North Eastern Regional Power Committee

MINUTES OF THE 10th NER Telecommunication, SCADA & Telemetry (NE-TeST) COORDINATION SUB-COMMITTEE MEETING OF NERPC

Date : 16/07/2018 (Monday)

Time : 14:00 hrs

Venue : "Hotel Nandan", Guwahati.

The List of Participants in the 10th NE-TeST Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 10th North Eastern Telecommunication, SCADA & Telemetry meeting. He expressed with great satisfaction that a good number of participants from various constituents along with team from GE & KEC, have attended the meeting and expected that the same trend should be continued in future for fruitful deliberation and resolving the important issues. He informed that Shri A. Patir, GM(AM), NERTS is due to superannuate in the month of July, 2018, and wished him the best on his future endeavors on behalf of the forum. ED, NERLDC also recounted his long association with Shri Patir and wished him the best. He also informed that an Action Taken agenda section will be kept for monitoring of various commitments.

He then requested Shri B. Lyngkhoi, Director/SE(O&P) to take up the agenda items for discussion.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF THE 9th MEETING OF "NORTH EASTERN TELECOMMUNICATION, SCADA & TELEMETRY (NETeST)" SUB COMMITTEE OF NERPC.

SE(O&P) informed that minutes of the 9th NETeST Meeting held on 11th April, 2018 at Guwahati were circulated by NERPC vide letter No. NERPC/SE(O)/TeST/2018/ dated 26th April, 2018.

The Sub-committee confirmed the minutes of the 9th NETeST Meeting as no comments/observations were received from the constituents.

A.1 Status of SLDCs in NER:

The status of setting-up of SLDC as informed by POWERGRID during 10th NETeST meeting is given below:

SN	Utility	Status as informed in 10th NETeST	Status as informed in 9th NETeST	Target Completion
UPGRADATION OF SLDCs				
1	Assam	DG set commissioning pending due to ACDB input connection feasibility is not there.	Completed.	DG set-Target July-18. ASEB is to procure input ACDB. Alternatively, a 3way switch may be procured by AEGCL/SLDC for DG connection to main bus
2	Tripura	DG set completed. SAT of remaining 2 RTUs by July'18.	4 RTUs tested. 3 RTU ready for testing. DG set-Installed. Foundation & earthing readiness confirmed by TSECL on 09.12.17. Alstom had some contract issue. Team will be deputed by 15days.	Pending RTU - integration by Aug'18 as RTU links are to be provided by TSECL for GPRS-RTU-SLDC connectivity. By August'18 all SIM & links will be provided.
3	Meghalaya	DG set installed.	Completed.	Completed.
4	NERLDC	DG set commissioning pending.	Completed.	Completed. DG set-Target July-18.
5	Manipur	DG set commissioning pending.	Completed.	Completed. DG set-Target Aug-18
6	Nagaland	DG set installation & commissioning planned in Sept18.	Out of 12, 10 RTUs are installed and six tested. DG set space yet not ready.	Completed. DG set-Target Sep-18.
7	Mizoram	DG set installation & commissioning planned in	Completed. AMC is still not signed. DG set space yet not ready.	Completed. DG set-Target Aug-18. RTU SAT July'18

		August'18. Sihmui RTU SAT by July'18		
8	Ar. Pradesh	DG set completed. To be formally inaugurated in July'18.	8 RTU installed and tested locally without communication links.	Completed.
9	Backup NERLDC	Completed	Completed.	Completed.

(*RTU links through GPRS SIMs are to be provided by respective utility)

Deliberation in the Meeting:

The meeting started with a presentation by GE (T&D) on the status of SLDCs in NER under the SLDC Expansion project. Meghalaya SLDC informed that the pending DG set commissioning has been completed. Moreover, since the operation of the DG set is in Auto Start in that the supply from the DG set would be initiated once there is outage of AC power supply, NERTS was asked to clarify whether there can be a time delay for Auto Start operation of the DG set so that the UPS battery backup can be utilized. NERTS assured that the matter would be reverted once the Technical Specifications for the same are relooked at.

DGM(SL), NERLDC informed that a team from NERLDC had visited SLDC Itanagar recently. He highlighted the achievements briefly:-

- Chimpu the first RTU integrated with Arunachal Pradesh SLDC.
- Hands on training given to SLDC personnel.
- Most operational problems resolved.

GE representative informed the forum briefly of the pressing issues:-

- Nagaland Building is ready and works are completed. However no personnel from DoP Nagaland has been deputed. GE was requested to immediately depute team for DG set works. GE confirmed to complete the same before 15.8.18
- Only pending RTU SAT to be done. DG set installation pending for Manipur, Mizoram and Nagaland. DG set commissioning pending for Assam and NERLDC.
- GPRS SIMs to be procured by DoP Ar. Pradesh, MSPCL and P&ED Mizoram.
- GSTIN required for DoP Ar. Pradesh and DoP Nagaland.
- AMC payment is due : 1)5quarters for Tripura & 2) two quarters for Manipur.

MSPCL representative informed that SIMs have been procured and would be handed over after DATA activation by July'18.

The forum thanked NERLDC for deputing the team at SLDC Itanagar and requested NERLDC to depute personnel on similar lines to the new SLDCs of Nagaland and Mizoram so that operational issues are sorted out with NERLDC, also NERLDC may depute team accordingly to new SLDCs. The next visit to Mizoram & Nagaland SLDCs will be confirmed shortly.

The Sub-committee noted as above.

Action: State Utilities, GE

A.2 Status of FO works under different projects:

Name of the Project	Critical Issue
ULDC replacement	The discussion centered only on the replacement of SDH nodes installed since inception of the NEULDC scheme. It was informed that the project would be completed by September 2018. SDH equipment node replacement started (Siemens SDH by ECI in 17 locations). Fibre not ready at Umtru (MEPTCL is to provide). Target: Sept-Oct18
MW Vacation	All Nodes are commissioned (17/17links as per list attached) as was awarded to M/s KEC. Data via links Panchgram-Srikona-Pailapul is stopped due to tower failure issue. Further, new data path which was reporting via existing system is disturbed due to unhealthy fiber between Badarpur-Khliehriat-Khliehriat. Also, rectification works of OPGW links (where fibre breaks and losses are reported) are under process. Rectification work is slow due to unfavorable natural conditions (recent Flood in south Assam, Lower Assam). Verification of data links ports done as was discussed in 9th NETesT. Target: Sept-October18 Further works awarded to M/s Tendot viz. Ranganadi-Gohpur is under progress. Silchar – Srikona, Melriat-Aizawal is also completed. Other Target-Dec18

	Constraints: Heavy storm/rain/water accumulation/land slide in AP.
NER-FO Expansion	OPGW Part: Supply Status: Central Sector: Part1: 398/398km (5links) Part-2: 414Km/740Km State Sector: 754KM/830Km Stringing Status: Central Sector: Part-1: 192.669/740Km (total 12 links) Part-2: 398/398km (5links) State Sector: Meghalaya: 0Km/63Km (total 04 links) Tripura: 157/ 316.484Km (total 12 links) Nagaland: 0/93Km (total 03 links) Manipur: 0/365Km (total 11links) Mizoram:0/1 km (total 1links) **FO Expansion Package IV A (SDH Equipment)** Supply Status: Central Sector: 19 SDH out of 31 State Sector: 43 SDH out of 43 **FO Expansion Package IVC (PDH Equipment)** Supply Status: Central Sector: 50 PDH out of 50 State Sector: 104 PDH out of 104 Note: Name of coordinators from each state sector like Nagaland, AP, Mizoram may be confirmed. Further AC installation in Equipment rooms is to be confirmed by respective utility. Constraints: ROW at sites(e.g. Tripura & Nagaland-Assam border, Manipur-Assam border). site/space readiness in areas like Kohima, Khandong, Kopili, Jadhima/New Kohima etc. Natural/weather constraints like road conditions/Flood etc. Work stopped by NETC lines with consensus from NERPC for Silchar-Pallatana due to non-issue of PTW by OTPC due to grid constraints. Target: Dec18 to March19

	NERTS informed that the works are in progress. However, in the case of Umtru P/S, (a) one pair of existing optical fiber belonging to MePTCL was requested for extension to the telecom equipment under the scheme and (b) provision of a space for housing the telecom equipment was requested by NERTS. MePTCL informed that since there is no more space in the existing communications room at Umtru P/S, NERTS was accordingly requested to take up the matter with MePGCL.
Other project by State which cater to Link formation/Communication strengthening	The house was informed that funding is awaited for the Reliable Communication project of MePTCL. States to submit directly to NERPC

Deliberation in the Meeting:

Manager, KEC informed that remaining 7-8 links would be completed by Sep'18. Manager, NERTS stated that ULDC replacement is delayed due to requirement of fibre replacement for some links due to high fiber loss & other issues as mentioned above for constraints beyond control. However he intimated that 80% of the ULDC replacement project would be completed by Sep-Oct'18. The forum decided that only the critical issues pertaining to Project implementation may be discussed during the meeting.

The Sub-committee noted as above.

Action: State Utilities, NERTS.

B. NEW ITEMS

B.1 Strengthening of PLCC System by NER States:

PLCC system works as a back-up path for telemetry of RTUs. It is proposed that each constituent may kindly revive/ install PLCC as per relevant norms for 132Kv & above T/Ls for data path connecting to respective SLDC.

Each state may discuss about their present status of connectivity & future plan PLCC connectivity.

During 8th NETeST meeting, Sr. Manager, NEEPCO informed that length of PLCC in the Kathalguri – Misa link is 380km approx. and due to this long distance the channel is intermitting.

DGM, NERTS informed the forum that stringing work of OPGW is already completed and the link will be through OPGW by March, 2018.

AGM, AEGCL informed the forum that most of communication channel is through with OPGW. The left out station will be connected through PLCC once NER SIP project is complete.

In 9th NETeST meeting DGM, NERLDC informed that MePTCL has submitted their connectivity diagram including planned future expansion. The map for Manipur and Nagaland has also been prepared. The forum once again requested NERTS to submit requisite connectivity schemes planned under NERPSIP. Manager, NERTS requested NERPC to write to ED,NERPSIP for the same.

Deliberation in the meeting

After detailed deliberation both MSPCL and TSECL agreed to submit the PLCC scheme details by Jul'18. The forum once again requested NERPC to ensure participation of POWERGRID-NERPSIP in the next meeting, to update the various communication scheme details. NERLDC informed that communication map has already been drafted and after inputs from remaining utilities it may be finalised. Manager, NERTS informed that the communication grid map attached in the minutes of the 18th NERPC may be perused for this purpose.

The Sub-Committee noted as above.

Action: All remaining utilities/POWERGRID.

B.2 OPGW link between RHEP Power house and Biswanath Chariali/ Nirjuli sub-station required.

The RTU of Ranganadi Power House is working properly at Ranganadi. The Link with SCADA at RLDC is disrupting many times due to weak link with Ranganadi. OPGW link may be established between Ranganadi and Biswanath Chariali/ Nirjuli.

During 8th NETeST meeting, DGM NERTS, informed that OPGW installation almost completed except 10km left due to ROW & administrative issue. The matter is being pursued with District administration and splicing under progress. The link will be through by March, 2018.

In 9th NETeST meeting, Manager, NERTS informed that RHEP is to be connected via Nirjuli-Ranganadi Link. It may be noted that Nirjuli-Ranagandi (NDTL) is made LILO at Leikhi & Pare. Pare LILO has already been taken care in MW Vacation OPGW project & equipment in NER FO Expansion. However, for Lekhi LILO point connectivity, DOP-AP (transmission division) is constructing TL LILO part up to Lekhi from tower loc.134. The said work is yet to be completed. Further DOP, AP has been asked to provide the exact Tower schedule so that POWERGRID may arrange OPGW accordingly. Target for connectivity-by 2months w.e.f LILO part completion by DOP AP.

Deliberation in the meeting

NERTS informed that the work is carried under MW Vacation project executed by M/s Ten Dot. The new tower route schedule & readiness for LILO part (Lekhi connectivity from existing Nirjuli-Ranganadi line) is yet to be provided by DOP Ar. Pradesh. Rain/landslide/water accumulation is also delaying the project. Target completion is Nov/Dec18.

The Sub-Committee noted as above.

Action: DoP Ar. Pradesh/NERTS.

B.3 Security Arrangement for SCADA System:

Presently, the SCADA/EMS Upgrade Project is running through its final phase & all state SLDCs except Arunachal & Nagaland are integrated with NERLDC. This network is also connected to rest of the RLDCs via NLDC. In this scenario, any security incident/ intrusion in one system will affect other connected systems also. Therefore hardening of the security of SCADA/EMS system is a necessity. The requirement may be defined in Two Parts: Cyber Security & Physical Security.

Cyber Security may be implemented by proper configuration of the security features available in the SCADA/EMS system viz. a uniform and effective Cyber Security Policy across the SLDCs & NERLDC, Firewall policies allowing only necessary traffic & discarding others, disallowing Remote Access of the system unless authorized by the system owner, regular check of the system for Updates/ Patches, proper maintenance of Patch Management server etc.

Physical Security is necessary to prevent mishandling/ misconfiguration - intentional or accidental, unauthorized removal of asset from the system, connecting/ disconnecting external devices like laptop, pen drive, dongle and the likes unless

unavoidable etc.. One effective way of implementation of physical security is Installation of CCTV Camera/ Surveillance System at strategic locations like Control Room Entry & Server Room Entry, Inside Control Room & Server Room, UPS/ Battery Room, DG Set etc.

During 8th NETeST meeting, SE(O), NERPC informed the forum that representative from CEA will be giving presentation regarding Cyber Security in next OCC meeting. The forum also requested NERPC to write letters to respective states of NER for declaring SLDCs as protected and prohibited area.

In 9th NETeST meeting Regarding Cyber Security, EE(SM),SLDC requested that Standard Operating Procedures (SoP) be devised in this regard. SE(O&P),NERPC assured that CE(IT), CEA would be invited to the next meeting to give presentation and share the roadmap. For Physical Security it was decided that SLDCs would explore installation of CCTVs independently.

Deliberation in the meeting

SE(O&P), NERPC informed the forum that CE(IT), CEA would give a presentation in the upcoming TCC/RPC meeting.

The Sub-Committee noted as above.

Action: All SLDCs/NERPC

B.4 Implementation of Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017:

As per section 10 of these regulations, all users of CTU, NLDC, RLDCs, SLDCs, STUs shall maintain the communication channel availability at 99.9% annually: Provided that with back up communication system, the availability of communication system should be 100%.

Further, as per clause 7.3(ii) of these regulations, The RPC Secretariat shall certify the availability of communication equipment for CTU, ISGS, RLDCs, NLDC, SLDCs based on the data furnished by RLDC.

In the above context followings are to be submitted by NERTS, POWERGRID and other STUs :

1. List of links for which CoD has been declared till date &
2. The links for which CoD is likely to be declared in near future.

In this regard a letter vide Ref: NERLDC/ SL/Telecom\9908 dtd. 29.08.17 and subsequent reminder letter vide Ref: NERLDC/SL/TELECOM/10823 dtd. 03.01.2017 was issued to NERTS, POWERGRID and NERLDC/ SL/Telecom\9928 dtd. 31.08.17 and subsequent reminder letter NERLDC/ SL/Telecom\11402-414 dtd. 13.03.18 to SLDCs for furnishing the list of communication links. POWERGRID has submitted a list of links (enclosed in Annexure-A) for Further details.

However, no data have been furnished by SLDCs till date. The details are required for making complete communication diagram and monitoring of availability of links.

In 9th NETeST meeting CE, NPC clarified that the CERC (Communication System for Inter-state transmission of electricity)Regulations, 2017 is meant to bifurcate the cost of transmission of power and transmission of data, among other things. Since CERC has jurisdiction only over ISTS elements it is inferred that only links pertaining to ISTS elements/ nodes are under the purview of the current regulation. So, only ISTS links availability or commissioning may be monitored. DGM(SL),NERLDC opined that later on SERCs would adopt the CERC regulation in toto. Further if state links upto 132kV are not monitored it reduces grid visibility and deteriorates SE also. It was also emphasized by utilities in forum that keeping 99.9% availability is very difficult even for Central or state sector as sometimes in remote NER, time of restoration is delayed due to land slide/strike/local bandhs and spares are not readily available in NER market unlike other parts of India. CE, NPC welcomed the concerns from operators point of view and reiterated that only ISTS links/links upto ISTS nodes are to be monitored for the purpose of availability calculation. The forum thanked CE,NPC for clarifying in detail.

Deliberation in the meeting

DGM(SL), NERLDC informed that a draft format for the purpose of availability calculation has been prepared by NERLDC. He requested members to submit their suggested changes to the format, after incorporation of which the format may be finalised.

ED, NERLDC opined the following w.r.t. Availability Calculation of communication channels:-

- Presently NERTS should submit the availability data in the format to NERLDC for verification and further certification by NERPC.
- Since the regulation came into effect from 15.05.2017, the data from May'17 to Mar'18 may be submitted forthwith and consequently monthly data may be submitted.

- Availability for communication links associated with ISTS wideband only may be dealt with at the moment.

Manager, NERTS informed that there has been an outage of NMS most probably in the month of Dec17. The forum requested NERTS to submit the data from Date of restoration till Mar'18 and also directed that a backup storage may be installed immediately for NMS. It may be noted that availability calculation is yet to be finalized by NPC & so data wrt NMS may be considered for link availability.

Since it is inferred that the above Regulations would apply to ISTS links / links up to ISTS nodes, ED, NERLDC suggested that to start the process for Availability Calculation of the Communication System for ISTS and to have a related report in place in the event of CERC asking for the same. NERTS was accordingly requested to submit a monthly report from May 2017 onwards subject to availability of link.

The Sub-Committee noted as above.

Action: NERLDC/NERTS.

B.5 Optical Fibre connectivity for installation of Line Differential Protection:

Optical Fibre connectivity of a line is essential for functioning of Line Differential Protection.

In 47th PCCM, it was decided that all utilities shall identify the short lines for installation of Line Differential Protection by 31st Jul'17.

Utilities shall furnish the list of short lines identified for installation of Line Differential Protection to NERPC/NERLDC along with availability of OPGW in the identified short lines (as per Annexure-I). Forum agreed that funding for installation of Line Differential Protection & OPGW can be awarded from PSDF for state utilities and PSUs may include these expenses in PoC Charges.

The list of lines along with availability of OPGW link not yet furnished by any utilities.

During 8th NETeST meeting, DGM, NERTS informed the forum that Power Grid has already installed line differential for short lines as per relevant approved scheme of POWERGRID Engg. Dept. (Like Bong-NTPC, Mokokchung -Mokokchung).

EE, System Protection, MePTCL informed the forum that they have identified 17 lines for installation of line differential. The DPR of the same has already been sent to CEA/NLDC for funding from PSDF.

The list of lines along with availability of OPGW link not yet furnished by any utilities. The detailed list of lines identified for Line differential protection is attached at **Annexure-B.9.**

Deliberation in the meeting

Manager, NERTS informed that for differential protection, apart from ULDC, all utilities may keep 4fibers ready for protection purpose as physical interface of differential relay is fiber. The updated list is attached at **Annexure-B.5.**

NERPC informed that the matter for sparing of optical fibres belonging to MePTCL may be extended for facilitating funding under PSDF. MePTCL informed that even during the interim period, the percentage availability of the existing ADSS FO network is not satisfactory and hence a reliable network, preferably OPGW, is urgently required.

MePTCL representative informed that the DPR for Line differential Protection has been recast wherein OPGW item is incorporated in the recast DPR of Reliable Communication Scheme in line with the Techno Economic Committee observations which is presently under the evaluation process. The DPR is awaiting approval from PSDF. After detailed deliberation the forum decided that OPGW for differential protection in selected lines except for POWERGRID lines would be taken up under separate scheme of PSDF. The matter would be referred to the next TCC/RPC meeting for resolution.

The Sub-Committee noted as above.

Action: NERPC/All concerned utilities

B.6 Dedicated voice communication:

Dedicated voice communication and availability is one of the key requirements for efficient grid management. But it is observed that whenever we try to talk to SLDCs always it shows busy. We have intimated POWERGRID to resolve this problem but still it is not solved but still it is pending.

Most of the PG stations are connected through only one dedicated voice communication. Minimum two no of dedicated link needs to be done at the earliest. Forum may discuss and time bound target may be fixed to fulfil the above requirement. Also 400 KV stations, HVDC station, SLDCs need 4 no of dedicated voice communication.

The status as updated in the 9th NETeST meeting is given below:

Palatana	2nd channel upto 79Tilla details required by OTPC. NERTS to provide. Dedicated link via PLCC to Silchar. To be tested by April'18
400kV Silchar	Dedicated voice link provided
132kV SMNagar	NERTS requested TSECL to arrange.
Monarchak	By April'18
Salakati	No dedicated voice link. No shift person sitting at Salakati control room to call. Communication is to be made with Bongaiagaon
Byrnihat	Voice link provided. Tested at SLDC.
Azara	Dedicated voice link provided. Tested at SLDC.
BgTPP	With NTPC-dedicated link has been provided
Zero, Roing, Tezu & Pasighat	Only Mobile phone working. For Ziro, dedicated Link will be provided by 3 months
VOIPs not working: Kathalguri, Ranganadi, Kolasib, Doyang, Kohima	Completion of NER FO Expansion by Nov'2018- all nodes will be on FO
SLDC Assam VOIP not working	Restored/RAT issue/Party rectified 4 times. AEGCL is to implement anti-rodent/rat sealant system
SLDC Aizawl VOIP outage	All In service/Restored

VOIP exchange by M/s Orange is commissioned 31.03.2018 in all SLDCs & NERLDC. The delay occurred are mostly in new SLDC as the party could do complete wiring etc only after handing over of front of building. Minor works like rewiring/reconfiguration/cable dressing left in some cases as there was change/shifting of space. Scope of contractor is limited to Supply & installation in SLDCs complex only.

Deliberation in the meeting

The latest status is as under:-

Name of station	**Latest status**
Palatana	2nd channel upto 79Tilla - 132kV line to be upgraded to 400kV, included under upgradation scope. Dedicated link via PLCC to Silchar - PO

	completed. By Aug'18 Palatana & Silchar connectivity to be restored.
132kV SMNagar	Working
Monarchak	Working
Byrnihat	Working
Azara	23610079 is working.
Zero, Roing, Tezu & Pasighat	Mobile phone is to be used till OPGW installation is completed upto that locations.
VOIPs not working: Kathalguri, Ranganadi, Kolasib, Doyang, Kohima	Completion of NER FO Expansion by Nov'2018- in these locations nodes will be on FO
SLDC Assam VOIP not working	All VOIP phones are working. Whenever any problem is there, docket is raised for trouble shooting.

ED, NERLDC suggested that TGBPP Monarchak might be covered under FO Expansion scheme as it may become CSGS in the near future. It was opined that same may be included under quantity variation of the scheme and approved in 18TH RPC forum. The forum requested NERTS to circulate a complaint escalation chart amongst all the SLDCs. Regarding Kolashib RTU jurisdiction, it was clarified that station belongs to P&E, Mizoram; so RTU is to be replaced by P&E and in SCADA of NERLDC, same should not be categorized as central RTU. Similarly, RTU/gateway of OTPC belongs to OTPC. Further, it was again emphasized by forum that all utilities may ensure bring the data up to the nearest wide band location(NEEPCO, OTPC & others may maintain properly & take up AMC of data channels/voice channels of PLCC links connecting to wide band of CTU/POWERGRID)

The Sub-Committee noted as above.

Action: NERTS, OTPC, DoP Ar. Pradesh

B.7 ISTS/ISGS CB status out and SOE Problem:

CB status of ISTS and ISGS are out or wrong since long and due to which Sequence of Events report is not indicating correct picture of the Grid. In case of any tripping/disturbance SOE is the main report through which we can analyse any event but as CB status is not updating correctly SOE is not giving correct picture. So

POWERGRID/NEEPCO/LOKTAK is requested to look into it and restore all CB status at the earliest.

It is very important to update SOE for proper grid visualization but most of unit outage or line tripping SOE are not updating. Most importantly disturbance/incidence analysis from SOE is not currently possible due to so much misleading information. In some cases misleading information are coming in SOE (say RCN unit 3 is coming as U1 out, same in Salakati , Ranganadi and Balipara element outage). So all element outages, SOE needs to be checked. For an example one disturbance may be taken as example and may be matched with SOE available to know the mismatch available.

During 8th NETeST meeting, DGM, NERTS informed that with NTAMC all data are made OK (Badarpur, Silchar, Balipara, Kumarghat, BNC, Misa, Khliehriat.etc., -others will also be completed with NTAMC project.

Project Manager, GE informed the forum that the RTMC/NTAMC operated stations have 100-1000s of IOs available for each station and only few data is required at RLDC. NERLDC is requested to provide IO list details be mapped to RLDC for displayas specifically required for grid operation. NERLDC may directly provide the same to POWERGRID.

During 9th NETeST meeting, for SOE of PG stations, SOE is already available for SAS based stations. However additionally, for ICCP, NERLDC intimated that existing IO list as used in NERLDC SCADA would be used for ICCP integration with RTAMC/NTAMC. NERLDC informed that IO list in totality (in excel format with addresses & eqpt descriptions & screen shot of SLDs-for all stations at one go) for NERTS-PG substation will soon provided to NERTS. As GE is common to both SLDC/NERLDC project & NTAMC project, M/s GE may do the necessary integration at the earliest. POWERGRID assured that the same would be mapped latest by 30.05.2018 after by 2months on receipt for stations where NTAMC/RTAMC already implemented.

For Other states/Utilities/ISGS, respective state SLDC & Owner(ISGS) of RTU/Gateway station will do needful. NERLDC will do needful coordination

Deliberation in the meeting

NERTS informed that POWERGRID has already requested NERLDC to establish ICCP (without any additional cost to any utility) for PG stations to sort out the issue. NERLDC may provide a target date of completion. For other stations, respective utility & NERLDC may jointly sort out the issues.

DGM(SL), NERLDC stated that receipt of IO/SOE via RTAMC may not be accepted & checked, as RTAMC has been designed not only for supervision but also for control. While NERLDC primarily functions for grid management. Even the existing ULDC is designed with a Star topology while RTAMC is a ring topology. In the event of integration it would be difficult to identify the actual faulty issue.

GM, NERTS opined that the connectivity of RTAMC to RLDC is a generic one agreed for all regions, hence the MoM (already consented between RTAMC, LD&C, & NLDC) may be agreed upon.

Manager, NERTS further appended that:-

- As B/U from station is via RTAMC RTU, this suggested scheme's utility increases manifold in event of RTU failure.
- There is no additional financial burden to constituents.
- The star-ring hybrid topology for OPGW/ICCP (MPLS) is already adopted between SLDC-NERLDC connection in similar manner and running successfully. This may be treated as second back up of data source for PG RTUs.
- The concern regarding transmission of spurious control signals is already taken care as data integration will be achieved through established method by mapping supervision signals (viewing) only without any Control signal.
- The technical feasibility is also supported by M/s GE(Expertise & GE is the implementing agency for both RTAMC & NERLDC SCADA system).
- This planning is already agreed upon by LD&C,CC(responsible for Comm channel planning for CTU) & NLDC.(Copy of MOM & letter from NERLDC is attached as **Annexure-B.7**). The work was already under progress jointly with NERLDC and POWERGRID had already invested (from O&M cost) for implementation of same for benefit of grid management & constituents without any cost booking

DGM(SL), NERLDC opined that the connectivity would be from RTAMC to NERLDC and also mentioned that this would be third path as per ULDC main and standby channel will continue as per original design.

NERTS intimated that It may be noted that RTAMC(earlier named as CPCC) of POWERGRID also acts as nodal point of POWERGRID for assistance/communication of instructions of NERLDC to different substations & vice versa. ICCP in between RTAMC & RLDC will act as redundant channel.

However, forum finally opined that ICCP between RTAMC & RLDC should be implemented as per MOM already agreed upon and inter exchange of data should be made to both end for better monitoring & supervision of NER grid. RTAMC may be treated as intermediate node for data transfer.

The forum found that keeping in view RTU data availability of all PG stations, this is definitely a good back up. However, forum requested NERLDC and NERTS to jointly hold discussion and revert back with the Action List to implement the same. ED NERLDC also assured that matter would be soon be sorted out. It was emphasized by MS NERPC that new technologies to be adopted for betterment of NER system.

The Sub-Committee noted as above.

Action: NERTS, NERLDC

B.8 MW and MVAR data validation:

For correctness of real time data ie MW/MVAR/KV/FREQUENCY validation is required between the real time system and site in every quarter and report has to be maintained for verification. But in absence of this validation process, MW data, MVAR data, Voltage data are not getting reported correctly and ultimately misleading real time grid managers.

During 8th NETeST meeting, SE(O), NERPC requested NERLDC to sit together with Constituents one by one each and validate the date. The process may be started with Assam first.

AGM, AEGCL informed the forum that their state SLDC has started validating data by jointly visiting site one by one.

DM,AEGCL informed that Assam data has been validated. The forum requested Meghalaya SLDC to do likewise.

Deliberation in the meeting

DGM(SL) NERLDC asked Assam to submit the data validated stations report as many RTUs of Assam not reporting to NERLDC through ICCP.

MeECL representative informed that validation work has started for Meghalaya SLDC and is slated for completion by July'18.

The Sub-Committee noted as above.

Action: MeECL.

B.9 Maintenance & Support Service under "Replacement / Up-Gradation of existing SCADA/ EMS System of NERLDC and SLDCs of North-Eastern Region" project by GE T&D India:

As per Technical specification of 'Maintenance & Support services' clause 4.2.1: "At least one software engineer & one hardware engineer having expertise in SCADA/EMS system shall be available during the standard hours of service at each main control centre. The timings for emergency support would be 24 hours a day, 7days a week throughout the year.

The support personnel so deployed shall be qualified personnel having at least 5 years of experience in the delivered SCADA/EMS system. The owner can ask the contractor to replace the personnel deployed for maintenance support if his performance is not found to be satisfactory."

Performances of the personnel presently deployed in NER are not satisfactory.

During 8th NETeST meeting, DGM, NERLDC informed the forum that the performance of the AMC personnel posted in SLDC and RLDC is not satisfactory. The posted person is not able to handle most of the issues and always refers to the back office. This takes very long time in resolving day to day issues.

Project Manager, GE informed the forum that he is aware of the issues and will be arranging for appropriate man power and training. He requested for 2-3 months' time for resolving the issues.

In 9th NETeST meeting, NERTS informed the forum that AMC has been signed by GE with DoP Ar. Pradesh. He requested P&ED Mizoram to sign the AMC as early as possible. EE,SLDC, Ar. Pradesh requested NERTS to impress upon GE that atleast 2 personnel must be deputed by them at SLDC at the earliest. This would enable inauguration of Ar. Pradesh SLDC.

Deliberation in the meeting

NERTS informed that AMC has been signed with P&ED Mizoram and DoP Ar. Pradesh. NERLDC once again impressed upon the forum that deputed persons should have at least 5 years experience and no works/calls should be outsourced to third party. Forum told NERLDC to sort out the issue in line with contract. Project Manager, GE informed that due care is being taken by GE to depute sufficiently trained quality manpower, however continuous system upgradations are rending them unable to resolve some problems. Director/SE(O&P), NERPC requested all

SLDCs to take up any service related issue with GE forthwith. In case of long delay in resolution the matter may be brought to the notice of the forum. After detailed deliberation members decided to drop the agenda item and review service related issues separately.

The Sub-Committee noted as above.

B.10 Communication of Pare HEP:

You are kindly aware that 110 MW Pare HEP of NEEPCO is in the last stage of commissioning and it is expected that 1st unit shall be ready for test synchronization by 1st week of March '2018. The LILO of existing Nirjuli-Ranganadi 132 kV line at Pare is part of the approve evacuation scheme for the Project. The LILO part is expected to be ready for charging by mid of February 2018. In this context, following is placed before you for kind perusal:

a. Shut program of the Nirjuli-Ranganadi 132 kV line for conversion shall be intimated to you shortly.

b. As per decision of the meeting held on 10.05.2016 at NERTS, two nos. new PLCC panels have been procured and one installed at Pare for Pare-Ranganadi line and other panel shall be installed at Ranganadi end immediately after shifting of existing panel of Nirjuli-Ranganadi 132 kV line. The existing PLCC panel at Ranganadi end of Nirjuli-Ranganadi 132 kV line shall be shifted to Pare for Pare-Nirjuli line.

c. During the process of shifting and re-installation of PLCC panel from Ranganadi to Pare as mentioned at (b), the communication & data link between Ranganadi and Nirjuli shall be disturbed and the entire process is expected to be completed within 5-6 days' time. It is expected that shifting of PLCC panels work shall be taken up during 2nd week of February '2018.

In view of the above, I would like to request you to kindly advise your concern Officer to finalize the modalities how to proceed to complete the work without much disturbance to avoid inconvenience for real time grid operation. Completion of the shifting and re-installation of PLCC panel works is highly solicited.

During 8th NETeST meeting MS, NERPC gave a strong view in regard to non-compliance viz. telemetry & communication. He stressed that all utilities should plan in advance and put these links in place before commissioning of their units. He urged upon NEEPCO to comply at the earliest.

Sr. Manager, NEEPCO assured the forum that the communication channel will be ready before the commissioning of the project

During 9th NETeST meeting Manager, NERTS informed that the Ranganadi-Lekhi section of the erstwhile 132kV RHEP-NDTL line has been LILO'd at 132kV Pare. The panel shifting works & RTU commissioning has also been completed by NEEPCO & NERTS. However for 132kV RHEP-Pare some integration issues are there. He requested that personnel be sent by NEEPCO to Nirjuli S/S to resolve the issues. Sr. Manager, NEEPCO informed that U#I of Pare HEP is slated for commissioning by 25.04.18, and all existing requisites would be fulfilled before that. For Pare HEP necessary communication scheme has already been prepared by NERTS & shared with NERLDC,NEEPCO. NEEPCO may bring the data up to nearest wideband (Nirjuli) and connect for onward telemetry up to NERLDC.

Deliberation in the meeting

NERTS informed that Pare link is already tested up to the wide band location(Nirjuli). NEEPCO is to integrate the same in coordination with NERLDC.

NERLDC informed that dedicated voice communication is not there presently for Pare HEP. Manager, NERTS informed that VoIP link has been given by NERTS at Nirjuli and PLCC port details have also been communicated to NEEPCO, only integration remains to be done. The forum requested NEEPCO (utility to bring data up to wide band loc) to take up the matter with ABB/Other agency as required to bring voice up to wide band loc & establish voice connection at the earliest.

Note: Further, it was opined that OPGW connectivity of Parey & Ranagandi depends on LILO of Nirjuli-**LILO(under modification by DOP**)--Leikhi--LILO Parey---Ranganadi. Tower lines of the LILO/Leikhi to be constructed by DOP & Tower schedule may be provided to POWERGRID for OPGW supply & installation.

The Sub-Committee noted as above.

Action: NEEPCO, NERTS, DoP Ar.Pradesh.

B.11 Non-Reporting of Agartala PMU:

As per report of enquiry committee on Grid Disturbance in NR on 30th Jul'12 & in NR, ER & NER on 31st Jul'18, it is recommended that functioning of existing PMUs and availability of their output to RLDCs and accuracy of time synchronization should be monitored on daily basis and, if required, corrective actions should be taken on priority basis.

In North Eastern Region, 8 PMUs have been installed in 400 kV Bongaigaon, 400 kV Balipara, 220 kV Sarusajai, 220 kV Misa, 132 kV Badarpur, 132 kV Agartala, 132 kV Imphal and 132 kV NEHU.

NERLDC on daily basis is monitoring, the availability of PMU data and issues relating to non-availability of PMUs are highlighted.

It has been observed that during recent disturbances, PMU data are not available in some of the locations. 132 kV Agartala PMU is not reporting since 11:40 Hrs of 22.03.18 and after 22nd March'18 there were 4 number of grid disturbances in Tripura Power System. Due to non- availability of PMU data, the disturbances could not be analyzed properly.As per information from SEL,the problem lies with CABLE in between FO media converter from PMU panel to FO media converter at Communication panel in the Control Room Building.

Deliberation in the meeting

ED, NERLDC informed that the matter has already been resolved upon his visit to Agartala recently. The forum decided to drop the agenda item.

The Sub-Committee noted as above.

B.12 Shut Down Procedure for Optical Links:

In 134th OCCM it was decided that communication related shutdown would be approved in OCC forum alongwith generation and transmission element(s) shutdown. However, in absence of list of important links, equipments etc. utilities risk affecting the ICCP system. In 142nd OCCM, the unforeseen outage of ICCP on 10.03.18 was highlighted.

The forum may deliberate on the list of links, equipments and detailed modus operandi for availing communication related shutdown.

In 9th NETeST meeting Director/SE(O&P), NERPC highlighted the backdrop and requirement of a specified shutdown procedure/modalities along with finalization of list of links for which shutdown has to be approved in OCC forum. DGM(SL), NERLDC informed that in SR shutdown of all links related to ICCP and PMU data are approved in OCC forum. After detailed deliberation the forum requested NERLDC to prepare a list of important links in consultation with NERTS. SE(O&P),NERPC also requested that the list should contain the path in detail from ISGS/ISTS node/SLDC to NERLDC with name of owner and maintaining utility. During meeting, NERTS had provided the main lists pertaining to ICCP connectivity route etc.

Deliberation in the meeting

The necessity of availability of critical Optical communication links / nodes without hampering monitoring of the power system was discussed. NERLDC informed that the clear list of OPGW/PLCC links (by collecting from all utilities of NER) is being compiled in a Communication map and the detailed end-to-end channel(port to port) list is being prepared and the same would be circulated shortly. The draft Communication map alike POWER map may be prepared & submitted soon by NERLDC so that if any changes are there same may be commented by utilities. NERTS already provided list of links(MW,ULDC,FO expansion) and already prepared a FO Map as circulated in 18th NERPC and same may be taken as reference. After detailed deliberation the forum referred the matter to the next OCC meeting for shut down procedure finalization. Only Meghalaya submitted the communication drawing, Assam submit but not detailed. NERTS referred 18th RPC minutes. DGM(SL) NERLDC opined that the communication drawing submitted in 18th RPC is only links not channel details.

Director NERPC mentioned that that preparation/finalization Network is long pending and at first, communication Link network diagram (OPGW/PLCC/Others) just alike power map connecting critical stations of CS/ISGS/States & LDCs of NER may be prepared by RLDC. Onward, if required, incorporation of channels & other requirements may be done in next stage by RLDC by collecting from respective utility. Issues/requirements from state utility/central utility may be taken up bilaterally and if same is not sorted out, can be discussed in meeting

The Sub-Committee noted as above.

Action: NERLDC, NERPC.

B.13 Discontinuity in links for MW vacation project.

In the MW replacement OPGW project there was discontinuity observed in many links. The same has been intimated to PGCIL. Discontinuity in the fibers will hamper ongoing telemetry status and also upcoming projects if not rectified at the earliest.

The *.sor files taken by OTDR has been submitted to PGCIL for BTPS-Agia, Agia-Boko,Sarusajai-Mirza,Sarusajai-Agia,Samaguri_Mariani and Samaguri-Misa.

The 9th NETeST forum requested NERTS to check the discontinuity in links in consonance with AEGCL at the earliest.

Deliberation in the meeting

Manager, NERTS informed that there is a break up of Link via Jiribam-Pailapool-Srikona-Panchgram-Badarpur due to failure of Tower in between Panchgram-Srikona-Pailapul. On rectification of Tower (5-6months as intimated by Assam), OPGW to be restored separately by AEGCL.

Further, for other locations, the joint box splicing rectification work is delayed due to unfavorable climatic conditions. Although, all fibre related issues will be sorted out by Nov 18.

The Sub-Committee noted as above.

Action: NERTS/AEGCL.

B.14 Draft CEA(Technical Standards for Communication System in Power Sector) Regulations, 2018

CEA has circulated the draft technical standards for communication system in power sector regulations(available at *http://www.cea.nic.in/reports/regulation/draft_tech_std_communication.pdf*). The following comments/ additions have been drafted:-

Relevant Clause	Action	Statement
Reg.(3) "Applicability of the Standards"	Add	"Integration requirement for compliance of standard will be full-filled by utility as stand responsible as per CERC(Communication System for inter-state transmission of electricity) Regulations, 2017
Reg.(5) "Functional Requirement"	Modify	"The communication system shall finally form a wideband backbone on all India basis to support the requirement of the Power System Operation and Market operation **& power system study been by CTU**".
Reg.(6) "Standards and codes of practice"	Add under 2) **Add under 4)**	Specific standard may be finalized at NERPC level **The standard will be reviewed every 7years at competent level.**
Reg.(8) "Access Policy"	Add	The cyber security policy will be vetted at regional RPC sub-committee level before implementation.
Reg.(9) "General Conditions"	Add under 6)	Data Provider shall be responsible for the planning, design, implementation and secured operation **(with specific inputs from**

	Add under 10)	**operators for operational points of view)** of its own equipment to be interfaced with the communication System d) Operators will explore utilizing single point data from communication service providers for application purpose like Scheduling, SPS, ADMS etc. as far as posssible. e) For end SLDC/RLDC location, interface if any will be arranged by nodal agency as responsible for integration as per 7.5 of Reg 134."
Reg.(10) "Site Responsibility"	Add	f) Cyber Security rules applicable to each equipment wrt specific standard & policy as vetted in respective RPC The privacy **& confidentiality / authorization authority for communication network configuration details will be maintained under discretion of communication service provider to avoid intrusion & attack. However, output requirement i.e. communication channel requirement as required smooth grid operation in line compliance to relevant regulation & standard will be maintained by communication service provider**
Reg.(11) "Access at connection site/node"	Add	The privacy & confidentiality / authorization authority for communication network configuration details will be maintained under discretion of communication service provider to avoid intrusion & attack. However, output requirement i.e. communication channel requirement as required smooth grid operation in line compliance to relevant regulation & standard will be maintained by communication service provider.

<table>
<tr><td>Reg.(13)
“Reliability”</td><td>Modify under (1),(2) & 3

Add under 2

Add under 3</td><td>"The total period of outages shall be less than 24 hours....."
"assessment period shall be less than 72hours....."
Outage Criteria may be considered with relaxation of +24hours for utilities’ set up in North Eastern Region, Jammu & Kashmir due to terrain.

Approved maintenance hours(max 24hrs per link per year) is excluded from reliability</td></tr>
<tr><td>Reg.(18)
“Maintenance”</td><td>Add</td><td>7) Regular/Updated feedback based on operational point of view against outage & availability will be provided by Concern Load Despatch Center / Service Provider / Market Operator to communication service provider for bettering of communication grid.
8) Maintenance Shutdown will be allowed 24 hrs per Optical OPGW/FO end to end Link per year which will not be considered in outage.</td></tr>
<tr><td>Schedule Part I
1. Standard Interfaces</td><td>Add</td><td><table><tr><td>Interfaces</td><td>Type</td><td>Standard</td></tr><tr><td>MPLS</td><td>Module/Hybrid</td><td>As per Rel Standard vetted in RPC</td></tr></table></td></tr>
<tr><td>Schedule Part I
2. Local Monitoring</td><td>Add</td><td>"All the interfaces shall be provided with minimum....."</td></tr>
<tr><td>Schedule Part I
5. Maintainability</td><td>Add</td><td>"....required testing equipment and tools (as required OPGW,ADSS,SDH-PDH,MPLS,HYBRID,GPRS,VSAT,PLCC as applicable)..."
Norms of Testing Tools to be kept may be vetted from respected RPC</td></tr>
<tr><td>Schedule Part II
Standardsapplicable to wideband</td><td>Add under d)</td><td>(d) Low speed (300 -600-1200 -9600 bps) data channel support</td></tr>
<tr><td>Schedule Part II A
Standardsapplicable</td><td></td><td>".....consisting of underground Fibre</td></tr>
</table>

to wideband	Add under 1 a	optic cable, OPGW & ADSS/**OH FO."**
Schedule Part II B Standardsapplicable to wideband	Modify f) Add	7 years as per CERC regulation. g) The requirement may be full-filled by TDM/MPLS/HYBRID/New Generation as required to full-fill technical criteria mentioned herewith.
Schedule Part III Standardsapplicable to PLCC	Add under e)	e) Supply voltage 48V+15%, –10%. (positive pole earthed). **However supply of 220V DC/110V DC may be adopted if safety requirement of -48V(+earth) is taken care**
Schedule Part III Standardsapplicable to PLCC 4. Technical Requirement	Add under (v)	– The data rates shall be selectable in steps, compliant with commonly used standardized data rates such as **1200, 2400, 4800 and 9600Bauds**

Deliberation in the meeting

Director/ SE(O&P), NERPC stated that the above is proposed by NERPC after studying all aspects, keeping in view requirements of NERTS State, central utilities considering geographical terrain & other constraints.

Meghalaya SLDC informed that comments on the same have been submitted to CEA.

EE (System Protection), MePTCL informed that the draft comments have been perused and some necessary corrections are highlighted below before finalization of the draft regulations 2018:

- Under Reg.9 General Conditions – Clause (6) be retained as in the original draft 2018. Additional sub-Clause (d) may be clarified before incorporation. Clause (10) be kept as in the original draft 2018 without any changes.
- Under Reg.10 Site Responsibility - Addition under Sub-Clause (f) may be clarified before incorporation.

The Sub-Committee noted as above.

Action: NERPC

B.15. Establishment of proper AMC set up for Communication system of Back Up NERLDC.

Members may concur on setting up for proper maintenance of communication system pertaining to Back up NERLDC permanent set up.

Deliberation in the meeting

ED NERLDC emphasized that communication arrangement for B/U NERLDC is evry important. Forum opined that the same is required as Back Up NERLDC will be back up to main. Hence, proper set up is required. NERLDC may provide space of comm equipment installation (including URTDSM, FO expansion, Addition etc) & AMC set up may be looked after by NERTS as per jurisdiction

The Sub-Committee noted as above.

Action: NERTS.

B.16 Insurance against SLDC assets:

Deliberation in the meeting

Project Manager, GE clarified that only assets commissioned by GE would come under its insurance, however in event of fire due to fault in power supply or any other disastrous events the insurance would not hold. After detailed deliberation the forum considering the gravity of the issue referred the item to next TCC/RPC meeting of NERPC for resolution.

The Sub-Committee noted as above.

Action: NERPC & SLDCs.

B.17 Finalization of agreement/formalities as to be adopted by operators while operating central sector assets (like VOIP, URTDSM , etc.).

Necessary formalities i.r.o operation may be finalized by NERTS, NERLDC & SLDC for proper operation of assets supplied under VOIP, FO EXPANSION, URTDSM etc where Equipment is installed in a control room but assets are not owned by owner of control room/LDC. Further for state sectors, wherever state links are established(e.g. NER FO Expansion proj or similar) by & then AMC payment will be done by POWERGRID, for same billing will be done during AMC period against expenditure & as applicable.

Deliberation in the meeting

After detailed deliberation it was decided that the modalities would be presented in the next NETeST meeting for further ratification.

The Sub-Committee noted as above.

Action: NERTS/NERPC.

B.18. Establishment of proper AMC set up for Communication system of Back Up NERLDC.

Members may concur on setting up for proper maintenance of communication system pertaining to Back up NERLDC permanent set up.

Deliberation in the meeting

Already discussed under item **D.15**.

The Sub-Committee noted as above.

Action: NERTS.

B.19. Inter country Communication- Bangladesh & India(via SM Nagar - Comilla):

1.0 During Video Conference (7th Operational Cord meeting) arranged by NLDCs where NLDC-India, NLDC-Bangladesh, PGCB, ERLDC-Kolkata, NERLDC-Shillong, ERTS2, NERTS were present on 04.06.18. During meeting both way telemetry of data/voice SMNagar (Bangladesh) & Comilla(Bangladesh) was also discussed. NLDC wanted that data of Comilla (Bangladesh) SS is to be integrated to NERLDC/NLDC via SMNagar -Commila T/L link.

2.0 During meeting, following was proposed :

a) Power connectivity from Bangladesh to India is being made at multiple points/lines across diff border links(EHV AC; HVDC). It was proposed that preferably, NLDC India & NLDC Bangladesh/PGCB may take up for ICCP integration directly between each other to get data of specific stations only (rather than data integration from multiple points/stations across India/Bangladesh [which might risk cyber security issue ,if so any in future] and so we get solution avoiding scheme" data Staion1 of one country DIRECTLY reporting to LDC of other country").

Note: The above was proposed keeping in view that any EHV station within India (connected to Inter country TL--to Bangladesh) will be reporting to respective SLDC/RLDC & so data of that station is already available in NLDC. Now NLDC can directly transfer that "specific data" to NLDC Bangladesh over ICCP (ICCP is normally more secure than any random 101/104 integration from substation level).

b) Similarly for voice, Inter exchange connectivity was proposed to be looked in to by NLDC-India & NLDC-Bangladesh directly between each other(rather than voice of station1 of country1 is made integrated at LDC of country2 at multiple points)

3.0 The matter of proposal/idea was appreciated by CE, NLDC Bangladesh . Both NLDC India & NLDC Bangladesh assured to take up the same with higher authorities of respective NLDCs along with other administrative/legal issues.

It may be noted legal or administrative issues (country to country) remain same irrespective of locations of connectivity(either NLDC, Delhi or SM Nagar, border are). Hence, it is proposed to establish ICCP & inter exchange connectivity from NLDC Delhi to NLDC Dhaka.

Deliberation in the meeting

It was discussed that preferably, ICCP may be integrated between NLDC India & NLDC Bangladesh by taking up for inter-country administrative permission from respective authority with cyber security measures been taken care. The same is also opined by NERTS & discussed with POWERGRID's LD&C as well (designated for communication planning) keeping in view discussion in last meeting (7th Op cord meeting 04.06.18). The regulations of CEA/CERC hold good within/up to boundary of State/Country. Keeping in view country's security aspect(cyber & other regulations of DOT) & compliance thereof, same may be taken up by NLDC India with NLDC Bangladesh. However End to end(substation to substation) PLCC/Protection/FO Voice communication may be maintained between two border stations with intimation to concern authority as applicable. Channels as required up to border area may be provided by utility as per jurisdiction and same channels are proposed to be used by respective NLDCs.

NERTS informed that the views of POWERGRID communicated in the course of 7th Operational Coordination Committee meeting were not recorded in the MoM. The request for revision of MoM has been given to NLDC, POSOCO in this regard.

Forum opined that all cyber security concerns to be taken care for country-to country integration. This is also for intimation to next RPC level & further needful to be discussed in the next NETeST meeting as well.

The Sub-Committee noted as above.

Action: NERTS/NERLDC.

B.20 Improvement of Data Availability of NER

To observe and monitor the actual quantity of data that are available to NERLDC control room from Central sector as well as State sector stations, a detailed point list (analog and digital) has been prepared by NERLDC (attached in Annexure-**B.20**).

In the first phase, it is requested to rectify all the Voltage, Frequency, MW, MVAR (i.e, all analog data except for transformer tap) and CB status data of all stations of Central Sector and State Sector.

Deliberation in the meeting

DGM(SL), NERLDC presented the report. Members appreciated the initiative and requested NERLDC to track the data availability on a daily basis. The monthly report to be sent to respective utility 10 days advance to OCC so that utilities may come prepared and revert back in each OCC. Also, the same may be presented may be presented in OCC meeting with the 3 month synopsis in the NETeST forum. Manager, NERTS suggested that a break up of the link availability and RTU status be done for each of the stations. NERLDC concurred.

The Sub-Committee noted as above.

Action: NERLDC.

B.21 Status of URTDSM

POWERGRID is executing URTDSM for NER.

Deliberation in the meeting

NERLDC informed that communication issues have been resolved and GE has to depute engineer for SAT. NERTS and NERLDC has verified the status. ED, NERLDC requested NERTS to give the status of the Analytics Tools included under the URTDSM package. NERTS agreed to furnish it at the earliest. Meghalaya SLDC enquired as to the rationale of having only PMU data from three (3) nodes (Bongaigaon, Misa and Silchar) reporting to SLDC under Phase-I of the URTDSM project that is being executed by POWERGRID. DGM(SL), NERLDC opined that integrating all nodes may render memory overflow, rather only those nodes in the control area of Meghalaya & ISGS or affecting the same may be included.

NERTS was accordingly requested once again to examine the possibility of incorporating additional selected PMU data for SLDC important for enhanced monitoring of Meghalaya power system. Further, replying to a query as to why no PMUs have been included for Meghalaya under Phase-I, NERTS informed that two (2) PMUs – one at Mawphlang S/S and the other at New Shillong S/S – are being envisaged for Meghalaya under Phase-II of the URTDSM project.

The Sub-Committee noted as above.

Action: NERLDC.

B.22 Outage of Telemetry

There was a major outage of telemetry data of the following central sector stations on 08/07/2018 :

a) Badarapur S/s since 08/07/2018
b) Haflong S/s since 19/06/2018
c) Itanagar S/s since 08/07/2018
d) Jiribam S/s since 08/07/2018
e) Roing S/s since 03/07/2018
f) Salakati S/s since 05/07/2018
g) Silchar S/s since 08/07/2018
h) Palatana since 08/07/2018

The some of the RTUs got restored in phase wise manner using ULDC links at night of 09/07/2018. This prolonged outage of data causes difficulties for grid operators. Reasons for such major outage may be informed and Steps should be taken for quick response in case of such failures in the future.

Further, the following RTUs are not reporting till date:

a) Roing S/s,
b) Tezu S/s,
c) Haflong S/s,
d) Ziro S/s
e) Melriat S/s
f) Kolasib S/s

Deliberation in the meeting

The latest status as informed in 10th NETeST is given below:

Badarpur S/s	Restored on 09.07.2018. There was damage in JB & middle span due to heavy storm in Khileriat-Badarpur FO link and was restored late night vide Telecom dept link(without any added cost).
Haflong S/s	Restored on 13.07.2018.PLCC link(via AEGCL Umrangshu Substation) problem.
Itanagar S/s	Restored on 08.07.2018. PLCC link problem. This link is coming via multiple

	hops and so frequent problem.
Jiribam S/s	Restored on 09.07.2018 through PLCC Link.Original route was from Jiribam-Koilapur-Srikona-Panchgram_Badarpur.There was in between tower collapsed(AEGCL).
Roing S/s	Reporting at Local SCADA and due to network issue (internet issue), it is not reporting upto NERLDC.
Salakati S/s	Restored on 08.07.2018. Cable earth fault issue due to heavy rain & water accumulation Problem in Bongaigaon-Salakati substation.
Silchar S/s	Restored on 09.07.2018. There was damage in JB due to heavy storm in Khileriat-Badarpur FO link and was restored late night
Palatana	Restored on 09.07.2018. There was damage in JB due to heavy storm in Khileriat-Badarpur FO link and was restored late night.
Tezu S/s	Telemetry data process is being taken care of by means cellular internet connection as of date. Since the location of the substation is having very poor coverage/service by the cellular network providers, the telemetry system is not being able to function as intended. As such RTU reporting service is not quite reliable, which is leading to suspect data at receiving end.
Ziro S/s	Restored on 13.07.2018 and RTU is reporting at NERLDC.

Melriat S/s	RTU data is transmitting through GPRS which depend on the network of 3G Sim used. As the location is in remote area, strength of the network is very low. So, RTU data reporting at NERLDC is fluctuated at the receiving end.
Kolasib S/s	RTU under replacement through P&E.

Regarding Kolashib RTU jurisdiction, it was clarified that station belongs to P&E & so RTU is to be replaced by P&E and in SCADA of NERLDC, same should not be categorized as central RTU. Similarly, RTU/gateway of OTPC belongs to OTPC.

Further, it was again emphasized by forum in line with IEGC that as per sole responsibility, respective utilities (owner of station & RTU) may ensure bring/maintain the data/voice channels up to the nearest wide band locations. NEEPCO, OTPC & others may maintain PLCC links properly & if required should take up AMC of data channels/voice channels of PLCC/Other links connecting up to wide band of CTU/POWERGRID). The PLCC data/voice-channels will provide back up path and to be maintained by respective owner of RTU station

The Sub-Committee noted as above.

Action: NERTS/P&ED Mizoram.

B.23 GPRS connectivity for Substations and Leased line for SLDC:

Matter of GPRS connectivity is getting delayed due to non-issue of SIMs from respective utilities(i.e. P&ED Mizoram, DoP Nagaland, DoP Ar.Pradesh & TSECL). NERTS has communicated the requirements to all the utilities via different means. At present, help from all utilities by immediate issue of GPRS/3G data enabled SIMs & lease link at SLDC is required.

The latest status is given below:

S.NO	SECTOR	STATIC IP WITH CONNECTIVITY AT CENTRAL END	SIM CARD/BROADBAND CONNECTIVITY AT SUBSTATION END
1	**MANIPUR**	Received	Received only one SIM card for Charchundpur s/s

2	**NAGALAND**	Received	Not Received any SIM cards/Internet Broadband
3	**MIZORAM**	Not Received	Not Received any SIM cards/Internet Broadband
4	**ARUNACHAL**	Not Received	Not Received any SIM cards/Internet Broadband
5	**TRIPURA**	Not Received	Not Received any SIM cards/Internet Broadband
6	**CENTRAL SECTOR**	Received	Received SIM/Broadband for Namsai,Tezu,Meleriat & Roing locations

Deliberation in the meeting

After detailed deliberation the following timeline(s) were agreed to by the different utilities:-

Name of utility	Static IP at SLDC	GPRS SIM/Broadband
TSECL	By July'18	By 15.08.2018
MSPCL	-	Remaining By July'18
DoP Nagaland	-	By July'18

It was also intimated to states that instead of 3G SIM, if internet lease link is taken at substations also, then the same s also feasible with the modems provided for states.ED, NERLDC opined that GPRS is a temporary arrangement and should be discouraged. However it may be used as a stopgap arrangement till OPGW is implemented. However PLCC should serve as the backup for all state substations.

The Sub-Committee noted as above.

Action: All utilities.

ADDITIONAL AGENDA ITEM BY NERTS:

B.24 VSAT for Roing Tezu Namsai

i) VSAT feasible & available will be proposed to be implemented at additional cost (to be added to the main project to which above substations are constructed).

ii) Earlier also, same was taken up but due to very high cost, the same was discarded. Hence, now, life cycle cost analysis wrt actual usage (Added cost of VSAT Vs its effectiveness to running the grid) will be checked

iii) It may be noted that already data of these stations are integrated on Lease line broadband(main) & GPRS(back up). But sometimes, due to poor connectivity/Service provider in that area, data seldom becomes is intermittent. Similarly for VSAT also, actual availability will be looked in to before approval.

iv) Further, real time operation of grid is how much affected by "seldom data intermittence" of these station will be looked/reviewed in to keeping in view actual operational aspects/points of view before approval.

Deliberation in the meeting

The forum agreed in principle for CS stations(Roing Tezu Namsai) as mentioned above and proposed for approval in next RPC. DGM(SL), NERLDC informed that VSAT is operational in SR with ISRO support. The same may be explored in NER also. He explained the modalities in detail and informed that the recurring cost is ₹ 6.3 Cr. The forum requested NERTS to prepare a DPR in this regard and present it in the next OCC meeting for ratification. POWERGRID intimated that TS as per draft CEA standard (copy attached at **Annexure-B.24**) will be adopted for VSAT.

The Sub-Committee noted as above.

Action: NERTS

ADDITIONAL AGENDA ITEM BY AEGCL:

B.25 Redundant path for Upper Assam data:

AEGCL would like to request PGCIL to provide a redundant path for AEGCL's upper Assam data via Misa through MUX supplied under Microwave vacation OPGW project (ULDC).

Deliberation in the meeting

Member Secretary, NERPC requested AEGCL & NERTS to resolve the issue bilaterally.

The Sub-Committee noted as above.

Action: NERTS/AEGCL

B.26 Connectivity for Haflong & Umrangshu:

AEGCL do not have connectivity for Halflong and Umrangshu .AEGCL would like to request PGCIL to arrange RS232/V.24 and FXO/FXS at Halflong (PG) and Khandong with dropping at SLDC. So that these two stations are connected to SLDC Kahilipara.

Deliberation in the meeting

Member Secretary, NERPC requested AEGCL & NERTS to resolve the issue bilaterally. POWERGRID agreed to the point and asked AEGCL to specify the type & points of connection. The same may be made feasible once Haflong is connected to wide band under NER FO Expansion -by Nov18

The Sub-Committee noted as above.

Action: NERTS/AEGCL

B.27 SAS under PSDF scheme:

Under PSDF all existing substations of AEGCL are being replaced with SAS and Gateway (with 101 and 104 communication protocol). Partial data reporting of AEGCL will improve once the project is completed.

This is for information please.

ADDITIONAL AGENDA FROM NERLDC:

B.28 Periodical checking of VC facilities:

DGM(SL),NERLDC Opined that Video Conferencing needs to be checked weekly basis from NERLDC to all state constituents/NERPC to ascertain the healthiness of communication link and Video conferencing equipments of all NER constituents as these days many meetings like Fold etc.,conducting through VC.

The Sub-Committee noted as above.

Action: NERLDC/all SLDCs/NERPC

Date & Venue of next NETeST meeting

It is proposed to hold the 11th NETeST meeting of NERPC on second week of September, 2018. However, the exact date and venue will be intimated in due course.

The meeting ended with thanks to the Chair.

****

Annexure-I

List of Participants in the 10th NETeST Meetings held on 16/07/2017

SN	Name & Designation	Organization	Contact No.
	No Representatives	**Ar. Pradesh**	**-**
1.	Sh. Arup Sarmah, DM	Assam	09864267325
2.	Sh. Dipesh Ch. Das, AGM(LD-Com)	Assam	09954110254
3.	Sh. Arup Kr. Kalita, AGM (Coml.)	Assam	-
4.	Smt. J Wahengbam, AM, SLDC, MSPCL	Manipur	09856875084
5.	Smt. Laishram Ritu, Manager, SLDC	Manipur	09612882984
6.	Sh. B. Wankhar, EE (MOD)	Meghalaya	09436105914
7.	Sh. B. Narry, AEE, PLCC, MePTCL	Meghalaya	09089000911
8.	Sh. D. J. Lyngdoh, E.E (S.M), SLDC	Meghalaya	09774285158
9.	Sh. C. W. Chen, AE, SLDC, MePTCL	Meghalaya	09863093311
10.	Sh. Y.Kharpuri, AE (C&C),MePTCL	Meghalaya	09774507325
	No Representatives	**Mizoram**	**-**
11.	Sh. D. Chakraborty, SDO	Nagaland	07577950317
12.	Sh. Partha P. Acharjya, Manager (Elect.)	Tripura	09436462129
13.	Sh. Joypal Roy, Sr. Manager (E/M)	NEEPCO	09435577726
14.	Sh. T.S. Singh, ED	NERLDC	-
15.	Sh. M.K. Ramesh, DGM (SL)	NERLDC	09449599174
16.	Sh. Sakal Deep, Asst. Engineer	NERLDC	-
17.	Sh. A. Patir, GM	PGCIL	09435505418
18.	Sh. P. Kanungo, DGM	PGCIL	09436302823
19.	Sh. U. Kataki, AGM	PGCIL	09435505418
20.	Sh. S. Paul, Manager	PGCIL	-
21.	Sh. Mohd. Faroque, Manager (Mech.)	NHPC	09871992115
22.	Sh. Akhil Ch. Deke, Manager (C)	NHPC	07085483016
23.	Sh. Subhajit Ganguly, Sr. Executive	OTPC	-
24.	Sh. Jitendra Sain , Manager	KEC	-
25.	Sh. Imtiaz Hussain, Project Manager	KEC	-
26.	Sh. P.K. Mishra, MS	NERPC	-
27.	Sh. B. Lyngkhoi, Director/S.E (O&P)	NERPC	09436163419
28.	Sh. Srijit Mukherjee, AEE	NERPC	08794277306
29.	Sh. S. Imam, AEE	NERPC	08986666366

List of Lines for Line Differential Protection **Annexure-B.5**

Sl No	*Name of Element (Emanating - Terminating)*	*Ckt ID*	Tower Configuration (S/C or D/C)	Agency at End 1	Agency at End 2	Line Length in km	Owner	OPGW present (YES/NO)	Timeline for OPGW installation
C. 400 kV Lines									
1	BgTPP - Bongaigaon	1	D/C	NTPC	POWERGRID	3.1	POWERGRID		
2	BgTPP - Bongaigaon	2	D/C	NTPC	POWERGRID	3.1	POWERGRID		
F. 220 kV Lines									
1	Balipara - Sonabil	1	S/C	POWERGRID	AEGCL	10.0	AEGCL		
2	BTPS - Salakati	1	D/C	AEGCL	POWERGRID	2.7	POWERGRID		
3	BTPS - Salakati	2	D/C	AEGCL	POWERGRID	2.7	POWERGRID		
G. 132 kV Lines									
1	Agartala - AGTCCPP	1	D/C	TSECL	NEEPCO	8.4	POWERGRID		
2	Agartala - AGTCCPP	2	D/C	TSECL	NEEPCO	8.4	POWERGRID		
3	Agartala - Bodhjannagar	1	S/C	TSECL	TSECL	8.0	TSECL		
4	AGTCCPP - Kumarghat	1	S/C	NEEPCO	POWERGRID	7.8	POWERGRID		
5	Aizawl - Luangmual	1	S/C	POWERGRID	P&ED, P&ED, Mizoram	0.8	P&ED, Mizoram		
6	Aizawl - Melriat(PG)	1	S/C	POWERGRID	POWERGRID	6.7	POWERGRID		
7	Badarpur - Panchgram	1	S/C	POWERGRID	AEGCL	1.0	POWERGRID		
8	Balipara - Sonabil	1	S/C	AEGCL	AEGCL	10.0	AEGCL		
9	EPIP II - Umtru	1	D/C	MePTCL	MePTCL	0.7	MePTCL		
10	EPIP II - Umtru	2	D/C	MePTCL	MePTCL	0.7	MePTCL		
11	Haflong - Umranshu	1	S/C	AEGCL	POWERGRID	8.2	AEGCL		
12	Imphal (MSPCL) - Imphal (PG)	1	S/C	MSPCL	POWERGRID	1.5	POWERGRID		
13	Imphal (MSPCL) - Imphal (PG)	2	S/C	MSPCL	POWERGRID	2.3	POWERGRID & MSPCL		
14	Kahilipara - Sarusajai	1	D/C	AEGCL	AEGCL	3.5	AEGCL		

List of Lines for Line Differential Protection **Annexure-B.5**

Sl No	*Name of Element (Emanating - Terminating)*	*Ckt ID*	Tower Configuration (S/C or D/C)	Agency at End 1	Agency at End 2	Line Length in km	Owner	OPGW present (YES/NO)	Timeline for OPGW installation
15	Kahilipara - Sarusajai	2	D/C	AEGCL	AEGCL	3.5	AEGCL		
16	Kahilipara - Sarusajai	3	D/C	AEGCL	AEGCL	3.9	AEGCL		
17	Sarusajai - Sishugram	1	D/C	AEGCL	AEGCL	3.9	AEGCL		
18	Khliehriat (MePTCL) - Khliehriat (PG)	1	S/C	MePTCL	POWERGRID	7.8	POWERGRID		
19	Khliehriat (MePTCL) - Khliehriat (PG)	2	S/C	MePTCL	POWERGRID	5.4	MePTCL		
20	Kumarghat - P K Bari	1	S/C	POWERGRID	TSECL	1.0	TSECL		
21	Lekhi - Nirjuli	1	S/C	DoP, Arunachal Pradesh	POWERGRID	9.5	DoP, Arunachal Pradesh & POWERGRID		
22	NEHU - Mawlai	1	S/C	MePTCL	MePTCL	7.9	MePTCL		
23	Mokochung (PG) - Mokokchung (DoP, Nagaland)	1	D/C	POWERGRID	DoP,Nagaland	1.4	POWERGRID		
24	Mokochung (PG) - Mokokchung (DoP, Nagaland)	2	D/C	POWERGRID	DoP,Nagaland	1.4	POWERGRID		
25	NEHU - NEIGRIHMS	1	S/C	MePTCL	MePTCL	6.7	MePTCL		
26	NEHU - Umiam	1	D/C	MePTCL	MePTCL	6.2	MePTCL		
27	Ranganadi - Pare	1	S/C	NEEPCO	NEEPCO	9.0	POWERGRID		
28	Silchar - Srikona	1	D/C	POWERGRID	AEGCL	1.2	POWERGRID		
29	Silchar - Srikona	2	D/C	POWERGRID	AEGCL	1.2	POWERGRID		
30	Umiam - Umiam St I	1	S/C	MePTCL	MePTCL	5.1	MePTCL		
31	Umiam St III - Umiam St IV	1	D/C	MePTCL	MePTCL	8.0	MePTCL		
32	Umiam St III – Umiam St IV	2	D/C	MePTCL	MePTCL	9.7	MePTCL		

Annexure-B.7

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
(पावरग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A wholly owned subsidiary of POWERGRID)

उत्तर पूर्वी क्षेत्रीय भार प्रेषण केंद्र North Eastern Regional Load Despatch Centre
डाक रिंजा, लापालांग, शिलांग - 793006 (मेघालय), ई-मेल : nerldc@posoco.in
P.O. Rynjah, Lapalang, Shillong - 793006, (Meghalaya) E-mail nerldc@posoco.in
दूरभाष / Tel. : (0364) 2537427, 2537486, 2537482 फैक्स / Fax. : (0364) 2537470

CIN No. U40105DL2009GOI188682

TO: **The Project Manager**
ALSTOM T&D India Limited
A-7, Sector-65, NOIDA-201301,
Uttar Pradesh, INDIA

Kind Attention: Mr. Imtiaz Hussain

Ref: NERLDC/SCADA-UPGRADE (Post-Award Vol-1)/ 5199 - 206

Date: 05-February-2016

Subject: Sending & receiving Data from RTAMC to NERLDC SCADA system on ICCP

Project: Expansion/ Up-gradation of existing SCADA/ EMS System of NERLDC & SLDCs of North Eastern Region, NERLDC portion

Dear Sir,

As decided in the meeting between POWERGRID & POSOCO dated 28th January, 2014,

1. Each RTAMC would send data to respective Main & Backup RLDC on ICCP

2. NTAMC & Backup NTAMC would receive the data of 220 kV and above substations/ generating stations from main & backup NLDC respectively. However, in case of NER, the data exchange from NLDC would be for 132 kV and above.

3. Till the up-gradation of NLDC system, the data of other utilizes as mentioned would be transferred to respective RTAMC on ICCP and in turn NTAMC would receive the data from RTAMC.

POWERGRID has provided 01 number of communication link between RTAMC and NERLDC. Also, as informed, RTAMC is ready for ICCP integration with NERLDC.

You are therefore requested to extend necessary support for establishment of ICCP communication between NERLDC & RTAMC of NER.

Yours sincerely

5/2/16

(V KAIKHOCHIN)
Project Manager
Expansion/ Up-gradation of existing SCADA/ EMS System
—NERLDC Portion

पंजीकृत कार्यालय बी-9, कुतब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली-110016, दूरभाष 26560121, फैक्स 011-26560039
Registered Office B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110016, Tel : 26560121, Fax 011-26560039

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
(पावरग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A wholly owned subsidiary of POWERGRID)

उत्तर पूर्वी क्षेत्रीय भार प्रेषण केंद्र North Eastern Regional Load Despatch Centre
डाक रिंजा, लापालांग, शिलांग - 793006 (मेघालय), ई-मेल : nerldc@posoco.in
P.O. Rynjah, Lapalang, Shillong - 793006, (Meghalaya) E-mail nerldc@posoco.in
दूरभाष / Tel. : (0364) 2537427, 2537486, 2537482 फैक्स / Fax. : (0364) 2537470

CIN No. U40105DL2009GOI188682

Copy to:

1. Shri Mitesh Pant, Project Head, ALSTOM T&D India Limited, A-7, Sector-65, NOIDA-201301, Uttar Pradesh, INDIA
2. Shri Sunil Kumar, Deputy General Manager (LD&C), POWERGRID, Saudamini, Plot no. 2, sector 29, Gurgaon – 122001
3. Arun Kumar Singh, Asst.GM, NTAMC, POWERGRID, MANESAR, Gurgaon – 122413
4. Shri Supriyo Paul, Manager (AM), NERTS, POWERGRID, Shillong
5. GM, NERLDC – for kind information
6. Shri P K Agarwal, GM, NLDC, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi – 110016
   --For kind information

पंजीकृत कार्यालय बी-9 कुतब इंस्टीट्यूशनल एरिया कटवारिया सराय नई दिल्ली-110016, दूरभाष 26560121 फैक्स 011-26560039
Registered Office B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110016, Tel.: 26560121, Fax:011-26560039

Minutes of meeting held on 28th January 2014 at NLDC for discussion of Data exchange between NLDC/RLDC and NTAMC systems

POSOCO	POWERGRID
Mr.P.K.Agarawal, NLDC	Mr. A.K.Mishra, LD&C
Mr. Debashis De, NRLDC	Mr. P.K.Srivastav, NTAMC
Mr. Harish Rathore, NLDC	Mr. Sunil Kumar, LD&C
	Mr. A.K.Singh, NTAMC

The meeting was held to finalize the implementation of exchange of data between NLDC/RLDC SCADA/EMS system and the NTAMC/RTAMC SCADA/EMS system. After deliberations following was agreed:-

1. All Substations of POWERGRID would have BCU/RTU gateway and would provide data on IEC 60870-5-101 protocol on redundant ports to respective RLDC. The communication equipment for the same would be arranged under ongoing regional communication projects by LD&C.
2. In addition each RTAMC would send the data to respective Main and Backup RLDC on ICCP. In normal condition RTAMC would send the data on ICCP to Main RLDC and in case of failure of link between Main RLDC and RTAMC , the association between RTMAC and Backup RLDC would be enabled(manually).
3. NTAMC and Backup NTAMC would receive the data of 220kV and above Substations/Generating Stations from Main and Backup NLDC respectively. However in case of North Eastern Region the data exchange from NLDC would be for 132 kV and above
4. The existing NLDC ICCP system may not have the expansion capability. NLDC system upgradation project planning has already started and it was decided that till the upgradation of NLDC system, the data of other utilities as mentioned at point 3 above would be transferred to respective RTAMC on ICCP and in turn NTAMC would receive the data from RTAMC.
5. The communication equipment required for exchange of data among NTAMC, RTAMC, RLDCs and NLDC would be arranged under NTAMC project. (reference Note C/Telecom/NTAMC dated 19.12.2011).However in case NTAMC/RTAMC is located at POWERGRID substations then ICCP data between RTAMC and RLDC shall be arranged under ongoing regional communication projects by LD&C. The typical Connectivity for Data communication on ICCP is as shown in the diagram attached.
6. The network equipments like firewall, routers etc. would be taken care by respective control centers.
7. The exchange of complete data model and incremental data model between the RLDC/NLDC and the RTAMC/NTAMC SCADA/EMS system shall be done using CIM model. The modalities and mechanisms of the exchange of CIM model shall be discussed and finalized with the respective SCADA/EMS vendors. It was also decided to arrange a testing between different vendors for exchanging the data model and incorporation into its database for further use.
8. The VOIP exchange is being procured separately for NLDC/RLDC system and NTAMC system for speech communication. It would be explored to integrate both the VOIP system.

(POSOCO) (NTAMC) (LD&C)

SYSTEM LOGISTICS, NERLDC

Telemetry Statistics of States and Central Sector RTUs

DATA AVAILABILTY AS ON 14/06/2018 10:00HRS

Sl No.	State	Total No. of Analog Points	Total No. of Digital Points	Total No. of Points	Analog Points Reporting	Digital Points Reporting	Total No. of Points Reporting	%age Availability of Analog Points	%age Availability of Digital Points	%age Availability
1	A.P	104	149	253	0	0	0	0%	0%	0%
2	Assam	1230	1739	2969	573	552	1125	46.58 %	31.74 %	37.89 %
3	Manipur	180	255	435	58	83	141	32.22 %	32.54 %	32.41%
4	Meghalaya	433	450	883	311	116	427	71.83 %	26%	48.36%
5	Mizoram	71	50	121	9	9	18	12.67 %	18%	14.87%
6	Nagaland	237	270	507	7	13	20	2.95%	4.81 %	3.94%
7	Tripura	524	715	1239	165	195	360	31.49 %	27.27 %	26.95 %

DATA AVAILABILTY AS ON 14/06/2018 10:00HRS

Sl No.	State	Total No. of Analog Points	Total No. of Digital Points	Total No. of Points	Analog Points Reporting	Digital Points Reporting	Total No. of Points Reporting	%age Availability of Analog Points	%age Availability of Digital Points	%age Availability
1	PGCIL	628	1083	1709	428	683	1111	68.15 %	63.06 %	65.08%
2	NEEPCO	188	267	455	133	188	321	70.74 %	70.41 %	70.55%
3	NTPC	31	49	80	23	43	66	74.19 %	87.75 %	82.5%
4	OTPC	44	90	134	41	81	122	93.18 %	90%	91.04%
5	NHPC	18	29	47	16	13	29	88.88 %	44.82 %	61.70%

DATA AVAILABILTY AS ON 14/06/2018 10:00HRS

Sl No.	State	Total No. of Analog Points Excluding OLTC status	Total No. of Digital Points (only CB status)	Total No. of Points	Analog Points Reporting Excluding OLTC status	Digital Points Reporting (only CB status)	Total No. of Points Reporting	%age Availability of Analog Points	%age Availability of Digital Points	%age Availability
1	Arunachal Pradesh	104	43	147	0	0	0	0%	0%	0%
2	Assam	1088	470	1558	566	274	840	52.02 %	58.29 %	53.91 %
3	Manipur	156	66	222	57	26	83	36.53 %	39.39 %	37.38%
4	Meghalaya	404	158	562	289	147	436	71.53 %	93.03 %	77.58%
5	Mizoram	64	21	85	9	5	14	14.06 %	23.8 %	16.47%
6	Nagaland	207	84	291	7	13	20	3.38%	15.47 %	6.87%
7	Tripura	460	191	651	190	68	258	41.3%	35.6 %	39.63 %

DATA AVAILABILTY AS ON 14/06/2018 10:00HRS

Sl No.	State	Total No. of Analog Points Excluding OLTC status	Total No. of Digital Points (Only CB Points)	Total No. of Points	Analog Points Reporting Excluding OLTC status	Digital Points Reporting (Only CB Points)	Total No. of Points Reporting	%age Availability of Analog Points	%age Availability of Digital Points	%age Availability
1	PGCIL	581	293	874	399	190	589	68.67 %	64.84 %	67.39%
2	NEEPCO	167	73	240	133	55	188	79.64 %	75.34 %	78.33%
3	NTPC	24	11	35	23	11	34	95.83 %	100%	97.14%
4	OTPC	40	24	64	39	23	62	97.5%	95.83 %	96.87%
5	NHPC	18	7	25	16	3	19	88.88 %	42.86 %	76.00%

Part – V

Standards applicable to VSAT

1. General Requirement

a) This type of communication shall not be used for control function and protection of power system equipment.

b) This mode of communication shall be used for remote locations where access to wideband network is not possible

c) The VSAT terminal shall be able to work with all geostationary satellites visible from India and work efficiently from all parts of India.

d) The VSAT terminal shall work either on C-band or extended C band for interruption free 24 X 7 operation in extremely rainy (more than 10mm/hour intensity) and cloudy conditions.

e) This mode of communication shall be adopted after ensuring the available signal level up to the required level by the service provider and link availability (99.9 percent) for interruption free operation of the communication system. NMS should be having facility of maintaining link status along with signal strength of the nodes.

f) This mode of communication shall not be connected to the National wideband network.

g) The size of the antenna should be as per WPC/DOT guidelines. All regulatory clearance from various regulatory bodies like DOT / WPC etc. shall be taken to operate the VSAT communication as its guidelines.

h) The VSAT Service Provider shall have redundant configuration enabled in Network Management System (NMS).

i) Pull Band width feature shall be adopted for the VSAT Network.

2. Standards and Codes of Practice

The equipment shall be conforming to latest revision of ITU-R recommendation S.580-6

3. Functional Requirement

a) Uplink and down link configuration shall be redundant (1 + 1)

b) The network shall be designed based on FTDMA / MFTDAM / SCPC DAMA technology or any other proven future technology with configurable data rate as per data communication requirement.

c) Bit error rate shall be greater than 1 X 10^{-7} (data) to 1 X 10^{-4} (Voice)

d) Shall support Broadcast, Unicast, Multicast, TCP spoofing

e) Shall support IP RJ-45 (IP and E&M),

f) Receiving device should support IEC - 60870 -5-104 protocols for interfacing data as well as to IPv4, IPv6, RIP v1, v2, ARP, ICMP, TCP, UDP, Telnet, IGMP, v1, v2, SNMP for networking Utilities.

g) Necessary protection / Firewall with IPS shall be provided to ensure Cyber Security.

h) Shall be designed for 230 V +/- 30% AC power supply at 50 Hz.

i) Shall be designed for trouble free operation at temperature range -10^0 to 55^0 Centigrade and humidity up to 95% non-condensing. Shall be designed for wind speed of minimum 80 kmph (Operational)

j) Shall be able to deliver bidirectional composite data traffic.

k) Round trip delay shall be less than 600 ms

l) The VSAT IDU (for remote sites) shall support TCP/IP without the need of an external router.

m) The VSAT terminal shall have separate storage banks for software and firmware, to enable configuration changes pertaining to either the terminal (firmware) or the overall system architecture (software), without affecting the other.

n) The terminals should be able to take the software and firmware downloads from the hub over the air, without any disturbance to the online user traffic while in operation on per terminal (Unicast), per group (Multicast) or entire network (Broadcast) basis.