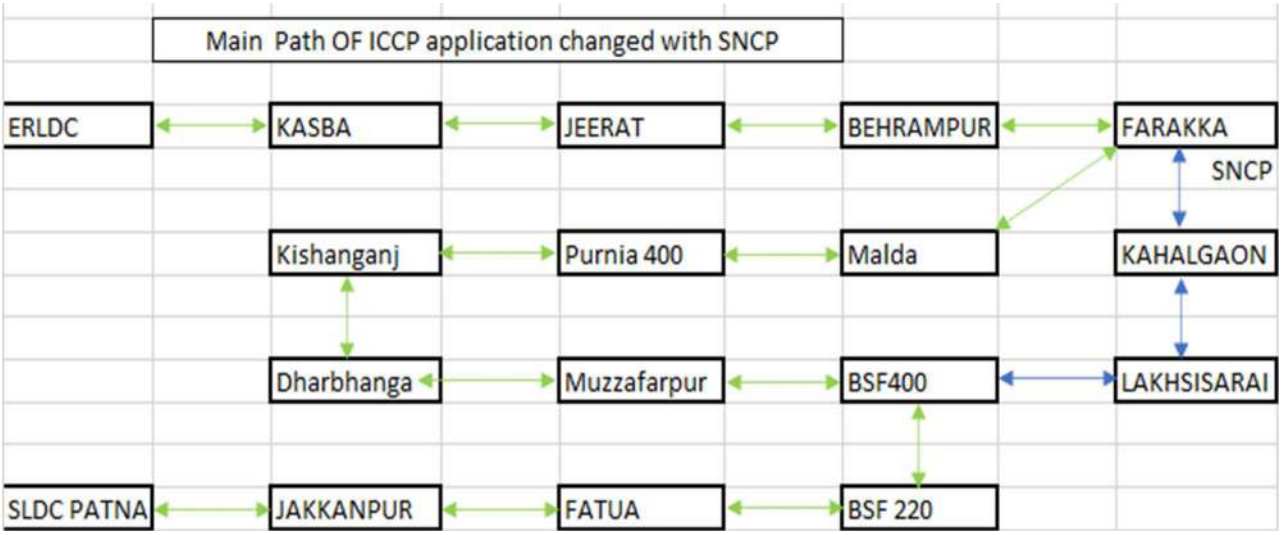
The Main ICCP link was riding on Kahlagaon- Lakhisaria OPGW link and its SNCP protection was provisioned on from **Farakka - Durgapur- Jamshedpur- Rourkela- Ranchi 400- Ranchi 765- Chandwa- Gaya- Sasaram- Biharsharif 400**. As there was fluctuation in the main link, the application switches on to the protection path and subsequent to normalization of the main path, the application switches back again to the main path, as per established protocol. This continuous switching of the application from Main to Standby SNCP path was causing fluctuation in the BSPTCL ICCP link.

The schematic diagram of Main & stand by path of BSPTCL ICCP link with SNCP protection is shown hereunder:



As the ICCP Server is having a limitation, that it can switch to Standby Channel only when the Main Path is completely down, to overcome this issue and to run the ICCP link through the Standby Path, the LAN port of Main path was turned off on 26/04/2021. The BSPTCL ICCP link started to communicate smoothly on the standby path without any link flapping/ loss.

Subsequently, for the permanent solution at the given point of time, the Main path of the ICCP application was changed from **Farakka- Kahalgaon- Lakhisarai- Biharsharif 400 - Biharsharif 220- Fatua- SLDC Patna** to **Farakka- Malda- Purnea- Kishanganj- Darbhanga- Muzzafarpur- Biharsharif 400- Biharsharif 220- Fatua- SLDC Patna**.



After shifting the application on this path, the ICCP link is running smoothly since dated 26/04/2021.

Rectification of Losses in Kahalgaon- Lakhisarai OPGW Link:

As signal degrade alarm was occurring intermittently in the Main Path of Kahalgaon- Lakhisarai OPGW link, the need for testing at site, along the length of the OPGW link (149 km) and identification of fiber losses and removal of the same was felt. Accordingly, the OPGW AMC team was advised to visit the site on Immediate basis.

It is pertinent to mention that the OPGW present in Kalahgaon- Lakhisarai link is more than 15 years old and already past its End of Life.

The OPGW AMC team expressed its inability of mobilize citing Force Majeure Condition (One of the team members was COVID-19 symptomatic then). The same was also informed to ERLDC.
POWERGRID was in continuous touch with the OPGW AMC team for early deputation.
Subsequently, LOCKDOWN was imposed in state of Bihar w.e.f 02/05/2021, upon outbreak of 2nd Wave of COVID-19 pandemic.

However, as soon as the OPGW AMC team agreed to mobilize at site (Post recovery of OPGW AMC team member from COVID), the team attended the OPGW Loss identification/ rectification work and the Signal Degrade alarm issue was resolved on 16.05.2021.

Conclusion:

The Kahalgaon- Lakhisarai OPGW link was not out of service between 13/04/2021 to 16/05/2021. Only one (BSPTCL's ICCP link) amongst the several links riding on the aforementioned OPGW link was fluctuating in the said period (BSPTCL's ICCP link availability: 91-100 % availability). The BSPTCL's ICCP link was also re-routed and restored through alternate route on 26.04.2021. The OPGW signal degrade issue was also resolved on 16/05/2021, amidst COVID-19 2nd wave resurgence, OPGW AMC team suffering from COVID and imposition of LOCKDOWN in the state of Bihar.

Annexure-B12.1

Eastern Regional Power Committee, Kolkata

Draft Procedure on Monthly Outage Planning for Communication System–ER

1. Introduction:

The communication needs of the power sector have amplified significantly with the increase in the size and complexity of the grid. Communication is also a key pre-requisite for efficient monitoring, operation and control of power system. For integrated operation of the Grid, uninterrupted availability of the real time data of various Power System elements assumes utmost importance. Hence, Communication systems plays vital role to facilitate secure, reliable and economic operation of the grid.

To facilitate the above, Central Electricity Regulatory Commission (CERC) had notified Communication System for Inter-State Transmission of Electricity, Regulations, 2017 which came in force w.e.f. 01.07.2017.

2. Regulatory Provisions with respect to Outage Planning for Communication System:

2.1 The following provisions of Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017 merit attention:

…….

2(i) (f) "Communication Channel" means a dedicated virtual path configured from one users' node to another user's node, either directly or through intermediary node(s) to facilitate voice, video and data communication and tele-protection system.

2(i) (g) "Communication network" means an interconnection of communication nodes through a combination of media, either directly or through intermediary node(s);

2(i) (h) "Communication system" is a collection of individual communication networks, communication media, relaying stations, tributary stations, terminal equipment usually capable of inter-connection and inter-operation to form an integrated communication backbone for power sector. It also includes existing communication system of Inter State Transmission System, Satellite and Radio Communication System and their auxiliary power supply system, etc. used for regulation of inter State and intra-State transmission of electricity;

…….

9. Periodic Testing of the Communication System:

(i) All users that have provided the communication systems shall facilitate for periodic testing of the communication system in accordance with procedure for maintenance and testing to be prepared by C'[U within 60 days of notification of Regulations and approved by Commission.

(ii)Testing process for communication network security should also be included even for third party system if exists in accordance with procedure for maintenance and testing to be

prepared by CTU and approved by Commission.

2.2 The following provisions of Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 notified on 27.02.2020 merit attention:

…….

7. Reliability:

(1) Total outage period shall be less than sixteen hours on monthly basis each for interface node, wideband node and communication network.

(2) The total outages in a rolling twelve months assessment period shall be less than forty-eight hours.

(3) The communication system shall be designed to ensure adequate redundancy.

…….

8. Design and planning :

…….

(5) User shall ensure centralized monitoring or management of its communication network and shall provide necessary facilities for configuration, identification of fault and generation of various reports on availability of the communication system.

(6) User shall be responsible for planning, design, implementation, secured operation and maintenance of its own communication infrastructure to be interfaced with the communication system.

…….

21. Training :

(1) Specialized training shall be provided to the persons manning the centralized monitoring center and to the field support staff to ensure quick fault detection and restoration of the communication system.

(2) Training shall be provided to the maintenance persons on all communication equipment for its operation and maintenance.

3. Objective :

3.1 Regulation 7.3 of Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017 states

7.3 Role of National Power Committee (NPC) and Regional Power Committee (RPC):

…….

(iv) 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.

…….

3.2 Regulation 10 Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 notified on 27.02.2020 states

10. Outage planning: 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.

3.3 The objective of this Procedure on Outage Planning of communication System is to carry out outage planning for communication system in ER such that uninterrupted communication system is ensured. Monthly outage of Communication Equipment/system shall be planned by the owner of communication equipment / link in coordination with ERPC/ERLDC/SLDCs and placed in the forum of ERPC and shall be discussed for approval as per the procedure.

4. Scope and applicability:

4.1 The scope and applicability as per Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017 is given below:

…….

5. Scope and Applicability:

(i) These regulations shall apply to the communication infrastructure to be used for data communication and tele-protection for the power system at National, Regional and inter-State level and shall also include the power system at the State level till appropriate regulation on Communication is framed by the respective State Electricity Regulatory Commissions.

(ii) All Users, SLDCs, RLDCs, NLDC, CEA, CTU, STUs, RPCs, REMC, FSP and Power Exchanges shall abide by the principles and procedure as applicable to them in accordance with these regulations.

…….

4.2 The applicability as given in Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 notified on 27.02.2020 is given below:

…….

3.Application:These regulations shall apply to all the users; National Load Despatch Centre, Regional Load Despatch Centres, State Load Despatch Centres, Load Despatch Centres of distribution licensee, Central Transmission Utility, State Transmission Utilities, Regional Power Committees, Renewable Energy Management Centres, forecasting service provider and power exchanges.

…….

4.3 All concerned entities stated above would coordinate with ERPC / ERLDC for outage planning of Communication System.

4.4 Communication System Outage Planning will be limited to the following system:

(i) ISTS Communication System including ISGS
(ii) Intra-state Communication System being utilized for ISTS Communication
(iii) ICCP links between Main & Backup RLDCs, Main & Backup SLDCs &Main & Backup NLDCs
(iv) VC links between LDCs
(v) Inter regional AGC links
(vi) Any other system agreed by the forum

4.5 Communication Equipment/link within the scope of the Procedure would include:

(i) Optic Fibre links
(ii) Any other link being used for ISTS communication
(iii) ICCP links between Main & Backup RLDCs, Main & Backup SLDCs & Main& Backup NLDCs
(iv) SDH & PDH
(v) DCPC
(vi) RTU& its CMU cards
(vii) DTPCs
(viii) Battery Banks and Charging Equipment
(ix) EPABX
(x) Any other equipment/link agreed by the forum

Note: PLCC would not be included, if the link is not used for SCADA Data.

5. Procedure on Monthly Outage Planning of Communication System-ER:

5.1 Each concerned Entity would nominate a Nodal Officer/ Alternate Nodal Officer along-with details to the ERPC/ERLDC along-with designation, mobile number; email ID etc. Nodal Officer/ Alternate Nodal Officer would interact internally and would be single point contact for outage planning with ERPC/ERLDC.

5.2 The outage proposal of the communication equipment/links for the succeeding month shall be submitted in the prescribed format (attached as Annexure: COF-I & COF-II) to ERPC Secretariat via mail (erpcscada@gmail.com) only.

The type of services (viz. data, voice, protection etc.) being affected/ not affected may be mentioned in the format. If there is no interruption to any service, the precautions and actions (like redundant path) being taken to ensure data, voice etc availability may also be mentioned, which facilitates to avoid simultaneous outage for the same service(s). Any other communication system related issues would be addressed to this mail (erpcscada@gmail.com) only.

5.3 The proposed list of communication outages for the succeeding month shall be submitted to ERPC latest by 8th day of the current month.

5.4 Users / Owners of the communication equipments/links need to furnish their monthly outage proposal in respect of their equipments/links in the prescribed (in excel) format only. Modification of this format is not allowed. However, suggestion for improving the format is solicited. Outage proposals not in the format or through Fax/PDF etc may liable to be rejected.

5.5 RPC will consolidate the list of outage proposals received from various Users/ Owners of the communication equipments/links and publish the list by 11th of every month.

5.6 Communication outages affecting other regions would be coordinated by ERLDC through NLDC.

5.7 A meeting will be conducted every month during 2nd/3rd week of the month through VC to discuss and approve / dispose the proposed list of outages pertaining to communication links/

equipments. The date of VC will be informed during the 1st week of the month.

5.8 The VC for approving the communication outage will be termed as "Communication System Outage Planning Meeting for Eastern Region (COMER)" prefixed with the no of meeting and suffixed with the name of month for which the outages are proposed.
For example, for availing outage of communication equipments for the month of June 2021, COMER-June 2021 (1st COMER for June 2021) will be held on the middle of May, 2021.

5.9 In the VC, the system constraints pertaining to the outage of communication equipments/links, if any, shall be discussed and the outage proposals will be approved/ revised/ disposed based on the outcome arrived in the VC. Therefore, all the Users/Owners of the communication equipments/links shall attend the VC without fail including ERLDC. It is requested that the Nodal Officers who do not have VC facility may join in the nearby VC available with State SLDC / PGCIL.

5.10 The final approved list of communication equipments will be published by ERPC after 3 days from the date of VC.

5.11 In case of any emergency outage requirement of communication equipments, Users/ Owners may directly apply on D-1 basis to ERLDC via mail ID erldcscada@posoco.in.

5.12 For the outages of communication equipments/links which are approved in the VC, concerned entities shall confirm availing of approved outages of communication equipments on D-2 day to ERLDC at erldcscada@posoco.in or intimate the dropping of approved outages, if any.

5.13 The concerned entity shall give intimation to ERLDC Control room/ERLDC SCADA team before start of the work & after completion of the work.

5.14 ERLDC shall coordinate with the concerned entities that are likely to be affected by the outage of communication equipments/links.

5.15 All Users / Owners of the communication equipments/links will submit their deviation report by 10th of the month in respect of the outages of communication links/ equipments availed during the previous month as per the format attached at Annexure: DCOA-I & DCOA-II.

****

Annexure -COF I

List of outages of Communication Links, proposed to avail during the month of June, 2021

Dated :
COMER VC Date :

A Details of Communication Links (Point to Point) proposed :

SL	Name of Requesting Agency	Description of Link	Source	Destination	Channel Routing/Alternate channel status	Ownership/Coordinating agencies	Reason for availing outage & Precautions / actions being taken to ensure communication system availability	Outage proposed from	Outage proposed upto	Total hours of outage proposed now	Approved ? (Y/N)	RPC Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13
1	**Example**	Data/Voice, PLCC - OFC	Thirubuvanai	Pondy SCC	Thirubuvanai – Villianur 230 – Pondy SCC	PED, Puducherry	Preventive Maintenance. 110KV Thirubuvanai power flow data would be available from Villianur 230KV RTU	07-Jan-21, 10:00	07-Jan-21, 13:00	**03:00**		

Name of Communication links/channels
1. OF links
2. Any other link being used for ISTS communication
3. ICCP links
4. Any other link

Format

Annexure - COF II

List of outages of Communication Equipment, proposed to avail during the month of June, 2021

Dated :

Communication VC Date :

B Details of Communication Equipment proposed :

SL	Name of Requesting Agency	Name of the communication equipment	Location of the Equipment / Name of Station	Name of the Channel / Path / directions affected	Alternate Channel / Path available (Furnish details)	Ownership/Coordinating agencies	Reason for availing outage and precautions / actions being taken to ensure communication system availability	Outage proposed from	Outage proposed upto	Total hours of outage proposed now	Approved ? (Y/N)	RPC Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13
	Example	PLCC, ABB, ETL41, TK1 SPS protection trip	Thingalore 230 kV SS	Ingur 230 kV SS	No	TANTRANSCO	Maintenance work	20-Jan-21, 10:00	20-Jan-21, 14:00	**04:00**		

Name of Communication links/channels

1. SDH & PDH

2. DCPC

3. RTU & its CMU Cards

4. DCPCs

5. Battery banks and Charging equipment

6. EPBAX

7. Any other equipment

Annexure: DCOA-I

Outage Deviation Report : List of outages of Communication Links, availed / deviated during the month of June, 2021

Dated :

A Details of Communication Links (Point to Point) availed :

SL	Name of Requesting Agency	Description of Link	Source	Destination	Channel Routing	Ownership	Reason for availing outage with the details of equipment attended	Approved Start Date : Time [dd-mm-yy<><>hh:mm]	Approved End Date : Time [dd-mm-yy<><>hh:mm]	Approved Outage Hours	Outage availed Start Date : Time [dd-mm-yy<><>hh:mm]	Outage availed End Date : Time [dd-mm-yy<><>hh:mm]	Total hours of outage availed now	Deviation ? (Y/N)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**Example**	Back up Control Center (BCC) : Data	KAYATHAR 230 kV SS	MADURAI LDC	Data will be availble throu	TANTRANSCO	Shifting of FODB panel at Kayathar 230 KV SS	10-Mar-2021 09:00	10-Mar-2021 18:00	**09:00**	10-Mar-2021 14:07	10-Mar-2021 17:30	**03:23**	**N**

Annexure: DCOA-II

Outage Deviation Report : List of outages of Communication Equipment availed / deviated during the month of June, 2021

Dated : **00:00**

B Details of Communication Equipment availed :

SL	Name of Requesting Agency	Name of the communication equipment	Location of the Equipment / Name of Station	Name of the Link/Channel/Path / directions affected	Alternate Channel/Path available ? (Furnish details)	Ownership	Reason for availing outage with the details of faults	Approved Start Date : Time [dd-mm-yy<><>hh:mm]	Approved End Date : Time [dd-mm-yy<><>hh:mm]	Approved Outage Hours	Outage availed Start Date : Time [dd-mm-yy<><>hh:mm]	Outage availed End Date : Time[dd-mm-yy<><>hh:mm]	Total hours of outage availed now	Deviation ? (Y/N)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**Example**	DC Charger -2, Amararaja, 48v,	Edamon	Nil	Nil	KSEBL	Monthly maintenance. No interruption as alternate chargers	16-Mar-21, 11:00	16-Mar-21, 16:00	**05:00**	16-Mar-21, 10:30	16-Mar-21, 16:00	**05:30**	**Y**

Annexure-B16.6

Photos of Water-logged Barh- Motihari Link:

Annexure-B25.4

Issue of LDMS, Inverter in BSPTCL

S.No.	SITE NAME	ISSUE	REMARKS
1	Aurangabad	LDMS not getting ON	Inverter and SMPS issue
2	Banjari	Inverter of LDMS Issue	Invertor Faulty
3	Banka	LDMS displaying mismatched data.	Meerkat Software Issue
4	Begusarai	Inverter Issue	
5	Bettiah	Inverter Issue	Inverter faulty
6	Chapra	Inverter Issue	Inverter faulty
7	Dalsinghsarai	CPU Issue	inverter and SMPS issue
8	Dhaka	Meerkat software Issue	Meerkat software Issue
9	Goh	Meerkat Software Issue. Data is not displaying on SLD	Inverter faulty
10	Jagdishpur	Power Supply of Inverter not working	Inverter faulty
11	Jahanabad	Inverter Issue	Inverter faulty
12	Jainagar	CPU Issue.	
13	Jandaha	LDMS and Inverter issue.	Inverter faulty
14	Kahalgaon	LDMS and Inverter issue.	Inverter and SMPS issue
15	Karmanasa	Keyboard and Mouse of LDMS Faulty.. Modbus faulty only data of 33 KV is reporting.	Node Unhealthy and inverter isssue
16	Kataiya (kosi)	LDMS Monitor Issue	inverter and SMPS issue
17	Katihar	Inverter faulty, UPS faulty	inverter and SMPS issue
18	Kishanganj Old	RTU & SMPS issue	SMPS issue
19	Kochas (Dinara)	LDMS not getting ON	
20	Kusheshwar Asthan	Inverter Issue	
21	Madhepura	LDMS Issue	
22	Madhubani	Inverter Issue	Inverter Issue
23	Masaudhi	Meerkat software Issue	Meerkat software Issue
24	Motihari	Battery Charger Issue	Battery Charger Issue
25	Pandaul	LDMS software issue	Meerkat corrupted
26	Phulparas	LDMS and Inverter issue	inverter and SMPS issue
27	Purnea	System restart with Blue Screen Error	
28	Rafiganj	LDMS monitor not getting ON	
29	Raxaul	Inverter & LDMS Issue	inverter and SMPS issue
30	Saharsa	Invertor Issue	Invertor Faulty

31	Samastipur	Meerket software Corrupted and Inverter Issue	Meerkat Software and Inverter Issue
32	Sheikhpura	HDD faulty, Front panel faulty	CPU handed over to M/s Chemtrols Representative
33	Sipara	Meerkat software Issue	Meerkat sofware Issue
34	Sitamarhi	LDMS CPU and Inverter Issue	Inverter and SMPS issue
35	Siwan	Inverter & LDMS Issue	Inverter and SMPS issue
36	Sonebarsa	CPU Issue	Inverter and SMPS issue
37	Sonenagar	Software not updated	Meerkat Software issue
38	Supaul	Meerkat software Issue	Meerkat software Issue
39	Tekari	CPU issue	Inverter and VGA Cable
40	Valmikinagar	CPU issue	Inverter issue
41	Wazirganj	LDMS CPU Issue	LDMS not Starting (SMPS issue)

STANDBY PATH CONFIGURATION ISSUE		
S.No.	**Link Name**	**Status**
1	Ara (BH)- ARA(PG)	Fail
2	Banka (PG) -Banka(BH)	Fail
3	BTPS (New)- Begusarai	Fail
4	Dehri-Pusauli (PG)	Fail
5	Gagawra-Pndaul	Fail
6	MTPS-SKMCH	Fail
7	Pusauli (PG)- Pusauli (BH)	Fail
8	Sabour-Sultanganj	Fail
9	Sipra-Khagaul	Fail

Details of Faulty Card		
S.No.	**Site Name**	**Card Name**
1	Saharsa	Optical Card and FAN
2	Masaurhi	Optical Card
3	Sonbarsa	FAN
4	Madhubani	FAN
5	Gangawara	FAN
6	Samastipur	FAN
7	Betiah	FAN
8	Jakkanpur	FAN
9	Sipara	FAN
10	Jehanabad	Ethernet Card and FAN
11	Tehta	FAN
12	Chandauti	FAN
13	Pusauli (PG)	Ethernet Card
14	Pusauli (BH)	FAN
15	BTPS New	FAN
16	Biharsharif	FAN
17	Ara (BH)	FAN
18	Lakhisarai (BH)	FAN
19	Sabour	Ethernet Card

Annexure-C3

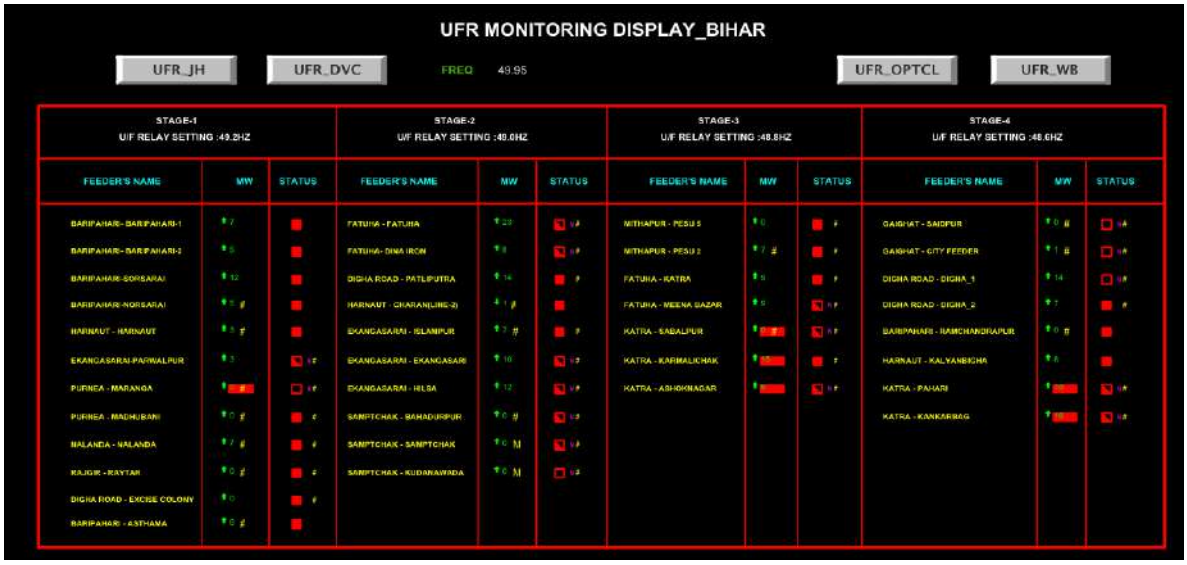
LIST OF THE SUBSTATIONS UNDER OPTCL JURISDICTION WHOSE UPDATED DISPLAY & DATABSE ARE NOT PRESENT WITH ERLDC

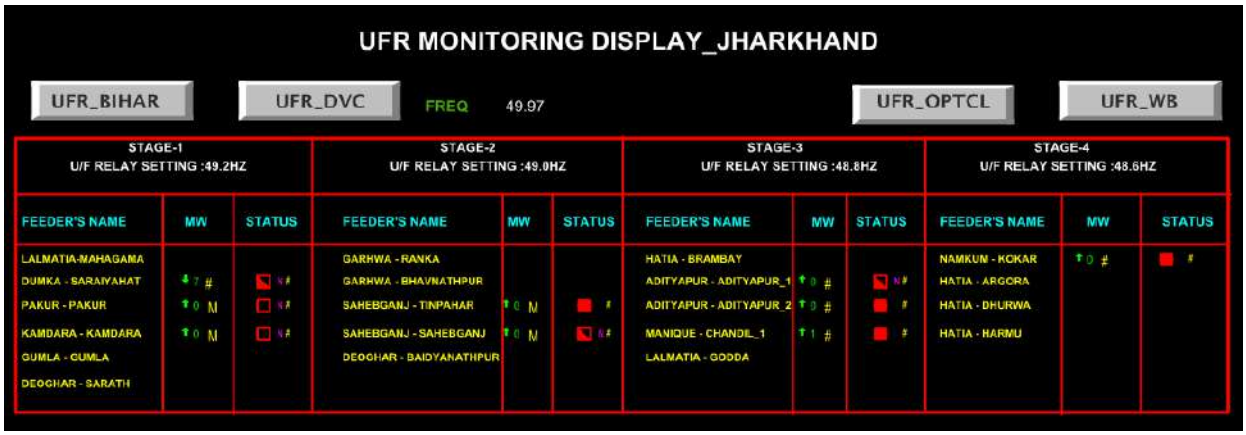
S No	SUBSTATION NAME	VOLTAGE LEVEL
1	JAYPATNA	220
2	KASIPUR	220
3	BALASORE	220
4	CUTTACK	220
5	BASUNDARA	220
6	BUDHIPADAR	220
7	BIDANASI	220
8	CHANDAKA B	220
9	ESSAR STEEL	220
10	IOCL	220
11	TATA GOPALPUR	220
12	IRE	220
13	ISPAAT ALLOYS	220
14	SAMANGARA	220
15	ROHIT	220
16	NARENDRAPUR	220
17	THERUVALI	220
18	BOGRAI	132
19	BRAJABIHARIPUR	132
20	B C MOHANTY COLONY	132
21	CHANDBALI	132
22	CHANDPUR	132
23	CHIKITI	132
24	BETANATI	132
25	DABUGAON	132
26	DIGAPAHANDI	132
27	DPCL	132
28	DPCL PORT	132
29	BIRLA TYRES	132
30	EMAMI	132
31	FACOR	132
32	GANJAM	132
33	GORAKHNATH	132
34	JABAMAYEE	132
35	JAGANATHPUR	132
36	JAGATSINGHPUR	132
37	KENDAPARA TSS	132
38	KIPADRA TR.	132
39	KONARK	132
40	KSURA	132

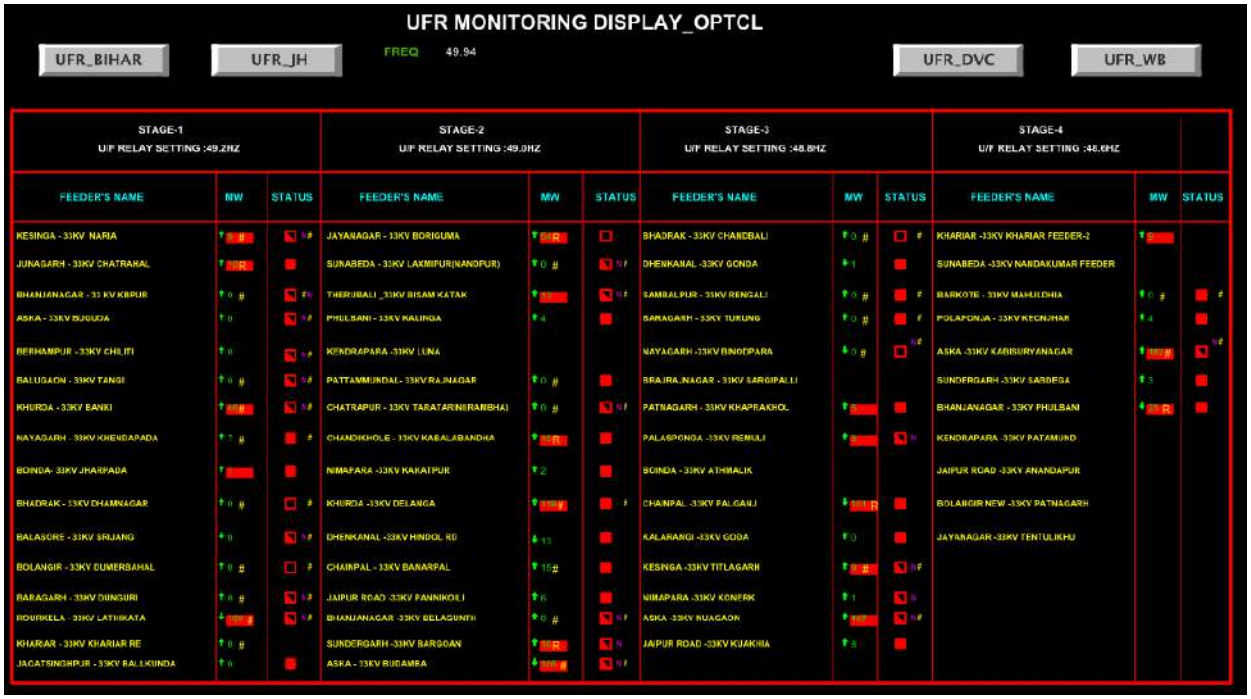
41	MASHAGHAI	132
42	MESCO	132
43	IFFCO	132
44	NEW ASKA	132
45	OVALAR	132
46	PARADEEP	132
47	PATTAMUNDAI	132
48	PPL	132
49	PPT	132
50	PRATAPASA	132
51	PURI	132
52	PURUSHOTTAMPUR	132
53	RAIRANGPUR	132
54	R.S. PUR	132
55	RTSS	132
56	SATASANKHA2	132
57	S F ALLOYS	132
58	SHAMUKA	132
59	SOLARI	132
60	SOMNATHPUR	132
61	T KHUNTI	132
62	TOMKA	132
63	ARGUL	132
64	BALIMUNDA	132
65	UDALA	132
66	UMERKOTE	132
67	BAMUPAL	132

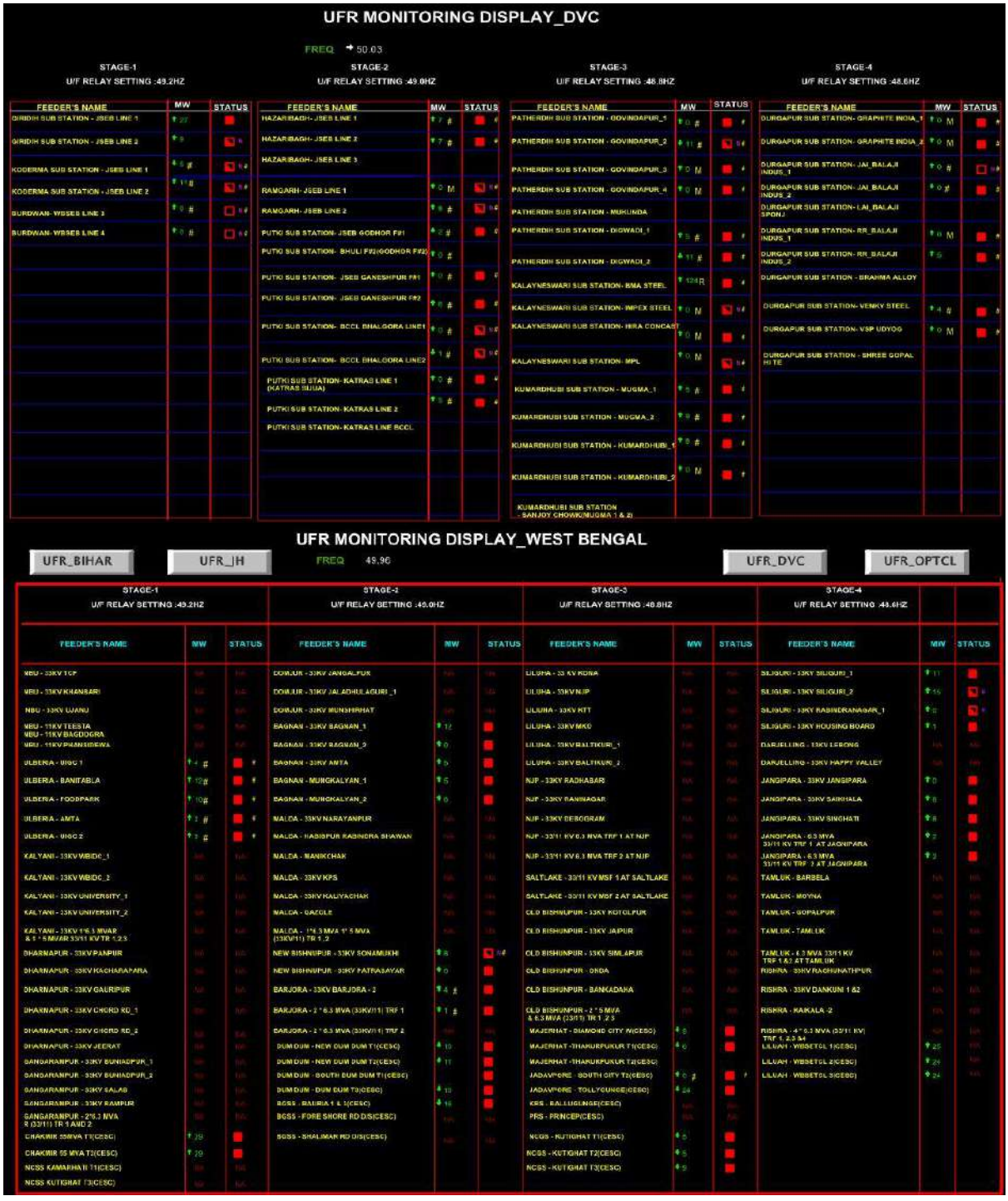
List of feeder and SCADA data integration status under AUFLS scheme of Eastern Region

Stages	Bihar		DVC		West Bengal (Including CESC)		Jharkhand		OPTCL	
	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated
Stage – I(49.2 HZ)	12	12	6	6	31	13	6	3	16	16
Stage – II (49.0 HZ)	10	10	14	12	26	13	5	2	16	15
Stage – III(48.8 HZ)	7	7	16	14	29	7	5	3	15	13
Stage – IV(48.6 HZ)	8	8	11	8	23	12	4	1	11	6
Total	**37**	**37**	**47**	**40**	**109**	**45**	**20**	**9**	**58**	**50**






UFR MONITORING DISPLAY_OPTCL
UFR_BIHAR
UFR_JH
FREQ 49.94
UFR_DVC
UFR_WB
STAGE-1
U/F RELAY SETTING :49.2HZ
STAGE-2
U/F RELAY SETTING :49.0HZ
STAGE-3
U/F RELAY SETTING :48.8HZ
STAGE-4
U/F RELAY SETTING :48.6HZ
FEEDER'S NAME
MW
STATUS
KESINGA - 33KV NARIA
JUNAGARH - 33KV CHATRAHAL
BHANJANAGAR - 33 KV KBPUR
ASKA - 33KV BUGUDA
BERHAMPUR - 33KV CHILITI
BALUGAON - 33KV TANGI
KHURDA - 33KV BANKI
NAYAGARH - 33KV KHENDAPADA
BOINDA- 33KV JHARPADA
BHADRAK - 33KV DHAMNAGAR
BALASORE - 33KV SRIJANG
BOLANGIR - 33KV DUMERBAHAL
BARAGARH - 33KV DUNGURI
ROURKELA - 33KV LATHIKATA
KHARIAR - 33KV KHARIAR RE
JAGATSINGHPUR - 33KV BALIKUNDA
JAYANAGAR - 33KV BORIGUMA
SUNABEDA - 33KV LAXMIPUR(NANDPUR)
THERUBALI _33KV BISAM KATAK
PHULBANI - 33KV KALINGA
KENDRAPARA -33KV LUNA
PATTAMUNDAI - 33KV RAJNAGAR
CHATRAPUR - 33KV TARATARINI(RANIBHA)
CHANDIKHOLE - 33KV KABALABANDHA
NIMAPARA -33KV KAKATPUR
KHURDA -33KV DELANGA
DHENKANAL -33KV HINDOL RD
CHAINPAL - 33KV BANARPAL
JAIPUR ROAD -33KV PANNIKOLI
BHANJANAGAR -33KV BELAGUNTH
SUNDERGARH -33KV BARGOAN
ASKA - 33KV BUDAMBA
BHADRAK - 33KV CHANDBALI
DHENKANAL -33KV GONDA
SAMBALPUR - 33KV RENGALI
BARAGARH - 33KV TUKUNG
NAYAGARH -33KV BINDEPARA
BRAJRAJNAGAR - 33KV SARGIPALLI
PATNAGARH - 33KV KHAPRAKHOL
PALASPONGA -33KV REMULI
BOINDA - 33KV ATHMALIK
CHAINPAL -33KV PALGANJ
KALARANGI -33KV GODA
KESINGA -33KV TITLAGARH
NIMAPARA -33KV KONERK
ASKA -33KV NUAGAON
JAIPUR ROAD -33KV KUAKHIA
KHARIAR -33KV KHARIAR FEEDER-2
SUNABEDA -33KV NANDAKUMAR FEEDER
BARKOTE - 33KV MAHULDIHA
POLAPONJA - 33KV KEONJHAR
ASKA -33KV KABISURYANAGAR
SUNDERGARH -33KV SARDEGA
BHANJANAGAR - 33KV PHULBANI
KENDRAPARA -33KV PATAMUND
JAIPUR ROAD -33KV ANANDAPUR
BOLANGIR NEW -33KV PATNAGARH
JAYANAGAR -33KV TENTULIKHU


UFR MONITORING DISPLAY_DVC
FREQ → 50.03
STAGE-1
U/F RELAY SETTING :49.2HZ
STAGE-2
U/F RELAY SETTING :49.0HZ
STAGE-3
U/F RELAY SETTING :48.8HZ
STAGE-4
U/F RELAY SETTING :48.6HZ
FEEDER'S NAME
MW
STATUS
GIRIDIH SUB STATION - JSEB LINE 1
GIRIDIH SUB STATION - JSEB LINE 2
KODERMA SUB STATION - JSEB LINE 1
KODERMA SUB STATION - JSEB LINE 2
BURDWAN- WBSEB LINE 3
BURDWAN- WBSEB LINE 4
HAZARIBAGH- JSEB LINE 1
HAZARIBAGH- JSEB LINE 2
HAZARIBAGH- JSEB LINE 3
RAMGARH- JSEB LINE 1
RAMGARH- JSEB LINE 2
PUTKI SUB STATION- JSEB GODHOR F#1
PUTKI SUB STATION- BHULI F#2(GODHOR F#2)
PUTKI SUB STATION- JSEB GANESHPUR F#1
PUTKI SUB STATION- JSEB GANESHPUR F#2
PUTKI SUB STATION- BCCL BHALGORA LINE1
PUTKI SUB STATION- BCCL BHALGORA LINE2
PUTKI SUB STATION- KATRAS LINE 1 (KATRAS SIUIA)
PUTKI SUB STATION- KATRAS LINE 2
PUTKI SUB STATION- KATRAS LINE BCCL
PATHERDIH SUB STATION - GOVINDAPUR_1
PATHERDIH SUB STATION - GOVINDAPUR_2
PATHERDIH SUB STATION - GOVINDAPUR_3
PATHERDIH SUB STATION - GOVINDAPUR_4
PATHERDIH SUB STATION - MUKUNDA
PATHERDIH SUB STATION - DIGWADI_1
PATHERDIH SUB STATION - DIGWADI_2
KALAYNESWARI SUB STATION- RMA STEEL
KALAYNESWARI SUB STATION- IMPEX STEEL
KALAYNESWARI SUB STATION- HIRA CONCAST
KALAYNESWARI SUB STATION- MPL
KUMARDHUBI SUB STATION - MUGMA_1
KUMARDHUBI SUB STATION - MUGMA_2
KUMARDHUBI SUB STATION - KUMARDHUBI_1
KUMARDHUBI SUB STATION - KUMARDHUBI_2
KUMARDHUBI SUB STATION - SANJOY CHOWK(MUGMA 3 & 2)
DURGAPUR SUB STATION- GRAPHITE INDIA_1
DURGAPUR SUB STATION- GRAPHITE INDIA_2
DURGAPUR SUB STATION- JAI_BALAJI INDUS_1
DURGAPUR SUB STATION- JAI_BALAJI INDUS_2
DURGAPUR SUB STATION- LAI_BALAJI SPONJ
DURGAPUR SUB STATION- RR_BALAJI INDUS_1
DURGAPUR SUB STATION- RR_BALAJI INDUS_2
DURGAPUR SUB STATION - BRAHMA ALLOY
DURGAPUR SUB STATION- VENKY STEEL
DURGAPUR SUB STATION- VSP UDYOG
DURGAPUR SUB STATION - SHREE GOPAL HITE
UFR MONITORING DISPLAY_WEST BENGAL
UFR_BIHAR
UFR_JH
FREQ 49.96
UFR_DVC
UFR_OPTCL
STAGE-1
U/F RELAY SETTING :49.2HZ
STAGE-2
U/F RELAY SETTING :49.0HZ
STAGE-3
U/F RELAY SETTING :48.8HZ
STAGE-4
U/F RELAY SETTING :48.6HZ
FEEDER'S NAME
MW
STATUS
NBU - 33KV TCF
NBU - 33KV KHANBARI
NBU - 33KV UJANU
NBU - 11KV TEESTA
NBU - 11KV BAGDOGRA
NBU - 11KV PHANSIDEWA
ULBERIA - UHSC 1
ULBERIA - BANITABLA
ULBERIA - FOODPARK
ULBERIA - AMTA
ULBERIA - UHSC 2
KALYANI - 33KV WBIDC_1
KALYANI - 33KV WBIDC_2
KALYANI - 33KV UNIVERSITY_1
KALYANI - 33KV UNIVERSITY_2
KALYANI - 33KV 1*6.3 MVAR & 1 * 5 MVAR 33/11 KV TR 1,2,3
DHARNAPUR - 33KV PANPUR
DHARNAPUR - 33KV KACHARAPARA
DHARNAPUR - 33KV GAURIPUR
DHARNAPUR - 33KV CHORD RD_1
DHARNAPUR - 33KV CHORD RD_2
DHARNAPUR - 33KV JEERAT
SANGARAMPUR - 33KV SUNIADPUR_1
SANGARAMPUR - 33KV SUNIADPUR_2
SANGARAMPUR - 33KV SALAR
SANGARAMPUR - 33KV RAMPUR
SANGARAMPUR - 2*6.3 MVA R (33/11) TR 1 AND 2
CHAKMIR 55MVA T1(CESC)
CHAKMIR 55 MVA T2(CESC)
NCSS KAMARHATI T1(CESC)
NCSS KUTIGHAT T3(CESC)
DOMJUR - 33KV JANGALPUR
DOMJUR - 33KV JALADHULAGURI_1
DOMJUR - 33KV MUNSHIRHAT
BAGNAN - 33KV BAGNAN_1
BAGNAN - 33KV BAGNAN_2
BAGNAN - 33KV AMTA
BAGNAN - MUNGKALYAN_1
BAGNAN - MUNGKALYAN_2
MALDA - 33KV NARAYANPUR
MALDA - HABIBPUR RABINDRA BHAWAN
MALDA - MANIKCHAK
MALDA - 33KV KPS
MALDA - 33KV KALIYACHAK
MALDA - GAZOLE
MALDA - 1*6.3 MVA 1* 5 MVA (33KV/11) TR 1,2
NEW BISHNUPUR - 33KV SONAMUKHI
NEW BISHNUPUR - 33KV PATRASAYAR
BARJORA - 33KV BARJORA - 2
BARJORA - 2 * 6.3 MVA (33KV/11) TRF 1
BARJORA - 2 * 6.3 MVA (33KV/11) TRF 2
DUM DUM - NEW DUM DUM T1(CESC)
DUM DUM - NEW DUM DUM T2(CESC)
DUM DUM - SOUTH DUM DUM T1(CESC)
DUM DUM - DUM DUM T2(CESC)
BGSS - RAJARIA 1 & 1(CESC)
BGSS - FORE SHORE RD DIS(CESC)
BGSS - SHALIMAR RD DIS(CESC)
ULUBA - 33 KV KONA
ULUBA - 33KV NJP
ULUBA - 33KV KTT
ULUBA - 33KV MKD
ULUBA - 33KV BALTIKURI_1
ULUBA - 33KV BALTIKURI_2
NJP - 33KV RADHABARI
NJP - 33KV RANINAGAR
NJP - 33KV DEBIGRAM
NJP - 33/11 KV 6.3 MVA TRF 1 AT NJP
NJP - 33/11 KV 6.3 MVA TRF 2 AT NJP
SALTLAKE - 33/11 KV MSF 1 AT SALTLAKE
SALTLAKE - 33/11 KV MSF 2 AT SALTLAKE
OLD BISHNUPUR - 33KV KOTOLPUR
OLD BISHNUPUR - 33KV JAPUR
OLD BISHNUPUR - 33KV SIMLAPUR
OLD BISHNUPUR - ONDA
OLD BISHNUPUR - BANKADAHA
OLD BISHNUPUR - 2 * 5 MVA & 6.3 MVA (33/11) TR 1,2,3
MAJERHAT - DIAMOND CITY N(CESC)
MAJERHAT -THAKURPUKUR T1(CESC)
MAJERHAT -THAKURPUKUR T2(CESC)
JADAVPORE - SOUTH CITY T2(CESC)
JADAVPORE - TOLLYGUNGE(CESC)
KRS - BALLYGUNGE(CESC)
PRS - PRINCEP(CESC)
NCSS - KUTIGHAT T1(CESC)
NCSS - KUTIGHAT T2(CESC)
NCSS - KUTIGHAT T3(CESC)
SILIGURI - 33KV SILIGURI_1
SILIGURI - 33KV SILIGURI_2
SILIGURI - 33KV RABINDRANAGAR_1
SILIGURI - 33KV HOUSING BOARD
DARJELLING - 33KV LEBONG
DARJELLING - 33KV HAPPY VALLEY
JANGIPARA - 33KV JANGIPARA
JANGIPARA - 33KV SAIKHALA
JANGIPARA - 33KV SINGHATI
JANGIPARA - 6.3 MVA 33/11 KV TRF 1 AT JANGIPARA
JANGIPARA - 6.3 MVA 33/11 KV TRF 2 AT JANGIPARA
TAMLUK - BARBELA
TAMLUK - MOYNA
TAMLUK - GOPALPUR
TAMLUK - TAMLUK
TAMLUK - 6.3 MVA 33/11 KV TRF 1 &2 AT TAMLUK
RISHRA - 33KV RADHUNATHPUR
RISHRA - 33KV DANKUNI 1 &2
RISHRA - KAIKALA -2
RISHRA - 4 * 6.3 MVA (33/11 KV) TRF 1,2,3 &4
LILUAH - WBSETCL 1(CESC)
LILUAH - WBSETCL 2(CESC)
LILUAH - WBSETCL 3(CESC)

DETAILS REQUIRED FOR PMU-1

Annexure-1

SIGNALS REQUIRED FOR CONFIGURATION OF PMU & SWITCH	DETAILS REQUIRED FOR PMU INTEGRATION WITH LDC	REMARK
SUBSTATION NAME		Name of substaion, example: for Kankroli it is KNKRL_PG, for Rihand it is RIHND_NT
REPORTING LDC		Name of control station where PMU data is require to report
NO OF PMU		No. of PMU as per architecture, considering 1 PMU can accommodate 2 no. of line data
VLAN ID		
PMU IP		This IP is to be provided by PGCIL considering no conflict from all other PMU's reporting to RLDC
SUBNET MASK		
SWITCH IP		Switch IP will be in same series as PMU IP, it is same for all PMU's
GATEWAY IP		Gateway IP will be in same series as PMU IP, it is same for all PMU's
PDC-1 IP		PDC at control center-1
PDC-2 IP		PDC at control center-2 if pmu reporting to 2 LDC's
VT-1 Ratio		VT/CT ratio of Bay-1 connected in PMU-1
CT-1 Ratio		
VT-2 Ratio		VT/CT ratio of Bay-2 connected in PMU-2
CT-2 Ratio		
STREAM 1 ID CODE		PMU id code
PMU 1 ID CODE		Virtual PMU-1 id code for bay -1
PMU 2 ID CODE		Virtual PMU-2 id code for bay-2
PORT DETAIL OF SDH PANEL		port available in SDH panel where PMU switch is required to connect for sending data to LDC
CHANNEL NAMING		
SUBSTATION NAME		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-1 IN PMU, ALL MUST BE OF 16 CHARACTER
V1A		
V1B		
V1C		
V1 POS		
I1A		
I1B		
I1C		
I1 POS		
WATT		
VAR		
DIGITAL 1		CHANNEL NAMING OF ALL DIGITAL SIGNALS OF BAY-1 & BAY-2 REQUIRED IN PMU-1, ALL MUST BE OF 16 CHARACTER
DIGITAL 2		
DIGITAL 3		
DIGITAL 4		
DIGITAL 5		
DIGITAL 6		
DIGITAL 7		
DIGITAL 8		
DIGITAL 9		
DIGITAL 10		
DIGITAL 11		
DIGITAL 12		
DIGITAL 13		
DIGITAL 14		
DIGITAL 15		
DIGITAL 16		
V2A		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-2 IN PMU, ALL MUST BE OF 16 CHARACTER
V2B		
V2C		
V2 POS		
I2A		
I2B		
I2C		
I2 POS		
WATT		
VAR		

DETAILS REQUIRED FOR PMU-2

SIGNALS REQUIRED FOR CONFIGURATION OF PMU & SWITCH	DETAILS REQUIRED FOR PMU INTEGRATION WITH LDC	REMARK
SUBSTATION NAME		Name of substaion, example: for Kankroli it is KNKRL_PG, for Rihand it is RIHND_NT
REPORTING LDC		Name of control station where PMU data is require to report
NO OF PMU		No. of PMU as per architecture, considering 1 PMU can accommodate 2 no. of line data
VLAN ID		
PMU IP		This IP is to be provided by PGCIL considering no conflict from all other PMU's reporting to RLDC
SUBNET MASK		
SWITCH IP		Switch IP will be in same series as PMU IP, it is same for all PMU's
GATEWAY IP		Gateway IP will be in same series as PMU IP, it is same for all PMU's
PDC-1 IP		PDC at control center-1
PDC-2 IP		PDC at control center-2 if pmu reporting to 2 LDC's
VT-1 Ratio		VT/CT ratio of Bay-1 connected in PMU-2
CT-1 Ratio		
VT-2 Ratio		VT/CT ratio of Bay-2 connected in PMU-2
CT-2 Ratio		
STREAM 1 ID CODE		PMU id code
PMU 1 ID CODE		Virtual PMU-1 id code for bay -1
PMU 2 ID CODE		Virtual PMU-2 id code for bay-2
PORT DETAIL OF SDH PANEL		port available in SDH panel where PMU switch is required to connect for sending data to LDC
CHANNEL NAMING		
SUBSTATION NAME		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-1 IN PMU, ALL MUST BE OF 16 CHARACTER
V1A		
V1B		
V1C		
V1 POS		
I1A		
I1B		
I1C		
I1 POS		
WATT		
VAR		
DIGITAL 1		CHANNEL NAMING OF ALL DIGITAL SIGNALS OF BAY-1 & BAY-2 REQUIRED IN PMU-1, ALL MUST BE OF 16 CHARACTER
DIGITAL 2		
DIGITAL 3		
DIGITAL 4		
DIGITAL 5		
DIGITAL 6		
DIGITAL 7		
DIGITAL 8		
DIGITAL 9		
DIGITAL 10		
DIGITAL 11		
DIGITAL 12		
DIGITAL 13		
DIGITAL 14		
DIGITAL 15		
DIGITAL 16		
V2A		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-2 IN PMU, ALL MUST BE OF 16 CHARACTER
V2B		
V2C		
V2 POS		
I2A		
I2B		
I2C		
I2 POS		
WATT		
VAR		