



Agenda for 5th TeST Meeting

Date: 24.02.2020
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 5TH TELECOMMUNICATION, SCADA AND TELEMETRY SUB-COMMITTEE MEETING TO BE HELD AT ERPC, KOLKATA ON 24.02.2020 (MONDAY) AT 11:00 HOURS

PART – A: CONFIRMATION OF MINUTES

ITEM NO. A.1: Confirmation of minutes of 4rd TeST Sub-committee meeting held on 31.01.2020

The minutes of 4rd TeST Sub-committee meeting held on 31.01.2020 circulated vide letter dated 14.02.2020.

Members may confirm the minutes of 4th TeST Sub-committee meeting.

PART – B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Replacement of GPRS communication with optical fiber for AMR

In ER, approximately 80% meters are connected through Automated Meter Reading (AMR). At present the communication system used for data transfer from each location is GPRS. It has been observed that many locations are not communicating with AMR system due to poor/no GPRS signal. Many substations have their own optical fiber which is also used for the LAN network of respective stations.

In 40th CCM, Powergrid requested all the constituents to share the available optical fiber network connectivity details for further configuration to Optical connectivity to avoid communication problems through GPRS and for much more reliable transmission of SEM data to ERLDC server.

List of stations having fibre connectivity for AMR data transfer as on 06-January-2020 is given at **Annexure-B1**.

In 4th TeST meeting, Powergrid informed that they require 2 Mbps Ethernet communication link from respective station to nearest Powergrid node. ERLDC informed that all the AMR data pertaining to geographical boundary of constituents has to be configured through a separate VLAN and the same would be extended up to ERLDC so that data from all AMR should be made available at ERLDC for further needful.

ERPC asked all constituents to make assessment of the works required i.e. distance of AMR meter from communication Mux for laying the LAN cable between them.

Members may update.

ITEM NO. B.2: 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.

Powergrid is requested to share detailed report of the event and come up with remedies for prevention of such unwanted disruption in future.

Powergrid may explain.

ITEM NO. B.3: SCADA/EMS System Installed in Eastern Region:

1. Software Related

Eastern Regional Utilities are facing followings software related issue in their SCADA/EMS system installed in Eastern Region: -

- I. Improper modeling of TCSC, FSC & HVDC
- II. Incorporation of STATCOM modeling
- III. Non-functionality of STLF application since 13th April 2018
- IV. Integration with WAMS

2. Software Licenses Related

Eastern Regional Utilities need getting the following licenses which are required to run the system smoothly: -

- I. Cost implication of three (3) nos SCADA software licenses at ERLDC system
- II. Cost implication of additional licenses of 8,000 analog & 12,000 status points in OPTCL SCADA system
- III. Necessity of OSI software license (key) in spare server available at all Eastern Regional Control Centres at different locations: could not able to build the system in case of any hardware failure and / or the backup restoration testing could not be completed due to non-availability of necessary software license in the spare server.

In 4th TeST meeting, OSI informed that they had a Webex meeting with ERLDC and Chemtrols on 23rd December 2019 in which modeling related issues were discussed.

OSI further informed that they would complete one model each of TCSC and FSC in a week's time. Further, OSI informed that they would start modelling HVDC once TCSC and FSC modelling is done and the same would take around two weeks' time.

ERPC asked OSI to send the individual target dates by which all the software related works would be completed.

Chemtrols informed that they have sent the quotation for providing 3 nos. of SCADA licenses at ERLDC system. ERLDC raised concern about getting quote from Chemtrols instead of OSI.

Chemtrols submitted the quote of ₹ 2.48 Crores regarding additional 8000 analog and 12000 digital license points in OPTCL system. ERLDC informed that this price is quite high as compared with SCADA software license supplied under ER SCADA up-gradation package or NLDC up-gradation project. ERPC asked OSI to submit necessary justification to arrive at the cost of the same.

M/s Chemtrols, M/s OSI & Powergrid may update.

ITEM NO. B.4: Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network in Eastern Region

In 24th SCADA O&M Meeting held at ERLDC on 14th August 2019, Powergrid proposed for implementation of Unified Network Management System (U-NMS) in Eastern Region and presented the overview along with the technical aspects and its necessity.

Member Secretary, ERPC informed that a Committee with members from ERLDC, ERPC, all the states and Powergrid is required to be formed for the assessment of technical requirements to facilitate monitoring of ISTS communication network in line with CERC regulation.

Accordingly, a Committee was constituted and the Committee met on 24th October, 2019 at ERLDC, wherein Powergrid made a detailed presentation on Unified Network Management System (U-NMS) Project to be implemented for managing Project for ISTS and State utilities communication network at State, Regional & National level. The technical feasibility report has been issued subsequently.

In 42nd ERPC meeting, the implementation of UNMS System is approved for Central Sector subject to state portion. In 3rd TeST meeting, ERPC advised all constituents to provide the data in the format given by Powergrid for implementation of UNMS System at respective constituents.

Powergrid has approached all constituents and presented & discussed the implementation of the UNMS in respective constituents.

In 4th TeST meeting, Powergrid submitted that cost of implementation of UNMS in state sector as per data provided by constituents estimated as below:

- 1) Regional U-NMS: ₹ 97.93 crores
- 2) State sector U-NMS: ₹ 2 crores with breakup as below:
 - a) DVC: ₹ 0.40 crores

- b) BSPTCL: ₹ 0.40 crores
- c) WBSETCL: ₹ 0.40 crores
- d) OPTCL: ₹ 0.40 crores
- e) JUSNL: ₹ 0.40 crores

The above cost is based on the data provided by constituents, the details of NMS & NEs to be integrated in each constituent.

Further, MS, ERPC advised Powergrid to provide the cost sharing for Central Sector portion.

Powergrid intimated that the total estimated cost for UNMS Project for Central sector portion is Rs. 97.93 Crs. which is proposed to be apportioned between the constituents in PoC mechanism. Tentative ratio is enclosed in **Annexure-B4**.

All constituents are also requested to convey the implementation of the UNMS System in respective constituents for incorporation in the project along with Central Sector.

Members may discuss.

ITEM NO. B.5: Status of implementation of AGC for ISGS stations

The list of plants identified for AGC operation by NLDC in Eastern Region are as given below:

| SI No | Station | Communication link status | AGC system installation status at Site | Target |
|-------|-----------------------|---------------------------|---|---------------------------|
| 1 | Farakka STPS - I & II | Link established | | June 2020 |
| 2 | Kahalgaon STPS - II | Link established | | June 2020 |
| 3 | Barh STPS | Link established | Installed | Running since August 2019 |
| 4 | NPGC, Nabinagar | Not yet established. | NPGC, Nabinagar informed that OPGW is available but end equipment need to be procured and installed to establish communication link from their station to NLDC. NTPC further informed that they have place order for providing the end equipment. | June 2020 |
| 5 | Maithon Power Limited | Link established | | February,2020 |
| 6 | Talcher STPS - I | Link established | | June 2020 |
| 7 | Kahalgaon | Link established | NTPC informed that they | |

| | STPS - I | | approaching CERC for exemption. | |
|----|---|---|---------------------------------|-----------|
| 8 | Nabinagar Thermal Power Project - BRBCL | Sasaram Nabinagar OPGW installation is pending. | | June 2020 |
| 9 | Darlipalli STPS | Not yet established. | | June 2020 |
| 10 | Teesta - V | Link established | | June 2020 |
| 11 | Farakka STPS - III | Link established | | June 2020 |
| 12 | MTPS Stage - II | Link established | | June 2020 |
| 13 | Rangit HPS | Link established | | June 2020 |

OPGW Installation status:

| SI No | Communication link | Status | Target Date |
|-------|---------------------------------|---|-------------|
| 1 | 400kV Sasaram – BRBCL Nabinagar | NTPC may update | |
| 2 | 400kV Barh Gorakhpur | Powergrid informed that they have completed laying of OPGW up to 180 km length of line out of total 355 km length of line till now. | March, 2020 |

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 upgradation.

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.

NLDC further informed that requirement for AGC implementation like list of signals, bandwidth requirement, hardware, software & cable requirement etc. are made available at POSOCO website (<https://posoco.in/spinning-reserves/>).

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.

Powergrid informed that only single communication connectivity is available at MPL, Teesta V and Rangit. Other generating stations are having dual communication connectivity.

Members may discuss.

ITEM NO. B.6: ROW issues faced during OPGW Installation in Teesta III - Kishanganj link

Powergrid is implementing OPGW on Teesta III - Kishanganj TL under Fiber Optic Expansion Package (Additional Requirement). Severe ROW issues are being faced during execution of the work hampering the work and causing delay to the work.

During erection of OPGW, work has been stopped at various locations due to ROW/Old compensation issues. In all locations, local villagers are demanding payment of old pending compensation from TPTL. ROW issues occurred till date is detailed as under:

| Location no | OPGW Drum No | Remarks |
|-----------------------------|--------------|--|
| Location no-290A/0 | Drum no-50 | Work stopped on 19.10.2019 due to heavy ROW issue. |
| Location no 274 | Drum no-43 | Work stopped on 06.11.2019 due to heavy ROW issue. |
| Location no. 294B to 294D/1 | Drum No. 51 | Work stopped on 03.12.2019 due to heavy ROW issue. |
| Location no. 308 to 311/2 | Drum no. 58 | Work stopped on 09.01.2020 due to heavy ROW issue. |
| Location no. 272/3 | Drum No-42 | Work stopped on 11.02.2020 due to heavy ROW issue. |

Members may discuss.

ITEM NO. B.7: Replacement of old RTU in Eastern Region for reporting of RTU / SAS to back-up Control Centre

Present status of RTU/SAS replacement / up-gradation: -

| Utility | Status | Deliberation in last TeST meeting | Target |
|--------------------------|------------------|--|--------|
| POWERGRID | Pending | Powergrid informed that NIT would be floated by February, 2020. | |
| Maithon Right bank (MPL) | RTU/SAS Upgraded | ERLDC informed that SAS system at MPL is upgraded but reporting to ERLDC BCC is yet to be done and hence, requested MPL to call their vendor so that configuration at their end could be done properly for its dual reporting. MPL informed that they have taken remote support from M/s ABB to | |

| | | | |
|------------------------------|--------------|---|---|
| | | resolve the same. | |
| NTPC, Farakka (Stage I & II) | Pending | NTPC informed that they would complete the work by April, 2020. | April, 2020 |
| Talcher STPS | RTU Upgraded | NTPC would further send the latest update to ERPC at the earliest. | |
| Kahalgaon STPS | Pending | NTPC Kahalgaon informed that they would complete the work by February, 2020. | February, 2020 |
| Chuzachen HEP | Pending | Chuzachen HEP informed that they have installed the panels and they would complete the work by February, 2020 but reporting of data over IEC 104 protocol would not be possible because of non-availability of OPGW network. Powergrid informed that OPGW between Chuzachen - Rangpo would take 6-7 months more to complete. | With the availability of OPGW between Chuzachen - Rangpo. |
| JITPL | Pending | Powergrid informed that OPGW communication links from JITPL to nearest Powergrid S/s would be completed by May 2020. | May-2020 |
| GMR | Pending | Powergrid informed that OPGW communication links from GMR to nearest Powergrid S/s would be completed by May 2020. | May-2020 |
| JUSNL | Pending | JUSNL informed that their RTU replacement of 21 Nos. of RTU would be completed by March 2020. | March, 2020 |
| OPTCL | Pending | OPTCL informed that LOA for replacement / up-gradation of old RTUs (78Nos) would be awarded by December, 2019. | January, 2021 |
| WBSETCL | Pending | WBSETCL informed that they are going to place the order shortly with an implementation schedule of 2 years (1809 km OPGW laying works & 35 Nos. of RTU replacement works). WBSETCL informed that tender for RTU would be given by February, 2020 and tender for OPGW is already given. | |
| NHPC (Teesta – V & Rangit) | Pending | Teesta-V informed that they are in process to finalize LoA. | June, 2020 |

| | | | | |
|-------------------------|-----------|-----|----------------|-----|
| DMTCL Motihari | Pending | | OPGW available | not |
| BRBCL Nabinagar | Pending | | OPGW available | not |
| Teesta – III | Pending | | OPGW available | not |
| Dikchu | Pending | | OPGW available | not |
| Jorethang | Pending | | OPGW available | not |
| New Farakka (Stage III) | Completed | --- | --- | |
| APNRL | Completed | --- | --- | |
| Barh | Completed | --- | --- | |

Members may update the latest status.

ITEM NO. B.8: Redundancy of communication links for ICCP between control centres

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

| S. No. | Link Path | Deliberation in the last TeST meeting | Latest Status |
|--------|---|---|---------------|
| 1. | DVC MCC located at Andul Road to ERLDC BCC at New Delhi - DVC requested to include underground OFC in Howrah (WB) to Howrah (DVC) under the scope of upcoming project – ‘Strengthening of Inter-regional & Intra-regional OPGW Communication Links for Strengthening of Eastern Region’ and also requested WBSETCL to provide necessary permission & space for laying of Underground OFC and terminal equipment. | Powergrid informed that provision for laying of OPGW communication link between DVC, Howrah and WBSETCL, Howrah is being created in upcoming project. Powergrid further informed that they require necessary help from WBSETCL to make provision of OPGW communication link up to WBSETCL, Abhikshan Bhawan. WBSETCL informed that they replied via letter to ERLDC that they are unable to provide necessary help. | |
| 2. | WBSETCL MCC Andul road to ERLDC BCC located at | Powergrid requested ERLDC to provide space for installation of ULDC equipment at Backup | |

| | | | |
|----|--|---|--|
| | New Delhi | ERLDC (NLDC) so that link may be configured in ULDC network. ERLDC informed that necessary space has been provided and installation work is in progress. | |
| 3. | Farakka to Jeerat - Powergrid informed that presently, FO link connectivity is available between Farakka to Jeerat through Behrampur which doesn't have route diversity. Powergrid further informed that route diversity for redundancy would be available after commissioning of OPGW link from Farakka to Jeerat through Gokarna, Rajarhat & Subhashgram. | Powergrid reiterated that OPGW in Rajarhat-Farakka link would be completed along with the Gokarna-Rajarhat transmission line. | |
| 4. | Rourkela to Bhubaneswar SLDC - Powergrid informed that presently, FO link connectivity between Rourkela to Bhubaneswar SLDC is available through TSTPS, Meeramundali & Mendhasal which doesn't have route diversity. | OPTCL informed that Jagatsinghpur to Paradeep OPGW is pending due to Tower shifting work, which is the requirement of Indian Railways. Once the tower shifting work will be completed by Indian Railways, OPTCL will start their work. OPTCL informed that 17 Nos. of towers are being diverted and same would expected to get completed by May, 2020. | |
| 5. | Ranchi 400 kV (PG) to JUSNL SLDC (Kushai Colony) - Powergrid informed that presently, FO link connectivity between Ranchi 400 kV (PG) to JUSNL SLDC is available through Hatia 220 kV which doesn't have route diversity. | JUSNL informed that they have received approval for PSDF funding for providing protection channel for redundancy between Chandil to JUSNL SLDC (Kushai Colony) and have received the cabinet approval but could not proceed further due to model code of conduct due to state assembly elections in their state. | |

Members may update the latest status.

ITEM NO. B.9: URTDSM Project installed in Eastern Region

1. Issues of ERLDC

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

| S. No. | Issue | Deliberation in last TeST meeting | Latest Status |
|--------|---|---|---------------|
| 1 | Powergrid analytics application : Powergrid analytical application software, which was supposed to be installed under URTDSM project, is yet to be made functional at SLDCs. | ERLDC informed that one module is pending of the application and the rest is completed. | |

Powergrid may update.

2. URTDSM Data Summary: -

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

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

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

In 42nd TCC/ERPC meeting, followings were decided -

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

Further, Powergrid informed that integration of PMUs at Tenughat would be completed by December, 2019 and the same for GMR and JITPL would be completed by June 2020.

In 4th TeST meeting, Powergrid informed that validation is pending for one PMU at Tenughat and installation in progress for the second PMU at Tenughat.

| S. No. | PMU Issue | Deliberation in the last TeST meeting | Latest status |
|--------|-----------|--|---------------|
| 1. | Sterlite | OPTCL informed that they have assigned | |

| | | | |
|----|---|--|--|
| | | M/s GE to establish communication link and they have configured Sterlite-Lapanga-Merumundali link. Further, OPTCL informed that above work would be completed by February, 2020. | |
| 2. | Redundant communication link - Considering the importance of PMUs data, Powergrid agreed to implement redundant communication link in URTDSM project in order to prevent PMUs data intermittency and repetitive failure between PDC-PDC communication between ERLDC and SLDCs. | Powergrid informed that the redundant communication link in URTDSM project has been provided with all constituents except DVC. Powergrid informed that no alternate path is there to provide redundant communication link for DVC system. ERLDC informed that alternate communication link may be provided using PowerTel network. Powergrid informed that they would discuss this issue separately with ERLDC. | |

Powergrid and OPTCL may update.

3. SCADA Data Summary:-

State Sector: Following are the deliberations regarding data non availability of state sector stations: -

| AOR | Station | Overall Status | Deliberation in last TeST meeting | Latest Status |
|---------|---------------------|----------------------|--|---------------|
| WBSETCL | TLDP 4 220kV | Not Available | WBSETCL informed that they would write a letter to NHPC for providing the port. | |
| | Dharampur 220kV | Not Available | WBSETCL informed that they have awarded the work to M/s Schneider. | |
| | Egra 220 | Yet to be integrated | WBSETCL informed that they have given this work to M/s Chemtrols. | |
| | Bantala 220kV | Available | WBSETCL informed that work related to Bantala 220 kV to be done by M/s Chemtrols. WBSETCL informed that the work related to M/s Chemtrols has been completed. | |
| | Alipurduar 220kV | Not Available | WBSETCL informed that Alipurduar 220 kV RTU data would be available by January, 2020. WBSETCL informed that the work is getting delayed to ROW issue. | |
| JUSNL | Hatia New | Not Available | JUNSL informed that by March, | |

| | | | | |
|-------|------------------|--|--|--|
| | 220 | | 2020 they will make available all the data in their jurisdiction. | |
| | Jamtara 132kV | Not Available | | |
| | Garwa 132kV | Yet to be integrated | | |
| | Deoghar 132kV | Not Available | | |
| | Kendposi 132 kV | Not Available | | |
| OPTCL | JSPL 400kV | Most of the data not available | OPTCL informed that by June, 2020 they will make available all the data in their jurisdiction. | |
| | Nalco 220kV | Most of the data not available | | |
| | Narsingpur 220kV | Station commissioned at 220kV without data telemetry | | |
| | Bargarh 220 | Station commissioned at 220kV without data telemetry | | |

Members may update.

ITEM NO. B.10: Backup NLDC under URTDSM Project: Readiness of UPS Room

Backup NLDC Control Center under URTDSM Project could not be commissioned due to non-readiness of UPS room at ERLDC.

In 23rd SCADA O&M ERLDC intimated that the renovation work will be completed by July-2019. Further, ERLDC vide letter dated 30.05.2019 and in 24th SCADA O&M meeting held on 14.08.2019, intimated that the renovation work will be completed by November-2019.

In 1st Test Meeting, ERLDC intimated that the renovation work will take more time and expected to be completed by February, 2020 and Powergrid also requested for space at ERLDC/ERPC for charging of the battery bank without which their performance may be degraded. However the space could not be allotted by ERLDC/ERPC.

In 2nd and 3rd Test Meeting, Powergrid proposed for short-closing of the contract considering non-availability of space for UPS and Battery after long wait time and repeated request.

In 3rd and 4th TeST meeting, ERLDC intimated that they site will be ready by March-2020.

Based on discussion with ERLDC, an alternate temporary space may be provisioned for setting up UPS and Battery system and commissioning of the system. After readiness of permanent allotted space, the UPS & Battery system will be re-commissioned. Due to non-provisioning of space by ERLDC, commissioning of Backup NLDC URTDSM system is held up and getting delayed.

ERLDC may explain.

PART – C: ANY OTHER ITEMS

ITEM NO. C.1: FOLLOW-UP OF DECISIONS OF THE PREVIOUS Telecommunication SCADA & Telemetry (TeST) SUB-COMMITTEE MEETING(S)

The deliberations of previous TeST meetings which are to be updated are given at **Annexure-C1**.

Members may update the latest status.

ITEM NO. C.2: Issues related to M/s Chemtrols

List of issues faced by various constituents related to M/s Chemtrols in Eastern Region are given at **Annexure-C2**.

M/s Chemtrols may update the latest status.

ITEM NO. C.3: Any additional agenda – with permission of the Chair.

**LIST OF STATIONS HAVING FIBRE CONNECTIVITY FOR AMR DATA
TRANSFER AS ON 06-JANUARY-2020**

| SNO | Utility Name | Substation Name | DCU No. | Fibre connectivity (Yes/No) |
|-----|--------------|-------------------|---------------|-----------------------------|
| 1 | BIHAR | ARAH (ARB) | pgarctic00037 | Yes |
| 2 | BIHAR | BANKA (BAN) | pgarctic00145 | Yes |
| 3 | BIHAR | BIHARSHARIF (BIH) | pgarctic00039 | Yes |
| 4 | BIHAR | BODHGAYA (BOD) | pgarctic00122 | Yes |
| 5 | BIHAR | DEHRI (DEH) | pgarctic00078 | Yes |
| 6 | BIHAR | DUMRAON (DUM) | pgarctic00036 | No |
| 7 | BIHAR | FATUA (FAT) | pgarctic00131 | Yes |
| 8 | BIHAR | HAIJIPUR (HAJ) | pgarctic00132 | Yes |
| 9 | BIHAR | JAGDISHPUR (JAG) | pgarctic00133 | No |
| 10 | BIHAR | JAMUI (BSPHCL) | pgarctic00171 | No |
| 11 | BIHAR | KAHALGAON (KAH) | pgarctic00068 | No |
| 12 | BIHAR | KANTI (KAN) | pgarctic00074 | Yes |
| 13 | BIHAR | KARMANASHA (KMN) | pgarctic00077 | No |
| 14 | BIHAR | KHAGAUL (KHA) | pgarctic00073 | Yes |
| 15 | BIHAR | KISHANGANJ (KSN) | pgarctic00070 | Yes |
| 16 | BIHAR | KUDRA (KUD) | pgarctic00176 | No |
| 17 | BIHAR | LAKHISARAI (LKK) | pgarctic00172 | Yes |
| 18 | BIHAR | MADHEPURA (MAD) | pgarctic00120 | Yes |
| 19 | BIHAR | SIPARA (SIP) | pgarctic00130 | Yes |
| 20 | BIHAR | SONENAGAR (SON) | pgarctic00075 | Yes |
| 21 | BIHAR | SONNAGAR NEW | pgarctic00175 | Yes |
| 22 | BIHAR | SULTANGANJ (SUL) | pgarctic00094 | Yes |
| 23 | BIHAR | SABOUR (SBR) | pgarctic00093 | Yes |
| 24 | BIHAR | MOHANIA (MOH) | pgarctic00076 | No |
| 25 | BIHAR | NALANDA (NLN) | pgarctic00177 | Yes |
| 26 | GRIDCO | BALASORE (BLS) | pgarctic00121 | Yes |
| 27 | GRIDCO | BANGRIPOSHI | pgarctic00195 | No |
| 28 | GRIDCO | BARIPADA (BAR) | pgarctic00063 | Yes |
| 29 | GRIDCO | BUDHIPADAR (BUD) | pgarctic00048 | Yes |
| 30 | GRIDCO | GMR (GMR) | pgarctic00142 | No |
| 31 | GRIDCO | INDRAVATI (IND) | pgarctic00101 | Yes |
| 32 | GRIDCO | JEYNAGAR (JYN) | pgarctic00103 | Yes |
| 33 | GRIDCO | JINDAL (JIN) | pgarctic00043 | No |
| 34 | GRIDCO | JODA (JOD) | pgarctic00042 | Yes |
| 35 | GRIDCO | KATAPALLI (KTP) | pgarctic00184 | Yes |
| 36 | GRIDCO | MENDHASAL (MEN) | pgarctic00062 | Yes |
| 37 | GRIDCO | MIRMUNDALI (MML) | pgarctic00061 | Yes |
| 38 | GRIDCO | RENGALI (REG) | pgarctic00060 | No |
| 39 | GRIDCO | ROURKELA (ROU) | pgarctic00045 | No |
| 40 | GRIDCO | SADEIPALI | pgarctic00196 | Yes |
| 41 | GRIDCO | TARKERA | pgarctic00047 | Yes |
| 42 | WEST BENGAL | BIDHANNAGAR (BDN) | pgarctic00029 | Yes |
| 43 | WEST BENGAL | BIDHANNAGAR (BDN) | pgarctic00113 | Yes |
| 44 | WEST BENGAL | BIRPARA (BIR) | pgarctic00021 | Yes |

| | | | | |
|----|-------------|---------------------|---------------|-------------------------------|
| 45 | WEST BENGAL | DALKHOLA (DAL) | pgarctic00082 | Yes |
| 46 | WEST BENGAL | JEERAT (JRT) | pgarctic00023 | Yes |
| 47 | WEST BENGAL | KALIMPONG (KLM) | pgarctic00031 | Yes |
| 48 | WEST BENGAL | KHARAGPUR (KSG) | pgarctic00127 | Yes |
| 49 | WEST BENGAL | KURSEONG (KSG) | pgarctic00124 | Yes |
| 50 | WEST BENGAL | MALDA (MAL) | pgarctic00007 | Yes |
| 51 | WEST BENGAL | SAGARDIGHI (SAG) | pgarctic00006 | No |
| 52 | WEST BENGAL | SANTALDIH (SNT) | pgarctic00058 | Yes |
| 53 | JHARKHAND | CHAIBASA (CHA) | pgarctic00198 | Yes |
| 54 | JHARKHAND | CHANDIL (CHN) | pgarctic00016 | Yes |
| 55 | JHARKHAND | DEOGHAR (DEO) | pgarctic00055 | No |
| 56 | JHARKHAND | DUMKA (DUM) | pgarctic00173 | Yes |
| 57 | JHARKHAND | GARHWA (GAR) | pgarctic00051 | No |
| 58 | JHARKHAND | GOELKERA (GOL) | pgarctic00100 | At present, No Tie with JUSNL |
| 59 | JHARKHAND | HATIA (HAT) | pgarctic00081 | Yes |
| 60 | JHARKHAND | JAMTARA (JMT) | pgarctic00054 | No |
| 61 | JHARKHAND | JAPLA (JAP) | pgarctic00050 | No |
| 62 | JHARKHAND | KENDPOSI (KEN) | pgarctic00098 | No |
| 63 | JHARKHAND | LALMATIA (LLM) | pgarctic00099 | No |
| 64 | JHARKHAND | TENUGHAT (TGT) | pgarctic00040 | Yes |
| 65 | JHARKHAND | RAMCHANDRAPUR (RCP) | | Yes |
| 66 | JHARKHAND | PATRATU (PTR) | | Yes |
| 67 | JHARKHAND | MANIQUE (MNQ) | | No |
| 68 | JHARKHAND | DALTONGANJ (DLT) | | No |
| 69 | SIKKIM | DIKCHU | pgarctic00181 | No |
| 70 | SIKKIM | DIKCHU | pgarctic00182 | No |
| 71 | SIKKIM | JORTHANG | pgarctic00183 | No |
| 72 | SIKKIM | MELLI (MEL) | pgarctic00017 | Yes |
| 73 | SIKKIM | MELLI (MEL) | pgarctic00032 | Yes |
| 74 | DVC | DSTPP (AND) | pgarctic00004 | Yes |
| 75 | DVC | JAMSHEDPUR (JAM) | pgarctic00011 | Yes |
| 76 | DVC | KALNESHWARI (KAR) | pgarctic00026 | Yes |
| 77 | DVC | KODERMA (KOD) | pgarctic00125 | Yes |
| 78 | DVC | KOLAGHAT (KGT) DVC | pgarctic00008 | Yes |
| 79 | DVC | MAITHON (MAI) | pgarctic00024 | Yes |
| 80 | DVC | MANIQUE (MNQ) | pgarctic00018 | Yes |
| 81 | DVC | MEJIA (MEJ) | pgarctic00025 | Yes |
| 82 | DVC | RTPS (RTP) | pgarctic00137 | Yes |
| 83 | DVC | TISCO (TIS) | pgarctic00138 | Yes |
| 84 | DVC | BARHI (BAR) | pgarctic00052 | Yes |
| 85 | DVC | DHANBAD (DHN) | pgarctic00053 | Yes |
| 86 | DVC | WARIA (WAR) | pgarctic00005 | Yes |

Annexure-B4

Based on the current PoC Slab Rate (CERC order No. L-1/44/2010-CERC dtd 04.02.2020), the tentative ratio and approximate cost involvement in PoC mechanism is calculated as below:

| Total Investment Central Sector (Crore) | Constituent | PoC Slab Rate (Rs/MW/Month) | Tentative Ratio | Share of Each Constituent (Crore) |
|--|--------------------|--|--|--|
| 97.93 | Odisha | 449682 | Odisha:DVC:Bihar: Jharkhand:WB:Sikkim | 33.89 |
| | DVC | 281847 | | 21.24 |
| | Bihar | 169957 | | 12.81 |
| | Jharkhand | 169957 | 35:22:13:13:13:4 | 12.81 |
| | West Bengal | 169957 | | 12.81 |
| | Sikkim | 58067 | | 4.38 |

| Sl No. | Agenda point | Deliberation in the last TeST meeting | Latest Status |
|------------------------------------|--|---|---------------|
| 3rd TeST Meeting | | | |
| 1. | Restoration of frequent failure of Sagardighi STPS data | <p>ERPC advised WBSETCL & Powergrid to co-ordinate for early restoration of the same. ERPC further advised WBSETCL & Powergrid to come up with a redundant path for providing the Sagardighi STPS data.</p> <p>WBSETCL informed that they would consult WBPDCCL to come up with the same.</p> | |
| 2. | Replacement of faulty BCU (seven nos) at Kishanganj Site | <p>Powergrid informed that they have already taken the matter with their OEM (M/s Siemens) and would be resolved by January, 2020.</p> <p>Powergrid informed that 4 nos. of BCU have been replaced</p> | |

| SL No | POSOCO / Constituent | Deliberation in the last TeST meeting | Latest Status |
|--------------|---|--|---------------|
| ERLDC | | | |
| 1 | One charging battery set of 125 kVA DG is faulty and need to be replaced urgently. | Chemtrols informed that they have taken quote for this and the same will be completed soon. | |
| 2 | Implementation of Automatic Demand Management Scheme (ADMS) in Bihar | M/s Chemtrols informed that is having BSPTCL having communication issue with field. | |
| 3 | PM for VPS installed at ERLDC is not being carried out by OEM. Presently, brightness of almost all cubes is very dimmed causing difficulties in real time grid operation. This was intimated to M/s Chemtrols through mail and letter dated 13.02.2020 also. | | |
| 4 | Schedule for conducting Cyber Security Audit for ERLDC Main and its backup is yet to be submitted by M/s Chemtrols. | M/s Chemtrols agreed to submit the date by 15th February 2020. | |
| 5 | Configuration of domain controller (DC) installed at ERLDC and its backup is not proper. Rule and policy being imposed in one controller is not being synched with other DCs. | --- | |
| DVC | | | |
| 1 | 01 (One) External Firewall (Checkpoint) taken for repair for last 01 month. | M/s Chemtrols informed that already spare is available at side. For faulty item repairing activity is in under process and will be completed by 29.02.2020 | |
| 2 | Spare Power Supply for RTU (DC to DC) converter should be made available for maintenance purpose. | Procurement is in under process and spare material would be available by 29.02.2020 | |
| 3 | LDMS at Kolaghat S/stn and BTPS S/stn not functioning | Issue would be resolved by 15-02-2020. | |

| | | | |
|------------------------------|--|--|--|
| 4 | 1 (One) No of Cell (2V,160AH) of UPS-1 battery Bank is faulty. | M/s Chemtrols have taken up this issue with HBL for procurement of Battery Cell. | |
| 5 | Three (3) nos. faulty Terminal Servers to be repaired | But due to the very small quantity, HBL has delay in the manufacturing. | |
| <u>BSPTCL Portion</u> | | | |
| 1 | Compliance of Cyber Security Audit conducted in year-2018 not completed. | M/s Chemtrols informed that Compliance report was submitted previously. But ERLDC requested for further modification at ERLDC site and requested to implement that to other SLDCs also. They have completed the same and found some technical difficulties during the execution. Finally, they have done that in 1 st week of January and observed the system functions. Its working fine and final report would be shared by 3 rd Feb 2020. | |
| 2 | One SMPS of VPS is defective since 29/11/2019 | M/s Chemtrols informed that procurement is under progress and it would be completed by 29.02.2020 | |
| 3 | One AVR of 125 KV is defective since 03/10/2019 | dM/s Chemtrols informed that the AVR card is an additional card used by Powerica for DG start. After getting that faulty, they run that DG by its default governor card provided by Cummins. DG is working fine without this card. However, they were asking Powerica to provide that card. Due to non- availability of stock it is taking the time. M/s Chemtrols further informed that the by end of Feb-2020, they would complete the procurement. | |
| 4 | 20 no. of LDMS are not functioning either of issue of inverter or CPU. | M/s Chemtrols informed that work is in Progress. | |

| | | | |
|------------------------|--|--|--|
| 5 | Integration of new bay:- As per AMC contracts Chemtrols has to integrate 50 nos. of new bays in to RTU. | M/s Chemtrols informed that procurement of requisite materials at their end is under process. Further, BSPTCL has been requested to share the new bay list. | |
| 6 | The following materials are faulty which are required to be replaced at the earliest: <ul style="list-style-type: none"> •MFT – 9 pcs •Decode – 2 pcs •Node – 6 Pcs | M/s Chemtrols informed that MFT would be delivered to BSPTCL by 15/02/2020 and Decode Modem has been replaced. M/s Chemtrols informed that they need 1 month more for repairing RTU nodes | |
| | | | |
| WBSETCL Portion | | | |
| | | | |
| 1 | Chemtrols RTU is not integrated through IEC-104 protocol though communication link is ready | M/s Chemtrols informed that work is in progress. | |