



Minutes
of
2nd TeST Meeting

Date: 17.12.2019
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 2ND TELECOMMUNICATION, SCADA AND TELEMETRY SUB-COMMITTEE MEETING HELD AT ERPC, KOLKATA ON 26.11.2019 (TUESDAY) AT 11:00 HOURS

List of participants is at **Annexure-A**.

Member Secretary, ERPC, at the outset, welcomed all the participants in the meeting. He mentioned that SCADA/EMS system is the most important facility for the grid operator for maintaining grid security and reliability. He further mentioned that SCADA/EMS system in Eastern Region is maintained by M/s Chemtrols / M/s OSI and their performance is worst comparing to other SCADA vendors in different region. He also added that if Chemtrols / OSI would not improve their support and resolve all the pending issues then ERPC may think to approach CERC for early replacement of entire SCADA/EMS system in Eastern Region by black listing Chemtrols / OSI.

Member Secretary, ERPC mentioned that in such a vital meeting, no person from OSI was present; it shows their lack of seriousness to resolve pending issues pertaining to Eastern Regional SCADA/EMS project.

Member Secretary, ERPC advised Powergrid to take up the matter once again seriously so that long pending issues could be resolved at the earliest and also advised that in future such kind of vendors shall not be entertained in any tendering processes.

Thereafter, all agenda were taken for discussion in seriatim.

PART – A: CONFIRMATION OF MINUTES

ITEM NO. A.1: Confirmation of minutes of 1st TeST Sub-committee meeting held on 24.10.2019

The minutes of 1st TeST Sub-committee meeting held on 24.10.2019 circulated vide letter dated 21.11.2019.

Members may confirm the minutes of 1st TeST Sub-committee meeting.

Deliberation in the meeting

Members confirmed the minutes of 1st TeST Sub-committee meeting.

PART – B : ITEMS FOR DISCUSSION

ITEM NO. B.1: Provision of OPGW along with communication equipments in Important ISTS Lines (for strengthening of OPGW Network of ER-Grid and ER-NR & ER-WR Connectivity)

In 23rd SCADA O/M meeting held on 06.03.2019, ERLDC requested ERPC to form a committee who can ascertain the requirement of OPGW along with communication equipment after considering the route diversity to bring reliability in Power System operation as per requirement.

Accordingly, a Committee was formed. The committee met on 14.08.2019 and 24.10.2019, wherein the members discussed about the requirement of additional Inter-regional and Intra-regional OPGW links for strengthening of Eastern Regional OPGW network.

Followings are the list of additional OPGW link, which are envisaged by the committee for implementation along with communication equipment and DCPS:-

Sl No	Corridor	Selected lines for laying OPGW	Length (km)
1	ER- NR	765 kV S/C Gaya-Varanasi Line –I	265
2		400 kV D/C Patna – Balia Line –I	195
3	ER - WR	765 KV S/C Ranchi – Dharamjaygarh Line-1	305
4		765 KV S/C Jharsugada – Dharamjaygarh Line-1	149
5	ER-SR	400 kV D/C Jeypore – Gazuwaka	221
6	ISTS network	400 kV D/c Nabinagar (BRBCL) Generating Station – Sasaram	82
7		400 kV Farakka –Purnea	160
8		400 kV Farakka-Sagardighi-Subhasgram	301
9		400kV Maithan (PG) – Durgapur (WB)	128
10		400KV Durgapur (PG) – Sagardighi (WB)	72
11	DVC network	220 KV KTPS – Giridih (Line # 251 , 252)	101
12		132 KV Jamuria – Ramkanali (Line # 90)	53
13		132 KV Ramkanali – CTPS (Line # 60)	70
14		132 KV Purulia – Jamshedpur (Line # 39,40)	87
15		132 KV CTPS – Gola (Line # 6,7)	67
16		Howrah (DVC) – Howrah(WB)	1
17	JUSNL	220 kV Daltonganj (JUSNL) – Latehar (JUSNL) LILoed at Daltonganj (PG)	90
18		220 kV Jodda (OPTCL)- Ramchandrapur (JH)	130
19		220 kV Chandil (JH)- Ranchi (PG) (up to LILo point)	90

All constituents agreed for implementation of the above-mentioned OPGW links in Central Sector (Sl. 1 to 10) by POWERGRID.

DVC also requested POWERGRID to take up the implementation of OPGW links of DVC Sector (Sl. 11 to 16).

JUSNL also requested POWERGRID to take up the implementation of OPGW links of JUSNL Sector (Sl. 17 to 19).

The detailed report is available at ERPC website in Miscellaneous/Reports section.

Members may discuss.

Deliberation in the meeting

ERPC Secretariat pointed out that in ER-WR corridor, both OPGW links i.e. 765 KV S/C Ranchi – Dharamjaygarh Line-1 and 765 KV S/C Jharsugada – Dharamjaygarh Line-1 will terminate at Dharamjaygarh S/s so this would not form the redundant communication path through ER-WR corridor. Hence, it is suggested to have OPGW on 765 KV S/C Jharsugada – Dharamjaygarh Line-1 (length - 149 km).

Members requested Powergrid to explore for alternate path or the other possibility to include in future projects.

Powergrid agreed for the same and informed that they will suggest an alternative path for ER-WR connectivity.

ERPC Secretariat asked Powergrid about the tentative cost of the project, the methodology to recover it and how it will be apportioned among the constituents.

Powergrid intimated that they will submit a comprehensive proposal within a month considering the above aspects.

ITEM NO. B.2: Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network in Eastern Region

CERC notified Communication Regulation which envisages Centralized Supervision System for ISTS Communication.

As per the regulation clause no 7.2 (vii):

“CTU shall be the Nodal Agency for supervision of communication system in respect of inter-State communication system and will implement centralized supervision for quick fault detection and restoration.”

The issue was discussed in 24th SCADA O&M Meeting held at ERLDC on 14th August 2019, wherein Member Secretary, ERPC informed that a Committee is required to form for the assessment of technical requirements to facilitate monitoring of ISTS communication network in line with CERC regulation.

Accordingly, a Committee was formed and the Committee was 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 & State utilities communication network at State, Regional & National level.

Members discussed the technical aspects of U-NMS proposal and generally found it is feasible technically for the U-NMS proposal. All Constituents have given their consent for implementation of U-NMS Project for Central Sector as well as for the State Sector/Constituents.

POWERGRID informed that the estimated cost for Eastern Region ISTS and state network U-NMS is **Rs. 99.93 Crs excluding AMC cost which is estimated as Rs. 2.6 Crs for 6 years after Warrantee period.** U-NMS Project implementation Schedule is considered as 24 months. Investment made by POWERGRID is proposed to be recovered through tariff as notified by CERC. Also it has been deliberated and agreed upon that AMC for U-NMS shall be carried out by POWERGRID itself for Central as well as State sector.

Members may approve.

Deliberation in the meeting

In the meeting it was pointed out by Member Secretary, ERPC that U-NMS would help in computing the communication availability. The procedure of communication availability was suggested in the draft CERC (Terms and Conditions of Tariff), 2019 but the same was not incorporated in the final tariff regulation, 2019. While finalizing the U-NMS project, this aspect needed to be given due consideration.

All ER Constituents informed that as the separate availability certification of communication system has not been notified by CERC ,so this much of investment needed further scrutiny.

Powergrid informed that for better system visibility, redundant path identification and fault finding for whole communication network (either inter-regional or intra-state) the centralized U-NMS would certainly help and improve the availability of communication network. POWERGRID also mentioned visibility of all ISTS & State Utility Communication Nodes in single NMS would be possible through central U-NMS. Further, Powergrid informed that a number of regions have already accorded approval for implementation of the project.

Member Secretary, ERPC advised POWERGRID to give a detailed presentation in upcoming TCC/ERPC meeting for facilitating TCC members to arrive at a decision.

ITEM NO. B.3: Communication availability from NLDC/SLDCs to the nearest wide band node/switchyard for the generating stations under AGC

Hon'ble Central Electricity Regulatory Commission (CERC) in the matter of Automatic Generation Control (AGC) implementation in India, has issued the direction that all thermal ISGS stations with installed capacity of 200 MW & above and all hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC, to install equipment at the unit control rooms for transferring the required data for AGC as per the requirement to be notified by the NLDC.

Considering the importance of communication links being used for automatic controls, same common points may not be used along the path to ensure near 100% availability. Also, in line with CERC order, all the power plants are supposed to take necessary action for arranging the communication (through redundant and alternate paths) from the existing nearest wideband communication node to unit control room through two fibre optic cables, in coordination with CTU. Above ISGS stations should be enabled before 28th February, 2020 as per the order of CERC.

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

S. No.	Power Plant	T/H	Cap (MW)	Nearest wideband node	Main communication path available ?	Alternate communication path available ?	Route diversity available for alternate path?
1	Farakka STPS – I & II	T	1600				
2	Kahalgaon STPS – II	T	1500				
3	Barh STPS	T	1320				
4	Maithon Power Limited	T	1050				
5	Talcher STPS – I	T	1000				
6	Kahalgaon STPS – I	T	840				
7	Nabinagar Thermal Power Project	T	750				
8	Teesta – V	H	510				
9	Farakka STPS – III	T	500				
10	MTPS Stage - II	T	390				
11	Rangit	H	60				

Members may deliberate further action plan.

Deliberation in the meeting

NLDC informed that as per CERC order dated 28th August 2019, AGC implementation at all above listed ISGS generating stations must be implemented within six months i.e. by 28th February 2020.

MS, ERPC raised concern about the present reporting of AGC data signal from generating stations to NLDC and concern RLDC is getting data through NLDC over ICCP protocol.

NLDC informed that as part of pilot project, AGC is implemented and all generating stations AGC data is going directly to NLDC for first 3 years and the same would be diverted to respective RLDCs after SCADA upgradation.

NTPC raised the concern about the bandwidth requirement, list of signals and cable requirement for implementation of AGC.

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 of 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 also. NLDC informed that they have a firewall at their end in their system.

All generating stations agreed to implement the AGC through firewall at their end for extending the AGC signals.

ERLDC raised concern about AGC implementation of Nabinagar (BRBCL) as OPGW communication link from generating station to nearest POWERGRID S/S i.e. 400 kV Sasaram is not available.

ERPC advised NLDC to add NPGC, Nabinagar (2x660 MW) in AGC implementation list as this station is commissioned in November 2019. NLDC agreed for the same.

It was decided to take above matter in the next TCC/ERPC meeting for further deliberation.

ITEM NO. B.4: Issue of trial operation/completion certificate by ERLDC for Alipurduar-Punasangchu OPGW link.

The OPGW work in Alipurduar-Punasangchu link (64 Km) along with communication equipment was completed for India Portion on 28.03.2019. POWERGRID requested ERLDC to issue Trial Operation Certificate/Completion certificate for India Portion of Alipurduar-Punasangchu link. ERLDC vide their letter dtd 24.09.2019 intimated that the certificate can be issued after transfer of data & voice through this link. But the work is completed by POWERGRID for Indian Portion (with transmission line) and the link could not be established due to pending work in Bhutan side. Accordingly it is requested to issue the trial operation/completion certificate by ERLDC for Alipurduar-Punasangchu link (India Portion).

Members may discuss.

Deliberation in the meeting

NLDC informed that purpose of laying OPGW on Alipurduar-Punasangchu link (64 Km) along with communication equipment (India Portion) is not fulfilled unless until OPGW link up to Punasangchu, Bhutan is ready. So, as per CERC regulation, there is no provision to give trial operation certificate considering the present scenario.

Powergrid informed that they should receive the OPGW certificate in the same way as received for transmission line.

It was decided to take the above matter in the next TCC/ERPC meeting for further discussion.

ITEM NO. B.5: Display of real-time system data at ERPC Secretariat

As per the internal meeting held on 25.11.2019 at ERPC, MS ERPC suggested that a real time system data along with display may be provided for real time monitoring and reporting purpose of ER grid.

Members may discuss.

Deliberation in the meeting

It was informed that there should have a provision of 55" display at ERPC Secretariat under the present SCADA/EMS project for real-time system data which is presently not available.

M/s Chemtrols informed that supply contract had already been closed and hence, new hardware equipments (55" LED screen, CPU, wireless key board & mouse, cables) are required for implementing the same. M/s Chemtrols requested ERLDC to extend support for necessary software license. ERLDC agreed for the same.

ERPC asked M/s Chemtrols to give an estimate for the above hardware requirements for display of real time system data of ER grid at ERPC Secretariat within a week.

It was decided to take the above matter to the next TCC/ERPC meeting for further discussion.

ITEM NO. B.6: Non-Functioning of UPS-1 at SLDC, DVC, Howrah since 04.11.2019

DVC informed that necessary action has to be taken to avoid any sort of emergency in absence of redundancy of the Auxiliary power supply for the system in urgent basis.

Members may discuss.

Deliberation in the meeting

DVC informed that one number of UPS at SLDC, DVC, Howrah is not working from 04.11.2019 and system is running with only one UPS system without any back-up. DVC further informed that spare UPS is not available with Chemtrols for rectifying this and hence requested M/s Chemtrols to arrange for the same immediately.

M/s Chemtrols informed that they are having comprehensive AMC with Delta of UPS system but the required part is presently not available with Delta. The same would be rectified within a week once part received by Delta person.

ITEM NO. B.7: List of pending issues at SLDC DVC Howrah and ALDC DVC Maithon in respect of SCADA/EMS systems

1. Pending Issues at SLDC DVC Howrah

Sl. No.	Description of pending issue	Remarks	Timeline for completion
(1)	(2)	(3)	(4)
1.	5 (Five) nos of Server Fan	Faulty Fan not repaired.	
2.	1 (one) nos of RTU Node	Faulty Node from Burdwan not repaired since 30.04.2019 and not returned till date.	
3.	Cyber Security Audit for 2019	Last conducted on 23/02/18. Not Done in 2019.	
4.	3 (Three) nos. Terminal Server	Faulty Terminal Server not repaired and not returned till date.	

5.	Preventive maintenance of RTU	Not yet initiated.	
6.	Remote operation of Circuit Breakers in following 33 kv feeders required to be tested and made operational for ADMS System (i) Burdwan S/Stn 33Kv WBSETCL (ii) Maithon HPS 33Kv Kulti 1 Feeder 33Kv Kulti 2 Feeder (iii) Kumardhubi S/Stn 33Kv Kumardhubi 1 (JUSNL Feeder) 33Kv Kumardhubi 2 (JUSNL Feeder) (iv) Chandrapura TPS 33Kv Kumardhubi 1 (JUSNL Feeder) (v) Gola S/Stn. 33Kv Hoppu Feeder (vi) Ramgarh 33Kv Ramgarh (JUSNL Feeder)	-Status of CB, Isolator not available -Status of CB and Isolator available -Status of CB and Isolator available -Status of CB, Isolator not available -Status of CB, Isolator not available -Status of CB and Isolator available -Status of CB and Isolator available -Status of CB, Isolator not available	
7.	LDMS not working at following S/s.: -		
	(i) Kolaghat S/s	LDMS not set right till date.	
	(ii) Parulia S/s	-Do-	
8	19 (nineteen) nos. MFM are faulty.	Faulty MFM of Putki/Patherdih not repaired and not returned till date.	
9.	Analog and Digital Data from Jamshedpur S/Stn for 33Kv JUSCO Feeder not available.	33Kv JUSCO Feeder Cable Schedule is included in BOQ.	
10.	DC-to-DC Convertor of Jamuria S/Stn	Data not reporting from Jamuria S/Stn	
11.	1 (One) No of Cell (2V) of battery Bank is faulty	UPS Running bypassing the said Cell	
12.	Hardware person should be posted at Maithon	Maintenance is difficult from Howrah	

M/s Chemtrols may explain.

Deliberation in the meeting

M/s Chemtrols has submitted a timeline for resolving the above pending issues. The same is enclosed at **Annexure-B7**.

2. Pending issues at ALDC DVC Maithon

Sl. No.	Description of pending issue	Remarks	Timeline for completion
(1)	(2)	(3)	(4)
1.	2 (two) nos of Rectifier Module	Faulty Module from Gola and Nimiaghat each not repaired and not returned till date.	

M/s ZTT may explain.

Deliberation in the meeting

M/s Chemtrols has submitted a timeline for completion for above pending issues. The same is enclosed at **Annexure-B7**.

ITEM NO. B.8: 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 the 1 st TeST meeting	Target
POWERGRID	Pending	POWERGRID intimated that process for placement of LoA has already been started and informed that NIT would be floated by November, 2019.	December, 2019
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 agreed for the same.	
New Farakka (Stage III)	Completed	Dual reporting has been completed at their end but testing is pending which will be done shortly.	
NTPC, Farakka (Stage I & II)	Pending	LoA for replacement of RTU would be placed by December, 2019.	December, 2019
Talcher STPS	RTU Upgraded	NTPC Talcher Stage #1 informed that they have made a plan for dual reporting of their SAS to ERLDC and to SRLDC also. ERLDC informed that they need two separate channels of reporting of real time SCADA data, one at ERLDC MCC and another at ERLDC BCC. ERLDC further advised if this plan	February, 2020

		suffices our requirement then they can go ahead and implement this.	
Kahalgaon STPS	Pending	LoA for replacement of RTU would be placed by November, 2019.	---
Chuzachen HEP	Pending	Chuzachen HEP informed that they are up-grading their system by January 2020.	With the availability of OPGW between Chuzachen - Rangpo.
JITPL	Pending	POWERGRID informed that OPGW work will completed by Feb-2020	May-2020
GMR	Pending	POWERGRID informed that OPGW work will completed by Feb-2020	February-2020
JUSNL	Pending	JUSNL informed that LOA was already awarded in June 2019.	March, 2020
OPTCL	Pending	OPTCL informed that LOA for replacement / up-gradation of old RTUs (78Nos) will be awarded by November,2019.	November,2020
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).	
DMTCL Motihari	Pending	DMTCL representative was absent during the discussion.	POWERGRID informed that OPGW would be available by March, 2020.
BRBCL Nabinagar	Pending	DMTCL representative was absent during the discussion.	OPGW not available
Teesta – III	Pending	Teesta III representative was absent during the discussion.	OPGW not available
Dikchu	Pending	Dikchu representative was absent during the discussion.	OPGW not available
NHPC (Teesta – V & Rangit)	Pending	NHPC representative was absent during the discussion.	June, 2020
Jorethang	Pending	Jorethang representative was absent during the discussion.	OPGW not available
APNRL	Completed	---	---
Barh	Completed	---	---

Members may update the latest status.

Deliberation in the meeting

Powergrid informed that NIT would be floated by December, 2019.

MPL informed that they would consult M/s ABB and try to resolve the issue in consultation with ERLDC.

NTPC Talcher informed that they have already placed the LoA and the same would be completed within 3 months.

NTPC Kahalgaon informed that LoA have been placed to M/s GE and panels already installed. They have started configuring the signal cards and the same would be completed by December, 2019.

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.

Powergrid informed that OPGW communication links from JITPL and GMR to nearest Powergrid S/s would be completed by May 2020.

OPTCL informed that LOA for replacement / up-gradation of old RTUs (78Nos) would be awarded by December, 2019.

JUSNL informed that their RTU replacement of 21 Nos. of RTU would be completed by March 2020.

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).

Teesta-V informed via email that the technical bids for the above work have been opened and the bids are under evaluation stage. The Letter of Award for the work is likely to be placed in the month of December, 2019 and the work is likely to be completed by June, 2020.

ITEM NO. B.9: 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.

1. DVC MCC located at Andul Road to ERLDC BCC at New Delhi

In 1st TeST meeting, POWERGRID requested ERLDC to provide space for installation of ULDC equipment at Backup ERLDC (NLDC) so that link may be configured in ULDC network. ERLDC agreed for expediting the resolution of the issue and necessary support for installation of the equipment at Backup ERLDC.

DVC further 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. WBSETCL agreed for the same.

Powergrid intimated that for further DVC data transmission from WBSETCL, Howrah to New Delhi, bandwidth provision either through POWERTEL or combination of WBSETCL and Powergrid may be explored and finalized by DVC. DVC agreed for the same.

ERLDC, WBSETCL, DVC may update.

Deliberation in the meeting

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.

It was decided that ERLDC would write a letter to WBSETCL citing the above requirement. ERLDC agreed for the same.

2. WBSETCL MCC Andul road to ERLDC BCC located at New Delhi

In 1st TeST meeting, POWERGRID requested ERLDC to provide space for installation of ULDC equipment at Backup ERLDC (NLDC) so that link may be configured in ULDC network.

ERLDC informed that floor renovation at NLDC is going on and hence, requested POWERGRID to wait for 2-3 months for the suitable space at ERLDC BCC located at NLDC, New Delhi.

POWERGRID, ERLDC may update.

Deliberation in the meeting

ERLDC informed that the suitable space at ERLDC BCC located at NLDC, New Delhi would be ready within 2-3 months.

3. Fiber redundancy in Central Sector OPGW link

There are few paths (especially last mile) where there is no fiber redundancy. Following are the sections where fiber laying is to be done/under implementation:

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.

In the 22nd SCADA O&M meeting held on 30th October 2018 at ERLDC, POWERGRID informed that ROW issue of 400kV Rajarhat-Gokarna line is yet to be resolved, OPGW link along with communication equipment is expected to be commissioned by July-2019.

POWERGRID may also update about pending 10 km OPGW work of Gokarna- Rajarhat line, which is delayed due to the ROW issue.

In 1st TeST meeting, POWERGRID intimated that OPGW in Rajarhat-Farakka link will be completed along with the transmission line.

POWERGRID may update.

Deliberation in the meeting

Powergrid intimated that OPGW in Rajarhat-Farakka link would be completed along with the Gokarna-Rajarhat transmission line.

4. Fiber redundancy in OPTCL Sector

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.

In 24th SCADA O & Meeting, 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.

In 1st TeST meeting, OPTCL informed that 17 Nos. of towers are being diverted and same would expected to get completed by May, 2020.

OPTCL may update.

Deliberation in the meeting

OPTCL informed that it would be completed by May, 2020. OPTCL further mentioned that an alternate path is already available from Rourkela to Bhubaneswar through Tarkera, Budhipadar.

5. Fiber redundancy in JUSNL Sector

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.

POWERGRID further informed that route diversity for redundancy between Ranchi 400 kV (PG) to JUSNL SLDC (Kushai Colony) could not be achieved until unless OPGW connectivity from Chandil to JUSNL SLDC through Namkum (132 kV) i.e. 95 Km could be completed. POWERGRID further informed redundant fiber route is to be explored and implemented by JUSNL.

In 24th SCADA O & Meeting, JUSNL informed that they have received approval for PSDF funding for providing protection channel for redundancy between Chandil to JUSNL SLDC (Kushai Colony) but their Cabinet approval is pending.

In 1st TeST meeting, JUSNL informed that they are yet to receive their cabinet approval (50:50 basis).

JUSNL may update.

Deliberation in the meeting

JUSNL informed that they have received the cabinet approval but could not proceed further due to

model code of conduct due to state assembly elections in their state.

ITEM NO. B.10: URTDSM Project installed in Eastern Region

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:-

- A. **Negative latency:** It has been observed several times that time synchronization problem with single PMU causes outage of all PMUs data at ERLDC (data loss of all PMUs at ERLDC on 26-04-2019 at 02:05 Hrs due to negative latency with Mejia B PMU).
- B. **Playback Application:** Playback application in E-terra Vision is not running properly. While running playback feature in E-terra Vision application, it is observed that critical feature; like color contour display based on frequency, is not working.
- C. **POWERGRID analytics application:** POWERGRID analytical application software, which was supposed to be installed under URTDSM project, is yet to be made functional at SLDCs.
- D. **E Phasor analytics:** E-phasor analytics application is not running properly. While using this application, operators are facing difficulties in comprehending the error message being shown by the application. This matter was informed to GE through mail dated 06.05.19 but solution is yet to be provided.
- E. **Integration with SCADA over IEC 104:** Data export to SCADA from URTDSM system is not working properly.

In 1st TeST meeting, POWERGRID intimated that GE R&D team has come out with a solution for Negative latency issue (S. No.- A) and Playback Application Issue (S .No.- B) which will be implemented shortly after successful testing.

E-phasor analytics (S. No.- D) and Integration with SCADA over IEC 104 (S. No.- E) is still under R&D team of M/s. GE and the issues will be addressed after solution provided by GE R&D team which is expected by November, 2019.

POWERGRID will complete the installation of the analytical application (S. No.- C) modules at DVC (Howrah) and WBSETCL (Howrah) within December-2019.

POWERGRID may update.

Deliberation in the meeting

Powergrid informed that M/s GE has provided the solution for Negative latency issue (S. No.- A), Playback Application Issue (S .No.- B) and E-phasor Analytics(S. No. -D).

ERLDC informed that they have checked the functionalities of Playback Application Issue (S .No.- B) and E-phasor Analytics(S. No. -D) and the same is found to be working fine. ERLDC further informed that Negative latency issue (S. No.- A) could not be checked as this is related to advancing of GPS so the same is under observation.

Powergrid further informed that Analytics Application (S. No.-C) and Integration with SCADA over IEC 104 (S. No.- E) would be resolved by December, 2019.

- **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

In 1st TeST meeting held on 24.10.2019, the issue was discussed and POWERGRID requested for short-closing of the pending erection/commissioning activities of PMU in above sites.

As there is no change in status even after long period of waiting, pending completion of above, POWERGRID may be given go-ahead for submitting tariff petition based on the supply and works carried out in actual for the above-mentioned 12 nos. PMUs at 06 nos. sites.

In 163rd OCC meeting, it was informed that the issue of communication links for GMR, JITPL and Tenughat is being discussed in TeST meeting.

For other PMUs, OCC advised to keep the PMUs as spare wherever it is accessible.

POWERGRID may update.

Deliberation in the meeting

Powergrid requested for short-closing of the pending erection/commissioning activities of PMUs at Monnet & Ind Bharat due to site issue. Powergrid informed that GE had completed the necessary connections at GMR, JITPL & Tenughat stations but due to non-availability of the OPGW communication links, PMU data from these stations were yet to be made available. POWERGRID further requested to use 3 PMUs at Patratu station as spare as per the decision of 163rd OCC meeting.

ERPC suggested that considering the site issue at Monnet & Ind Bharat, short closing might be allowed but Powergrid needed to complete the PMU work including its data transfer from GMR, JITPL & Tenughat. ERPC further suggested that 3 PMUs which was delivered at Patratu might be kept as spare as decided in the 163rd OCC meeting.

It was decided to take the above matter to the next TCC/ERPC meeting for further discussion.

- In 1st TeST meeting, following things were discussed and need to be updated –

Kahalgaon STPS:- POWERGRID intimated that the visit of GE engineer has been scheduled to various sites for rectification of PMUs which are not reporting at ERLDC.

Sterlite:- ERLDC requested POWERGRID to report the same to OPTCL URTDSM system first and ERLDC would get the data through PDC to PDC. OPTCL agreed to provide required communication link so that the same could be integrated and URTDSM data could be reported to OPTCL system.

Talcher STPS:- POWERGRID informed that PMU integration at Tacher STPS would be completed by November, 2019 once the status point integration by NTPC is completed. POWERGRID agreed to provide the drawing so that NTPC would complete their work.

Redundant communication link in URTDSM project:- POWERGRID agreed to provide redundant communication links between control centres in URTDSM project by 30th November, 2019.

Others PMUs non-availability:- POWERGRID requested to consider for short-closing of the contract with as-is-where-is basis (excluding erection cost, wherever applicable) With regard to non-commissioning of PMUs at various IPPs and locations which are not ready. ERPC advised POWERGRID to discuss the issue at next OCC meeting for a concrete decision in this regard.

POWERGRID, NTPC and OPTCL may update.

Deliberation in the meeting

NTPC and Powergrid agreed to resolve site issues mutually for facilitating the rectification of PMUs at Kahalgaon STPS.

Powergrid requested ERPC & ERLDC for getting necessary support for availing the line shutdown as these were discussed in various OCC meetings.

OPTCL intimated that they have informed the requirement to their construction wing and would revert back to Powergrid shortly.

Powergrid informed that they are in touch with NTPC, Talcher for getting these PMUs installed at their end.

Powergrid was advised to complete the work in consultation with NTPC, Talcher.

Powergrid informed that they have already provided the necessary port details required for the communication links from PDCs (OPTCL-Bhubneswar, DVC-Howrah & WBSETCL-Howrah) to ERLDC PDC. ERLDC requested Powergrid to advise GE for necessary changes in their system so that these links could be utilized properly. Powergrid agreed for the same.

• SCADA Data Summary :-

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

AOR	Station	Status	Deliberation in the meeting
WBSETCL	TLDP 4 220kV	Not Available	
	Dharampur 220kV	Not Available	

	Egra 220	Yet to be integrated	<i>WBSETCL informed that they are getting Egra 220 kV data and hence requested ERLDC to configure it at their end.</i>
	Bantala 220kV	Not Available	
	Alipurduar 220kV	Not Available	
BSPTCL	Motipur 220kV	Not available	
JUSNL	Hatia New 220	Not Available	<i>JUNSL informed that by March, 2020 they will make available all the data in their jurisdiction.</i>
	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	<i>OPTCL informed that by June, 2020 they will make available all the data in their jurisdiction.</i>
	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.

Deliberation in the meeting

WBSETCL informed that they have placed the order for Dharampur 220 kV RTU integration. They also informed that work related to Bantala 220 kV to be done by M/s Chemtrols & the same would be completed within a week. WBSETCL further informed that Alipurduar 220 kV RTU data would be available by December 2019.

BSPTCL informed that they have integrated the Motipur 220 kV data but data is intermittent.

ITEM NO. B.11: Additional agenda - SCADA/EMS System Installed in Eastern Region

- **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**

These matters were discussed with M/s OSI & M/s Chemtrols through conference calls on 20th August 2018 & 12th April 2019 and also discussed in several forums including 4th Special SCADA meetings held on 31st July, 2019 at ERLDC, Kolkata. The same are yet to be resolved.

Chemtrols informed vide their letter ref no: UEX130005/SBU5/POSOCO/002/2019 dated 13.06.19 that these points could not be addressed properly due to lack of necessary support from OSI. The same were once again discussed in 4th Special SCADA meeting held on 31.07.19 wherein it was emphasized to call OSI in the 24th SCADA O & M meeting so that these points could be deliberated and attended.

- **Software Licenses Related**

Eastern Regional Utilities are in need of 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 24th SCADA O & M meeting, it was decided that OSI technical team will visit ERLDC, on 20th August 2019, to discuss on various software and software license related matter.

Accordingly, a meeting was held at ERLDC in presence of Director, International Operations, M/S OSI. It was decided that EMS team of OSI will be deputed at ERLDC for resolution of EMS related matters but till date no further action being taken about the resolution of above listed EMS related matters.

In context of Software license, M/S OSI informed in that meeting that they will come up with cost estimates for the listed additional requirements.

In 1st TeST meeting, OSI representative was not present to discuss the agenda points. Members made serious concern about this.

POWERGRID ERTS – 2 has been requested to call a separate meeting with OSI & Chemtrols higher authorities within 15 days so that these points could be taken up and resolved at the earliest. POWERGRID ERTS – 2 ULDC agreed for the same.

ERPC also raised concern for not getting proper support from OSI and stated that these agenda points would be placed in upcoming TCC/ERPC meeting if resolution from OSI is not received.

M/s Chemtrols / M/s OSI may update.

Deliberation in the meeting

The representative from OSI was not present in the meeting.

The non-representation of M/s OSI was viewed very seriously. Further, Powergrid & M/s Chemtrols was advised to find a way to resolve the issue at the earliest.

ERLDC gave a detailed presentation which is enclosed at **Annexure-B.11**.

PART – C : ANY OTHER ITEMS

ITEM NO. C.1: FOLLOW-UP OF DECISIONS OF THE PREVIOUS TELECOMMUNICATION, SCADA AND TELEMETRY SUB-COMMITTEE MEETING(S)

The decisions of previous 1st TeST Meeting are given at Annexure.

Members may update the latest status.

Deliberation in the meeting

*Members updated the latest status which was given at **Annexure-C1**.*

ITEM NO. C.2: Status of various projects undertaken by M/s Chemtrols in Eastern Region

Latest status of various projects undertaken by M/s Chemtrols in Eastern Region are given at Annexure.

M/s Chemtrols may update the latest status.

Deliberation in the meeting

*M/s Chemtrols updated the latest status which was given at **Annexure-C2**.*

Annexure-A

Participants in 2nd TELECOMMUNICATION, SCADA AND TELEMETRY (TeST) SUB-COMMITTEE Meeting of ERPC

Venue: ERPC Conference Hall, Kolkata

Time: 11:00 hrs

Date: 26.11.2019 (Tuesday)

Sl No	Name	Designation/ Organization	Contact Number	Email	Signature
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16	PHANISANKAR CHILUKURI	D.Y. MANAGER	8527908282	pchilukuri@posoco.in	
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19	S. KEJRIWAL	SE, ERPC			
20	D. K. Bauri	AS, ERPC	9883617236	ecdp.erpc@gov.in	

"Coming together is a beginning, staying together is progress, and working together is success." –Henry Ford

**Participants in 2nd TELECOMMUNICATION, SCADA AND TELEMTRY (TeST) SUB-COMMITTEE
Meeting of ERPC**

Venue: ERPC Conference Hall, Kolkata

Time: 11:00 hrs

Date: 26.11.2019 (Tuesday)

Sl No	Name	Designation/ Organization	Contact Number	Email	Signature
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25	Biswanjit Nath	WBSETCL SE(EE)	9434910193	comnabhishek@gmail.com	
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39					
40					

"Coming together is a beginning, staying together is progress, and working together is success." –Henry Ford

List of pending issues at SLDC DVC Howrah and ALDC DVC Maithon in respect of SCADA/EMS systems


1. Pending Issues at SLDC DVC Howrah

Sl. No.	Description of pending issue	Remarks	Time line for completion
(1)	(2)	(3)	(4)
1.	5 (Five) nos of Server Fan	Faulty Fan not repaired.	November 2019.
2.	1 (one) nos of RTU Node	Faulty Node from Burdwan not repaired since 30.04.2019 and not returned till date.	November 2019.
3.	Cyber Security Audit for 2019	Last conducted on 23/02/18. Not Done in 2019.	M/s Chemtrols informed that schedule for next cyber security audit would be submitted by December 2019.
4.	3 (Three) nos. Terminal Server	Faulty Terminal Server not repaired and not returned till date.	November 2019
5.	Preventive maintenance of RTU	Not yet initiated.	M/s Chemtrols informed that PM of RTU was not covered under AMC scope. However, the same would be carried out during maintenance visit of stations.
6.	Remote operation of Circuit Breakers in following 33 kv feeders required to be tested and made operational for ADMS System (i) Burdwan S/Stn 33Kv WBSETCL (ii) Maithon HPS 33Kv Kulti 1 Feeder 33Kv Kulti 2 Feeder (iii) Kumardhubi S/Stn 33Kv Kumardhubi 1 (JUSNL Feeder) 33Kv Kumardhubi 2 (JUSNL Feeder) (iv) Chandrapura TPS 33Kv Kumardhubi 1 (JUSNL Feeder)	-Status of CB, Isolator not available -Status of CB and Isolator available -Status of CB and Isolator available -Status of CB, Isolator not available -Status of CB, Isolator not available -Status of CB and Isolator available	M/s Chemtrols informed that ADMS does not into their scope of work.

	(v) Gola S/Stn. 33Kv Hoppu Feeder	-Status of CB and Isolator available	
	(vi) Ramgarh 33Kv Ramgarh (JUSNL Feeder)	-Status of CB, Isolator not available	
7.	LDMS not working at following S/s.: -		
	(i) Kolaghat S/s	LDMS not set right till date.	<i>Completed</i>
	(ii) Parulia S/s	-Do-	<i>Completed</i>
8	19 (nineteen) nos. MFM are faulty.	Faulty MFM of Putki/Patherdih not repaired and not returned till date.	<i>Chemtrols agreed to return the faulty MFM.</i>
9.	Analog and Digital Data from Jamshedpur S/Stn for 33Kv JUSCO Feeder not available.	33Kv JUSCO Feeder Cable Schedule is included in BOQ.	<i>December, 2019</i>
10.	DC-to-DC Convertor of Jamuria S/Stn	Data not reporting from Jamuria S/Stn	<i>15th December, 2019.</i>
11.	1 (One) No of Cell (2V) of battery Bank is faulty	UPS Running bypassing the said Cell	<i>15th December, 2019.</i>
12.	Hardware person should be posted at Maithon	Maintenance is difficult from Howrah	<i>This is an Internal issue of DVC. Hence, ERPC requested DVC to resolve it mutually with M/s Chemtrols.</i>

2. Pending issues at ALDC DVC Maithon

Sl. No.	Description of pending issue	Remarks	Timeline for completion
(1)	(2)	(3)	(4)
1.	2 (two) nos of Rectifier Module	Faulty Module from Gola and Nimiaghat each not repaired and not returned till date.	<i>15th December, 2019.</i>

2nd TeST Meeting – 26th November 2019 


B11 - Additional Agenda Points


- **Software Related Issues with Chemtrols / OSI**

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

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- SCADA/EMS project in ER was awarded to Chemtrols with OSI as software partner on 31st March 2013.
- TOC was extended to Chemtrols on 31st March 2016 with few punch points. 

FACTS

- Database (DB) tool was not provided for creation / modification of SCADA and EMS databases.
- EMS network truncation tool was not provided
 - ERLDC has to maintain two different EMS databases one with truncated network at 220 kV level another full network model.
 - Creation/Modification/truncation of EMS database without any tool is very challenging to maintain standards and also prone to human error injection into the network database.
- Energization / de-energization are the output of Network Topology Processor (NTP) which is a part of EMS. Since EMS is having database of 220kV and above, hence energization / de-energization could not be available to control room operator for lower KV network if truncated.

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Contd...

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FACTS (Contd...)

- Training on EMS module to ERLDC under the SCADA/EMS project has not been provided by OSI engineers.
- On request, training on EMS has been arranged at OSI Bangalore in which only three (3) Chemtrols executives attended and OSI denied for even one (1) ERLDC executive for the training.
- Initially, all reactors have been configured with +ve MVAR values by OSI team during project implementation and now OSI support team advised ERLDC to change it to –ve MVAR values.
- FSC, TCSC, HVDC modeling in EMS is not proper and improper modeling of network element in EMS is adversely affecting the solution quality of EMS application. Modeling of STATCOM in OSI EMS application system is not available.
- Short Term Load Forecasting (STLF) is not functioning properly. Several critical issues, like negative demand forecast, exceptional % error.
- Integration of WAMS (Phasor data) in SCADA/EMS system is facing some critical issues.

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FACTS (Contd...)

- Being mentioned that TCSC, FSC & HVDC modeled during SAT. 
- EMS database was not fully developed to check the result properly while extending the TOC.
- Chasing since then with SCADA vendor for modeling related issue.
- Finding it difficulties in building & maintaining the EMS databases at ERLDC.
- EMS person deployed by Chemtrols at ERLDC or rather all control centres were/are not up to the mark.
- Chemtrols mentioned about not getting proper support from OSI. 
- Presently, ERLDC has developed an in-house tool for visualization so that these databases could be checked before running the State Estimators. 

CONTRACT SCOPE

CONTRACT AGREEMENT

26-November-2019



EMS Application at ERLDC

26-November-2019

Absent of OSI tools for EMS connectivity visualization



Breaker Summary

Solved By: SE
Solution Status: Converged
Solution Time: 25.11.19 13:39:21

Br...	Name	Type	Supp- Abno- Status	Stator Inver-	status	From	To	SC...		
Station	SBus	Node	SBus Name	Volt- Class	Station	SBus	Node	SBus Name	Volt- Class	S...
1	220 RISHR WB 1 MB1 ISO JEERA	Switch	NO	NO	CLOSED	JEERA WB 326	1 JEERA WB 220 299 220.00	JEERA WB 326	53 JEERA WB 299 220.00	3
2	220 RISHR WB 1 MB2 ISO JEERA	Switch	NO	NO	CLOSED	JEERA WB 326	53 JEERA WB 220 299 220.00	JEERA WB 326	55 JEERA WB 299 220.00	3
3	220 RISHR WB 1 TB ISO JEERA WB	Switch	NO	NO	CLOSED	JEERA WB 326	4 JEERA WB 220 299 220.00	JEERA WB 326	55 JEERA WB 299 220.00	3
4	220 RISHR WB 1 L ISO JEERA WB	Switch	NO	NO	CLOSED	JEERA WB 326	54 JEERA WB 220 299 220.00	JEERA WB 326	55 JEERA WB 299 220.00	3
5	220 RISHR WB 1 CB JEERA WB	Breaker	NO	NO	CLOSED	JEERA WB 326	53 JEERA WB 220 299 220.00	JEERA WB 326	54 JEERA WB 299 220.00	3
6	220 JEERA WB 1 MB1 ISO RISHR	Switch	NO	NO	CLOSED	RISHR WB 343	1 RISHR WB 220 302 220.00	RISHR WB 343	32 RISHR WB 299 220.00	3
7	400 Main Bus RI MB2 ISO	Switch	NO	NO	CLOSED	PANDA PG 904	2 PANDA PG 400 462 400.00	PANDA PG 904	10 PANDA P 462 400.00	922
8	400 Main Bus RI Main CB	Breaker	NO	NO	CLOSED	PANDA PG 904	10 PANDA PG 400 462 400.00	PANDA PG 904	9 PANDA P 462 400.00	922
9	400 Main Bus RI L ISO	Switch	NO	NO	CLOSED	PANDA PG 904	9 PANDA PG 400 462 400.00	PANDA PG 904	8 PANDA P 462 400.00	922
10	400 Main Bus RI L1 ISO	Switch	NO	NO	CLOSED	PANDA PG 904	8 PANDA PG 400 462 400.00	PANDA PG 904	6 PANDA P 462 400.00	922
11	400 Main Bus RI Tie ISO	Switch	NO	NO	CLOSED	PANDA PG 904	8 PANDA PG 400 462 400.00	PANDA PG 904	7 PANDA P 462 400.00	922
12	400 Main Bus RI KALAB PG Tie	Breaker	NO	NO	CLOSED	PANDA PG 904	7 PANDA PG 400 462 400.00	PANDA PG 904	6 PANDA P 462 400.00	922
13	400 KALAB PG Tie ISO	Switch	NO	NO	CLOSED	PANDA PG 904	6 PANDA PG 400 462 400.00	PANDA PG 904	5 PANDA P 462 400.00	922
14	400 KALAB PG L1 ISO	Switch	NO	NO	CLOSED	PANDA PG 904	6 PANDA PG 400 462 400.00	PANDA PG 904	11 PANDA P 462 400.00	922
15	400 KALAB PG L ISO	Switch	NO	NO	CLOSED	PANDA PG 904	5 PANDA PG 400 462 400.00	PANDA PG 904	4 PANDA P 462 400.00	922
16	400 KALAB PG Main CB	Breaker	NO	NO	CLOSED	PANDA PG 904	4 PANDA PG 400 462 400.00	PANDA PG 904	3 PANDA P 462 400.00	922
17	400 KALAB PG MB1 ISO	Switch	NO	NO	CLOSED	PANDA PG 904	3 PANDA PG 400 462 400.00	PANDA PG 904	1 PANDA P 462 400.00	922
18	400 ICT1 PG MB1 ISO	Switch	NO	NO	CLOSED	PANDA PG 904	1 PANDA PG 400 462 400.00	PANDA PG 904	13 PANDA P 462 400.00	922
19	400 ICT1 PG Main CB	Breaker	NO	NO	CLOSED	PANDA PG 904	13 PANDA PG 400 462 400.00	PANDA PG 904	14 PANDA P 462 400.00	922
20	400 ICT1 PG L ISO	Switch	NO	NO	CLOSED	PANDA PG 904	14 PANDA PG 400 462 400.00	PANDA PG 904	15 PANDA P 462 400.00	922
21	400 ICT1 PG L1 ISO	Switch	NO	NO	CLOSED	PANDA PG 904	15 PANDA PG 400 462 400.00	PANDA PG 904	23 PANDA P 462 400.00	922
22	400 ICT1 PG Tie ISO	Switch	NO	NO	CLOSED	PANDA PG 904	15 PANDA PG 400 462 400.00	PANDA PG 904	16 PANDA P 462 400.00	922
23	400 DUBHW GR ICT1 Tie	Breaker	NO	NO	CLOSED	PANDA PG 904	16 PANDA PG 400 462 400.00	PANDA PG 904	17 PANDA P 462 400.00	922
24	400 DUBHW GR Tie ISO	Switch	NO	NO	CLOSED	PANDA PG 904	17 PANDA PG 400 462 400.00	PANDA PG 904	18 PANDA P 462 400.00	922
25	400 DUBHW GR L1 ISO	Switch	NO	NO	CLOSED	PANDA PG 904	18 PANDA PG 400 462 400.00	PANDA PG 904	21 PANDA P 462 400.00	922

FACTS on OSI EMS SLD Visualisation

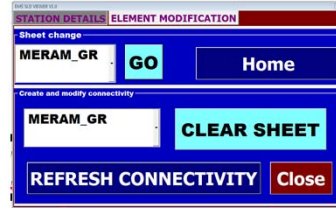
- OSI software is having tabular display for element node connectivity visualization.
- Due to absent of SLD based EMS data visualization, it is difficult to modify EMS database.
- In case of any error in node connectivity, user is not having any tools for detecting such erroneous node connectivity.

ERLDC In-House EMS Visualization Tools - for OSI EMS application

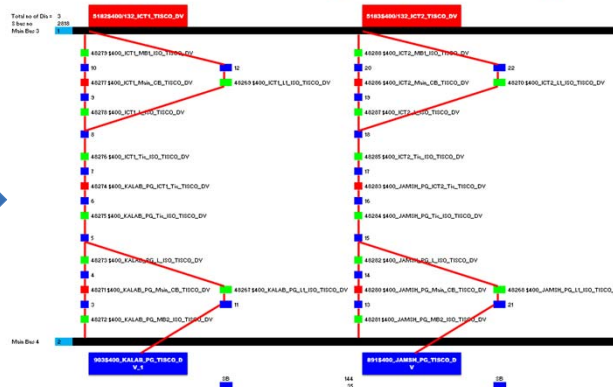


ERLDC developed in house EMS visualization offline tools for:-

- Detecting error in node connectivity.
- Identifying missing network element in EMS database.
- Visualization of SBUS (static) based SLD.

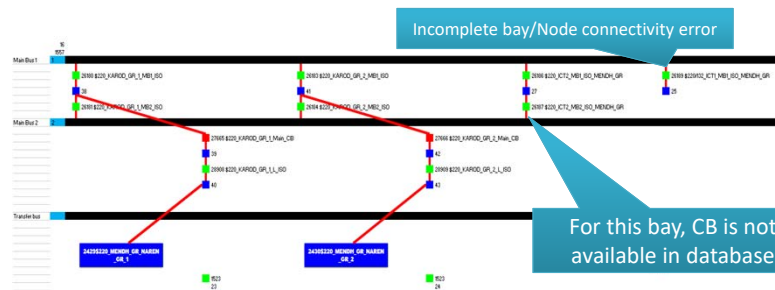


Import EMS elements details to offline tools.



26-November-2019

Errors in EMS database



With Absent of tools , its challenging for the user to identify these errors.

26-November-2019

Achievements



After shorting out such EMS database related errors, EMS solutions has improved a lot with same manpower.

The screenshot displays the 'SE Controls' interface with the following sections:

- Comment:** Case: SE_PP_Equivalent_110419, Note: ER_Updates_110419.dat, Note: EMS_DB_Updates_110419.csv
- State Estimator:** Last SE Solution Status: Converged, Last SE Solution Time: 25-11-19 13:23:41, Last Measurement Snapshot Time: 25-11-19 13:23:38
- Solution:** Solution Type: ORIN, Est. Solution: TWO-PASS, Flat Start: OFF, Sched. Start: ON, Norm Residual: OFF, Tap Estimation: OFF, Brk Estimation: OFF, SE Brk Update: OFF. Parameters include Moderate Convergence (5), Maximum Iterations (500), Angle Tolerance (0.005), Voltage Tolerance (0.005), Bias Smoothing Factor (0.50), Second Pass Sigma Factor (1.00), Acceleration Factor (1.00), Observable Only (ON), and PF Control (ON).
- Measurements:** Bad Data Tolerance (%): 10.00, Bad Data Residual: 20.00, Meas. Error Alarm Tolerance (%): 0.00, Chi Square Index/Coeffidence: 106.37, Zero Inj. Std. Deviation: 1.00, Pseudo Std. Deviation: 10.00, Boundary Std. Deviation: 10.00
- SCADA Interface:** SCADA Host Status: ON, SCADA Update Status: ON, Import Limit From AGC: OFF, Build Time: 25-11-19 13:13:51, Snapshot Time: 25-11-19 13:23:38. Includes buttons for 'Build SCADA Reference', 'Snapshot SCADA Meas', and 'Snapshot PE Solution'.
- Questionable Data:** State/Out of Scan (OFF): 2.00, Telemetry Failure (ON): 2.00, Questionable Data (OFF): 2.00, Manually Entered (ON): 2.00
- Solution Statistics:** No. of Measurements: 3723, Removed Meas: 18, Overall WLS Objective: 10008.69, Estimation Quality: 10539.60, No. of Iterations: 48, Observable Buses: 370, Unobservable Buses: 2, Boundary Buses: 0, Measurements Islands: 1, No. Bad Data: 1162, SE Violations: 33
- Profile Controls:** Profile Selection Method: NONE, Profile In Use: Season Rainy, Day Type: WEEKDAY, Hour: 11

26-November-2019



2nd TeST Meeting – 26th November 2019



Thank you!

26-November-2019

Extracts from NOA Ref. No.: CC-CS/326-ER2/EMS-
1767/3/G4/NOA-I/4632 dated 31.03.2013

2.0 AWARD OF CONTRACT AND ITS SCOPE

f) A database development tool shall be provided at each Control Centre which shall import the data model from other control centres, validate the same at its own end and shall create ICCP database, historian database and SCADA/EMS database at each Control Centre including updation of ICCP bilateral table for fulfilling these requirements. The tool shall be independently operable and upgradable at each of the Control Centre.

j) Data Exchange with PDC at ERLDC either on ICCP or IEC 60870-5-101/104 Protocol and its use in State Estimation module to improve the estimator result.

m) Preparation of all the Displays and Reports including the displays and reports to be accessed from web-server.

v) Comprehensive Maintenance of the new system which includes future ICCP & RTU Integrations, Database configurations, Maintaining predefined system availability, Preventive Maintenance Support, Maintaining Spare Inventory etc as deliberated in Part-A, Section-4 of this specification.

2.1 The scope of work under this Notification of Award (NOA) shall also include all such items which are not specifically mentioned in the Bidding Documents and/ or your bid but are necessary for the successful completion of your scope under the Contract for the complete execution of the Expansion/Up-gradation of existing SCADA/EMS System at ERLDC and SLDCs of Eastern Region, unless otherwise specifically excluded in the Bidding Documents or in this NOA.

Extracts from NOA Ref. No.: CC-CS/326-ER2/EMS-
1767/3/G4/NOA-III/4636 dated 31.03.2013

2.0 AWARD OF CONTRACT AND ITS SCOPE

The scope of work under this Notification of Award (NOA) shall also include all such items which are not specifically mentioned in the Bidding Documents and/ or your bid but are necessary for the successful completion of your scope under the Contract for the implementation of ERLDC Portion of the subject package for Replacement/ Up-gradation of existing SCADA/ EMS System at ERLDC & SLDCs for Eastern Region, unless otherwise specifically excluded in the Bidding Documents or in this NOA.

Extracts from Joint Deed of Undertaking by the Collaborator OSI along with Chemtrols dated 03.09.2012

Attachment- 2.8

Quote:

AND WHEREAS the Bidder has submitted its Bids to the Employer vide proposal No. UEX1208UQ0000005 dated 12.09.2012 based on the collaboration of the Collaborator/Associate with the Bidder.

NOW THEREFORE THIS UNDERTAKING WITNESSETH as under:

- 1.0 In consideration of the award of Contract by the Employer to the Bidder (hereinafter referred to as the "Contract") we, the Collaborator/Associate and the Bidder/Contractor do hereby declare that we shall be jointly and severally bound unto the Power System Operation Corporation Limited.,(Employer) for the successful performance of the Replacement/ Upgradation of existing SCADA/EMS System at ERLDC & SLDCs for Eastern Region and shall be fully responsible for the design, manufacture, testing, supply on FOR destination, delivery at site basis, supervision of unloading at site, storage, erection, testing & commissioning and successful performance of the Replacement/ Upgradation of existing SCADA/EMS System at ERLDC & SLDCs for Eastern Region in accordance with the Contract specifications till defect liability and maintenance period.

: Unquote

Sl No.	Agenda point	Deliberation in the meeting	Latest status
1st TeST Meeting			
1.	OPGW related matters of BSPTCL <ul style="list-style-type: none"> • Losses found in 132 KV MTPS-Motihari & Motihari-Betia line which is yet to be corrected as SAT of future line are pending since long. • Installation work of OPGW taken up for 132 KV Kahalgaon(BH)-Kahalgaon(NTPC) T/L but not completed yet. 	Powergrid informed that they will depute the team by November, 2019 and requested BSPTCL and NTPC for necessary site access at their location for carrying out the said work. BSPTCL and NTPC agreed for the same.	<i>Powergrid informed that they would depute the team by first week of December, 2019.</i>
2.	Instability of Data – BSPTCL <ul style="list-style-type: none"> • SDH- The improper maintenance of communication equipments and lack of manpower for communication equipments like SDH (Fibcom) and frequent failure of cards (E1/Ethernet) at different GSSs. • PDH- Even after issuance of TOC of PDH (Tejas) provided under scheme of SCADA Upgradation, PDH system is leading to untimely hanging and intermittent data to SLDC and failure of 64 Kbps data cards at different GSSs. 	Powergrid informed that they will once again take up the matter with Fibcom so that the same could be addressed soon.	<i>Powergrid informed that they would check at their end and revert back to BSPTCL.</i>
3.	Reporting of BTPS Old Data-BSPTCL - Data of BTPS Old is not reporting to SLDC since long.	NTPC informed that they will look into the matter to resolve it at the earliest.	<i>NTPC informed that they have resolved the issue.</i>
4.	Readiness of UPS Room for Backup NLDC Control Center under URTDSM Project	ERLDC informed that the contract for finalization of the work of renovation of UPS room will be completed by February, 2020.	<i>Powergrid informed that it is extremely difficult to keep UPS battery idle without charging and hence requested ERLDC to keep for temporary space for the same.</i>

SL No	POSOCO / Constituent	Status on 31.07.19	Proposed completion date	Current Status on 24-10-2019	Latest Status
ERLDC Portion					
a)	Improper modeling of TCSC, FSC & HVDC in SCADA system	Director Chemtrols informed that they are not getting necessary support from OSI to attend this issue hence requested ERLDC & ERPC to mediate in this matter for early resolution. MS ERPC mentioned that to resolve these points OSI support is required so he advised ERLDC to invite OSI for attending the upcoming 24th SCADA O&M meeting to be held on 14th August 2019 at ERLDC,Kolkata. ERLDC agreed for the same.		OSI / Chemtrols given proposed for handson training for at OSI Bangalore on chargeble basis. ERLDC informed that OSI person is not present to discuss this point. ERPC requested POWERGRID to co-ordinate with OSI & Chemtrols to call a meeting at ERPC within 15 days so that these points could be deliberated and resolved.	<i>Delibration in these points are already mentioned in the main minutes</i>
b)	STATCOM Modeling not incorporated in SCADA system			ERPC further informed that points not resolved then the same will be taken to the TCC/ERPC board meeting.	
c)	Integration with WAMS				
d)	Non functionality of STLF features in SCADA system since 13th April 2018				

e)	PM not being carried out by M/s Chemtrols through OEM	M/s Chemtrols informed that they have already procured server FANs for all sites. They further informed that server HDD procurement is under process and the same is expected to be completed by 15th September 2019.	15.09.19	UPS, DG will be done by OEM. Rest PM is carried out by Chemtrols engineers.	
l)	Implementation of Automatic Demand Management Scheme (ADMS) in Bihar & Jharkhand	JUSNL informed that ADMS testing has been completed but they are waiting for clearance from their DISCOMs for final implementation of ADMS in their system. BSPTCL informed that they have communicated implementation of ADMS to their DISCOM & SLDC but they are yet to receive communication from them. ERPC informed that this is long pending agenda and it should get resolved as soon as possible otherwise the same would again be forwarded to OCC / ERPC for further deliberation or advise.		JUSNL completed from our end. Bsptcl final list not provided by BSPTCL	<i>BSPTCL informed that they are receiving only few stations data and hence, requested Chemtrols to take necessary action in this regard. Chemtrols agreed for the same.</i>

f)	Preventive Maintenance of DG Sets: Scheduled Preventive Maintenance of both DG Sets for Quarter II of 2019 (April-June 2019) are yet to be conducted. The Q1 AMC were conducted during March 2019 (against initial schedule of Jan 2019). Several correspondences have been made with the party to conduct the PM in equal interval which is seldom maintained.			DG Maintenance is going on schedule. Procurement of battery and coil is under process and will be completed by 30th November 2019.	<i>Chemtrols informed that they have already placed order to OEM for procurement and the same would be delivered by Dec'19.</i>
g)	Daily SOE from all constituent to ERLDC is not getting generated automatically.			work in progress	<i>Completed</i>
DVC					
a)	Spares for workstation and system accessories (e.g. Fans, SMPS, RAM, Mouse, Keyboard etc) are not available.	M/s Chemtrols informed that they have already procured server FANs for all sites. They further informed that server HDD procurement is under process and the same is expected to be completed.	15.09.19	completed	

b)	Cyber security audit report is not submitted by M/s Chemtrols even for the last year conducted on 23.02.2018.	Chemtrols informed that they have already submitted the compliance report. M/s Chemtrols further informed that they would be able to replicate the compliance to other control centres including DVC by 31st August 2019. M/s Chemtrols again informed that they would plan to	31.08.19	work in progress. Will be completed by 30.11.19	<i>Chemtrols informed that schedule for next cyber security audit will be submitted by December 2019.</i>
c)	Problems related with RTU maintenances are accumulated due to nonrectification of any issue on time.	DVC informed that problems related with RTU are accumulated due to poor maintenance of RTU & non-rectification of issue in time. M/S Chemtrols informed that RTU maintenance would be carried out as and when their engineer is visiting site for attending the problem. DVC further requested M/s Chemtrols to share the RTU maintenance report and M/s Chemtrols agreed for the Same.		completed	
d)	(iv) 19 nos MFM and 01 (one) Node are faulty – to be rectified.	Chemtrols informed that they will take up the matter and resolve few MFMs as they are not getting support from OEM		MFM will be repair only in chargeable basis. Repairing charge quotation will send to dvc asap.	<i>Chemtrols agreed to return the faulty MFM.</i>
	(vii) Analog and Digital Data from Jamshedpur S/S for 33 KV JUSCO line is not available.	Chemtrols confirmed that they would resolve the issue at the earliest.	16.08.19		<i>Chemtrols informed that they would resolve the issue by Dec'19.</i>
e)	Data Reporting Issues:				
	(i) Mosaboni S/S – Analog and Digital Data from all 33 KV Bays.	Chemtrols informed that they would be visiting DVC, Maithon to resolve the issue			

	(ii) Kolaghat S/S - Analog Data for 132 KV Howrah Bay, Kharagpur Bay, Kolaghat (WB) bay				
	(iii) Nimiaghat S/S - Both Analog and Digital Data from all 33 KV Bays				
	(iv) CTPS B: Analog data of LV side from Gen # 7 & 8.				
	(v) MTPS A: Analog data of LV side from Generator # 6.				
	(vi) Biada S/S: Both Analog and Digital Data for all 33 KV Bays and Digital for all 132 KV bays.				
f)	PM of DG is never carried out since installation	M/S Chemtrols informed that they will conduct the Preventive Maintenance for DG Sets once they are able to renew the contract with M/s Garuda Power	16.08.19	schedule in 06-11-19	
g)	Three (3) nos. faulty Terminal Servers to be repaired	Chemtrols informed that the same would be completed at the earliest.	30.09.19		<i>Would be resolved by November 2019.</i>
JUSNL Portion					
a)	AMC cost including implementation of ADMS charged by M/s Chemtrols	Delibration mentioned in first page.			
b)	CPU of LDMS of Japla, Latehar, Daltonganj and Kanke are not working	Chemtrols informed that the same would be completed at the earliest.	31.08.19		<i>M/s Chemtrols informed that it would be delivered shortly.</i>

c)	Maintenance related with B-check for 125 KVA DG Set installed at SLDC :	ERLDC informed that clarification regarding Bcheck consumable is already given in 3rd Special SCADA meeting held on 07.06.19. ERLDC advised JUSNL to go through the MOM for clarification. JUSNL agreed for the same.			
d)	Requirement of Anti-virus for DTS Workstations	Chemtrols informed that DTS workstation is not in SCADA LAN and hence, client based anti-virus could not be configured. So, requested JUSNL to arrange for the same. JUSNL agreed for the same.			

OPTCL

a)	For SCADA system at Bhubaneswar, allotted OSI licenses are as mentioned below	OPTCL informed that they have requested Chemtrols several times for providing additional 12000 Analog & 8000 Status points licenses in their SCADA system installed at Bhubaneswar. Chemtrols informed that they are unable to take any solution for this and hence, requested ERLDC/ERPC to take up the matter directly with OSI. ERPC advise ERLDC to take up this agenda also with OSI in 24th SCADA O & M meeting proposed to be held on 14.08.19 at ERLDC			<i>Delibration on these points are already mentioned in the main minutes.</i>
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BSPTCL Portion

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a)	Isolation Transformer breakdown since 18.08.18	BSPTCL informed that they are yet to get any resolution plan from Chemtrols. Chemtrols informed that they found the vendor at Patna to resolve the issue and the same would be completed at the earliest.	15.09.19	Procurement Done. By 30.11.19 ISO TRF will be supplied at site	<i>M/s Chemtrols informed that completion is in transit</i>
b)	MP 2553 RICOH Printer defective	BSPTCL requested Chemtrols to raised the bill separately so that the same could be processed at BSPTCL end for processing & release of payment.	10.08.19	Quotation submitted to BSPTCL for Damaged parts	
c)	Integration of new bay	BSPTCL informed that integration of new bays is pending from Chemtrols since long. Chemtrols informed that integration of new bays will start once cable laying at site is completed by BSPTCL ERLDC informed that in a special SCADA meeting held on 08.05.17, POWERGRID clarified that supply & laying of required cable for integration of bays is not in the scope of LoA	31.08.19		<i>M/s Chemtrols informed that work is in progress</i>
WBSETCL Portion					

a)	Chemtrols RTU is not integrated through IEC-104 protocol though communication link is ready	Chemtrols informed that they will provide the schedule by next week and requested WBSETCL to confirm the availability of communication link so that the same could be completed at the earliest. WBSETCL agreed for the same.		Most of the sites has been completed where communication links are healthy. In many S/s we have found that link upto SLDC howrah is not stable or through. We request WBSETCL to share the ping test report of all pending sites	<i>M/s Chemtrols informed that it would be taken up once communication link is ready at site.</i>
b)	Improper maintenance of DG systems installed at SLDC	M/S Chemtrols informed that they will conduct the Preventive Maintenance for DG Sets once they are able to renew the contract with M/s Garuda Power.	16.08.19	work in progress	<i>Completed</i>