AGENDA

FOR

11th TeST MEETING

Date: 08.04.2022

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 11th TeST MEETING TO BE HELD ON 08.04.2022(FRIDAY) AT 10:30 HRS

PART – A

ITEM NO. A.1: Confirmation of Minutes of 10th TeST Meeting held on 01st November 2022 through MS Teams online platform.

The minutes of 10th Telecommunication, SCADA and Telemetry Sub-Committee meeting held on 01.11.2021 circulated vide letter dated 28.12.2021.

Members may confirm the minutes of 10th TeST meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Implementation of Cyber Security Standards in OT/IT System as per guidance of MoP

All constituents are required to adhere to the recommendations and best practices issued from time to time by MoP/CERT-In/NCIIPC and other Authorities to protect their OT/IT system and related network from cyber threats.

The following are required to be implemented in all SLDCs at the earliest:

1. Availability of adequate security devices (e.g, Next generation Firewall for gateway, Endpoint security etc) for IT & OT Networks to be ensured.
2. Regular checking of logs of Firewall and other security devices is required and Logs should be retained for at least six month for analysis in case of any incident.
3. Adequate cyber security policy and procedures should be in place.
4. Cyber crisis management plan (CCMP) for all SLDCs should be prepared.
5. VAPT audit and compliance should be carried out in every six month.

SLDCs may update.

ITEM NO. B.2: Optimum utilization of communication systems of Eastern Region: ERLDC

Following latest documents pertains to communication system of Eastern Region are requested to be provided by POWERGRID & Constituents

- BOQ of communication system at each node in Eastern Region
- Channel routing details / band width utilization details of each equipment at each communication node.
- Updated communication network of Eastern Region

The above documents will be utilized to know the congestion in the system and to study for optimum utilization of network /equipment improving reliability of system by forming ring/double rings links in the network (between SLDC /CS) by using existing logistics /adding the additional equipment /FO links if required.

Members may discuss.

ITEM NO. B.3: 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-B3.1)** and formats **(Annexure-B3.2)** 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 9thTeST 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.

In 10th TeST Meeting, ERLDC representative submitted that it would be better if the constituents can provide list of all communication equipment/ link so that outage planning for communication equipment/links can be done in an efficient way.

TeST Committee advised ERLDC to share a format to all the concerned utilities so that requisite require details can be shared by them by the end of November'2021.

Powergrid representative submitted that as per the procedure on monthly outage planning for communication system, it is mentioned that RTU, CMU cards, Battery Bank, DTPC, DCPC, EPABX details are also required for outage planning, however, these are SCADA related equipment and may not be counted as communication equipment/link so their details need not be required for monthly outage planning.

ERPC advised Powergrid to provide their observations to ERPC at the earliest.

TeST Committee advised all concerned utilities to share requisite details to ERPC/ELDC in the format shared by ERLDC.

Members may update.

ITEM NO. B.4: Renewal of expired license in internal and external firewalls in SCADA/ EMS at ERLDC MCC and BCC.

Firewalls, which are installed in SCADA/EMS system, are the key device to protect system from intrusion from cyber space.
Life of the external firewall i.e Check point 4200 is going to end by June 2022. So, the ERLDC SCADA

system is going to be highly vulnerable to cyber security threat thereafter. ERLDC is in receipt of high cyber security alert form MHA, as well as recommendation for implementation of various policies from CERT-IN / NCIIPC to safeguard the system from cyber-attack.
On repeated persuasion from our end M/S Chemtrols had proposed PA 440 Firewall which is not meeting the approved DRS.
As per the guidelines of CEA (Cyber Security in Power Sector) Guidelines 2021, an Intrusion Detection System, and Intrusion Prevention System should be capable of identifying behavioral anomaly in both IT as well as OT Systems.

M/S Chemtrols may update.

ITEM NO. B.5: Failure of 40KVA UPS/Battery Back up at ERLDC

It is observed that the 40 KVA UPS & battery Banks installed at ERLDC (by M/s Chemtrols Industries Ltd.) had failed to provide Backup supply during raw power failure (CESE supply) at 11.56 hrs on 17.11.21 at ERLDC which had resulted in power supply failure in the VPS and other associated equipment installed in control room of ERLDC MCC.

An emergency meeting was held on 18.11.2021 between ERLDC & M/s Chemtrols. Representative of M/s Chemtrols informed that replacement of battery bank is required.

A review meeting with Director of M/s. Chemtrols was held on 25.11.2021 wherein M/s Chemtrols informed that purchased order will be placed for supply of 01 Set of Battery bank for ERLDC MCC and subsequently supply and installation commissioning of the replaced battery bank would be completed progressively by 31st January 2022 however, battery bank is yet to be supplied.

M/S Chemtrols may update.

ITEM NO. B.6: 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 7thTeST 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-state OPGW network.	Any services, other than the listed OT applications, needs permission of ERPC. Further, usage of the Inter-state OPGW network for the purpose of internet access, which is a public network, will have an extremely high security threat to the power operation. 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 9thTeST 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.

In 10th TeST Meeting, TeST Committee suggested that Powergrid may be included as a part of Communication System Audit Sub-Group for Phase-I of audit. TeST Committee further opined that consultation from CEA can be taken, if required. TeST Committee advised SLDC Bihar (chosen alphabetically), ERLDC, ERPC and Powergrid to nominate one person each from their respective organizations for this Phase-I of Audit.

Members may update.

ITEM NO. B.7: 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 6thTeST 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 8thTeST 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 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.

In 10th TeST Meeting, ERLDC representative informed that format regarding recommendation was already sent to all constituents of Eastern Region and they had received requisite details from DVC and Jharkhand.

Bihar representative informed that they would share requisite details by one week.

Odisha representative informed that they had not received any format from ERLDC and further added that they would share requisite details in one week once the format is shared with them.

West Bengal representative informed that they had not received any format from ERLDC and further stated that they would share requisite details in 10 days once format is shared with them.

Sikkim representative informed that they would share requisite details by one week.

TeST Committee advised ERLDC to share format to West Bengal and Odisha and further advised all the concerned utilities to share requisite details as per the format to ERPC and ERLDC at the earliest.

Members may update the status.

ITEM NO. B.8: 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.

In 10th TeST Meeting, Powergrid representative briefly explained about ULDC SCADA Phase-III project including the major benefits. He further informed that as per deliberation and decision taken in 18thTeST Meeting and 49th NRPC Meeting, Powergrid is taking up the implementation of up gradation (Phase -III) via tariff mode in Northern region also.

POSOCO representative informed that MOU had already been signed between POSOCO and constituents of Eastern Region for implementation of SCADA up-gradation Project Phase-III and POSOCO is ready for implementing this project. He further stated that technical specifications are also ready and if constituents provide their confirmation regarding the same, then tender could be floated in the next 30-40 days.

On query from ERPC regarding the integration issue if the said project implementation has been done by different agencies, POSOCO representative submitted that it would be better to have common agency for all concerned utilities. He further informed that although there would not be any issue with integration due to similar IEC, however there could be issue in nomenclature and spare management in future.

TeST Committee opined that as there are two agencies (Powergrid and POSOCO) for implementation of the said project, utilities have the option to choose from any one of them as per their decisions. TeST Committee advised all concerned utilities to provide their respective choice/views regarding implementation of SCADA up-gradation project to ERPC within 10 days to finalise the agency under which SCADA up-gradation project would be done.

Accordingly, DVC vide letter dated 05.11.2021, OPTCL vide letter dated 06.11.21, Sikkim vide letter dated 25.11.21, WBSETCL vide letter dated 02.12.21 and BSPTCL vide letter dated 08.12.21 have approached ERPC to go with POWERGRID for implementation of ULDC SCADA Phase-III. Views received are attached at **Annexure B8.**

Members may discuss.

ITEM NO. B.9: 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%. .

In 9thTeST 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.

In 10th TeST Meeting, NTPC representative informed that upgradation of SCADA system from IEC 101 to IEC 104 had already been completed. However due to shortage of analog card, telemetry of 4 nos. line bays namely Rajarhat, New Purnea, Berhampur I & II are reporting on temporary arrangements for MW value only and balance analog and digital data are not reporting. Regarding remedial measure he submitted that procurement of analog cards is in progress and O&M M/S GE had informed that they would provide analog card at earliest after which this issue would be resolved.

Regarding disruption in availability of real time telemetry for Farraka STPS, NTPC representative informed that gateway PC is rebooting itself multiple times due to motherboard issue and as a result average data availability per day drops to around 40-45%. He further informed that communication had been sent to M/S GE about this issue and it is expected that reconfiguration of system for gateway PC would be done within 3-4 days.

NTPC and Powergrid may update.

ITEM NO. B.10: 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

RTU based stations: On SOS basis

In 10th TeST Meeting, Powergrid representative informed that there are few RTU locations where separate space had been identified for placement of new RTUs. In these S/S,7 days of RTU outage is expected for cable termination work. He further informed that at Malda and Gangtok S/S, new RTU has to be placed in place of existing RTU due to space constraint; so, 15 days of RTU outage is expected for cable termination work.

ERLDC representative informed that outage for such high duration would definitely affect drawl calculation required for commercial accounting aspects. He advised Powergrid to minimize the duration of outage and suggested Powergrid to explore the possibility for parallel reporting so that outage duration can be restricted to 6-8 hours which is manageable. He also advised Powergrid to give bay wise estimated shutdown schedule to ERPC/ERLDC.

Powergrid representative added that for SAS stations, 3-4 hours of shutdown for each bay is required for testing.

TeST Committee advised Powergrid to give bay wise estimated outage schedule of RTU to ERPC/ERLDC so that outage schedule can be managed efficiently. TeST Committee further advised Powergrid to explore the possibility for parallel reporting of RTU/SAS stations wherever it is possible and to minimize the outage duration for RTUs as much as possible.

Powergrid may update.

ITEM NO. B.11: 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.

In 10th TeST Meeting, Powergrid representative informed that One No. of PMU and RT-430 unit got defective at Kahalgaon in Feb'2020 and same had 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.

TeST Committee advised NTPC to coordinate with CISF and extend support to Powergrid in getting entry gate pass at NTPC Kahalgaon for taking out defective PMU and RT-430 unit.

NTPC and Powergrid may update.

ITEM NO. B.12: ROW Issues encountered during the OPGW Stringing work in 400 k V Angul-JITPL D/c Transmission Line

Under Package-I: Communication System for Central Sector under North Eastern Region (Additional) & Eastern Region (Reliable Scheme), POWERGRID has been entrusted for the establishment of OPGW Link in Angul-GMR, Angul-JITPL & Angul-Srikakulam (up to Location No.- 319) as a part of ULDC Project requirement.

In this regard, POWERGRID has awarded the contract to M/s Shenzhen SDG Information Company Limited (SDGI) for the establishment of OPGW link in Angul-GMR (Link Length- 29.855 KM), Angul-JITPL ((Link Length- 75.186 KM) and Angul-Srikakulam (up to Location No.- 319) (Link Length- 121.19 KM).

The Commissioning of the PMUs at GMR and JITPL end are also linked with the commissioning of Angul-GMR link and Angul-JITPL Link respectively.

Due to active support and co-operation from GMR, the OPGW stringing work of Angul-GMR link (Link Length- 29.855 KM) had been successfully completed. The final commissioning of this Angul-GMR OPGW link and PMUs at GMR end have been planned for completion during this month.

However, repeated ROW issues have been encountered during the OPGW stringing work of Angul-JITPL Link. Till date only 23.923 KM OPGW stringing work has been completed out of total link length of 75.186 KM.

These ROW issues are mostly related to the construction of the line. Since the line belongs to JITPL, therefore it is not becoming feasible for POWERGRID to carry out the balance OPGW stringing work (around 51.263 KM) of Angul—JITPL link without active participation from JITPL to resolve these inherent issues linked with the construction of 400kV Angul-JITPL Line.

The executing agency (M/s SDGI) had de-mobilized its gang on 11.03.2022 due to repeated ROW issues in Angul-JITPL Line, since their gang were compelled to sit idle for a long period of time without any work.

In view of the above facts, full support from JITPL end with their active participation is highly essential for the completion of the balance OPGW stringing work in Angul-JITPL link to ensure an early and successful commissioning of Angul-JITPL link along with PMUs at JITPL end.

Powergrid may explain. JITPL may update.

ITEM NO. B.13: Delay in completion of OPGW Installation work under ER- Additional Project

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:

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	346.67	346.67	336.5	10.17

	Ckt-2				
2	400 kV Barh- Motihari & 400 kV Motihari- Gorkahpur Ckt-2	353.02	353.02	274.7	78.32
3	Ranchi- Maithon RB Ckt-2	187.94	187.94	187.94	0.00
	Grand- Total	887.63	887.63	799.14	88.49

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

- 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.
- 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.
- Delay due to stoppage of OPGW Installation work in Barh- Motihari section of Barh- Gorakhpur link, owing to outage of Barh- Motihari- I and Motihari- Gorakhpur I & II (DMTCL section- Gandak river tower collapse) and DMTCL Motihari operating on single source i.e. Barh- Motihari Ckt-2. The work was stopped w.e.f 16.01.2021- 31.03.2021 as per advice of the forum in 176th OCC.
- 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.
- 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.
- Outbreak of COVID-19 (3rd Wave) in Jan'22 to Feb'22 resulting implementation of fresh restrictions by the Government and causing delay in resumption of the balance works.

However, subsequent to reduction in COVID cases in Feb'22 end and improvement in the water logging conditions of Barh- Motihari Link, the agency has deputed its team to carry out the balance OPGW work in Barh- Motihari Link.

The team deputation in Patna- Saharsa link (erstwhile Patna- Kishanganj) is getting delayed due to standing crop & Ganga River Crossing, in the section pending for OPGW Installation (i.e. between Loc. No. 459 to 475, 10 kms approx, including Ganga River Crossing). The team in the said link will be deputed by the end of April 2022.

Members may note.

ITEM NO. B.14: Delay in completion of OPGW Installation work by agency M/S PPCL under execution by PGCIL

Installation work of OPGW had been taken up M/S PPCL under execution by Powergrid for 132 KV Kahalgaon(BH)-Kahalgaon(NTPC) T/L and 132 KV Hathidah-Lakhisarai T/L – but had not completed yet.

Powergrid may update.

ITEM NO. B.15: Permission for OPGW Installation in 220 k V Khagaul – Ara transmission line

PGCIL has the ownership of 220KV Arrah(PG)- Khagaul D/C T/L. BSPTCL intends to install OPGW (24F) in 220KV Khagaul- Arrah (PG) T/L for redundancy of ULDC network for connectivity of South Bihar region.
So, permission for installation of OPGW in 220KV Arrah(PG)- Khagaul D/C may be granted.

Powergrid may update.

ITEM NO. B.16: Improper Support from M/S OSI , OEM OF SCADA Application

ERLDC SCADA/EMS system was installed in Eastern Region and OSI Monarch application is being used as core SCADA/EMS applications.
In ERLDC SCADA/EMS system, several functionalities of SCADA/EMS system are not functioning in SCADA/EMS system, for which support is required from OEM i.e. OSI.

Followings are the few lists of such critical functions:

1. BMR (bare metal recovery) on Spare server: license is required from OSI.
2. Denial of support from OSI support team when it is required to resolve OSI application related issues.
3. Restoration of Data archival in HRS application for the period w.e.f 00:00 Hrs dated 01-04-2021 to 03:00 Hrs dated 02-04-2021.

M/S OSI may update.

ITEM NO. B.17: Malfunctioning of RGU: ERLDC

The Report Generation Utility plays a crucial when it comes to historical data extraction and preparation of important reports pertaining to ERLDC System Operation.
The RGU excel add-in provided in the SCADA Consoles of ERLDC Control Room is malfunctioning since last few months which is affecting the post-dispatch report preparation.
The matter has been intimated to the concerned Chemtrols but the issue yet to be resolved.

M/S Chemtrols may update.

ITEM NO. B.18: Nonfunctioning of Deep Security: ERLDC

Trend micro deep security solution is very critical for SCADA system for security in Cyber Space as this is designed to protect External DMZ and Internal DMZ zone. However, Trend Micro Deep security application is not working in ER SCADA/EMS and the matter was taken up with M/S Chemtrols on several occasions bur the matter is yet to be resolved.

M/S Chemtrols may update.

ITEM NO. B.19: Nonfunctioning of Kiwi Syslog Server Application (for centralized log monitoring)

In ERLDC SCADA project, Kiwi Syslog Sever was installed in the system for centralized monitoring of

system logs. However, this application is not currently working, and the matter was taken up with M/S Chemtrols on several occasions however this matter is yet to be resolved.

M/S Chemtrols may update.

ITEM NO. B.20: Issues related to M/S Chemtrols - DVC

- As per Cyber security guide lines, biannual cyber audit should be conducted at each SLDC, one by respective SCADA AMC vendor i.e Chemtrols and another by own arrangement of DVC. However due to delayed processing of audit procedures and thereafter delayed compliance of report, the schedule to conduct the second audit could not be finalized. It is hereby informed that last audit was completed on 11/03/22 but till today the audit report had not been submitted by M/S Chemtrols.
- No spares are available for day-to-day maintenance work with M/s Chemtrols. One SMPS for VPS and one SMPS for RVDU at Howrah SLDC are urgently required for which several communications had been made but no fruitful action had been taken by M/S Chemtrols.

M/S Chemtrols may update.

ITEM NO. B.21: 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.

In 10th TeST Meeting, M/S Chemtrols representative informed that a meeting was held between Managing Director, Chemtrols and Chief Engineer, JUSNL on 28th October 2021 and it was deliberated that faulty UPS would be rectified by December 2021.

JUSNL representative informed that several issues are being faced with SCADA/EMS system due to faulty UPS at SLDC. She requested M/S Chemtrols to rectify faulty UPS by 15th Nov 2021.

TeST Committee advised M/S Chemtrols to expedite the rectification work.

M/S Chemtrols may update.

ITEM NO. B.22: 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.

In 10th TeST Meeting, M/S Chemtrols representative informed that the issue got delayed due to insufficient fund, however, it is expected that fund would be received by Nov'2021 and the battery bank would be replaced by Dec 2021.

M/s Chemtrols may update.

ITEM NO. B.23: 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.

In 10th TeST Meeting, M/S Chemtrols representative informed that the issue got delayed due to insufficient fund, however, it is expected that fund would be received by Nov'2021 and the Faulty DG Battery starter would be replaced by Dec 2021.

M/S Chemtrols may update.

ITEM NO. B.24: 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.

In 10th TeST Meeting, M/S Chemtrols representative informed that the issue got delayed due to insufficient fund, however, it is expected that fund would be received by Nov'2021 and spare materials would be provided by Dec 2021.

M/s Chemtrols may update.

ITEM NO. B.25: 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.

In 10th TeST Meeting, M/S Chemtrols representative informed that the issue got delayed due to insufficient fund, however, it is expected that fund would be received by Nov'2021 and the issue would be resolved by Dec 2021.

M/s Chemtrols may update.

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

1. **Issues Related to M/s Chemtrols**

- **PENDING CRITICAL ISSUES**

a) Compliance Report of Cyber Security Audit of 2020 is pending.
b) VCS is not working February 2020.
c) Battery bank- 2 and display unit of UPS -2 is defective since 24th May 2021.
d) Both Phase sequence corrector is defective since 19th May 2021 and 4th April 2022.
e) Charger of battery (150 AH) of DG Set is defective since 15th May 2021.
f) Both graphic card 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.

- **General/Other ISSUES**

a) Integration of new bay:-

As per AMC contracts Chemtrols has to integrate 50 nos. of new bays in to RTU and the work is still pending since long.

b) The following materials are faulty which are required to be replaced at the earliest:

- MFT – 20 pcs
- Node –30 Pcs
- Decode Modem- 10 pcs
- DI Card- 10 Pcs
- DO Card- 03 Pcs
- Ethernet Card- 02 Pcs
- Mini DP to DVI Cable – 04 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.

LDMS– 41 no. of LDMS is not working due to various issues which is attached at **Annexure B26.**

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.

M/S Chemtrols 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. In 10th TeST Meeting, Powergrid representative informed that package would be awarded by Nov 2021	
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		

In 10th TeST Meeting, NTPC representative was not available in the meeting.

Regarding BRBCL, Powergrid representative informed that package would be awarded by Nov 2021.

CTU representative submitted that some data are required from the utilities as per the deliberations of First Standing Committee Meeting held on 09.03.2021 which is attached at **Annexure C1.** He requested all concerned utilities to provide requisite data to CTU/CEA at earliest.

TeST Committee advised all concerned utilities to provide requisite data to CTU/CEA.

Members may update.

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

As per deliberations in 10thTeST Meeting, updated status is as follows-

Utility	Status	Deliberation in 10 thTeST meeting	Target

POWERGRID	Pending	Powergrid representative informed that LOA had been awarded to Siemens on 31st Dec 2020 He further added that supply work had been completed for SAS stations and installation work had been started at few locations for these SAS stations and for RTU stations supply work would be completed by end of Jan 2022.	
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 representative 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 repairing work had been completed however there are certain communication issues and fibre loss issues at certain locations like Garhwa, Chandil etc due to which they are facing difficulty in reporting. She further informed that issue would be resolved by Jan 2022. TeST committee advised JUSNL to resolve issue by Jan 2022.	
OPTCL	Pending	. OPTCL representative informed that supply for cables was delayed due to covid pandemic. He further informed that commissioning got further delayed due to delay in third party contract for erection.	March 2022

WBSETCL	Pending	WBSETCL representative informed that quotation received from vendor is thrice the budget available from PSDF fund so they are revising budget hence NIT would be delayed.	
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.	
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**.** 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.

In 10th TeST Meeting, ERLDC representative informed that database of 35 nos. of S/S from OPTCL had been received and it would take 3-4 weeks to complete integration work and after its validation final report would be published.

TeST Committee advised ERLDC to share list of these 35 nos. of S/S to ERPC.

OPTCL representative informed that updated status regarding 17 S/S would be shared to ERLDC and ERPC.

OPTCL may update.

ITEM NO. C.4: 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 C4.**

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

In 10th TeST Meeting, DVC representative informed that status of mapping of pending UFR feeders along with issue and plan of execution would be shared to ERPC/ERLDC.

West Bengal representative informed that status of mapping of pending UFR feeders would be shared to ERPC/ERLDC at the earliest.

Jharkhand representative informed that status of mapping of pending UFR feeders as per the Annexure is not updated. The updated status would be shared with ERPC/ERLDC at the earliest.

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.5: Non availability of SCADA in Eastern Region

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

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

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

In 9thTeST Meeting, members updated status as follows:

AOR	Station level (In kV)	Current Status	Deliberation in 9thTeST 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 visit the 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 Hatia has 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 representative informed that 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 representative informed 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 representative informed that data base creation has been completed for Malkangiri, Jeypatna and Kashipur substations.	
	Jaypatna 220			
	Kasipur 220			
	Damanjodi 220		OPTCL representative informed 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	OPTCL representative informed that the issues would be resolved by Sep' 2021.	

		data telemetry		
	Paradeep 220 kV	Not available		
	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 representative informed that they had already informed M/S GE regarding issues at Samastipur.	
	Khagaul 220 kV	No available since Jan 2021	BSPTCL representative informed 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 at Laukhai.	
	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 representative informed that work had been completed.	

In 10th TeST Meeting, ERLDC representative informed that Dharampur, Egra and Alipurduar S/S were commissioned long back however SCADA system had not been integrated at these S/S till date due to which their data are not reporting to respective state SLDCs and hence ERLDC is also not getting data through ICCP.

Regarding Alipurduar, it was informed that the work would be delayed as M/S Siemens' quotation is quite high and negotiation is under process. It was further informed that earlier RTU was commissioned however communication link was absent and after approval of communication link new order for integrating SCADA system would be placed.

Regarding Bantala, West Bengal representative informed that due to high pollution level SDH breakdown is frequently observed at Bantala because of which it is quite difficult to integrate SCADA system.

TeST Committee opined that West Bengal could try to integrate SCADA system at Bantala S/S by exploring some alternative ways, and if required, the issue can be discussed at higher level.

Members may update the latest status.

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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/Cordinating 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 B8

DAMODAR VALLEY CORPORATION
(Established by Act XIV of 1948)
Electricity Department, SPE Section, Communication Wing
9th Floor, DVC Towers, VIP Road, Kolkata – 700 054
www.dvc.gov.in (033) 6607 2944 / 2937

No. EDCON/SPE/ERPC/376

dated 05.11.2021

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

Sub: Implementation of ULDC SCADA Phase-III in Eastern Region

Dear Sir,

This has reference regarding agenda item no. B.2 of 10th TeST Meeting held on 01.11.2021.

In the meeting, POWERGRID has detailed key benefits of execution of the SCADA Phase-III Project which includes expertise in this field, investment by them and recovery through tariff, O&M of the system, etc. Considering the same, we would like to go with POWERGRID towards implementation of SCADA Phase-III in DVC Sector.

We request to kindly nullify the MOU dated 2nd June,2021 signed with POSOCO for implementation of SCADA Phase-III in DVC Sector.

Thanking you.

Yours faithfully

05.11.21

A K Tiwary
Chief Engineer-I(Commn.) & I/C (IT)
DVC Towers, Kolkata.

Copy to :

1. Chief General Manager (I/C), POSOCO, ERLDC, Kolkata – **With a request to kindly consider the Agreement as cancelled.**
2. Executive Director, ER-II, Power Grid Corporation of India Ltd., Kolkata – **For kind information please.**

ଓଡିଶା ବିଦ୍ୟୁତ୍ ଶକ୍ତି ସଂଚାରଣ ନିଗମ ଲି.

ODISHA POWER TRANSMISSION CORPORATION LIMITED

(A Government of Odisha Undertaking)

OFFICE OF THE CHIEF GENERAL MANAGER, TELECOM.

TECHNICAL WING,OPTCLHQRS,JANAPATH,BHUBANESWAR -751022

Ph - 0674 - 2542403, FAX - 2540875. Email id : cgm.tel@optcl.co.in

CIN-U401020R2004SGC007553

No. CGM(Tel)/POSOCO/Tech- 429(4) Date: 06/11/2021

To

The Member Secretary
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge, Kolkata- 700033

Sub: Implementation of ULDC SCADA phase-III in Eastern Region

Sir,

This has reference regarding agenda item no-B.2 of 10TH TeST Meeting held on 01.11.2021

In the meeting , POWERGRID has detailed key benefits of execution of the SCADA Phase-III Project which includes expertise in the field, investment by them and recovery through tariff, O&M of the system, etc. Considering the same , we would like to go with POWERGRID towards implementation of SCADA Phase-III in OPTCL Sector.

We request to kindly nullify the MOU dated 8th June,2021 signed with POSOCO for implementation of SCADA Phase-III in OPTCL .

Thanking you.

Yours faithfully,

Soumyakanta Ray 6/11/2021.

CHIEF GENERAL MANAGER (I/C)
TELECOMMUNICATION

Copy to -

1. Chief General Manager (I/C), POSOCO, ERLDC, Kolkata- with a request to kindly consider the Agreement as cancelled
2. Executive Director, ER-II, Power Grid Corporation of India Ltd, Kolkata- For kind information please
3. Director SLDC, OPTCL, Bhubaneswar, -For kind information please.

WBSETCL

West Bengal State Electricity Transmission Co. Ltd.
(A Government of West Bengal Enterprise)
Office of the Chief Engineer, Communication Department
Abhikshan Building, BN Block, Sector - V, Salt Lake, Kolkata – 700 091
☎033-2367-1235: 🖷Fax: 033-2367-2685
✉ cmnabhikshan@rediffmail.com

Memo No: CMN/ULDC-III/SCADA/21/252 **Date:** 02/12/2021

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

Sub: Implementation of ULDC SCADA Phase-III in Eastern Region

Dear Sir,

This is regarding agenda item no. B.2 of 10th TEST Meeting held on 01.11.2021.

In the meeting, POWERGRID has detailed key benefits of execution of the SCADA Phase-III Project which includes expertise in this field, investment by them and recovery through tariff, O&M of the system, etc. Considering the same, we would like to go with POWERGRID towards implementation of SCADA Phase-III in WBSETCL Sector.

We request to kindly nullify the AGREEMENT dtd 20th July,2021 signed with POSOCO for implementation of SCADA Phase-III in WBSETCL Sector.

Thanking you.

Yours faithfully,

Sd/-
(D.Sinha)
Chief Engineer
Communication Dept.
WBSETCL

Memo No: CMN/ULDC-III/SCADA/ **Date:**

Copy to :

1. Chief General Manager (I/C), POSOCO, ERLDC, Kolkata – With a request to kindly consider the AGREEMENT as cancelled.
2. Executive Director, ER-II, Power Grid Corporation Of India Ltd., Kolkata – For kind info. pl.
3. P.S. to The Director(Operations), WBSETCL,Vidyut Bhavan

D.Sinha 02/12/21
(D.Sinha)
Chief Engineer
Communication Dept.
WBSETCL

Fax: 03592 202927

Phones: 202706
PBX: 222908
222916

GOVERNMENT OF SIKKIM
POWER DEPARTMENT

No. 04/SLDC/PD/2021-22/432 Dated 25/11/2021

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

Subject: **Implementation of ULDC SCADA Phase-III in Eastern Region**

Sir,

This has reference regarding Agenda Item No B-2 of 10th TeST Meeting held on 01.11.2021.

In the meeting, POWERGRID has detailed key benefits of execution of the SCADA Phase-III Project which includes expertise in the field, investment by them and recovery through tariff, O&M of the system, etc. Considering the same, we would like to go with POWERGRID towards implementation of SCADA Phase-III in SLDC, Power Department, Government of Sikkim.

We request to kindly nullify the MoU dated 20th July 2021 signed with POSOCO for implementation of SCADA Phase-III in SLDC Sikkim.

Thanking you,

Yours faithfully,

26/11/21

Chief Engineer (Transmission)
Chief Engineer
Power Department
Govt. of Sikkim, Gangtok

Bihar State Power Transmission Company Ltd., Patna
A subsidiary company of Bihar State Power (Holding) Company Ltd., Patna
CIN – U40102BR2012SGC018889
[SAVE ENERGY FOR BENEFIT OF SELF AND NATION]
Head Office, Vidyut Bhawan, Bailey Road, Patna -800021,
Telephone No. 0612-2504655, Email address - uldc.bsptcl@gmail.com
Fax No. 0612-2504655 Website – www.bsptcl.in

Letter no. ULDC/EMS-SCADA-UPGRADATION/103/2020/ Dated: _____

From,

A.K. Chaudhary
Chief Engineer (System Operation)

To,

The Member Scecretary
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge, Kolkata-700033

Sub: Regarding Implementation of ULDC SCADA Phase-III in BSPTCL.

Sir,

With reference to the item no.- B.2 of agenda of 10th TeST Meeting held on 01/11/2021, POWERGRID has detailed key benefits of execution of the SCADA Phase-III Project which includes investment by them, recovery through tariff, covers O&M part and no consultancy charges. Considering the same, we would like to go with POWERGRID towards implementation of SCADA Phase-III in BSPTCL.

We request to kindly nullify the MOU dated 2nd June 2021 signed with POSOCO for implementation of SCADA Phase-III in BSPTCL.

Yours faithfully

Sd/-
(A.K. Chaudhary)
Chief Engineer (System operation)

Memo No. _____ Dated: _____

Copy forwarded to Chief General Manager(I/C), POSOCO, ERLDC, Kolkata for kind information and necessary action.

Sd/-
(A.K. Chaudhary)
Chief Engineer (System operation)

Memo No. 322 Dated: 08-12-21

Copy forwarded to Executive Director, ER-I, Power Grid Corporation of India Ltd.,Rajbansi Nagar, Patna for kind information.

14/12/21
pl. discuss
14/12
CGM (AM)
08/12/21

(A.K. Chaudhary)
Chief Engineer (System operation)

Annexure B26

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)

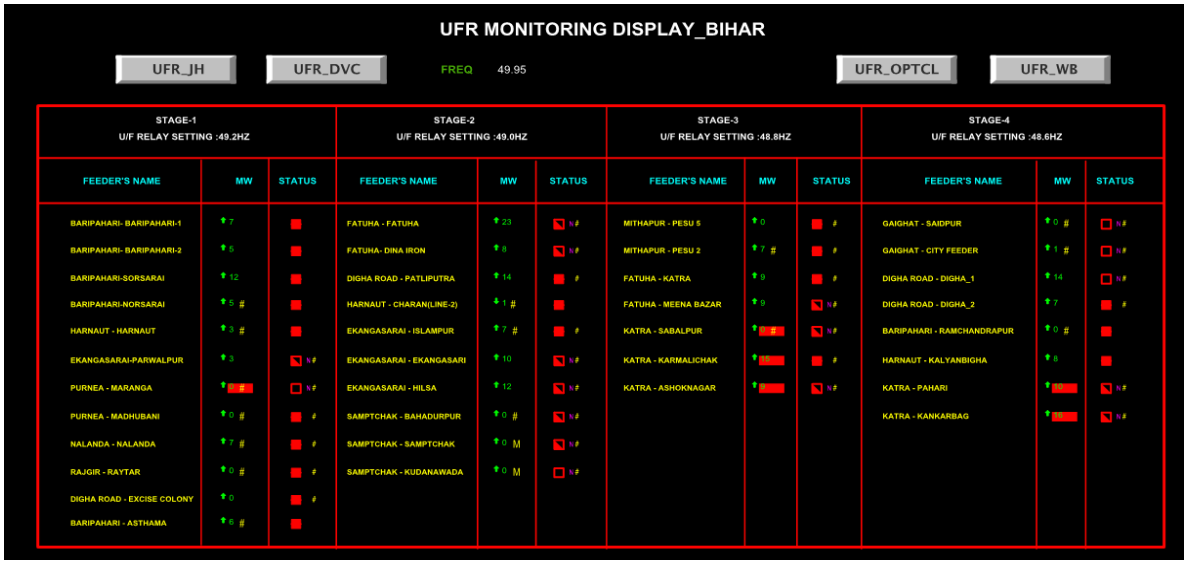
Annexure C1

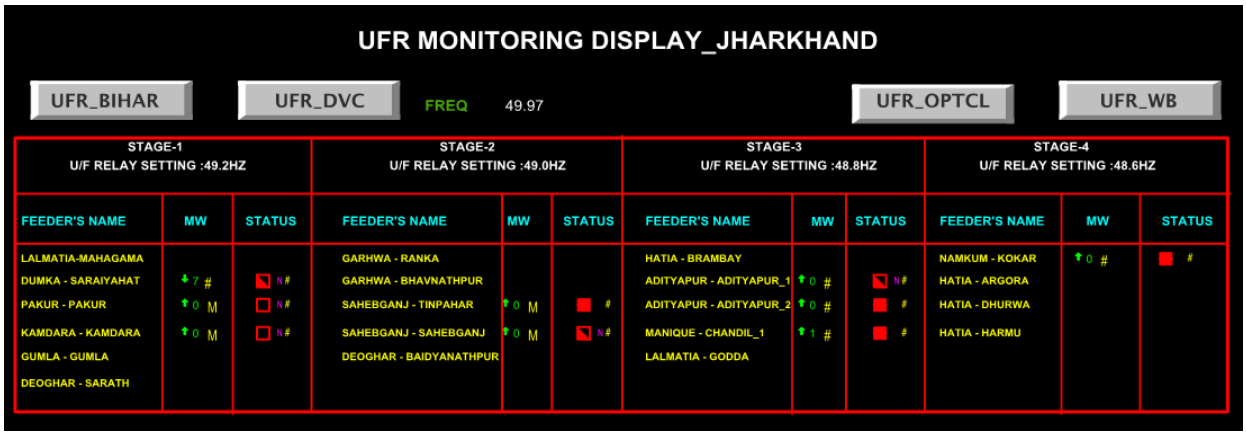
Data to be provided to CEA/CTU as per First Standing Committee of Communication held on 09.03.2021

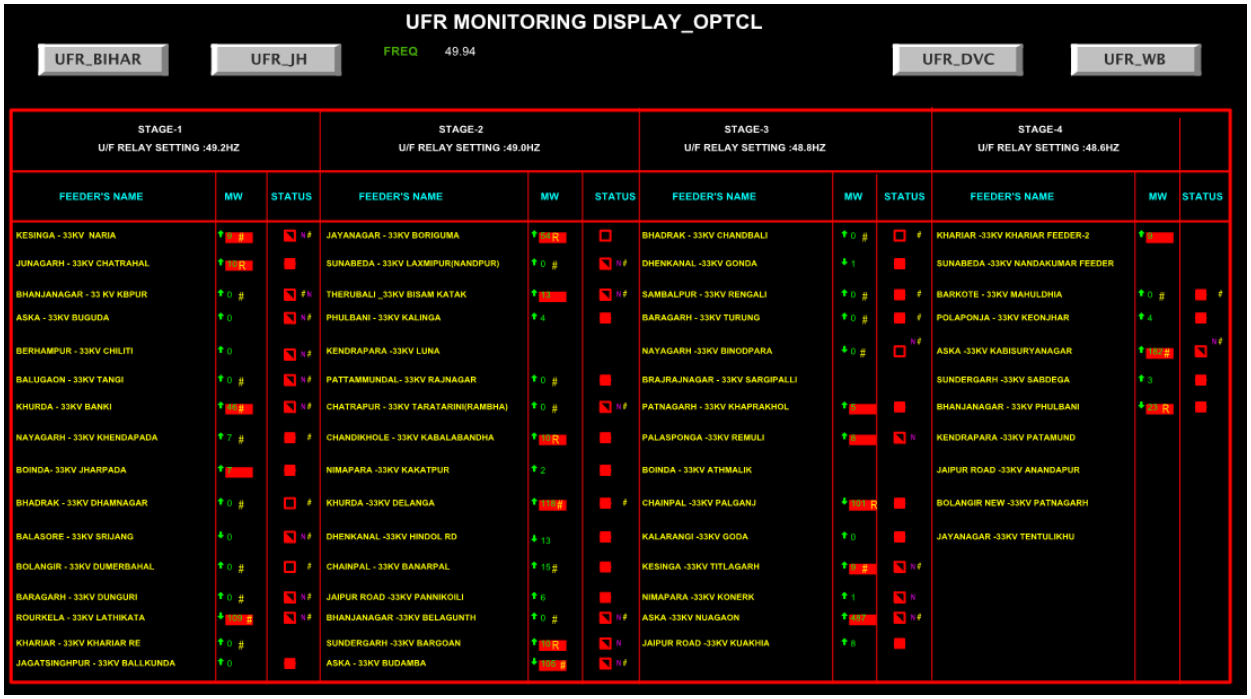
Sr. No.	Meeting Agenda Item no.	Data required as Recommended by Standing Communication Committee
1.	B.1.3 Wideband network of the communication infrastructure	State utilities shall submit Wideband network of their communication infrastructure at the earliest
2.	B.2.1 OPGW for Existing System	Central and State Sector utilities should provide the status of implementation of the OPGW laying. Transmission utilities should provide OPGW installation data, namely; name of the line, voltage level (kV), whether S/C, D/C or M/C, No. of earthwire/OPGW, length of the line (km), fibre count in the OPGW and scheme under which implementation is done/being carried out.
3.	B.2.2 Upgradation of Equipment capacity	Transmission utilities (ISTS & States) should furnish details of link bandwidth and its utilization to identify the congested links for communication equipment upgradation and better utilization of resources.
4.	B.2.3 OPGW links in intervening lines	Details of intervening lines which needs to provide 100% redundancy with route diversity should be identified.
5.	B.2.4 Dual path for Radial Nodes	LDCs/RPCs shall provide details of Central Sector and State Sector nodes with radial connectivity

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 BALLKUNDA
JAYANAGAR - 33KV BORIGUMA
SUNABEDA - 33KV LAXMIPUR(NANDPUR)
THERUBALI _33KV BISAM KATAK
PHULBANI - 33KV KALINGA
KENDRAPARA -33KV LUNA
PATTAMMUNDAL- 33KV RAJNAGAR
CHATRAPUR - 33KV TARATARINI(RAMBHA)
CHANDIKHOLE - 33KV KABALABANDHA
NIMAPARA -33KV KAKATPUR
KHURDA -33KV DELANGA
DHENKANAL -33KV HINDOL RD
CHAINPAL - 33KV BANARPAL
JAIPUR ROAD -33KV PANNIKOILI
BHANJANAGAR -33KV BELAGUNTH
SUNDERGARH -33KV BARGOAN
ASKA - 33KV BUDAMBA
BHADRAK - 33KV CHANDBALI
DHENKANAL -33KV GONDA
SAMBALPUR - 33KV RENGALI
BARAGARH - 33KV TURUNG
NAYAGARH -33KV BINODPARA
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 MAHULDHIA
POLAPONJA - 33KV KEONJHAR
ASKA -33KV KABISURYANAGAR
SUNDERGARH -33KV SABDEGA
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

FEEDER'S NAME	MW	STATUS
GIRIDIH SUB STATION - JSEB LINE 1	↑ 27	
GIRIDIH SUB STATION - JSEB LINE 2	↑ 9	N
KODERMA SUB STATION - JSEB LINE 1	↓ 5 #	N #
KODERMA SUB STATION - JSEB LINE 2	↑ 11 #	N #
BURDWAN- WBSEB LINE 3	↑ 0 #	N #
BURDWAN- WBSEB LINE 4	↑ 0 #	N #

STAGE-2
U/F RELAY SETTING :49.0HZ

FEEDER'S NAME	MW	STATUS
HAZARIBAGH- JSEB LINE 1	↑ 7 #	#
HAZARIBAGH- JSEB LINE 2	↑ 7 #	#
HAZARIBAGH- JSEB LINE 3		
RAMGARH- JSEB LINE 1	↑ 0 M	N #
RAMGARH- JSEB LINE 2	↑ 6 #	N #
PUTKI SUB STATION- JSEB GODHOR F#1	↓ 2 #	#
PUTKI SUB STATION- BHULI F#2(GODHOR F#2)	↑ 0 #	
PUTKI SUB STATION- JSEB GANESHPUR F#1	↑ 0 #	#
PUTKI SUB STATION- JSEB GANESHPUR F#2	↑ 6 #	#
PUTKI SUB STATION- BCCL BHALGORA LINE1	↑ 0 #	N #
PUTKI SUB STATION- BCCL BHALGORA LINE2	↓ 1 #	N #
PUTKI SUB STATION- KATRAS LINE 1 (KATRAS SIJUA)	↑ 0 #	#
PUTKI SUB STATION- KATRAS LINE 2	↑ 5 #	#
PUTKI SUB STATION- KATRAS LINE BCCL		

STAGE-3
U/F RELAY SETTING :48.8HZ

FEEDER'S NAME	MW	STATUS
PATHERDIH SUB STATION - GOVINDAPUR_1	↑ 0 #	#
PATHERDIH SUB STATION - GOVINDAPUR_2	↓ 11 #	N #
PATHERDIH SUB STATION - GOVINDAPUR_3	↑ 0 M	#
PATHERDIH SUB STATION - GOVINDAPUR_4	↑ 0 M	#
PATHERDIH SUB STATION - MUKUNDA		
PATHERDIH SUB STATION - DIGWADI_1	↑ 5 #	#
PATHERDIH SUB STATION - DIGWADI_2	↓ 11 #	#
KALAYNESWARI SUB STATION- BMA STEEL	↑ 124 R	#
KALAYNESWARI SUB STATION- IMPEX STEEL	↑ 0 M	N #
KALAYNESWARI SUB STATION- HIRA CONCAST	↑ 0 M	#
KALAYNESWARI SUB STATION- MPL	↑ 0 M	N #
KUMARDHUBI SUB STATION - MUGMA_1	↑ 5 #	#
KUMARDHUBI SUB STATION - MUGMA_2	↑ 9 #	#
KUMARDHUBI SUB STATION - KUMARDHUBI_1	↑ 8 #	#
KUMARDHUBI SUB STATION - KUMARDHUBI_2	↑ 0 M	#
KUMARDHUBI SUB STATION - SANJOY CHOWK(MUGMA 1 & 2)		

STAGE-4
U/F RELAY SETTING :48.6HZ

FEEDER'S NAME	MW	STATUS
DURGAPUR SUB STATION- GRAPHITE INDIA_1	↑ 0 M	#
DURGAPUR SUB STATION- GRAPHITE INDIA_2	↑ 0 M	#
DURGAPUR SUB STATION- JAI_BALAJI INDUS_1	↑ 0 #	N #
DURGAPUR SUB STATION- JAI_BALAJI INDUS_2	↓ 0 #	#
DURGAPUR SUB STATION- LAI_BALAJI SPONJ		
DURGAPUR SUB STATION- RR_BALAJI INDUS_1	↑ 0 M	#
DURGAPUR SUB STATION- RR_BALAJI INDUS_2	↑ 5	#
DURGAPUR SUB STATION - BRAHMA ALLOY		
DURGAPUR SUB STATION- VENKY STEEL	↑ 4 #	#
DURGAPUR SUB STATION- VSP UDYOG	↑ 0 M	#
DURGAPUR SUB STATION - SHREE GOPAL HI TE		

UFR MONITORING DISPLAY_WEST BENGAL

UFR_BIHAR | UFR_JH | FREQ 49.96 | UFR_DVC | UFR_OPTCL

STAGE-1
U/F RELAY SETTING :49.2HZ

FEEDER'S NAME	MW	STATUS
NBU - 33KV TCF	NA	NA
NBU - 33KV KHANBARI	NA	NA
NBU - 33KV UJANU	NA	NA
NBU - 11KV TEESTA NBU - 11KV BAGDOGRA	NA	NA
NBU - 11KV PHANSIDEWA	NA	NA
ULBERIA - UIGC 1	↑ 4 #	#
ULBERIA - BANITABLA	↑ 12 #	#
ULBERIA - FOODPARK	↑ 10 #	#
ULBERIA - AMTA	↑ 2 #	#
ULBERIA - UIGC 2	↑ 9 #	#
KALYANI - 33KV WBIDC_1	NA	NA
KALYANI - 33KV WBIDC_2	NA	NA
KALYANI - 33KV UNIVERSITY_1	NA	NA
KALYANI - 33KV UNIVERSITY_2	NA	NA
KALYANI - 33KV 1*6.3 MVAR & 1 * 5 MVAR 33/11 KV TR 1,2,3	NA	NA
DHARMAPUR - 33KV PANPUR	NA	NA
DHARMAPUR - 33KV KACHARAPARA	NA	NA
DHARMAPUR - 33KV GAURIPUR	NA	NA
DHARMAPUR - 33KV CHORD RD_1	NA	NA
DHARMAPUR - 33KV CHORD RD_2	NA	NA
DHARMAPUR - 33KV JEERAT	NA	NA
GANGARAMPUR - 33KV BUNIADPUR_1	NA	NA
GANGARAMPUR - 33KV BUNIADPUR_2	NA	NA
GANGARAMPUR - 33KV SALAS	NA	NA
GANGARAMPUR - 33KV RAMPUR	NA	NA
GANGARAMPUR - 2*6.3 MVA R (33/11) TR 1 AND 2	NA	NA
CHAKMIR 55MVA T1(CESC)	↑ 29	
CHAKMIR 55 MVA T2(CESC)	↑ 29	
NCSS KAMARHATI T1(CESC)	NA	NA
NCSS KUTIGHAT T3(CESC)	NA	NA

STAGE-2
U/F RELAY SETTING :49.0HZ

FEEDER'S NAME	MW	STATUS
DOMJUR - 33KV JANGALPUR	NA	NA
DOMJUR - 33KV JALADHULAGURI _1	NA	NA
DOMJUR - 33KV MUNSHIRHAT	NA	NA
BAGNAN - 33KV BAGNAN_1	↑ 12	
BAGNAN - 33KV BAGNAN_2	↑ 0	
BAGNAN - 33KV AMTA	↑ 5	
BAGNAN - MUNGKALYAN_1	↑ 5	
BAGNAN - MUNGKALYAN_2	↑ 6	
MALDA - 33KV NARAYANIPUR	NA	NA
MALDA - HABIBPUR RABINDRA BHAWAN	NA	NA
MALDA - MANIKCHAK	NA	NA
MALDA - 33KV KPS	NA	NA
MALDA - 33KV KALIYACHAK	NA	NA
MALDA - GAZOLE	NA	NA
MALDA - 1*6.3 MVA 1* 5 MVA (33KV/11) TR 1 ,2	NA	NA
NEW BISHNUPUR - 33KV SONAMUKHI	↑ 8	N #
NEW BISHNUPUR - 33KV PATRASAYAR	↑ 0	
BARJORA - 33KV BARJORA - 2	↑ 4 #	
BARJORA - 2 * 6.3 MVA (33KV/11) TRF 1	↑ 1 #	
BARJORA - 2 * 6.3 MVA (33KV/11) TRF 2	NA	NA
DUM DUM - NEW DUM DUM T1(CESC)	↓ 10	
DUM DUM - NEW DUM DUM T2(CESC)	↓ 11	
DUM DUM - SOUTH DUM DUM T1(CESC)		
DUM DUM - DUM DUM T3(CESC)	↓ 10	
BGSS - BAURIA 1 & 3(CESC)	↓ 16	
BGSS - FORE SHORE RD D/S(CESC)	NA	NA
BGSS - SHALIMAR RD D/S(CESC)	NA	NA

STAGE-3
U/F RELAY SETTING :48.8HZ

FEEDER'S NAME	MW	STATUS
LILUHA - 33 KV KONA	NA	NA
LILUHA - 33KV NJP	NA	NA
LILUHA - 33KV KTT	NA	NA
LILUHA - 33KV MKO	NA	NA
LILUHA - 33KV BALTIKURI_1	NA	NA
LILUHA - 33KV BALTIKURI_2	NA	NA
NJP - 33KV RADHABARI	NA	NA
NJP - 33KV RANINAGAR	NA	NA
NJP - 33KV DEBOGRAM	NA	NA
NJP - 33/11 KV 6.3 MVA TRF 1 AT NJP	NA	NA
NJP - 33/11 KV 6.3 MVA TRF 2 AT NJP	NA	NA
SALTLAKE - 33/11 KV MSF 1 AT SALTLAKE	NA	NA
SALTLAKE - 33/11 KV MSF 2 AT SALTLAKE	NA	NA
OLD BISHNUPUR - 33KV KOTOLPUR	NA	NA
OLD BISHUNPUR - 33KV JAIPUR	NA	NA
OLD BISHUNPUR - 33KV SIMLAPUR	NA	NA
OLD BISHUNPUR - ONDA	NA	NA
OLD BISHUNPUR - BANKADAHA	NA	NA
OLD BISHUNPUR - 2 * 5 MVA & 6.3 MVA (33/11) TR 1 ,2 ,3	NA	NA
MAJERHAT - DIAMOND CITY W(CESC)	↓ 9	
MAJERHAT -THAKURPUKUR T1(CESC)	↓ 6	
MAJERHAT -THAKURPUKUR T2(CESC)		
JADAVPORE - SOUTH CITY T2(CESC)	↑ 0 #	#
JADAVPORE - TOLLYGUNGE(CESC)	↓ 24	
KRS - BALLUGUNGE(CESC)	NA	NA
PRS - PRINCEP(CESC)	NA	NA
NCGS - KUTIGHAT T1(CESC)	↓ 5	
NCGS - KUTIGHAT T2(CESC)	↓ 5	
NCGS - KUTIGHAT T3(CESC)	↓ 9	

STAGE-4
U/F RELAY SETTING :48.6HZ

FEEDER'S NAME	MW	STATUS
SILIGURI - 33KV SILIGURI_1	↑ 11	
SILIGURI - 33KV SILIGURI_2	↑ 15	N
SILIGURI - 33KV RABINDRANAGAR_1	↑ 0	N
SILIGURI - 33KV HOUSING BOARD	↑ 1	
DARJELLING - 33KV LEBONG	NA	NA
DARJELLING - 33KV HAPPY VALLEY	NA	NA
JANGIPARA - 33KV JANGIPARA	↑ 0	
JANGIPARA - 33KV SAIKHALA	↑ 8	
JANGIPARA - 33KV SINGHATI	↑ 8	
JANGIPARA - 6.3 MVA 33/11 KV TRF 1 AT JAGNIPARA	↑ 2	
JANGIPARA - 6.3 MVA 33/11 KV TRF 2 AT JAGNIPARA	↑ 2	
TAMLUK - BARBELA	NA	NA
TAMLUK - MOYNA	NA	NA
TAMLUK - GOPALPUR	NA	NA
TAMLUK - TAMLUK	NA	NA
TAMLUK - 6.3 MVA 33/11 KV TRF 1 &2 AT TAMLUK	NA	NA
RISHRA - 33KV RAGHUNATHPUR	NA	NA
RISHRA - 33KV DANKUNI 1 &2	NA	NA
RISHRA - KAIKALA -2	NA	NA
RISHRA - 4 * 6.3 MVA (33/11 KV) TRF 1, 2,3 &4	NA	NA
LILUAH - WBSETCL 1(CESC)	↑ 25	NA
LILUAH - WBSETCL 2(CESC)	↑ 24	NA
LILUAH - WBSETCL 3(CESC)	↑ 24	NA

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		