



भारत सरकार/Government of India
विद्युत मंत्रालय/Ministry of Power
केन्द्रीय विद्युत प्राधिकरण/Central Electricity Authority
एन.पी.सी. प्रभाग/National Power Committee Division
Ist Floor, Wing-5, West Block-II, RK Puram, New Delhi-66

No. CEA-GO-15-14/1/2021-NPC Division 53

Date: 30.01.2024

To

(As per distribution list)

विषय: राष्ट्रीय विद्युत समिति (एनपीसी) की 14वीं बैठक के लिए अतिरिक्त एजेंडा-के सम्बन्ध में।

Subject: Additional agenda for the 14th meeting of National Power Committee (NPC)-
Reg.

महोदया/महोदय,

एनपीसी की 14वीं बैठक 03.02.2024 (शनिवार) को सुबह 11:00 बजे बैंगलोर में होने वाली है। 14वीं एनपीसी बैठक का एजेंडा 11.01.2024 को एनपीसी के सभी सदस्यों को प्रसारित किया गया था। बैठक का अतिरिक्त एजेंडा आपकी सूचना एवं आवश्यक कार्रवाई हेतु संलग्न है।

कृपया बैठक में भाग लेने की कृपा करें।

The 14th meeting of NPC is scheduled to be held on 03.02.2024 (Saturday) at 11:00 AM at Bangalore. The agenda of 14th NPC meeting was circulated to all members of NPC on 11.01.2024. The additional agenda of the meeting is enclosed herewith for your kind information and necessary action.

Kindly make it convenient to attend the meeting.

Encl: As above

भवदीय/ Yours faithfully

(ऋषिका शरण/Rishika Sharan)

मुख्य अभियन्ता एवं सदस्य सचिव, रा.वि.स /
Chief Engineer & Member Secretary, NPC

Distribution List (Members of NPC):

1. Shri. Chowna Mein, Hon'ble Dy. Chief Minister and I/C Power, Govt. of Arunachal Pradesh, Block No.2, 5th Floor, A.P. Civil Secretariat, Itangar-791111. [Email: chowna.mein@gov.in]
2. Shri Ginko Lingi, Chairman, TCC, NERPC & Chief Engineer (P), TPMZ , Department of Power, Govt. of Arunachal Pradesh, Vidyut Bhawan, zero Point, Itanagar-791111. [Email: ginko.lingi@gmail.com]
3. Shri K Vijayanand, Chairperson, SRPC, Chairman & Managing Director , Transmission Corporation of Andhra Pradesh Limited, Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh 520004. [Email: cmd.aptransco@aptrandco.in ; vjanand@nic.in]
4. Shri AKV Bhaskar, Chairperson TCC, Director (Trasmission & Grid Management), Transmission Corporation of Andhra Pradesh Limited, Vidyut Soudha, Gunadala,Eluru Rd, Vijayawada, Andhra Pradesh 520004. [Email: kannanvenkatabhaskar.angulabharanam@aptransco.co.in]
5. Shri Vishal Kumar Dev, IAS, Chairman ERPC, Principal Chief Secretary to Govt., Department of Energy, Govt. of Odisha, Bhubaneswar. [Email: chairman@gridco.co.in]
6. Shri Trilochan Panda, Managing Director, GRIDCO, Chairperson TCC ERPC, GRIDCO Limited, Regd. Office: Janpath, Bhubaneswar – 751022.
7. Shri Mohammed Shayin, IAS, Chairperson, NRPC, Managing Director, HVPNL, Shakti Bhawan, C-4, sector-6, Panchkula-134109. [Email: md@hvpn.org.in]
8. Shri Manmohan Matta, Director (Projects), Chairman TCC, NRPC, Shakti Bhawan, C-4, sector-6, Panchkula-134109. [Email: directorprojects@hvpn.org.in]
9. Shri Sanjay Dubey, Chairman WRPC & Principal Secretary (Energy), GoMP, VB-2, Vallabh Bhawan Annex, Mantralay, Bhopal-462001(M.P.).[Email: psenergyn@gmail.com]
10. Shri Raghuraj Rajendran, Chairman-TCC & Managing Director MPPMCL, Block No-15, Shakti Bhawan, Vidyut Nagar, Rampur, Jabalpur-482008. [Email: md@mppmcl.com]
11. Shri N.S. Mondal, Member Secretary, ERPC,14,Golf Club Road, ERPC Building, Tollygunje,Kolkata-700033. [Email: mserpc-power@nic.in]
12. Shri V.K.Singh, Member Secretary, NRPC, 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110066.[Email: ms-nrpc@nic.in]
13. Shri Asit Singh, Member Secretary, SRPC, No.29, Race Course Cross Road, Bengaluru-560009. [Email: mssrpc-ka@nic.in]

14. Shri Deepak Kumar, Member Secretary, WRPC, Plot No- F-3, MIDC Area, Marol, Opp. SEEPZ, Central Road, Andheri (East), Mumbai-40093.[email: ms-wrpc@nic.in]
15. Shri K B Jagtap, Member Secretary, NERPC, NERPC Complex, Dong Parmaw, Lapalang, Shillong-793006. [Email: ms-nerpc@gov.in]

Special Invitees:

1. CMD, GRID-INDIA, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi -110016.
2. CMD, NTPC, NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road, New Delhi-110003.
3. CMD, PowerGrid, Saudamini, Plot No.2, Sector-29, Gurugram-122001.
4. COO, CTU, Saudamini, Plot No.2, Sector-29, Gurugram-122001
5. Chief Engineer, GM Division, Sewa Bhawan, CEA, New Delhi.

Copy for kind information to:-

1. SA to Chairperson, CEA, New Delhi
2. SA to Member(Go&D),CEA, New Delhi

केंद्रीय विद्युत प्राधिकरण/Central Electricity Authority
राष्ट्रीय विद्युत समिति /National Power Committee

Additional Agenda– 14th Meeting of National Power Committee (NPC) to be held on 03.02.2024 at Bangalore.

Additional Agenda: Establishment of State-of- the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the regional UNMSs. (CTUIL Agenda)

- a. CTUIL vide email dated 17.01.2024 sent an agenda item to NPC Secretariat regarding establishment of State-of- the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the regional UNMSs. The detailed agenda is as below:

| S. No. | Items | Details |
|---------------|---------------------|--|
| 1. | Name of Scheme | Establishment of State-of- the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the regional UNMSs. |
| 2. | Scope of the scheme | <ul style="list-style-type: none">● Supply and Installation of Main & Backup National-UNMS system hardware and software along with associated items at respective UNMS Centres. The new system shall be deployed in such a way that the operation of the existing systems should not be disturbed.● Supply and Installation of hardware & software for workstation, network switches, firewall & IDPS, Printer, Furniture etc.● Integration of existing Regional UNMS (In Main & Backup configuration) with Main and Back up N-UNMS System. One channel of each Regional UNMS to Main and Back up UNMS centre shall be used for redundancy of respective UNMS Centres.● Development of complete Database, displays and reports either from scratch or by extracting existing database, displays and reports, also for creating integrated national communication system overview and inter regional system details for the modules.● Supply of all FCAPS features with advance planning tool.● Import and Adaption of database & displays made for Regional UNMS system including import of historical data stored in existing servers for integration in new system also for creating national dashboard and inter regional system dashboards for the required system details. |

| S. No. | Items | Details |
|--------|-------|--|
| | | <ul style="list-style-type: none"> ● Auxiliary Power Supply System Comprising of UPS with Battery set along with all necessary distribution board. ● Integration & Testing with any new UNMS coming up during implementation and AMC period of this Project. ● Supply of Spares identified under AMC along with main items to meet the contingency during installation period and during AMC period. ● All cabling, wiring, and interconnections to the items being supplied and to be integrated including power supply. ● The project scope shall include customization of its database, such as configuration of database, scan period and all other database parameters required to integrate existing system successfully. ● Additional Hardware, software and services necessary to ensure compatibility with existing equipment. ● Auditing of Cyber Security implementation by CERT-In listed Auditors during AMC. ● Training of personnel and Users of the System. ● Comprehensive Maintenance of the supplied system for seven (7) years including one (1) year defect liability period as per specification, including integration with future UNMS (if any), Database configurations, Maintaining Spare inventory etc. ● Integration with third party Applications: The N-UNMS Systems being supplied shall have provision to exchange data with the existing and or to be purchased third party applications of in standard formats like ODBC, OPC & XML etc. ● GI/Aluminium cable trays/trace ways with covers shall be supplied in the project for laying cables so that cable can be protected from rodents. These cable trays/trace ways shall be screwed/ fixed on the floor. |

| S. No. | Items | Details |
|--------|---------------------------|---|
| 3. | Architecture | <p style="text-align: center;"><u>Proposed U-NMS Topology for Data Flow (Typical)</u></p> |
| 4. | Objective Justification / | <p>i. In line with CERC, CEA Regulations and RPC approvals, the Regional UNMS scheme integrating ISTS communication system along with State sector network, is being deployed in each region. Now, all five (5) Regional UNMS servers shall be integrated in the next layer to the National UNMS server integrating all the regional ones; in main & backup configuration. This will facilitate centralized reporting/collection of PAN India communication Network of ISTS as well as State level system including cross border links at National Level. The scope & technical aspect of the National UNMS scheme shall be broadly in line with Technical Specification of Regional UNMS while including features for National aspects, as per the deliberations held in all RPC/NCT forums.</p> <p>ii. The proposed National UNMS (N-UNMS) System shall provide the multi-tiered solution for Network Management System Functions with modules such as Network Resource/Discovery/Inventory, configuration management, Planning, Fault/Alarm Management, Performance Management, Trouble Ticket with application security, reporting, simulation, Artificial Intelligence & Analytics etc</p> |

| S. No. | Items | Details |
|--------|--------------------------|--|
| | | <p>and common dashboards also for integrated national network and for inter-regional systems including cross border.</p> <p>iii. The N-UNMS shall also provide a Pan India visualization of power system communication network. This shall facilitate Centralized Supervision and Quick Fault detection and restoration for National, Inter-Regional and Cross-Border communication system and the network. The N-UNMS shall additionally have advanced planning tool having features for Long, Medium- & Short-Term Planning for preparing planning projections for ISTS Communication System (for National/ Regional/ State) for 2 years, 5 years and 10 years.</p> <p>iv. The proposal of N-UNMS was deliberated in all the RPCs during approval of respective Regional UNMS scheme and the in-principle technical approval has been given by the forum.</p> <p>v. The relevant extracts are attached in Annexures as specified below-</p> <p style="padding-left: 40px;">Northern Region -Annexure I Northern Eastern Region -Annexure II Eastern Region- Annexure III Southern Region – Annexure-IV Western Region – Annexure-V</p> <p>Minutes of 15th NCT meeting is also attached as Annexure-VI</p> |
| 5. | Estimated Cost | <p>Rs. 101* CRs. (approx.) and 19.07 CRs. AMC charges for 7 years. The cost of national UNMS shall be shared equally with all 5 regions.</p> <p>*Cost has been derived from awarded package of regional UNMS Scheme.</p> |
| 6. | Implementation timeframe | 24 Months from date of project allocation based on NCT approval. |
| 7. | Implementation Mode | Through RTM to POWERGRID |

Members may deliberate.

Annexure-I_NR_UNMS_Approval



सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
उत्तर क्षेत्रीय विद्युत समिति
Northern Regional Power Committee

सं. उक्षेविस/ प्रचालन /108/04/2019/ 9691-9725
No. NRPC/ OPR/108/04/2019/

दिनांक: 03 सितम्बर, 2019
Dated : 03rd September, 2019

सेवा में / To,

Members of TeST Sub-Committee (As per List)
टेस्ट उप समिति के सभी सदस्य (संलग्न सूचीनुसार)

विषय: टेस्ट उप-समिति की 15 वीं बैठक का कार्यवृत्त।

Subject: 15th meeting of TeST Sub-Committee – Minutes.

महोदय ,
Sir,

उत्तर क्षेत्रीय विद्युत समिति की टेस्ट उप-समिति की 15 वीं बैठक दिनांक 07 अगस्त, 2019 को उत्तर क्षेत्रीय विद्युत समिति, सम्मलेन कक्ष, कटवारिया सराय, नई दिल्ली में आयोजित की गई थी। इस बैठक के कार्यवृत्त की एक प्रति आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

15th TeST Sub-Committee meeting of NRPC was held on 07th August, 2019 at NRPC, Conference Hall, Katwaria Sarai, New Delhi. A copy of the minutes of the meeting is enclosed herewith for favour of information and necessary action.

भवदीय
Yours faithfully,

(आर.पी. प्रधान)

(R.P. Pradhan)

अधीक्षण अभियंता
Superintending Engineer

substations of BBMB, so as to rectify the discrepancy in the phasor mismatch being observed in the PMUs installed under URTDSM Scheme.

POWERGRID agreed that they would take up the matter.

6. OTHER AGENDA

6.1 Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network. (Agenda by POWERGRID)

POWERGRID briefed the committee about the 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.”*

POWERGRID informed that in line with regulation, provisions of Centralized NMS and Centralized Monitoring by integrating its NMS with other users NMS, has been kept in the documents of Technical standard & Manual of Communication Planning Criteria being finalized by CEA. In addition to this guideline on availability of Communication system for ISTS has been submitted to CERC by CEA for which centralized NMS/OSS is considered essential.

POWERGRID made a detailed presentation (a copy of the same attached at **Annexure-6.1**) on Unified Network Management System (U-NMS) Project to be implemented for managing ISTS Communication System at Regional and National level. Presentation covered various technical aspects of U-NMS, configuration at Regional and National level, integration of existing NMSs and Network Elements not having visibility in NMSs etc.

POWERGRID further added that that U-NMS configuration proposed at Regional and National levels shall provide graphical representation of topology of nodes and links, auto discovery and rediscovery of Network Elements and sub-systems, Facility of end to end provisioning of bandwidth centrally, Fast fault resolution and reduced restoration times, Proactive maintenance and Customer support and working out channel availability etc. apart from analytics for predictive maintenance etc.

POWERGRID informed that U-NMS Project is conceived to facilitate Centralized Supervision for ISTS Communication in compliance to CERC Regulation for Communication System notified in May'17 as present NMSs do not have visibility of entire network and are not capable to support the requirements envisaged for ISTS Communication in CERC Regulation.

Proposed U-NMS configuration at regional level shall also consider integration of NMSs of State Communication Network to facilitate STUs to monitor and maintain their network with the help of Work Station provided at their location having direct access of Regional Server.

POWERGRID further stated that U-NMS Project implementation Schedule is considered as 24 months and estimated cost for National and Regional U-NMS is Rs. 120 Cr (Rs. 99.93 Cr for each Regional and Rs. 20Cr for National U-NMS, considering 100Cr for National level covering all 5 Regions i.e. NR, ER, NER, WR and SR) excluding AMC cost which is estimated as Rs. 2.6 Cr for 6 years after Warrantee period. However, the actual cost shall be discovered only after implementation. The Tariff for the investment made is to be shared by all constituents as per CERC notification. The scheme shall become part of existing Commercial Agreement signed for ULDC Project.

Members deliberated on U-NMS proposal. The need of implementation of U-NMS at Regional and National level was agreed by all members considering provisions of Communication Regulation.

Member Secretary, NRPC requested utilities for their technical comments. He further stated that utilities can also send their comments, if any, via email at sec-nrpc@nic.in by 31st August, 2019.

NRLDC enquired regarding the space availability for U-NMS installation.

POWERGRID stated that they would install U-NMS in their premises and informed that CTU shall manage the system after installation.

Sub-Committee agreed for in-principal technical approval of the scheme and recommended for further deliberations in the next TCC/NRPC meetings.

6.2 Mapping of analogue data and digital status of SPS operation related information in SCADA (Agenda by NRLDC)

NRLDC requested all concerned to integrate SPS signals in RTU so that same can be visualized in SCADA. Further it was SPS signals originating from DTPC to various sub-stations shall be integrated by POWERGRID. Further signals shall also be wired and integrated at receiving end by respective utility.

NRLDC informed that as per the decision taken in various meeting, all mapping of SPS signal for new SPS should be done by the agency who is responsible for SPS installation.

Further NRLDC requested all concerned utilities to integrate SPS signals on priority basis.

All utilities informed that integration work is in process and will be integrated at the earliest.



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

सं. उक्षेविस/ वाणिज्यिक/ 209/ आर पी सी (46 वीं)/2019/12509-12556
No. NRPC/ Comml/ 209/ RPC (46th)/2019/

दिनांक : 14 अक्टूबर, 2019
Dated: 14th October, 2019

सेवा में / To,

उ.क्षे.वि.स. के सभी सदस्य
Members of NRPC/TCC

विषय: उत्तर क्षेत्रीय विद्युत समिति की 46 वीं तथा तकनीकी समंवय उप-समिति की 43 वीं बैठक कार्यवृत्त ।

Subject: 46th meeting of Northern Regional Power Committee and 43rd meeting of TCC – Minutes.

महोदय / Sir,

उत्तरी क्षेत्रीय विद्युत समिति की 46 वीं बैठक दिनांक 24 सितम्बर, 2019 को तथा तकनीकी समंवय उप-समिति की 43 वीं बैठक दिनांक 23 सितम्बर, 2019 को कोवलम, थिरुवानाथापुरम में आयोजित की गयी थी । इन बैठकों के कार्यवृत्त की प्रति आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

The 46th meeting of Northern Regional Power Committee was held on 24th September, 2019 and 43rd meeting of TCC was held on 23rd September, 2019 at Kovalam, Thiruvananthapuram. A copy of the minutes of the meetings is enclosed herewith for your information and necessary action.

भवदीय/Yours faithfully,

(नरेश भण्डारी)
(Naresh Bhandari)

सदस्य सचिव

Member Secretary

14/X/19

- B.15.5 Punjab conveyed that after going through the minutes of the last TeST sub-committee meeting, it appears that the proposed scheme has been recommended by TeST sub-committee without much deliberation. Also, this project could be considered for PSDF funding as Punjab had also got PSDF funding for similar type of state projects. Regarding less deliberation in TeST, MS, NRPC stated that state representation in meetings other than TCC/NRPC has reduced to a level that in some states AE or AEE participate against Chief Engineer, nominated member. Regarding PSDF support, POWERGRID stated that PSDF support of 50% is for the state sector, but for central sector no such provision is available in this scheme.
- B.15.6 After detailed deliberations, it was decided that this agenda would be again taken up in the next TeST meeting. PSTCL and RRVPNL informed that they are ready to clear the scheme in 15 days if POWERGRID deputed their engineer and they are convinced that while making scheme due diligence has been given to use state network. States also agreed to depute officer not below SE level in the meetings other than TCC/NRPC.

B.16 Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network

TCC Deliberations

- B.16.1 POWERGRID informed that provisions of Centralized NMS and Centralized Monitoring by integrating its NMS with other users NMS has been kept in the draft Technical standard and Communication Planning Criteria Manual of CEA. In addition to this, guideline on availability of Communication system for ISTS has been submitted to CERC by CEA for which centralized NMS/OSS is considered essential. MS, NRPC stated that the scheme has been recommended by TeST sub-committee in its 15th meeting and same may be deliberated in NRPC for approval.

NRPC Deliberations

- B.16.2 POWERGRID stated that scheme has been discussed at length in last meeting of TeST sub-committee wherein POWERGRID had made a detailed presentation before the members. The estimated cost of Rs 600 Cr is for all regions.
- B.16.3 Haryana stated that U-NMS is a necessary system because different make of communication systems are to be integrated at common platform. POWERGRID stated that in line with CERC's regulations mentioning communication system availability, the proposed U-NMS is also capable to calculate the availability of the communication system besides providing holistic view of network.
- B.16.4 The Committee after detailed deliberation, approved the scheme.

भारत सरकार Government of India

विद्युत मंत्रालय Ministry of Power

उत्तर पूर्वी क्षेत्रीय विद्युत समिति North Eastern Regional Power Committee



RECORD NOTE OF DISCUSSION

OF

20TH TCC MEETING

&

20TH NERPC MEETING

(UNDER THE AEGIS OF OTPC & NETC)

Venue: Hotel Vivanta by Taj, Guwahati

Date (TCC) : 12th September, 2019

Date (NERPC) : 12th September, 2019

| Sl. No. | ISTS S/s | Voltage ratio, Trans. Cap | Voltage level (kV) | no. of spare Bays | Lines emanating from S/s | No. of circuit | Status of Lines | Remarks |
|---------|----------|-------------------------------------|--------------------|-------------------|--------------------------|----------------|-----------------|---|
| 1 | Silchar | 400/132kV, 2x200MVA +1x315MVA | 132 | 4 | Silchar – Ghungur | 1 | Dec'21 | Available since Jan'19 after Upgradation of Silchar – Imphal 400kV D/c line |
| | | | | | Silchar - Udarbond | 1 | | |
| | | | | | To be identified | 2 | - | Available by Jul '20 after Upgradation of Silchar – P.K.Bari D/c line |

Deliberation of the TCC

AGM, TSECL informed that 400kV (charged at 132kV) Silchar –P.K. Bari will be extended to Masuli. So, TSECL may be allowed to utilize the 2 bays at P.K. Bari.

AEGCL also expressed requirement for two bays at Silchar for Ghungur/Udarbond

AEGCL & TSECL to write letter to NERTS for the 2 bays.

TCC noted and requested constituents to give requisition for remaining 2 (two) bays at Silchar and communicate to NERPC at the earliest. Recommended for approval of RPC.

Deliberation of the RPC

The RPC noted and approved the recommendation of TCC.

B.16 : ESTABLISHMENT OF STATE-OF-THE-ART UNIFIED CENTRALIZED NETWORK MANAGEMENT SYSTEM U-NMS FOR ISTS AND STATE UTILITY COMMUNICATION NETWORK - POWERGRID

Project for establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network was discussed in 14th NETeST Committee meeting of North Eastern Region held on 11.07.19.

1. MS, NERPC briefed the Committee about the 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.”
2. NETeST Committee Members deliberated the U-NMS proposal and MS, NERPC asked the State utilities to give inputs on the proposal to POWERGRID-NERTS till end of Jul’19. However, no input has been received till date.
3. In line with regulation, provisions of Centralized NMS and Centralized Monitoring by integrating its NMS with other users NMS, has been kept in the documents of Technical Standard & Manual of Communication Planning Criteria being finalized by CEA. In addition to this guideline on availability of Communication System for ISTS has been submitted to CERC by CEA for which centralized NMS/OSS is considered essential.
4. Proposed U-NMS shall acquire data directly from existing NMS and also from nodes not integrated with existing NMS for all ISTS and all other Utility communication links. The U-NMS will acquire information of communication network of ISTS, State Utility and cross border communication system. The U-NMS application shall facilitate for controlling, managing, operation, fault detection, restoration, and maintenance of ISTS and State communication system.
5. U-NMS configuration proposed at Regional and National levels shall provide graphical representation of topology of nodes and links, discovery of Network Elements and sub-systems, Facility of end to end provisioning of bandwidth centrally, Fast fault resolution and reduced restoration times, Proactive maintenance and Customer support and working out channel availability etc., apart from analytics for predictive maintenance etc.
6. U-NMS Project is conceived to facilitate Centralized Supervision for ISTS Communication in compliance to CERC Regulation for Communication System notified in May’17 as present NMSs do not have visibility of entire network and are not capable to support the requirements envisaged for ISTS Communication

in CERC Regulation. Proposed U-NMS configuration at regional level shall also consider integration of NMSs of State Communication Network to facilitate STUs monitor and maintain their network with the help of Work Station provided at their location having direct access of Regional Server.

7. U-NMS Project implementation Schedule is considered as 24 months and estimated cost for each Regional U-NMS is Rs. 99.93 Crs and Rs. 99.93 Crs for national U-NMS excluding AMC cost which is estimated as Rs. 2.6 Crs for 6 years after Warrantee period. Investment made by POWERGRID is proposed to be recovered through tariff as notified by CERC. The cost break-up is as below:

| Abstract cost estimate for U-NMS for ISTS Communication System | | |
|--|--|----------------------------------|
| S. No. | Description | Cost Estimate Amount (In Cr.) |
| A | Supply | 65.65 |
| B | Installation and Services | 3.95 |
| C | Training | 1.32 |
| D | Inland Freight and Insurance (@4%) | 2.626 |
| E | Taxes and Duties | |
| i | Excise Duty (@12.5%) | 8.20625 |
| ii | CST(@2%) | 1.313 |
| | Total (A to E) | 83.06525 |
| F | Incidental Expenditure during Construction (@ 10.75%) | 8.93 |
| G | Contingency (@ 3%) | 2.49 |
| | Total (A to G) | 94.49 |
| H | Interest During Construction (IDC) | 5.44 |
| | Grand Total | 99.93 |
| I | Maintenance charges for 1 year during warranty period and 6 years after warranty period* | 2.61 |

The Tariff for the investment made is to be shared by all constituents as per CERC notification. The scheme shall become part of existing Commercial Agreement signed for ULDC Project.

Deliberation of the TCC

ED (LD&C and AM), POWERGRID alluded to CERC Communication Regulations. Already the matter of U-NMS project has been cleared by sub committees of other regions NR, WR and SR. The matter was discussed in 14th NETeST meeting of NERPC, however, no comments were received from any of the states in this regard. The infrastructure for the entire country is around 600Cr on PoC basis. In the proposed U-NMS project the state network would also be integrated in the State NMS. Cost is proposed to be borne on POC basis. However, detail recovery process will be guided by CERC order during petition stage. Now in-principle approval of the forum may be given so that POWEGRID may go ahead.

After deliberation, TCC gave in-principle approval for the project and for the cost to be booked under POC mechanism.

TCC noted and recommended for approval of RPC.

Deliberation of the RPC

The RPC noted and approved the recommendation of TCC.

CATEGORY – C : COMMERCIAL ISSUES

ITEM NO. C.01 : DEFAULT IN PAYMENT OF OUTSTANDING DUES BY BENEFICIARIES – POWERGRID

The total outstanding of POWERGID’s NER beneficiaries as on **20.08.2019** is as under and DICs may kindly liquidate their respective outstanding dues immediately. These figures include both PoC as well as non-PoC billing amounts.

(All Figures in INR Crores)

| DIC | Total Outstanding dues | Outstanding more than 45 days | Outstanding more than 120 days | Average monthly billing | Remarks |
|-------------|------------------------|-------------------------------|--------------------------------|-------------------------|--------------------------------------|
| Ar. Pradesh | 8.58 | 1.93 | 0.01 | 2.99 | <i>Approx. 03 months receivables</i> |

पावर सिस्टम ऑपरेशन कॉरपोरेशन लिमिटेड
(भारत सरकार का उद्यम)

POWER SYSTEM OPERATION CORPORATION LIMITED

(A Govt. of India Enterprise)

CIN: U40105DL2009GOI188682



पूर्वी क्षेत्रीय भार प्रेषण केन्द्र, 14, गोल्फ क्लब रोड, टॉलिंगंज, कोलकाता 700033

EASTERN REGIONAL LOAD DESPATCH CENTRE, 14, Golf Club Road, Tollygunge, Kolkata 700033

Tel / दुरभाष: 033 2423 5867/5875 • Fax / फ़ैक्स: 033 2423 5809/5704/5029 • E-mail / ई-मेल: erldc@posoco.in

No: ERLDC/SCADA O & M- Meeting /2019/2503

Date: 23.09.2019

To,

As Per Mailing list

Sub: Minutes of 24th SCADA O & M meeting held at ERLDC Kolkata on 14th

August 2019.

Dear Madam/Sir,

Minutes of 24th SCADA O & M meeting held at ERLDC Kolkata on 14th August 2019 has been finalized and same is uploaded on our website and the same is available at "<https://erldc.in/scada/ommeeting/>". You are requested to download the soft copy of minutes for your ready reference and further necessary action at your end please.

Thanking you,

Yours faithfully,


Executive Director, ERLDC

Agenda Points – POWERGRID, CC-LD&C:-

Item No 16: **Strengthening of ISTS Communication System:**

- **Establishment of State of the Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network**

POWERGRID LD & C vide letter ref no: C-LDC-ER-Meetings-IOM-01 dated 19.07.2019 has submitted the proposal of State of the Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network (Detail is attached at Annexure –I).

Deliberation in the meeting

POWERGRID informed that in line with Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations 2017, provisions of Centralized NMS for Centralized Monitoring by integrating all existing NMSs of various users/communication service providers, has been kept in the documents of Technical standard & Manual of Communication Planning Criteria being finalized by CEA. POWERGRID further informed that guideline on availability of Communication system for ISTS has been submitted to CERC by CEA, for which centralized NMS/OSS is considered to be essential.

POWERGRID further informed that existing NMSs do not have visibility of entire network and hence, they are not capable to support the requirements envisaged for ISTS Communication in CERC Regulation whereas U-NMS Project is conceived to facilitate Centralized Supervision for ISTS Communication in compliance to CERC Regulation for ISTS Communication System, notified in May 2017. POWERGRID further proposed that U-NMS configuration at regional level shall also consider integration of NMSs of State Communication Network to facilitate STUs to monitor and maintain their network with the help of work stations, which will be provided at their location having direct access of regional server.

POWERGRID made a presentation on Unified Network Management System (U-NMS) Project (attached in annexure – 2) to be implemented for managing ISTS Communication System at Regional and National level. Presentation covered technical aspects of U-NMS, configuration at Regional and National level, integration of existing NMSs and Network Elements not having visibility in NMSs etc.

During presentation, POWERGRID informed that U-NMS configuration proposed at Regional and National levels shall provide followings apart from analytics for predictive maintenance:

- *Graphical representation of topology of nodes and links*
- *Auto discovery and rediscovery of network elements and sub-systems*

- Facility of end to end provisioning of bandwidth centrally.
- Fast fault resolution and reduced restoration times
- Proactive maintenance and customer support and working out channel availability etc.

In context of the cost implication, POWERGRID informed that U-NMS Project implementation Schedule is considered as 24 months and estimated cost for each Regional U-NMS is ₹99.93 crore and ₹99.93 crore for National U-NMS excluding AMC cost which is estimated as ₹2.6 Crs for 6 years after Warrantee period. POWERGRID proposed that investment made by POWERGRID is to be recovered through tariff as notified by CERC

MS, ERPC briefed the committee about the 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."

MS 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 regulations. MS ERLDC further informed that this committee will also come up with the willingness of Eastern Regional constituents for integrating their communication monitoring with the proposed U-NMS. Forum agreed and appreciated the decision.

ERLDC informed that they don't have space for installation of UNMS system at ERLDC, POWERGRID may rethink about site selection for installation of regional UNMS. In response, POWERGRID informed that UNMS in Eastern Region will be located in RTAMC instead of ERLDC.

ERLDC informed that AMC charges of ₹ 2.6 Crores for 6 years is quite low and due to this, getting proper support from vendor during AMC period would be difficult as being faced in existing SCADA project in Eastern Region.

Action: ERLDC, ERPC, POWERGRID & All Constituents

Agenda Points – BSPTCL:-

Item No 1: OPGW installation being executed by PGCIL through agency M/S PPCL:-

- ROW in 220 KV MTPS-Gopalganj transmission line-

A letter has been received from field office which states that ROW at the said location is persisting since construction of 220 KV MTPS-Gopalganj lines taken up by PGCIL. Intervention of PGCIL is required to resolve the issue of ROW.



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विद्युत मंत्रालय
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GOVERNMENT OF INDIA
MINISTRY OF POWER
EASTERN REGIONAL POWER COMMITTEE



No. ERPC/TCC&Committee/14/2020/ 10139-10205

Date: 01.01.2020

To:


1. Members of Eastern Regional Power Committee.
2. Members of TCC.

Subject: Minutes of 42nd ERPC & TCC Meetings.

Sir,

The minutes of the 42nd TCC & ERPC meetings held on 12th & 13th December 2019 respectively in Port Blair have been issued and uploaded on www.erpcc.gov.in. As per the decision of ERPC distribution of hard copies of the Minutes of Meeting has been discontinued as a Go Green initiative.

Yours faithfully,


(J. Bandyopadhyay)
Member Secretary

Attach.: As above.

Members may deliberate and confirm the minutes of 41st ERPC meeting.

Deliberation in the ERPC Meeting

After deliberation, ERPC accepted the amendment sort by NLDC. Thereafter ERPC accepted the minutes of the 41st ERPC Meeting issued by ERPC Secretariat with the above amendment.

ITEM NO.2: REVIEW OF PERFORMANCE OF THE EASTERN REGIONAL GRID

ERLDC would give a brief presentation on the performance of the grid during August’19 to November’19 and highlight the issues and challenges being faced in the real time operation of the Eastern Regional grid.

Deliberation in the ERPC Meeting

Details of the performance of the Eastern Regional Grid are given in Annexure – II.

ITEM NO.3: ISSUES REFERRED TO ERPC BY TCC IN ITS 42nd MEETING HELD YESTERDAY

The issues referred to ERPC by the TCC are placed below:

| | |
|----------------------|---|
| ITEM NO. 3.1: | 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 be formed 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 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.

This issue was further deliberated in the 2nd TeST meeting held on 26.11.2019 at ERPC Kolkata.

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.

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.

The issue was also discussed in 41st Commercial Sub Committee Meeting held on 27th November 2019. During deliberation, it emerged that the project was initially envisaged based on the guidelines of CERC in respect of certification of Communication system availability by RPCs. The idea was floated by CERC during the draft stage of Tariff Regulations 2019-2024. However, in the final Tariff Regulations 2019-24, this idea was dropped by the Commission due to lack of clarity.

Powergrid representative informed that based on the technical requirement of the system the U-NMS project is necessary for monitoring of communication network at State, Regional & National level.

POWERGRID was advised to submit the details of the project to ERPC secretariat within a week along with relevant CERC regulations in respect of this project. Further, POWERGRID was asked to also submit revised Cost estimate of the project by considering the State NMS project along with breakup of each component, recovery mechanism and apportionment of the cost among constituents etc.

Upon discussion it was also found that the U-NMS project is proposed to be implemented in pan-India basis and the recovery of the cost of the project shall be on all India basis.

POWERGRID informed that the project has already been approved in WR, NR & NER regions.

Further, POWERGRID was advised to give a detailed presentation on the same in forthcoming TCC meeting.

Matter was referred to upcoming TCC/ERPC for further concurrence.

PGCIL may give a presentation. Members may discuss.

Deliberation in the TCC Meeting

After detailed deliberation TCC recommended to ERPC to give in principle approval for go-ahead to Powergrid to undertake the U-NMS project for Eastern region subject to the following:

1. PGCIL shall hold separate discussion with each state of ER to understand the NMS system in the respective states if any already existing within the state and to assess the integration requirement including the cost thereof for each state.
2. The details are to be placed by PGCIL in the TeST meeting scheduled to be held in January 2020.
3. After finalization of the scheme the revised cost shall be placed by PGCIL in the next TCC meeting.

ERPC may approve.

Deliberation in the ERPC Meeting

As recommended by TCC, ERPC accorded in principle approval for go ahead to Powergrid to undertake the UNMS Projects for the Eastern Region subject to the conditions laid down by TCC.

| | |
|----------------------|---|
| ITEM NO. 3.2: | Strengthening of OPGW Network within the ER-Grid and connectivity with other regions |
|----------------------|---|

In 23rd SCADA O/M meeting held on 06.03.2019, ERLDC requested ERPC Secretariat to form a committee which could 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 were found to be the list of additional OPGW link, which 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 | (ISTS) | 400 kV D/C Patna – Balia Line -I | 195 |
| 3 | ER – WR | 765 KV S/C Ranchi – Dharamjaygarh Line-1 | 305 |



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Government of India

विद्युत मंत्रालय

Ministry of Power

केंद्रीयविद्युत प्राधिकरण

Central Electricity Authority

दक्षिण क्षेत्रीय विद्युत समिति

Southern Regional Power Committee

तकनीकी समन्वय उप समिति एवं दक्षिण क्षेत्रीय विद्युत समिति
की उनतालीसवीं बैठकों की कार्यवृत्त

Minutes of 39th Meetings of TCC / SRPC

Held on

03.12.2021 (TCC) & 06.12.2021 (SRPC)

(Through Video Conferencing)

IV. Agenda Items for Deliberation

(i) Operation

O.1. Establishment of Unified Network Management System (UNMS) for ISTS communication

1.1. The Unified Network Management System (UNMS) was discussed in the various Meetings of OCC, Special Meetings (07.11.2019& 07.12.2020), TCC meetings (36th, 37th& 38th) and in SRPC meetings (37th& 38th).

1.2. The following had been noted in earlier meetings:

- a) Following functions (Service Assurance, Service Fulfilment, Web Consoles and Ticketing etc.) are considered in the proposed U-NMS (Applications / Functions may vary at NLDC/RLDCs/SLDCs – depending upon the Operational / Administrative Requirements):
 - i) Control Centre in NLDC
 - ii) Control Centre in RLDCs
 - iii) Workstation based Control Centre in SLDCs
- a) CERC Communication Regulations requires 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%.
- b) Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations notified in Feb 2020 stipulates that user shall keep evidence of compliance on availability for the previous two calendar years plus the current year for all the interfaces which are in operation.
- c) CEA, Communications regulation specifies network management system shall have features to store necessary information and facility to generate report on communication system availability of major equipment as well as the data channels on daily or weekly or monthly or annually basis. It also envisages centralised monitoring shall be in main and back-up control centre architecture with centralised database and twenty-four hours maintenance on all days.
- d) It was informed that there is no provision in the existing communication infrastructure for (i) data retention for a period 3 years (including current year), (ii) automatic report generation which is required for certification & monitoring and (iii) centralised supervision.
- e) PGCIL had informed that the cost for implementation is Rs. 109 Crores in SR and Rs. 5 Crores for AMC/year. The useful life would be seven years as in the case of EMS SCADA packages of SLDCs and POSOCO. Also, the cost of National Level UNMS (Rs.109 Crores) needed to be shared by all the regional constituents. NR and NER had adopted for Tariff based funding.

1.3. In the 38th meeting of SRPC (23.12.2020):

i) PGCIL:

- UNMS scheme would be implemented with 70 % through PSDF grant and 30 % equity by PGCIL as the owner of the project along with contract for AMC.
- If 100 % funding through PSDF, the scheme would be implemented as a consultancy project (an undertaking project as a deposit work) with undertaking charges.

ii) Decision:

a) All the constituents states to furnish clear/specific views in writing on the following:

(i) Approval of UNMS scheme (technically).

(ii) Funding Mechanism (70 % grant from PSDF and 30 % equity by PGCIL or 100 % funding through PSDF)

b) SRPC Secretariat to consolidate the views of constituent states and the outcome would be communicated to PGCIL/CTU.

1.4. Subsequently, the constituent states had furnished their views (**Annexure-O.1.4**). **Summary of the views are as follows:**

| S. No. | Constituent/Utility | Observation/Approval | Funding |
|--------|----------------------------------|---|-----------|
| 1 | Andhra Pradesh/ APTRANSCO | The existing NMS in service are fulfilling the functions such as monitoring, integration of network elements in APTRANSCO communication system. | - |
| 2 | Karnataka/ KPTCL | Agreed in principle (technically) | 100% PSDF |
| 3 | Kerala/KSEBL | The proposal can be considered with more clarity in the technical administrative matters in the Scheme. | - |
| 4 | Tamil Nadu/ TANTRANSCO | Already equipped with NMS/EMS of multiple vendors for monitoring the State Communication System. <i>If it is to be integrated in UNMS project 100% grant through PSDF (otherwise TANTRANSCO may kindly be excluded from UNMS Project)</i> | 100% PSDF |
| 5 | Telangana/ TSTRANSCO | Management has approved participation of TSTRANSCO. | 100% PSDF |
| 6 | Puducherry/EDP | The specification is generally acceptable, specific requirement of UT of Puducherry to be obtained before tenders are floated. | 100% PSDF |

Note: It may please be noted that there is no clear concurrence from APTRANSCO and KSEBL.

1.5. PGCIL vide letter dated 31.12.2020 (**Annexure-O.1.5**) has conveyed that “POWERGRID agree to approach PSDF on funding for 70% grant from PSDF and 30 % own equity after SRPC approval. In case PSDF funding is not approved, UNS scheme be approved for implementation under tariff route”.

- 1.6. The views of the constituents had been put up to Chairperson SRPC. Chairperson, SRPC has advised that the issue may further be deliberated in the next meetings of TCC/SRPC.
- 1.7. In the first meeting of the '**Standing Committee on Communication System Planning in Power Sector**' held on 9th March, 2021, CEA had apprised that UNMS being a regulatory requirement, its implementation needs to be expedited and utilities are requested to ensure its smooth integration. If any issue arises regarding integration with centralized NMS, the matter should be referred to CEA.
- 1.8. PGCIL vide letter dated 26.07.2021 (**Annexure-O.1.8**) has informed that the U-NMS scheme has already been approved in NRPC, NERPC and in ERPC as per regulated tariff mechanism. For NR and NER Region Bids have already opened and it is under award stage and for ER Region it is under Tendering Stage. Further for WRPC it is in advance stage of discussion.
- POWERGRID's submission:** It is requested that SRPC may approve the scheme at earliest so that the work may be taken up in parallel to other regions.
- 1.9. APTRANSCO vide letter dated 16.11.2021(**Annexure-O.1.9**) has intimated that AP had already communicated the feedback on satisfactory working of PMUs established under URTDSM Phase-I and the requirement of PMUs under Phase-II to PGCIL.

1.10. **Agenda for Deliberation /Decision:**

- a) Concurrence of APTRANSCO and KSEBL.
- b) Funding from PSDF
- c) Further course of action by PGCIL

1.11. **TCC Deliberation/ Recommendation:**

- a) On a query from APTRANSCO on sharing of the charges by the state not joining with PGCIL for implementation of state part, PGCIL clarified that the cost of central sector portion (full cost of the project in case implemented through Regulated Tariff Mechanism/ equity portion of the Project if it is implemented with PSDF funding) needed to be shared by all the States.

APTRANSCO informed that they would apprise the same to their higher management and decision would be conveyed in the SRPC meeting.

- b) KSEBL informed that they are moving ahead with implementation of reliable communication project with MPLS technology and NMS also planned. PGCIL may clarify whether the UNMS project covers only monitoring aspects or full level management, and they have requested for certain other clarifications from PGCIL which are still awaited. It is not possible to share their entire state network, and they would share only that data which is required for facilitating PGCIL for Regional level management. The Kerala NMS should be fully under the control of Kerala. PGCIL may clarify how they are going to implement the scheme and the methodology of sharing the charges.

- c) TSTRANSCO requested PGCIL to bring more clarity on the scheme, as to how UNMS would be integrated with State NMS and what facility is available/ provided to the states under the scheme. It was understood that state data also would be monitored and full control of the state data shall be with the states. The funding is the issue, which states are opting to avail as grant from PSDF.
- d) CTUIL informed that the scheme is mandated as per CERC regulations and is being implemented as regional scheme. The scheme is devised such a way that the entire data along with the state data would go to the main server, then state data would be tapped in the consoles being provided under the scheme to each SLDCs. CTUIL further clarified that management as well as monitoring of the system are envisaged under the project since the same is required for the purpose of availability computation as per the provisions of CERC Regulations, 2017 for recovery of tariff, etc.
- e) PGCIL pointed out that CERC (Communication System for inter-State transmission of electricity) Regulations, 2017, are applicable to the communication infrastructure to be used for data communication and tele-protection for the power system at National, Regional and inter-State level and also include the power system at the State level till appropriate regulation on Communication is framed by the respective State Electricity Regulatory Commissions. Accordingly, CTUIL & PGCIL jointly initiated the proposal addressing the state level STU network also in the scheme and submitted to RPCs and sought the database from the states. NR & NER states had furnished the data for their STU network and nodes which would be built in the database. On the queries from KSEBL & TSTRANSCO, it was clarified that the scheme envisages that the data from the state NMS is transferred to Regional NMS and then going back to SLDCs. The data centres are meant for joint benefit of multiple groups and many aspects like optimal utilisation of the resources/ back up centres at regional level. The scheme has been taken up with centralised depository and regional level and all the states would have remote consoles and multiple consoles for different purposes. The states would have complete control for operation, maintenance and configuring their own system through their console. A console for accessing Central sector by remote user would also be provided at the same place where other consoles are located.
- f) SRPC Secretariat pointed out that the States were of the view that the scheme should be implemented by PGCIL with 100% funding from PSDF. PGCIL had informed that in such cases consultancy charges are to be paid to PGCIL.
- g) CTUIL informed that in NR & NER the scheme is being approved for implementation under Regulated Tariff Mechanism and nowhere PSDF has been considered. Each scheme in the region is having a National Component also because all the regions would be further integrated at National level and monitored. National level cost component is included in each regional UNMS scheme.
- h) ED, SRLDC opined that it would be appropriate to implement the scheme with some equity portion so as to make the implementing agency responsible for maintenance etc.

during the entire life period of the equipment. Implementation by 100 % PSDF funding of the project cost with additional consultancy charges of 18-20 % would not make much difference to the constituents, if they opt for 30% of equity or whatever percentage of equity. Constituents may take call accordingly on funding.

- i) MS, SRPC suggested that PGCIL may consider 80% PSDF and 20 % equity. However, PGCIL stated that 20% equity may not be viable for them.
- j) KSEBL stated that there should not be any consultancy charges for implementing the scheme through funding from PSDF, as the implementation of the scheme is regulatory requirement and responsibility of CTUIL/ PGCIL. PGCIL may levy consultancy charges for executing the works on behalf of the states. KSEBL further observed that more clarity needed to be brought out by PGCIL w.r.t. the requirement/responsibility of the states and on the terms & conditions of control/configuration/accessing the data by the states after implementation of the scheme. The full responsibility of the state network should be with the states only and there should not be any provision for concurrence from PGCIL or any other agency for reconfiguration/modification by the states on the network owned by them and also there should not be any provision for configuration of state network at regional/national level without the concurrence of the state.
- k) APTRANSCO stated that consultancy charges may not be collected by PGCIL, since the UNMS scheme is implemented by them as mandated by CERC Regulations. PGCIL clarified that the scheme is implemented by PGCIL on behalf of CTUIL and if the scheme is implemented with 100 % funding from PSDF, then only the question of consultancy charges arises. PGCIL is ready to have one to one discussion with the state utilities or once again have a detailed deliberation in a special meeting.
- l) MS, SRPC observed that since the constituents are requesting for more clarifications on the scheme, a special meeting may be convened to address all the issues including funding pattern, etc.
- m) After deliberations, it was agreed that a Special meeting would be convened to discuss on details of the scheme and its implementation etc. PGCIL/ CTUIL to address all the queries/apprehensions of the States in that meeting.

1.12. SRPC Deliberation:

- a) MS, SRPC informed that in the TCC Meeting held on 03.12.2021, it was observed that there are certain issues which needed more clarification and accordingly it was decided to convene a Special Meeting in which all the queries especially by APTRANSCO and KSEBL may be addressed. All other states also may come up with their apprehensions, if, any, in that meeting for more clarity on the technical and funding aspects. He observed regarding funding that many options had been evolved like 70 % PSDF& 30 % equity, 80 % funding & 20 % equity, 100 % PSDF and 15-20 % consultancy charges to PGCIL etc. and there is a need to arrive at a consensus on the agreeable/optimal funding mechanism.

- b) APSLDC informed that they would communicate the opinion/views after further deliberation with their higher management in the proposed Special Meeting as suggested in the TCC Meeting.
- c) Chairperson, SRPC advised PGCIL to bring more clarity on the proposed scheme. He desired to know whether the budget propagated is just for integrating the already existing State Network to Central Network or any network addition is envisaged. The network components envisioned needed to be made clear to the beneficiaries.
- d) PGCIL informed that the main component is the links to UNMS from all the ISTS networks as mandated by CERC Regulations. State networks also may be connected to UNMS. Earlier it was of the impression that all the states have Specific NMS, but later on it was learnt that there is no uniformity (different make/proprietary issues etc.) in the existing NMS of the States. Also as per the CERC Regulations, availability calculations are mandated and Network Management System shall have features to store necessary information and facility to generate report on communication system availability of major equipment as well as the data channels on daily or weekly or monthly or annual basis. Additional servers, storage devices, software, historian etc is essential for this feature. UNMS will have displays for audio-visual alarm generation and logging facility to facilitate the operator for quick fault detection/analysis. At present many communication links outages are not noticed and rectification takes time, but in UNMS fault detection as well as rectification is envisioned. In SR, states have standalone systems and are not connected to state NMS, but in UNMS all these can be integrated. In NR, around 9 standalone NMS systems and many standalone network elements which are not connected to state NMS exist and all these would be integrated to UNMS. For ISTS system UNMS needed to be established as per Regulation and for which itself the estimated cost is around 70-75 Crores. The additional cost for adding each state would come around 1.5 to 2 Crores which is a meager amount compared to the cost which may occur if states separately go for the same set up. Apart from that AMC cost (24/7) of 3.5 Crores /Annum, adding to around 25 Crores for 7 years also needed to be accounted. All put together around 107 Crores is estimated as Project cost.
- e) CMD, KSEBL welcoming the proposal for UNMS, opined that it needs to be ensured that there is a 100 % harmonization between what Regulation mandates and what PGCIL had actually proposed. He opined that UNMS should strictly be limited to the Regulatory requirement particularly it shall not override State NMS system and States should not lose the control on their own system. The extent of effectiveness with which state communication system would come up like whether state can operate upcoming additional channels at their own discretion etc is very crucial and needed to be clarified. He recommended that a special Technical Meeting may be convened to get clarity on all these aspects. W.r.t funding aspects, he stated that they need clarity on consultation charges of PGCIL and informed that KSEBL is broadly in consent with the proposal to have UNMS.

KSEBL further reiterated that UNMS should not pose any hindrance to the State Utility to configure their channels etc and states should not lose the flexibility to manage their communication network. Reliable Communication System would be coming up for 174 new stations where NEW NMS would be commissioned and some equipment would be phasing out also. Whatever data required for automatic availability calculation may be shared from this New NMS of KSEBL.

- f) CMD, TANGDECO further expressed that clarity is needed in two aspects – one, whether the cost projected is just for integrating the State Network to UNMS without making state system redundant; secondly, whether CTUIL will have an operational access to state network.

PGCIL clarified that in this project all communication links of ISTS parts would be integrated thereby enhancing the performance of NMS system. As states and different ISTS stations are having multiple make NMS it is possible to integrate them with UNMS. CERC will make the communication availability as a mandatory requirement in future. UNMS will help in quick identification of fault and thereby swift restoration. In regard to the controlling of NMS, it was clarified that the states NMS system can only be monitored from UNMS and control will be with the states only. Further if states want to add intrastate system in UNMS it will cost them marginally (1.5-2 crores). So it will be better option for states to cover their Intra-state network with the UNMS. If they go for separate contract, it will cost them much more.

- g) On a query from MS, SRPC, PGCIL informed that if the project is executed on 100 % PSDF funding the Project would be considered as a consultancy project and 15 % of project cost would be taken as consultancy charges. In such case, project would be completed as per contract and would be handed over to States and AMC would be States' responsibility. If the project is taken under Regulated Tariff Mechanism (RTM), AMC also would be covered.
- h) Director (Operation), PGCIL further added that in case the project is undertaken/ executed as a consultancy project, the ownership will be handed over to individual states, and AMC needed to be placed by respective states. On the other hand if the project is taken up on RTM, ownership would be with PGCIL, and AMC will also be taken care of by PGCIL in a uniform manner and stated that with a special consideration, POWERGRID will undertake the project funding as 75:25 (PSDF: Equity). In Equity part, POWERGRID will include the AMC cost of the project for 7 Years. She opined that even though the technical and funding aspects had been deliberated earlier in various fora, one more round of Meeting may be facilitated to clarify all the queries raised by States. She apprised the forum that the U-NMS scheme has already been approved in NRPC, NERPC and ERPC on 100% Tariff mode wherein the Tariff for the investment made is to be shared by all constituents as per existing CERC regulations. For NR and NER it has already been awarded in the month of August 2021 and for ER it is approved in ERPC and tendering has been done in the month of September 2021.

- i) Chairperson, SRPC observed that AP & TN already have NMS. TS and KAR may need to set up NMS for their States. In such case Karnataka and Telangana may directly approach PGCIL and it can be a bilateral agreement between PGCIL and States. However ISTS integration may be coordinated uniformly through SRPC approval. Laying state network (intra-state) to form State NMS is individual state concern. Already states may have contracts with vendors for AMC etc and they cannot come out of it suddenly. Each State may have different aspects to be considered and individual dialogues among states and PGCIL only can bring a resolution.
- j) PGCIL reiterated that PGCIL have not proposed integration of individual Intra State Networks. ISTS integration is mandatory and all the states need to be a part of it. PGCIL is advising States to join the UNMS since this will be cost effective for States than when they individually take up the works. Bilateral arrangement can be made but the cost would be definitely very much high.
- k) CTUIL highlighted that there are much wider applications/ tools/capability in the UNMS being deployed for ISTS system than the existing NMS. The AMC of existing NMS will not be disturbed; it would be running as per already entered contracts. UNMS maintenance contract will cover only the supplied systems/equipment under the UNMS scheme. Multiple full-fledged servers at Regional Level in main and back-up control centers is envisaged and states will be provided with remote consoles equipped with application software for state system and states would be having control over their system to manage/monitor if they wish to join UNMS. PGCIL further mentioned that the added advantage is that multiple NMSs in state networks can be reported to UNMS in an objective manner and there would be more accountability and objectivity in the system performance.
- l) MS, SRPC observed that UNMS will be a tool for States to monitor all its NMSs at a single point with an additional cost of around Rs 1.5 – 2 Crores and the other cost which is meant for integrating ISTS network needed to be borne by states any way.
- m) TSTRANSCO informed that their technical acceptance had already been communicated and they are moving along with the proposal in view of the stated advantages as explained by PGCIL. 100 % PSDF fund is appreciated and further clarification on the same is expected to be obtained in the Special Meeting proposed and accordingly final call will be taken.
- n) KPTCL informed that as already communicated, KPTCL is technically accepting the proposal and 100 % PSDF is requested.
- o) Puducherry confirmed their technical approval and stated that funding aspects would be further reviewed taking the inputs of this SRPC Meeting and in the proposed special meeting.
- p) CMD, TANGEDCO informed that the integration part they are accepting. If 100 % funding is not viable, 75: 25% (PSDF : Equity) will be accepted and felt that AMC should be for 7

years. He sought clarity – if total cost (including AMC) anticipated is 107 Crores whether 75 % of this would be funded through PSDF and 25 % as equity which would be allocated to states. He desired to know how the 25 % equity would be allocated among states and opined that sharing should be on actual basis.

- q) MS, SRPC explained that the Tariff for the equity part (25%) would be recovered from states on annual basis as per CERC regulations. As per CERC Regulations the equity part (25%) will be funded by PGCIL from its own resources and there are 5 components of tariff and RoE is one of them and the tariff approved by CERC would be recovered from the beneficiaries.
- r) PGCIL informed that RTM mode of sharing will be as per CERC Regulations. As per CERC Regulations PGCIL is entitled for some % as Return on Equity (RoE). There are well defined Regulations of CERC in place in this regard. Once the forum decides that the project is technically required, which has been affirmed by all the states the funding can be based on 75% grant PSDF & 25% equity by POWERGRID and the state specific component can be agreed on bilateral basis.
- s) CMD, TANGEDCO observed that RoE is like long term loan and would tantamount to paying 13-16% interest to PGCIL; however, if the cost is borne by beneficiaries, the borrowing cost would be around 10 to 10.5% and the states can communicate their views to SRPC secretariat on reimbursing the actuals (balance 25%) or PGCIL putting in 25% equity.
- t) PGCIL clarified that if POWERGRID does not put equity then it becomes a project being implemented by POWERGRID on behalf of the states and then the ownership will be with the respective state. As per the inputs the AMC charges are not funded through PSDF and the consultancy charge and AMC in coming years would be responsibility of the states.
- u) Chairperson, SRPC stated all the details can be put in black & white and circulated by PGCIL to the states for facilitating them to take a considered view. SRPC Secretariat can consolidate all the inputs for a decision on commercial aspects.
- v) MS, SRPC stated that this project is in compliance to a regulatory requirement and CTU needs to implement it for compliance, the financial burden would be as minimum as possible on the states. He suggested that 75% can be under PSDF grant, and the tariff part of 25% can be recovered from states by NLDC from a separate basket under its control. In many projects, states look for 100% PSDF and AMC and consultancy charge issues also come up. NLDC and PSDF agencies can formulate a methodology to take care of these aspects. Grant can be given directly and the tariff part can be passed on from tariff pool basket.

w) After deliberations, the following is concluded:

- i. In principle, UNMS is agreed by SRPC on technical/ regulatory requirements, however the funding aspects need to be finalized through SRPC forum.

Annexure-V_WR_UNMS_Approval



भारत सरकार
केन्द्रीय विद्युत प्राधिकरण
पश्चिम क्षेत्रीय विद्युत समिति
एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093
Government of India
Central Electricity Authority
Western Regional Power Committee
F-3, MIDC Area, Andheri (East), Mumbai - 400 093



आई एस ओ : 9001-2008
ISO : 9001-2008

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वेबसाइट/ website: www.wrpc.nic.in

No: WRPC/Opn/SCADA/2019-20/ 981

फैक्स /fax: 022 – 28370193

ईमेल/e-mail: opc-wrpc@nic.in

Date:09.10.2019

To,

As per the list,

Subject:- Record notes of 2nd meeting of “Operational issues in SCADA and communication system of WR” held on 25.07.2019 at WRPC, Mumbai.

Please find herewith Record notes of 2nd Meeting on “Operational issues in SCADA and communication system of WR” held on 25.07.2019 at WRPC, Mumbai for your further needful.

Thanking you,

Yours faithfully

(J K Rathod)

Superintending Engineer

- h) Bhadravati
- i) Mapusa

2. While NTPC/NPCIL may replace RTUs installed in their premises under same project on their own at following locations. Tentative cost for NTPC stations shall be **INR 1.5Cr**:

- a) Kawas
- b) Gandhar
- c) Kakrapar NPCIL
- d) Vindhyachal STPP
- e) Korba NTPC
- f) TAPS-I (NPCIL)
- g) TAPS-II (NPCIL)

Replacement of OPGW mentioned in Para 1 & 2 under item no. 8.11.1 and replacement of RTU mentioned in Para 4 under item no. 8.11.3 shall be done under project named '**Replacement of RTUs and Fiber Optic Communication System established under ULDC project**'

Participants may like to discuss

**Item
No. 23**

Establishment of State-of-the-Art U-NMS System for Centralized Supervision for ISTS and State Utility Communication Network in a unified manner

CERC notified **Communication Regulation** in **May'17** and it envisages **Centralized Supervision System for ISTS Communication**. As per the regulation clause:

Quote:

....

7.1 OBJECTIVE:

These regulations provide for planning, implementation, operation

and maintenance and up-gradation of reliable communication system for all communication requirements including exchange of data for integrated operation of National Grid.

7.2 SCOPE and APPLICABILITY:

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

(ii) All Users, SLDCs, RLDCs, NLDC, CEA, CTU, STUs, RPCs, REMC, FSP and Power

Exchanges shall abide by the principles and procedure as applicable to them in accordance with these regulations.

7.3 NODAL AGENCY:

(i)The nodal agency for planning, and coordination for development of communication system for inter-State transmission system user shall be the **Central Transmission Utility**.

(ii) The nodal agency for planning, and coordination for development of communication system for intra – State transmission system user shall be the **State Transmission Utility**.

(vii) CTU shall be the Nodal Agency for supervision of communication system in respectof inter-State communication system and will implement **centralized supervision for quick fault detection and restoration**.

.....

Unquote

Further, in line with regulation provisions of centralized supervision for quick fault detection and restoration of communication network of

ISTS and all other Utility by integrating its NMS with other users NMS has been kept in the documents of Technical standard & Manual of Communication Planning Criteria being finalized by CEA. In addition to this guideline on availability of Communication system for ISTS has been submitted to CERC by CEA for which centralized U-NMS is considered essential.

- 1.** Accordingly, CTU is to implement State of the Art Unified Network Management System (U-NMS) in a Control Center environment at National/Regional level.
- 2.** The establishment of U-NMS is proposed to be taken up in a unified manner for implementing centralized supervision of communication Network for transmission system of Cross Border, Inter Regional, Inter-State and Intra-State System.
- 3.** The proposed U-NMS shall acquire data directly from existing NMS of ISTS and State Utility and also from nodes not integrated with existing NMS for all ISTS and all other Utility communication links. The U-NMS will acquire information of communication network of ISTS, State Utility and cross Border communication system. The U-NMS application supports for controlling, managing, operation, fault detection and restoration and maintenance of ISTS and State communication System.

It will be possible to integrate different make NMS and Network Element with proposed U-NMS. (In U-NMS adequate provision shall

be made to integrate upcoming nodes by having sufficient capacity i.e. 200%).

4. The proposed U-NMS to be deployed for NLDC, RLDCs and SLDCs is to manage National, Regional and State level communication system.

NLDC & RLDCs having Servers, Storage Devices, Switches, Routers, Firewall, Remote workstations, VPS etc. in dual LAN in Main (High Availability-HA) and Backup configuration in line with SCADA/EMS CC Systems are proposed to manage ISTS regional, inter-regional and Cross Border communication links.

(Fig: 1 &3- Typical RLDC Architecture & RLDC/ NLDC CC Configuration)

All SLDCs having Remote workstations, Printer, Furniture and VPS etc. are proposed with rights to manage their respective operational Network. At SLDC, complete data of respective State utility shall be accessed from U-NMS of respective RLDCs.

(Fig: 2 &4- Typical SLDC Architecture & CC Configuration)

5. Following functions (Service Assurance, Service Fulfillment, Web Consoles, Ticketing etc.) are envisaged in the proposed U-NMS. (Applications/ Functions may vary at NLDC/RLDCs/ SLDCs- depending upon the Operational / Administrative Requirements):

Discovering, Monitoring & Operating the complete existing communication network, its topology and network inventory. Communication Network Availability Calculation, Link activation, provisioning, configuration. Managing Fault, its restoration, alarm, log etc. Addressing issues of Cyber Security of network, Facility for

trouble ticketing, SLA management, inventory management, reporting and dashboards in single window and Assuring network availability.

U-NMS PROJECT PROPOSAL:

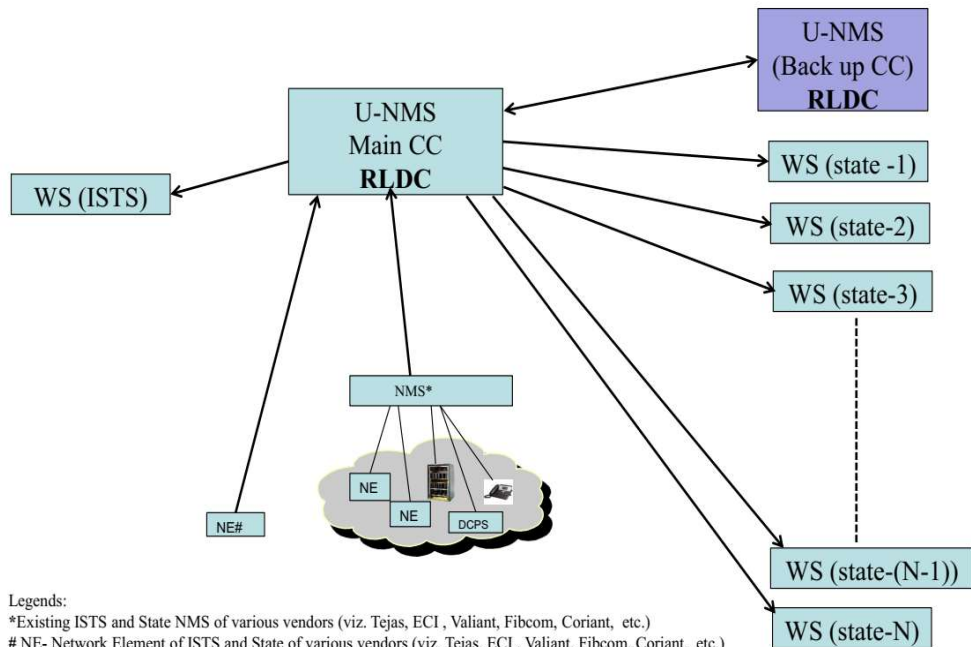
- 1) Control Centre at NLDC
- 2) Control Centre at RLDCs
- 3) Workstation based Control Centre at SLDCs
- 4) Estimated cost- Rs. 600 Cr. (excluding AMC cost and Civil Works) with implementation Time (from date of Investment Approval): 2 Years (24 months)

The scheme shall be implemented by POWERGRID on tariff route basis and investment to be recovered as per CERC notification.

Centralised Supervision for Communication System

Fig: 1

Typical Architecture at RLDCs U-NMS



Legends:

*Existing ISTS and State NMS of various vendors (viz. Tejas, ECI, Valiant, Fibcom, Coriant, etc.)

NE- Network Element of ISTS and State of various vendors (viz. Tejas, ECI, Valiant, Fibcom, Coriant, etc.)

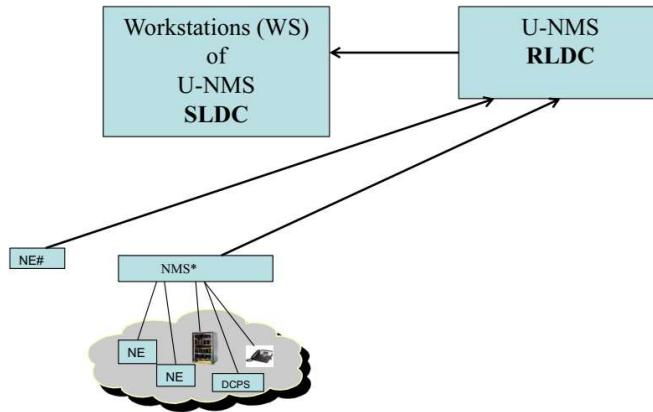
not on any NMS

WS – Work Station

N – Number of State Utility

Centralised Supervision for Communication System

Fig:2 **Typical Architecture at SLDCs U-NMS**



Legends:
 *Existing State/Utility NMS of various vendors (viz. Tejas, ECI, Valiant, Fibcom, Coriant, etc.)
 # NE- Network Element of State/Utility of various vendors (viz. Tejas, ECI, Valiant, Fibcom, Coriant, etc.) not on any NMS
 WS – Work Station

Centralised Supervision for Communication System

Fig-3: **Typical Control Centre configuration at RLDCs/ NLDCs**

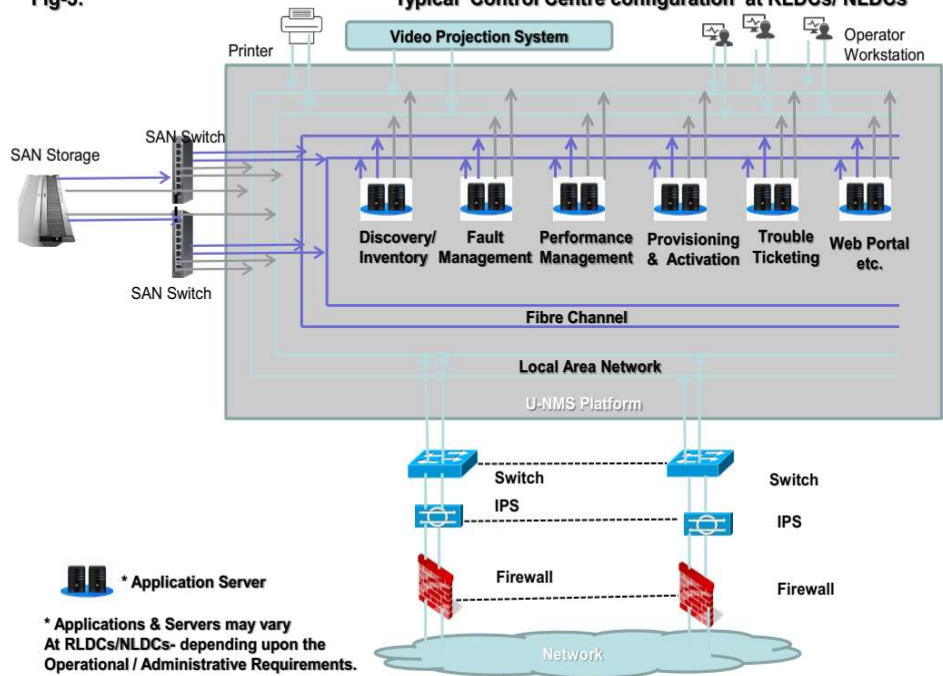
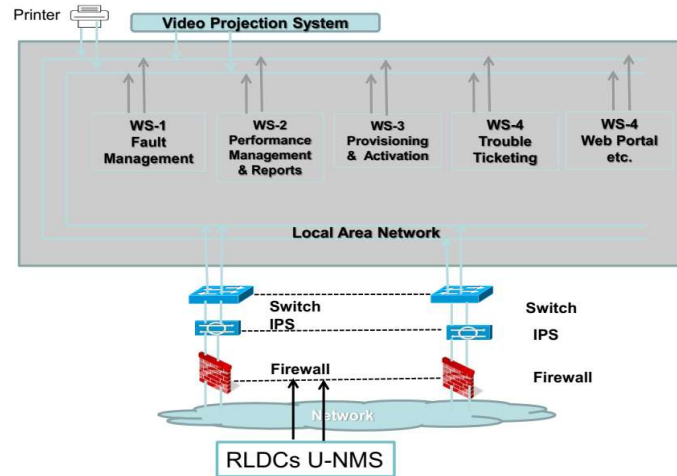


Fig : 4 Typical Control Centre Configuration at SLDCs



The List of outages required for Transmission Lines/ICT/Reactor/Bus/Bays of WRTS-II for period **01.08.2019 to 31.08.2019** is attached herewith as Annexure -I for inclusion in the agenda for further discussion in the forthcoming OCC meeting.

Further, it is confirmed that all **Disturbance Recorders (DR) and Event Loggers (EL)** installed at various Substations of WRTS-II are in healthy and working conditions

Participants may like to discuss

Discussion :

A team of PGCIL highlighted the advantages of U-NMS with the help of a detailed presentation.

After completion of presentation by PGCIL team, a round of questionnaire and discussion followed.

MS, WRPC requested all participants to give their comments on benefits of U-NMS, its funding and recovery mechanism.

WRLDC stated that it is important to first increase redundancy in communication network as envisaged in Communication Regulation and then initiatives could be taken to establish U-NMS in region.

SLDC, Gujarat stated that POC should be done by PGCIL for limited nodes so that decision on this issue could be easily taken by the

constituents. Without POC, it is difficult to say yes or no. Representatives of Maharashtra and MP agreed on statement made by SLDC, Gujarat.

PGCIL stated that a demo could be given and that would be sufficient to get whole idea of proposed system.

Gujarat, MP and Maharashtra stated that PGCIL could also give demo but POC is must for them to convince their management.

After detailed discussion, it was concluded that PGCIL shall do POC for limited selected nodes at the earliest.

PGCIL(WR-I) Agenda

**Item
No. 24**

OPGW on 400 KV Parli-Pune GIS D/C line owned by M/s Adani

- 1) *MoP directed PGCIL for implementation of transmission scheme “ establishment of Kallam 400/220 KV station with lilo both ckt of 400 KV Parli –Pune GIS D/c lines” as ISTS strengthening scheme. The proposed Kallam station is a Greenfield station and its gets OPGW connectivity only y laying OPGW on 400 KV Parli-Pune GIS line owned by ISTS licensee M/s Adani transmission pvt ltd and also on lilio portion which will be executed by PGCIL. Schematic diagram is enclosed at Annexure-.*
- 2) It is proposed to lay OPGW on 400 KV Parli-Pune GIS line through ISTS route as a part of “ Reliable communication package in WR-I”. The proposed OPGW shall be utilised for grid operation only as agreed by constituents (MoM of 28th meeting of WRPC on 04.03.2015) in case of Solapur-Parli and Solapur-Kolhapur lines.
- 3) It is proposed to deliberate and agree for taking up in next WRPC meeting.
Participants may like to discuss

Gujarat Agenda

**Item
No. 25**

Status and further course of action on RTAMC control centre data sharing

In 1st SCADA meeting, the RTAMC control centre data sharing is discussed,GETCO SLDC wants the current status and further course of action.



भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति

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सं. : पक्षेविस/ 47वीं/ पक्षेविस बैठक/ सहा.स. /2023/ 8509
No. : WRPC/47th/ WRPC Mtg./A.S./2023/

दिनांक: 10.08.2023
Dated:

सेवा में/To,

(संलग्न सूची के अनुसार/
As per enclosed list)

विषय : पश्चिम क्षेत्रीय विद्युत समिति (पक्षेविसमिति) की 47 वीं बैठक का कार्यवृत्त।
Sub : Minutes of 47th meeting of Western Regional Power Committee (WRPC).

महोदय/Sir,

इस पत्र के साथ दिनांक 15 जून, 2023 को रायपुर (छ.ग.) में आयोजित पश्चिम क्षेत्रीय विद्युत समिति की 47 वीं बैठक एवं इससे पहले दिनांक 14 जून, 2023 को आयोजित तकनीकी समन्वय समिति की बैठक का कार्यवृत्त आपकी सूचना एवं आवश्यक कार्रवाई हेतु संलग्न है।

यह सक्षम प्राधिकारी के अनुमोदन से जारी किया जाता है।

Please find enclosed herewith the Minutes of the 47th meeting of Western Regional Power Committee held on 15th June, 2023 at Raipur (C.G.) preceded by Technical Coordination Committee meeting on 14th June 2023 for your kind information and necessary action.

This issues with the approval of Competent Authority.

धन्यवाद / Thanking you,

भवदीय / Yours faithfully,

संलग्न: उपरोक्तानुसार/As above

विकास मुण्डोतिया

(विकास मुण्डोतिया / Vikas Mundotia)
सहायक सचिव / Assistant Secretary

It was concluded that Goa SLDC may inform whether they want one single control area to WRPC or they want to continue with separate control areas. In case opt for single control area, they will have to inform SRPC & Grid Controller of India. If they want to retain the two separate control areas scheduling for diversion of excess power from Goa-WR to Goa-SR can only be done if there are margins on the WR-SR link.

Goa representative informed that they will inform on the above in the WRPC meeting. Goa may please intimate the status.

47th TCC/WRPC Discussions:

MS, WRPC informed the background of the above agenda. He requested Goa Electricity Department to give the views of their management of Goa as suggested in the 88th CCM.

Sh. Jack Fernandes, CE, Goa informed that Goa want to maintain the status quo. He further suggested that as per the suggestion of WRLDC, Goa will try to get Open Access from Southern Region.

WRPC Chairperson suggested that the State may only have one control area so as to facilitate the proper integration of State with the grid.

TCC/WRPC noted the above.

Item no. 5. Establishment of State-of-the-Art Unified Centralized Network Management System- U- NMS for Western Region ISTS and State Utility Communication Network

Agenda Notes:

Powergrid vide email dated 11.05.23 has informed the following:

1. UNMS Scheme for all regions (other than WR) have been approved through RTM route of funding. The present status of UNMS projects of other regions are as follows:
 - **NR, NER & ER**- UNMS awarded and commissioning to start from Aug'23.
 - **SR**- UNMS (Approved in SRPC)- Agenda put up for April'23 NCT meeting.

The need & criticality of State-of-the-art UNMS scheme at State/ Regional/ National setups has been discussed in the various RPC forums. And during implementation stage, in the ongoing FAT of upcoming nation-wide UNMS system, its feature & provisioning are being appreciated by the constituents & users.

2. UNMS Scheme for Western Region has also been recommended for implementation by WRPC-TCC in Feb'22 (41st RPC meeting). In the said meeting, it was agreed that CTUIL/POWERGRID may go ahead with DPR preparation of the UNMS and approach NLDC for PSDF funding.

Subsequently POWERGRID applied for PSDF along with Detailed Project Report (DPR) for the UNMS scheme of WR. In response of that, PSDF Secretariat vide email dated 24.08.2022 conveyed that the matter of funding of the UNMS project from PSDF was discussed in the 18th meeting of the PSDF Monitoring Committee and the Monitoring committee has not accepted the proposal for funding the UNMS projects through PSDF. The same was informed to WRPC vide letter dated 29.08.2022.

And the same is minuted in 46th WRPC meeting held in Feb '23, as under: “.... PSDF Monitoring Committee has not accepted the proposal for funding the UNMS projects through PSDF funding, so it is requested that the UNMS scheme for WR may be considered for approval by WRPC in Regulated Tariff Mode...”.

3. Estimated Cost# of UNMS WR– prepared by POWERGRID (Thru RTM Mode - recd. from POWERGRID (Mar '23, based on awarded cost) is as under:

| S l. | Name of Scheme | Tentative Cost (Rs. Crore) |
|-----------------|--|--|
| 1 | Centralized Supervision System i.e. Unified NMS (UNMS) in Western Region (WR) along with AMC for 7 years | # cost is approx. 82 CRS plus AMC which is 19.07 Crs for 7 years |

88th CCM Discussions:

CTU representative informed that RTM is Regulated Tariff Mechanism. In UNMS, a Control Centre at regional level shall be deployed and all the underlying (discrete) NMS shall be connected together to get the unified view of the communication network so that the resource can be utilized optimally as at present all the discrete resources (NMS) monitoring individually, is very difficult. One NMS can see only its own network comprising of only 20 nodes for example. Each State has multiple NMS and presently the ISTS nodes have NMS presently situated in RLDC. Once this unified communication network monitoring center comes at regional level then it will also work as a data center

and multiple reports shall be generated for quick fault detection, restoration, entities can plan their system and they can see what the bottle necks in performance are. For example, Maharashtra have 3-4 NMS and as the NMS is not unified therefore the system may not be utilized optimally as the fragmented NMS cannot view the other NMS. The communication Regulation came into force in 2017 and in tariff regulation 2019-24, the communication system shall also be regulated through availability and the UNMS may help in that also. She further informed that NR would have two regional control center i.e. Delhi and Lucknow & other 9 States will also have NMS where they can monitor their network. In this system Tickets would be raised in every case of failure of communication system to the appropriate authority of the utility responsible for maintaining failed part of the communication system. This will ensure timely communication of messages of the failed communication to the appropriate authorities so that the same can be attended promptly. This regional control center will be manned 24x7. The NR project shall be commissioned in August, and they are setting the control center. All the other regions have approved the NMS in their region through RTM. Further SR NMS project has been approved by NCT. This is high time to get benefitted through UNMS.

SE(C), WRPC enquired whether RTM will be regional component or National component. He also requested all the beneficiaries and WRLDC to give their views on UNMS.

CSPDCL representative enquired that in 45th WRPC it was mentioned that experience may be shared by CTU, and the future course of funding may be decided. CSPDCL informed that their network is on Fiber optic on IMPLS and enquired whether it can be integrated.

MP SLDC representative informed that they will check and inform the views of their management. Technically it might be good for the system.

Goa representative informed that the scheme is useful and will inform their views in one weeks' time.

SLDC Maharashtra representative informed that they will check and inform the views of their management on the scheme.

CTU informed that the RTM is a regional component. CTU also confirmed that it can be integrated with the States NMS and UNMS have provisions for this.

WRLDC representative informed that technically the proposed scheme of UNMS is required in WR. He further informed that due to space constraints it cannot be hosted in WRLDC building since the building is also very old.

SE(C), WRPC informed that the other Regions have started the work of commissioning of UNMS, and it will be completed by August and the experience gained from other Regions can only be shared after that.

MS WRPC informed that we need automated system because we are going into complexity. If we want to check the availability of communication system, there is no method available. As other regions are implementing UNMS, due to this some charges will be paid by WR beneficiaries also. It will be a good move to get the UNMS in WR. All beneficiaries are requested to go through it and give their views as soon as possible as one grid event data loss may cost in big loss for a beneficiary.

MP, Chhattisgarh, Maharashtra, Goa and DNHDD were requested to inform their views in the forthcoming WRPC meeting.

Further Requirement:

Inclusion of Workstation Console in UNMS Project Scope including AMC for WR UNMS systems at following locations- regarding.

- a) At CTUIL, Headquarter Office, Gurgaon.
- b) At WRLDC, Mumbai.

Following additional scope shall be added in project scope during project approval of WR UNMS:

1. The BOQ of Workstation Console along and other associated software and hardware such as firewall, router, switch, furniture etc.
2. Bandwidth connectivity & Its recurring charges for CTUIL HQ Office.

The Complete Scope shall be as below -

| S. No. | Items | Details |
|--------|---------------------|---|
| 1. | Name of Scheme | Establishment of State-of Art Unified Network Management System (U-NMS) for ISTS and State Utility Communication System for Western Region |
| 2. | Scope of the scheme | <ul style="list-style-type: none"> • Main & Back-up UNMS software and hardware along with required Application software including Video Projection System (VPS), firewall and IDPS. • Remote Workstation for SLDCs. |

| S. No. | Items | Details |
|--------|--------------------------|--|
| | | <ul style="list-style-type: none"> • Video Projection System (VPS), Printer, furniture etc. at main & back-up U-NMS location. • Integration of existing NMS/NEs of ISTS and State Utility in a region in the proposed UNMS. • Integration of upcoming U-NMS for National* & other regions and upcoming NMS/NEs of ISTS and State Utility in a region during implementation and AMC period of the project. • Operational support, training & maintenance for proposed UNMS software and hardware. • Auxiliary Power System for U-NMS system. • Workstation Console along and other associated software and hardware such as firewall, router, switch, furniture at CTUIL HQ and WRLDC location • Bandwidth connectivity & Its recurring charges for CTUIL HQ Office. <p>* National UNMS shall be implemented subsequent to regional UNMS and Tariff for National UNMS to be shared by all regions.</p> |
| 3. | Estimated Cost | Rs. 84* CRs. (approx.) and 19.07 CRs. AMC charges for 7 years. *Cost has been derived from awarded package of ER and NR UNMS Scheme. |
| 4. | Implementation timeframe | 24 Months from date of project allocation based on NCT approval. |
| 5 | Implementation mode | Through RTM to POWERGRID |

47th TCC Discussions:

MS, WRPC informed the background of the agenda item. He also explained the benefits which will come to the Western Region after installation of the UNMS system and the down time of the systems will also reduce thereby increasing the reliability of the system. This will help in the States having data in real time available which is useful for controlling deviations. He also informed that in future, the data from every region will be reported/collected at the national level to NLDC. This project of national reporting to NLDC will come at a later date and that will be integrated into the

National Component of the Sharing of transmission charges while the cost of Regional part of the project is estimated at 84 crs which will be borne entirely by Western Region constituents.

Chairman TCC enquired the pattern on which the funding/sharing of the cost of the project in other regions. MS WRPC replied that the funding/sharing of this project will be thorough the Regulated Tariff Mode(RTM) and same mode of funding is being adopted in other regions also.

Sh. K S Manothiya, ED SLDC, Chhattisgarh informed that in 46th WRPC meeting, it was suggested that a group from WR will visit the Northern Region and based on the feedback of the of this system and then they shall be in a position to recommend the project in WR. He also enquired regarding the integration of the project with IP/MPLS system technology which is adopted in their State.

Sh. P D Lone, SE (Comml.) informed that the project has not been implemented in the Northern Region and waiting for the project for NR to be implemented will unnecessarily delay the UNMS project in Western Region.

SLDC, Chattisgarh representative enquired whether there will also be a UNMS system made available to States. He also raised the query that NMS work has already been taken up in their State and therefore whether both the systems (i.e. NMS of Chhattisgarh State and UNMS) will work in parallel. He further informed that Chhattisgarh, in principle, is in agreement with the project. However, the technical specifications need more clarity and closer working with the CTU.

Smt. Nutan Mishra, CTU informed that all the approved technology in the CEA standards can be integrated with this project. The IP/MPLS fibre system will also be integrated with the UNMS in line with CEA's technical standards. She also informed that the project TOR includes integration of IP/MPLS. She informed that NMS of States will continue to work as they are and the UNMS will be an umbrella under which NMS will be existing. Multi functionality will be available with the UNMS. She also informed that while finalising the project implementation, States will be informed in detail and they will have an option of integrating their whole network as per their specifications. She also informed that the project will have numerous advantages.

MP SLDC representative informed that they have already given their approval to the project in different forums. He informed that since the mode of funding was changed from PSDF to RTM, the same needs to be informed and discussed with their higher management and shall be informed in the WRPC meeting, tomorrow.

TCC Chairperson enquired whether the all India UNMS will be formed at the national level.

CTU representative informed that the UNMS at national level will be formulated so that there is no redundancy.

Maharashtra also informed that they have already given their approval and have to inform their management about the change in funding of the project.

MS, WRPC informed that UNMS will help streamline the NMS of the different States and will be over and above the current project. Therefore there will be no redundancy in the project.

47th WRPC Discussions:

MS, WRPC briefly informed the discussions of the TCC meeting held on the above issue.

WRPC Chairperson enquired about the sharing of the cost. He further enquired as to how these expenditure will be shared among beneficiaries through the PoC charges and whether the sharing is based on usage or on the length of the assets.

SE, Comml. WRPC informed that the charges are shared as per the Sharing of Transmission Charges and Losses Regulations of CERC, in which there is an ACC component comprising of usage based AC System component, Regional, National and Transformer components. The charges of ULDC are shared by the beneficiaries based on the LTA/MTOA of the States furnished by the Implementing agency.

After discussions WRPC agreed to the Regional UNMS proposal by CTU.

TCC/WRPC noted the above.

Item no. 6. Commercial impact due to dismantled Conductor upon re-conductoring of 400kV Kolhapur-Kolhapur D/C Line

Agenda Notes:

PowerGrid vide email dated 12.05.23 informed the following:

- As per the transmission scheme “Transmission System strengthening beyond Kolhapur for export of Power from Solapur & Wind energy zones in Southern Region - Reconductoring of Kolhapur(PG)-Kolhapur 400kV D/C Line”, POWERGRID has re-conducted Kolhapur(PG)-Kolhapur 400kV D/C Line. The original Line was commissioned and is in commercial operation since 01.01.2003. However as per the central scheme, the ACSR moose conductor from the line and some terminal equipment were dismantled before completion of its useful life. The Re-conductoring was done as per system requirement as agreed in 3rd meeting of WRPCTP on 14.06.2021.
- The above work has been done for the system improvement/requirement, by which POWERGRID has to de-capitalize the removed conductor as the same is not in use from the project capital, by no fault of POWERGRID. The same shall effect in loss to

I/30353/2023



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केंद्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग- II

Power System Planning & Appraisal Division-II

सेवा में /To

As per list of Addresses

विषय: ट्रांसमिशन पर राष्ट्रीय समिति (एनसीटी) की पन्द्रहवीं बैठक का कार्यवृत्त - के सम्बन्ध में।

Subject: Minutes of the 15th Meeting of National Committee on Transmission (NCT) – regarding.

महोदया (Madam) / महोदय (Sir),

The 15th meeting of the "National Committee on Transmission" (NCT) was held on 25th August, 2023. The minutes of the meeting are enclosed herewith.

भवदीय/Yours faithfully,

(राकेश गोयल / Rakesh Goyal)

मुख्य अभियन्ता एवं सदस्य सचिव, एन.सी.टी.

/ Chief Engineer & Member Secretary (NCT)

प्रतिलिपि / Copy to:

Joint Secretary (Trans), Ministry of Power, New Delhi

4.5 North Eastern Region Expansion Scheme-XXI Part-B (NERES-XXI Part-B)

- 4.5.1 The existing 132 kV Badarpur (POWERGRID) switching station was commissioned in 1999 and shall be completing 25 years in service by 2024. POWERGRID, the owner of the substation has informed that they are facing issues in O&M of the switching station and to improve the reliability it would be prudent to upgrade the switching station from single main and transfer bus scheme to double main transfer bus scheme by converting from AIS to GIS.
- 4.5.2 The scheme was also discussed in the 23rd TCC & NERPC meetings held on 18th-19th November 2022 wherein the subject upgradation was agreed to be carried out in Green GIS.
- 4.5.3 Chairperson, CEA, opined that life of sub-stations is generally about 35 years and hence, the reasons for replacement/upgradation of switching station after 25 years needs to be ascertained.
- 4.5.4 After detailed deliberations, it was decided to review the scheme subsequently.

4.6 **Implementation of Unified Network Management System (UNMS) in the Western Region**

- 4.6.1 Representative of CTUIL informed that Central Electricity Regulatory Commission (Communication System for inter-State transmission of Electricity) Regulations 2017, mentions that, CTU shall in due consideration of the planning criteria and guidelines formulated by CEA be responsible for planning and coordination for development of reliable National communication backbone for Inter-State Transmission System (ISTS). CEA Technical Standards 2020 calls for centralized monitoring by integrating its network management system with network management system of other users and standalone network elements on regional and national basis. Further, CTUIL shall implement centralized supervision for quick fault detection and restoration.

Accordingly, communication scheme i.e. Establishment of State-of Art Unified Network Management System (U-NMS) for ISTS and State Utility Communication System for all the Regions have been envisaged for five Regional systems and one National system integrating all the regional ones; in main & backup configuration. This will facilitate centralized supervision of ISTS as well as Intra-state communication system at State level, Regional level and Inter-Regional Communication system at national level.

CTUIL updated status for nationwide UNMS Scheme implementation being undertaken by POWERGRID; UNMS for Northern, Eastern and Northeastern Regions are scheduled for commissioning in year 2023/ 2024. And Southern Region scheme approved in 13th NCT meeting in May'23 is under bidding stage.

- 4.6.2 WRPC has approved implementation of the WR-UNMS project in RTM mode in 47th WRPC meeting held on 14th & 15th June 2023.
- 4.6.3 Representative of PCD Division, CEA, stated that a workstation console with redundant connectivity would be required under UNMS-WR scheme at WRPC. It was also suggested to include feature for Long, Medium & Short Term Planning for preparing planning projections while including user configurable inputs such as topology, congestion status, utility/ area wise, type of network, product life cycle, sector growth etc. and provision for import of data in .xls or other similar forms for consuming in preparing the planning projection for 2 years, 5 years, 10 years.
- 4.6.4 It was also discussed that UNMS workstation console with its associated hardware & software along with redundant connectivity is required at all RPC locations for the previously approved regional UNMS Scheme for NER, NR, ER and SR.
- 4.6.5 **Chairman, NCT, stated that central planning of the communication network for ISTS and State system shall take the leverage from these Regional & National UNMS having the details of both ISTS and State sector communication network. He also emphasized that National UNMS system should be planned at the earliest to have a holistic view of the network comprising of regional, intra-regional and intra state network and this scheme shall have additional scope of Planning Software tool having features as enlisted by representative of PCD Division.**
- He also emphasized that SOP for Centralized supervision & Maintenance of ISTS Communication system should be finalized at the earliest while specifying the roles & responsibilities of concerned entities/ agencies for smooth implementation of the hierarchical UNMS Scheme situated in state, regional & national level.**
- 4.6.6 After detailed deliberations, the followings were approved:
- WR UNMS scheme as per agenda along with additional scope listed below to be implemented under RTM mode by POWERGRID.
 - a. Inclusion of Workstation Console and associated HW & SW along with redundant communication link & AMC at WRPC location.
 - b. Additional feature of Planning Tool
 - **The National UNMS project proposal to be taken up at the earliest, as all regional systems have been approved for implementation. The national UNMS scheme shall have additional scope of Planning Software tool having features for Long, Medium & Short Term Planning for preparing planning projections while including user configurable inputs such as topology, congestion status, utility/ area wise, type of network, product life cycle, sector growth etc and provision for import of data in .xls or other similar forms for consuming in preparing the planning projection for 2 years, 5 years, 10 years., along with Workstation Console and associated hardware/software with redundant connectivity at PCD Division, CEA.**

- Additional scope for Supply, Installation & AMC for UNMS workstation console with its associated hardware & software with redundant connectivity at all four RPC locations for the previously approved regional UNMS Scheme for NER, NR, ER and SR.

4.6.7 Summary of the WR UNMS scheme is as given below:

| Sl.No. | Name of the scheme and implementation timeframe | Estimated Cost (Rs. Crores) | Remarks |
|--------|---|---|--|
| 1. | Establishment of State-of Art Unified Network Management System (U-NMS) for ISTS and State Utility Communication System for Western Region Tentative Implementation timeframe: 24 months from date of allocation | Rs. 84* Crs. (approx.) and 19.07 Crs. AMC charges for 7 years. | Approved to be implemented under RTM mode by POWERGRID |

4.6.8 Detailed scope of the scheme is as given below:

| Sl. No. | Scope of the scheme | Estimated Cost (Rs. Crs) |
|---------|---|---|
| 1. | <ul style="list-style-type: none"> • Main & Back-up UNMS software and hardware along with required Application software including Video Projection System (VPS), firewall and IDPS. • Remote Workstation for SLDCs. • Video Projection System (VPS), Printer, furniture etc. at main & back-up U-NMS location. • Integration of existing NMS/NEs of ISTS and State Utility in a region in the proposed UNMS. • Integration of upcoming U-NMS for National & other regions and upcoming NMS/NEs of ISTS and State Utility in a region during implementation and AMC period of the project. • Operational support, training & maintenance for proposed UNMS software and hardware. • Auxiliary Power System for U-NMS system. • Workstation Console along and other associated software and hardware such as firewall, router, switch etc. at WRPC, CTUIL HQ and WRLDC location • Bandwidth connectivity & Its recurring charges for WRPC & CTUIL HQ Office. | Rs. 84* Crs. (approx.) and 19.07 Crs. AMC charges for 7 years. |