



सत्यमेव जयते

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

दिनांक: 25.02.2026

सेवा में/ To,

संलग्न सूची के अनुसार/As per list attached

विषय: दूरसंचार, स्काडा और टेलीमेटरी उपसमिति की 30 वीं बैठक।

Subject: 30th meeting of Telecommunication, SCADA & Telemetry Sub Committee

इस कार्यालय के पत्र दिनांक 02.02.2026 के क्रम करते हुए यह सूचित किया जाता है कि उत्तर क्षेत्रीय विद्युत समिति की दूरसंचार, स्काडा और टेलीमेटरी (टेस्ट) उप-समिति मीटिंग 17 मार्च 2026 को एन.आर.पी.सी. कॉन्फ्रेंस हॉल, कटवारिया सराय, दिल्ली में आयोजित की जाएगी। बैठक की कार्यसूची आपकी सूचना एवं आवश्यक कार्यवाही हेतु संलग्न है।

In continuation to NRPC letter dated 02.02.2026, it is to be intimated that the 30th meeting of Telecommunication, SCADA & Telemetry (TeST) Sub-committee of NRPC will be held in 17th Mar, 2026 at NRPC Conference Hall, Katwaria Sarai, Delhi. The agenda for the meeting is enclosed herewith for your information and necessary action.

अनुलग्नक- यथोपरि।

भवदीय,

Digitally signed by
Anzum Parwej
Date: 25-02-2026
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(अंजुम परवेज)

अधीक्षण अभियंता (संचार)

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30th Telecommunication, SCADA & Telemetry (TeST) Sub-Committee Meeting of NRPC Agenda

1. Confirmation of Minutes

The minutes of 29th meeting of TeST sub-committee held on 27th Nov, 2025 were issued on 31st Dec, 2025.

Following amendments were requested by HPPTCL vide email dated 07.02.2026:

Agenda	Minutes of 29 th TeST meeting	Amendment requested
15. Latest Power maps (132 kV and above) and Fiber Optic maps of STU network (Agenda by CTU).	15.3. HPPTCL stated that they have OPGW map updated till 2023 and agreed to share the same.	15.3. HPPTCL stated that they have Power map updated till 2023 and agreed to share the same.

Following amendments were requested by NRLDC vide email dated 12.02.2026:

Agenda	Minutes of 29 th TeST meeting	Amendment requested
3. Redundant RTU Communication for Main / Backup RLDC (Agenda by NRLDC)	3. Decision of the forum: <ul style="list-style-type: none"> NRLDC to provide a complete list of RTUs where SCADA data channels are not reporting in main and backup mode (1+1) with one main channel to RLDC and one backup channel to Backup RLDC, to respective entities. (Action: NRLDC)	3. Decision of the forum: <ul style="list-style-type: none"> NRLDC to provide a complete list of RTUs where SCADA data channels are not reporting in main and backup mode (2+2) with one main & one standby channel to RLDC and one backup & one backup standby channel to Backup RLDC, to respective entities. (Action: NRLDC)

The Minutes are available at NRPC website:

(https://nrpc.gov.in/meetings/TEST/TEST29/TEST29_MN.pdf).

Members may kindly confirm the minutes.

2. Status of action taken on decisions of 29th TeST meeting of NRPC (Agenda by NRPC Secretariate)

2.1. Status of action taken on decisions of 29th TeST meeting is attached as **Annexure- I**

Status of action taken may be discussed in the meeting.

3. Follow-up of issues from previous TeST Meetings- Status update (Agenda by NRPC Secretariate)

3.1. The updated status of agenda items is enclosed at **Annexure-II**.

All utilities are requested to update the status.

4. Persistent Telemetry Failure of Lucknow 400kV Substation reporting at NRLDC (Agenda by NRLDC)

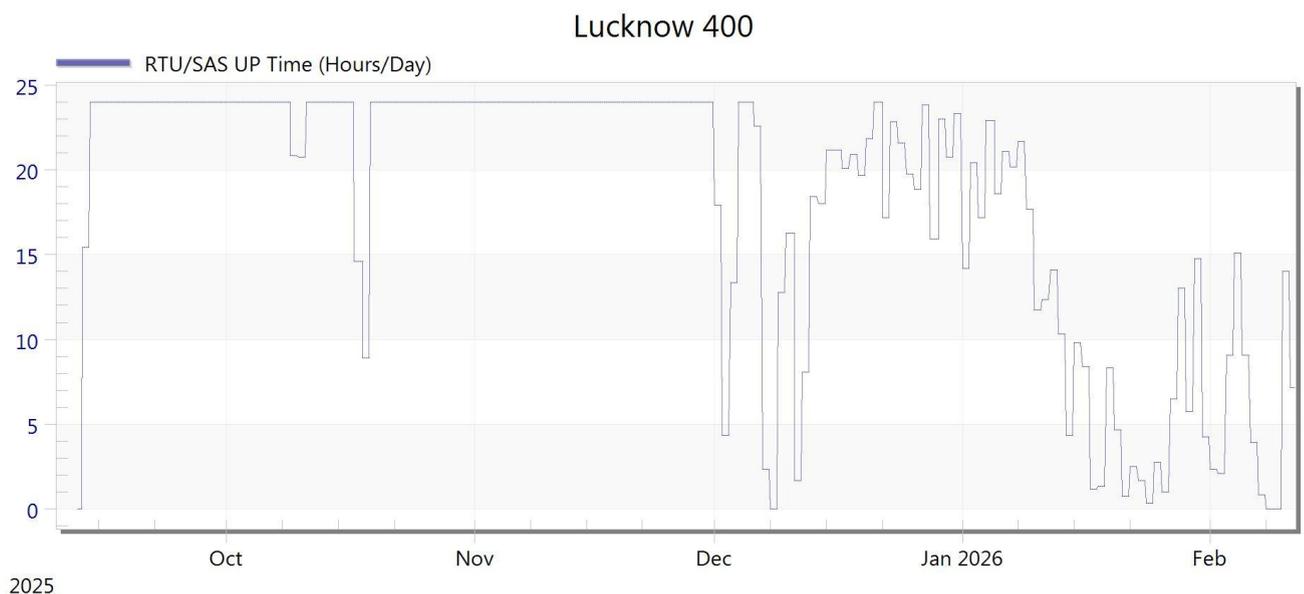
4.1. The provision of redundant and reliable communication infrastructure has been repeatedly emphasized and discussed in various TeST meetings. The telemetry reporting from Lucknow 400kV Substation continues to remain highly unreliable and intermittent, adversely impacting real-time monitoring and grid operations.

4.2. Earlier, telemetry from the substation was reporting through the IEC-101 protocol, during which issues had already been observed over the past year. Subsequently, after upgrading and shifting the telemetry to the IEC-104 protocol, data reporting was observed to be smooth and stable, but only for few weeks. However, over the past more than two months, telemetry performance has again deteriorated significantly and is now reporting in a highly intermittent manner through both gateways/RTUs.

4.3. The communication remains operational only for a few hours before failing again. Restoration typically requires continuous intervention and almost daily follow-up, but improvements are temporary, with repeated breakdowns recurring.

	Oct'25	Nov'25	Dec'25	Jan'26
Availability	95.84%	99.15%	72.01%	40.57%

4.4. Daily RTU/SAS availability trend is as:



POWERGRID may update the status.

5. Communication Outage Planning (Agenda by NRPC)

5.1. Communication Outage Planning has been initiated from October 2025 in accordance with the approved SOP.

Monthly outage planning schedule is as follows:

1. 1st working day of every month – NRPC Secretariat circulates an email requesting all entities to submit their communication system outage proposals.
 2. By 8th of every month – Entities to submit their outage requests in the prescribed format.
 3. NRPC Secretariat shall compile all received outage requests and forward them to NR-NMT/NRLDC for their observations/input.
 4. Outage Planning Meeting for the communication system shall be conducted in the third week of every month to finalize the proposed outages.
 5. The proposed monthly outage plan shall be published on the NRPC website.
 6. Entities shall avail the approved outages in coordination with NRLDC and NR-NMT.
 7. Deviation reports (if any) are to be submitted by 10th of the following month in the prescribed format
- 5.2. First Communication Outage request was received from POWERGRID for the month of February. Subsequently, the first Communication Outage Planning Meeting for the Northern Region was convened on 27th January 2026 proposed communication outages for February 2026 were deliberated and approved.
- 5.3. In the meeting, it was observed that OPGW link outages typically arise in cases of diversion, crossings and diamond creation works and are often inherently linked with approved transmission line outages in OCC meetings. Accordingly, it was deliberated that OPGW link outages may be integrated within the transmission outage planning framework and treated as deemed communication outages, while other communication outages may continue through Communication Outage Planning Meetings.
- 5.4. The matter was subsequently taken up in the 240th OCC Meeting held on 17.02.2026 under Agenda Item A.15, in line with Clause 7.3(iv) of CERC (Communication System for inter-State Transmission of Electricity) Regulations, 2017 (minutes awaited). It was proposed to include OPGW link outages in the OMS portal; however, as addition of a separate column was not feasible, associated, it was decided that OPGW link outages may be indicated in the remarks column for capturing deemed communication outage data.
- 5.5. The following SOP provision regarding emergency outages was also discussed:
- “In case of any emergency outage requirement of communication links and equipment, Entities/Users/Owners may directly apply to respective RLDC with intimation to respective RPCs on D-2 basis. Confirmation of approval/rejection will be provided on D-1 basis by RLDCs in consultation with respective RPCs considering 24-hour processing window.”*
- 5.6. Accordingly, it was deliberated that emergency outage requirements of communication links/equipment may be directly submitted to NRLDC/NR-NMT with intimation to NRPC.

Members may deliberate.

6. Database for Communication Outage Planning (Agenda by NRPC)

- 6.1. Comprehensive database of communication equipments and links is required for communication outage planning in northern region.
- 6.2. In this regard, NRPC Secretariate has received data of communication equipments and links from NR-NMT.

6.3. All the utilities are requested to verify the data so that comprehensive database can be prepared for communication outage planning.

Members may deliberate

7. Communication System Audit (Agenda by NRPC)

- 7.1. In the 28th TeST Meeting, members were apprised that Communication System Audit has been commenced in the Northern Region in accordance with the NPC-approved SOP and CERC Communication Regulations, 2017.
- 7.2. It was also informed that the Communication Audit Sub-Group was constituted after receipt of nominations from NRLDC, POWERGRID and SLDCs.
- 7.3. In the first Communication Audit Sub-Group meeting held on 29.08.2025, seven substations were identified for Phase-II physical audit based on inputs received from NRLDC and deliberations held in the meeting. The list of identified substations was also placed before the 28th TeST Meeting, wherein members were of the view that Singoli Bhatwari may be removed from the list considering its limited communication infrastructure. The Sub-Group was advised to examine the data received from various substations and finalize additional substations for Communication Audit during FY 2025-26.
- 7.4. Subsequently, in the second and third Communication Audit Sub-Group meetings held on 06.11.2025 and 14.01.2026 respectively, audits were scheduled for the remaining identified substations and Devikot (Adani) was included in the list of substations to be taken up for audit.
- 7.5. The details and current status of the Communication Audits are placed below for information and deliberation of the members:

S. No.	Station Name	Category	Owner	Status of Audit
1	Meerut	765/400 kV Substation	POWERGRID	Audit carried out on 22.09.2025
2	Ad hydro	Hydro Power Plant	IPP/ADHPL	Audit carried out on 10.12.2025
3	Dadri	Thermal/Gas power plant	NTPC	Audit carried out on 13.02.2025
4	Fatehgarh 2	765/400kV Substation	POWERGRID	Audit to be carried out in 2 nd week of March
5	Salal	Hydro Power Plant	NHPC	Audit to be carried out in 3 rd week of March
6	Tehri PSP	Pump Storage Plant	THDC	Audit carried out on 20.11.2025
7	Devikot	Solar Power Plant	Adani	Audit to be carried out in 2 nd week of March

- 7.6. Communication System audit has been carried out at Meerut, AD Hydro, Tehri PSP and NTPC Dadri. Compliance from Meerut, Tehri PSP and NTPC Dadri is still awaited.

POWERGRID, NTPC and THDC to submit compliance report.

8. Comprehensive Scheme for OPGW installation on the existing lines of ISTS in Northern Region (Agenda by CTU)

- 8.1. As per the CEA letter dtd. 22.05.2024 (attached at **Annexure-III**), all lines 110 kV and above shall have Optical Ground Wire along with necessary terminal equipment for speech transmission, line protection, and data channels. Further as CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 primary path for tele-protection shall be on point-to-point Optical Ground Wire and alternative path shall be either on Power Line Carrier Communication or predefined physically diversified Optical Ground Wire paths.
- 8.2. During planning of new Transmission Schemes many existing lines get LILoed at upcoming S/s (ISTS/STU). In view of non-availability of OPGW on the existing lines data and voice requirement for new S/s become critical. Further installation of OPGW in live line condition takes lot of time on exiting lines compared to new transmission lines. The installation of OPGW will also enable seamless data transmission from IEMs to the upcoming 5-minute Automatic Meter Reading (AMR) system.
- 8.3. Subsequently CEA vide their letter dtd. 22.11.2024 (attached at **Annexure-IV**) communicated that all the upcoming lines shall be provided with 48 Fiber OPGW to cater to broadband and internet requirements in the rural areas and hinterlands to provide reliable Telecom connectivity.
- 8.4. In the 16th NPC meeting held on 04.07.2025 (relevant extract of MoM attached at **Annexure-V**), proposal for installation of OPGW on the existing ISTS & STU lines were deliberated. In the meeting it was decided that a comprehensive scheme for installation of OPGW on existing ISTS lines may be put up in the upcoming TCC/RPC meeting by CTU.
- 8.5. Thereafter, this scheme was put up by CTU in the 55th TCC/ 80th NRPC meeting held on 17.07.2025/ 18.07.2025 (relevant extract of MoM attached at **Annexure-VI**) in line with the 16th NPC MoM. The scheme was agreed in principle by the NRPC forum, and CTU was requested to formulate a comprehensive scheme for implementation of OPGW on existing ISTS lines where OPGW is not available.

Summary of scheme agreed in 55th TCC/ 80th NRPC is given below:

Sr. No.	Projects	Total Transmission Length (Kms)
1.	RTM	4084
2.	JV	742
Grand Total		4826

The tentative cost estimate of above requirement is **Rs. 265 Crs.**

- 8.6. Accordingly, CTU has again collected inputs from the ISTS TSPs and STUs. Based on these inputs, requirement of OPGW and FOTE was estimated by CTU and scheme was formulated and was discussed in the 9th and 10th CPM (Communication Planning Meeting) of NR held on 19.08.2025 and 31.12.2025 respectively (MoM attached at **Annexure-VII & VIII**).
- 8.7. In the above CPM meetings, it was noted that some of the lines in the scheme have multiple ownership e.g., States, POWERLINK and POWERGRID. Further some lines also fall under TBCB as well as RTM projects under ISTS. During the CPM meetings it was deliberated that respective asset owners like transmission line owner or substation bay owner shall install OPGW and FOTE for their respective ownership portions to avoid ambiguity in maintenance, ownership and monetization issues later. Further, in line with CERC order on

Petition No. 94/MP/2021 dated 25.06.2021 OPGW shall be installed by replacing earth wire by owner of the transmission line and FOTE to be installed by respective Substation / Bay Owner following the required procedure with the approval of the competent authority.

- 8.8. However, POWERGRID and STUs (RRVPL, UPPTCL) suggested that a combined scheme can be formed which includes POWERGRID and STU portion which needs further deliberation in NRPC TeST meeting.
- 8.9. In the MoM of 10th CPM, scheme was bifurcated into ISTS Portion (RTM & TBCB) and STU (RRVPL, UPPTCL & PTCUL) portion for their respective transmission asset ownership, similar methodology is adopted for BBMB lines.
- 8.10. The finalized detailed scheme for Installation of OPGW & associated communication systems on the existing lines of ISTS is attached at Appendix-I. Scheme consists of List of lines with kms, No of FOTE and their locations, Tentative Cost Estimate, mode of implementation and implementation schedule.
- 8.11. STUs scope is also identified, however same to be implemented by respective STUs in matching timeframe ISTS scheme, the details of same are attached at Appendix-II.
- 8.12. Summary of the schemes under ISTS is given below:

A. ISTS

S. No	TSP	OPGW (Km)	FOTE (Nos.)	Estimated Cost (Cr.)
1	POWERGRID	4168.33	64	272.45
2	POWERLINK	856.3		47.09
3	NRSS XXXI (B) Transmission Ltd	149		8.195
4	PKTCL	66.381		3.65
Grand Total		5240.01	64	331.40 (approx.)

B. BBMB/STU

S. No	Utility	OPGW (Km)	FOTE (Nos.)	Cost (Cr.)
1	BBMB	576.2	3	Through BBMB/STU Schemes
2	RRVPL	124.61	6	
3	UPPTCL	135.9	5	
4	PTCUL	113.54	1	

- 8.13. Implementation timeframe of the scheme is considered as 36 Months from the date of allocation.
- 8.14. Points to be finalized in the NRPC TeST meeting:
- Confirmation of line length and ownerships by all the TSPs and STUs.
 - Implementation timeframe
 - BBMB portion scheme
 - Two lines were proposed by POWERGRID after 10th CPM
 - 400kV Muzaffarnagar (UP) – Rishikesh (PTCUL) Main line LILOed at Roorkee (PG) and Main line 400kV Muzaffarnagar - Rishikesh belongs to PTCUL (46.27 + 67.27 kms.), LILO portion belongs to ISTS (3.73 Km).

- e. POWERLINK proposal of installation of OPGW on the complete transmission lines where mixed ownership of POWERLINK and POWERGRID.
- 8.15. Implementation schedule of scheme 1.2, 1.3 & 1.4 mentioned in Appendix-1 is considered as 36 months i.e. matching with scheme 1.1, because FOTE at the end stations are considered in scheme 1.1 in line with CERC order on Petition no. 94/MP/2021(end stations ownership is of POWERGRID).
- 8.16. After deliberation of the scheme “Comprehensive Scheme for OPGW installation on the existing lines of ISTS in Northern Region” (Appendix-I) in NRPC TeST meeting, same shall be put up in upcoming TCC/NRPC for review thereafter in NCT for approval.

Members may deliberate

9. Upgradation of FOTE at ISTS Locations due to Bandwidth congestion in Northern Region (Agenda by CTU)

- 9.1. In 27th TeST Meeting held on 21.04.2025 and 28th TeST meeting held on 23.07.2025 (MoM attached at **Annexure-IX**), NMT brought out bandwidth congestion in some of the FOTE of NR which requires upgradation/replacement. System generated report from UNMS system is attached where Bandwidth Utilization is over 75%. CTU has studied these nodes for bandwidth congestion and summary of these nodes showing bandwidth utilization as reviewed from UNMS is attached at **Annexure-X**. Considering critical grid operations, these FOTEs experiencing high bandwidth congestion and may be upgraded/replaced.
- 9.2. This agenda was further deliberated in the 10th NR CPM (Communication Planning Meeting) held on 31.12.2025 regarding upgradation of FOTE where there existing bandwidth congestion in critical links of NR. At Allahabad & Varanasi node, requirement of STM-64 FOTE (with minimum 5 MSP) was deliberated in view of inter-regional data transfer towards Main & Backup NLDC and Main and Backup RLDCs. POWERGRID and NMT suggested that upgrading to STM-64 for Allahabad-Varanasi link also requires nearby nodes to be upgraded to STM-64 for utilization of STM-64 bandwidth. It is proposed that to provide congestion free corridor between NLDC/NRLDC – ERLDC/Backup NLDC, STM-64 based path can be created, which cater critical interregional data between ER- NR such as ICCP, AGC etc.
- 9.3. The proposed path for NR-ER corridor is given below:

 NRLDC/NLDC (16/64)→ (Via Mehrauli → Okhla) → NTPC_Badarpur (64) → Ballabgarh (16/64)→Mainpuri → Fatehpur→ Allahabad → Sasaram → Biharshariff → Banka → Kahalgaon → Farakka → Baharampur → Jeerat New → Kasba → ERLDC (backup NLDC)
- 9.4. In coordinated approach the above path shall also be deliberated in the ERPC TeST meetings and therefore agenda maybe discuss in upcoming NRPC TeST meeting.
- 9.5. Further the requirement of STM-64 FOTE upgradation at Tughlakabad, Bhiwadi & Kotputli S/s has been agreed in 10th CPM. STM-64 FOTE at Tughlakabad, Kotputli S/s are considered in this scheme and STM-64 FOTE at Bhiwadi S/s is considered in Comprehensive OPGW scheme.
- 9.6. The FOTE locations which are already covered in the Comprehensive Scheme for OPGW installation on the existing lines of ISTS in Northern Region has been removed from the FOTE upgradation scheme to optimize the cost & quantity.

- 9.7. After receiving inputs from NMT and POWERGRID, CTU studied the network from UNMS, and scheme has been updated and attached at Appendix-III. Detailed list of nodes where upgradation/replacement of FOTE is considered is attached at **Annexure-XI**.
- 9.8. Implementation timeframe for this scheme is considered as 24 months.
- 9.9. After review in NRPC TeST meeting, The scheme "Upgradation of FOTE at ISTS Locations due to Bandwidth congestion in Northern Region" (Appendix III) shall be put up in upcoming TCC/NRPC for review thereafter in NCT for approval.

Members may deliberate.

10. Completion Certificate of Successful Commissioning of ISTS Communication Elements

- 10.1. The nodal agency for planning, and coordination for development of communication system for inter-State transmission system user is Central Transmission Utility (CTU) as per CERC communication Regulation 2017.
- 10.2. Various Communication schemes for ISTS network are being prepared by CTU which requires information of already commissioned communication elements for optimised and timely planning of ISTS Communication System.
- 10.3. In this regard NRLDC is requested to provide a copy of Completion Certificate of Successful Commissioning of ISTS Communication Elements from Jan'26 onwards to CTU for information and database updation purpose.

Members may deliberate.

11. Replacement of Fiberhome make Communication Equipment (Agenda by POWERGRID)

- 11.1. Replacement of Fibrehome make communication equipment was deliberated in 25th, 26th and 27th TeST meeting of NRPC. During the meetings, POWERGRID informed that Fibrehome devices had STM-1/STM-4 capacities and several technical limitations, such as supporting only two optical directions and using optical cards instead of an SFP solution and limitation of Ethernet ports. In this scenario, maintenance cost of these equipment is very high, and availability of spares is also challenging.
- 11.2. In view of technical challenges, POWERGRID have upgraded their network and additional / redundant communication equipment are available at these sites. There is no requirement of extension of AMC for Fiberhome equipment of POWERGRID.
- 11.3. During the 27th TEST meeting, in line with views of states regarding the replacement of Fibrehome equipment, it was deliberated for extension of AMC of Fiberhome make devices for 01 year including the equipment of POWERGRID having inter-connectivity with other states.
- 11.4. In view of above CTU may plan timely for replacement / upgradation of Fiberhome equipment installed at UPPTCL, PSTCL, RRVPNL, BBMB and PTCUL, as some of the inter-connected nodes may get impacted in case of exclusion of POWERGRID's Fiberhome equipment from AMC scope.

CTU / members may review the requirement and deliberate on the issue.

12. Scope of OPGW Supply & installation for LILO portion at Parbati-III under the scheme approved in 20th NCT (Agenda by POWERGRID)

- 12.1. Under the 20th NCT, communication scheme has been approved at S. No.: 4.12, for “Supply and installation of 24 Fibre OPGW on PKTCL lines for providing redundant communication for Parbati Pool (Banala) (PG) S/s, Parbati-II (NHPC) & Parbati-III (NHPC) stations.
- 12.2. At S. No.: 4.12.5 of 20th NCT minutes, detailed scope of the scheme mentions as-

(A) Supply and installation of total 88.635kms of OPGW (24F) on following lines owned by PKTCL:

- (i) Parbati-II – Parbati-III – 9.643 km
- (ii) Parbati-III – Parbati Pooling (Banala) – 3.518 km
- (iii) Parbati Pooling (Banala) – Koldam (NTPC) – 62.636 km
- (iv) Parbati-II - Parbati Pooling (Banala) – 12.838 km

(B) Supply and installation of 0.783 kms of OPGW (24F) in POWERGRID portion and 04 nos. of FOTE:

- (i) Supply and installation of OPGW (24F) on Parbati Pooling (Banala) line (0.783Km) on POWERGRID portion
- (ii) Supply and installation of 4 Nos. FOTE (STM-16) at Parbati Pooling (Banala), Parbati-II (NHPC), Parbati-III (NHPC) & Koldam (NTPC) stations (1 no. at each location).

12.3. Excerpt from minutes of 20th NCT meeting are as follows -

4.12.4 Summary of the scheme is given below:

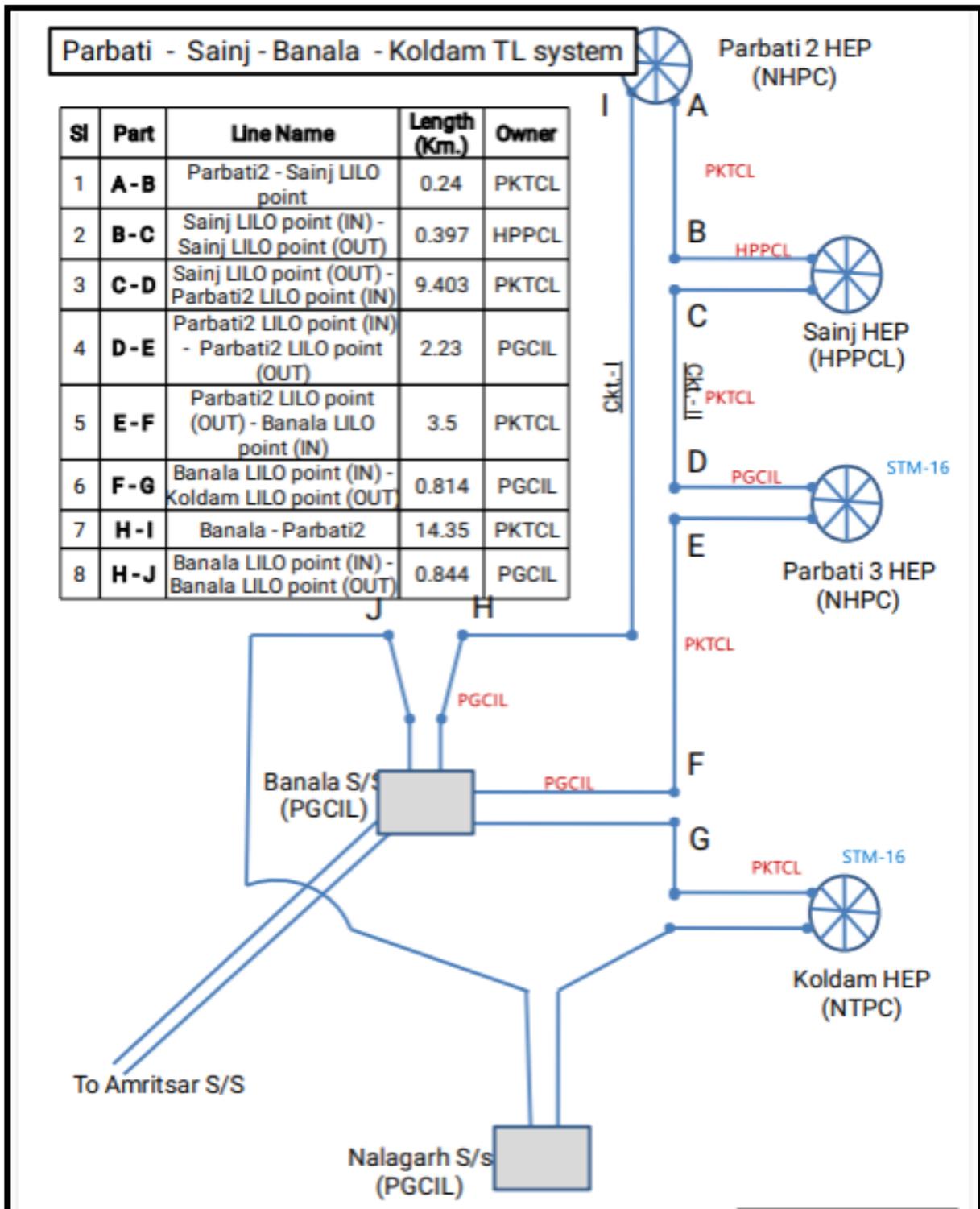
SI No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Crores)	Remarks
A.	Supply and installation of 24 Fibre OPGW on PKTCL lines for providing redundant communication for Parbati Pooling (Banala) (PG) S/s, Parbati-II (NHPC) & Parbati-III (NHPC) stations. Tentative implementation timeframe : 18 months from the date of allocation	5.31	Approved under under RTM mode through PKTCL
B.	Supply and installation of 24 Fibre OPGW & FOTE to providing redundant communication for Parbati Pooling (Banala) (PG), Parbati-II (NHPC) & Parbati-III (NHPC) stations Tentative implementation timeframe : 18 months from the date of allocation (with matching schedule with Scheme A)	1.24	Approved under RTM mode through POWERGRID

4.12.5 Detailed scope of the scheme is given below:

Sl. No.	Scope of the Transmission Scheme
A.	<p>Supply and installation of OPGW (24F) on following lines owned by PKTCL:</p> <p>(i) Parbati-II – Parbati-III – 9.643 km</p> <p>(ii) Parbati-III – Parbati Pooling (Banala) – 3.518 km</p> <p>(iii) Parbati Pooling (Banala) – Koldam (NTPC) – 62.636 km</p> <p>(iv) Parbati-II - Parbati Pooling (Banala) – 12.838 km</p> <p>Total km- 88.635</p>
B.	<p>i. Supply and installation of OPGW (24F) on Parbati Pooling (Banala) line (0.783Km) on POWERGRID portion.</p> <p>ii. Supply and installation of 4 Nos. FOTE (STM-16) at Parbati Pooling (Banala), Parbati-II (NHPC), Parbati-III (NHPC) & Koldam (NTPC) stations (1 no. at each location)</p>

12.4. Under the approved scheme, scope for OPGW installation on LILO portion at Parbati Pooling Station (Banala, PG) has been defined / mentioned, however LILO portion at Parbati-III (2.23kms) is not specified and in the approved scheme.

12.5. Line diagram mention the line length of main line as well as LILO portion is as below :

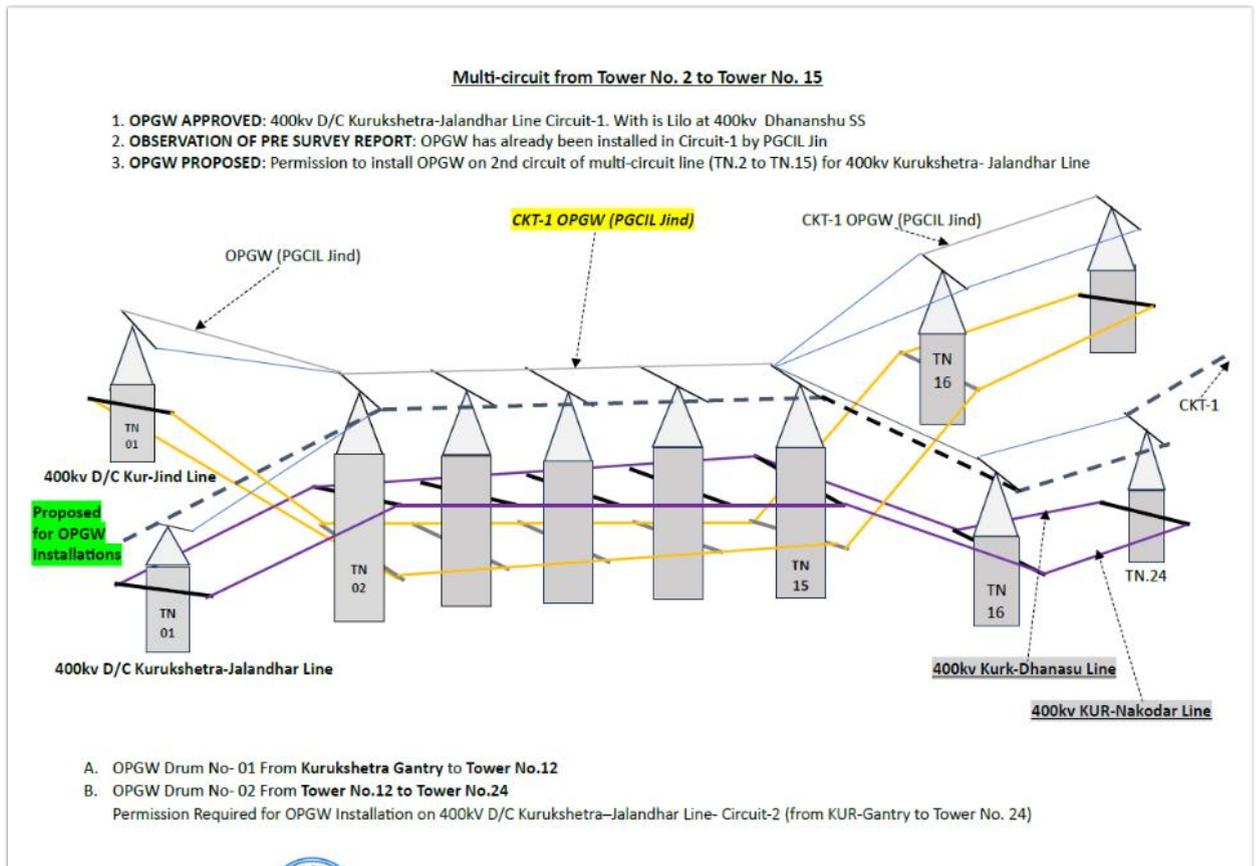


Members may review the requirement and deliberate.

13. Selection of Peak for OPGW laying under multi-circuit section (i.e. TN-01 to TN-15) of 400 kV M/C Kurukshetra–Dhanansu/Nakodar Transmission Line (Agenda by POWERGRID)

13.1. Under Communication Schemes as approved under 11th NCT, OPGW laying works on 400 kV Kurukshetra–Jalandhar Line is envisaged.

- 13.2. It may be noted that spans from TN-02 to TN-15 are multi-circuit towers (shared with 400kV Kurukshetra–Jind CKT-I & II) and there is an existing OPGW on Kurukshetra–Jind CKT-I (top) / Kurukshetra–Jalandhar/ (LILO at Dhananshu) CKT-I (bottom) side peak (Towers 02–15) and earthwire is on Kurukshetra–Jind CKT-II (top) / Kurukshetra–Jalandhar/Nakodar CKT-II (bottom) side peak.
- 13.3. Accordingly, OPGW laying works have to be carried out on the side of Kurukshetra–Jind CKT-II (Top) / Kurukshetra–Jalandhar (LILO at Nakodar) CKT-II (Bottom) for OPGW drum no. 01 (Kurukshetra Gantry to TN-12) and drum no. 02 (TN-12 to TN-24).
- 13.4. Detailed route plan is as follows -



- 13.5. In view of above-mentioned availability of earthwire peak over multi-circuit towers and considering the technical feasibility, OPGW laying may be considered on the peak of Kurukshetra–Jind CKT-II (Top) / Kurukshetra–Jalandhar/Nakodar CKT-II (Bottom) side. Same shall be considered while availing non-auto / shutdown of lines and availability of said lines.

14. Issues being faced by NMT Team at UNMS Control Centre (Agenda by POWERGRID)

- 14.1. UNMS NMT team raised the issue of integration of pending nodes and lack of updated networks details, during 27th and subsequent TeST meetings. During these meetings it was deliberated / reiterated for nomination of one nodal officer from each State/IPPS/ISTS

licensees for coordination with centralized NTM team for day-to-day integration and operational issues.

- 14.2. Members may review the status and may deliberate and extend their support on the pending issue /challenges being faced by UNMS NMT team, as mentioned below -

S. No.	Issue/Challenge	Details/Remarks	Action Required
1	Nodal Officer Nomination	Need for a single point of contact from each State/IPPs/ISTS for coordination and resolution of issues	States/IPP/ISTS to nominate nodal officers (DTL/UP/HP/RVPL have shared nodal persons)
2	Lack of Updated Network Details of State Constituents	During the initial UNMS implementation, EMS/Node integration was carried out based on the information available at that time. Since then, additional Forte systems/equipment may have been added to the state networks. Therefore, a revised state-wise list of Nodes/EMS is required to enable their integration into UNMS.	States to provide updated equipment/node data.
3	JKPTCL Communication System Integration	Temporary setup (laptop with NMS) is unreliable and often goes offline.	Permanent integration solution is needed.
4	Access Issue at PTCUL Kashipur	In line with approved maintenance philosophy for UNMS system, UNMS engineers have been deployed at each SLDC to operate and manage the UNMS system. Engineers are available and working at all SLDC locations, however there are challenges are being faced at Kashipur (PTCUL) , for access and work permissions to operate the UNMS console.	Gate pass and work permissions to UNMS engineer for Operation and maintenance of UNMS System is to be provided

Members may deliberate.

15. Extension of the ULDC -II AMC (Agenda by UPSLDC)

- 15.1. As the ULDC- Phase-III project has been delayed, the revised timeline for ULDC-III Project is to be provided by M/s PGCIL / M/s GE. In light of that extended AMC of ULDC Phase-2 by M/s Siemens is to be extended further. PGCIL to take up the issue with Ms Siemens.

Members may deliberate.

16. Delay in Execution of ULDC Phase-III Project (Agenda by PBSLDC)

- 16.1. Implementation and commissioning of ULDC Ph-III project by M/s GE Vernova is lagging behind at least 6 months against the schedule. Further, AMC of M/s Siemens ULDC Ph-II is going to expire on dtd:31.03.2026. Considering the current progress of the ULDC PH-III project it seems not possible that M/s GE shall complete all installation, SAT and parallel operation activities by 31.03.2026.

- 16.2. In view of this, state has to extend AMC for ULDC-Ph II by further six months at very high AMC cost. Considering the project status and involvement of heavy costing of ULDC PH-II AMC Contact. It is requested that M/s GE Vernova may be directed to expedite all commissioning activities and M/s PGCIL may also explore the possibilities to recover AMC amount from M/s GE Vernova as this project execution is totally delayed from M/s GE Vernova end.

Members may deliberate.

17. Regarding information in respect of ULDC Phase-III scheme (Agenda by BBMB)

- 17.1. As per Minutes of 29th TeST Meeting, Agenda Item. 26. wherein, POWERGRID assured that it will definitely take additional action to meet contractual compliances Cyber Security Audit. In this regard, it is mentioned to refer to Sr. No. i, j of Clause 9.1 (i.e. configuration, network routing, data flow, access, all user sign on procedure) of Section 9, Part- B of Volume-II of Technical Specifications.
- 17.2. In compliance to these Clauses, BBMB is requesting to provide documentation for Standard Operating Procedures related to complete SCADA system including Cyber Security duly approved by PowerGrid so that the same may be reviewed and audited by the Auditor while carrying out the Audit of the system throughout the lifecycle of the system.

Members may deliberate.

18. Regarding Extension of AMC for ULDC Phase-II and Expediting Commissioning Activities of ULDC Phase-III (Agenda by HVPNL)

- 18.1. It is submitted that the commissioning of the ULDC Phase-III project is presently delayed by approximately 5–6 months compared to the approved L2 schedule. Owing to this delay, SLDCs are incurring significant expenditure toward the Annual Maintenance Contract (AMC) of the existing SCADA system. Additionally, M/s Siemens has been consistently requesting issuance of the extended purchase order in line with the terms of the original Letter of Award issued by PowerGrid dated 19.09.2025, before the end of February 2026.
- 18.2. In view of the project timelines and the financial implications arising from the continued AMC of the existing system, it is requested that PowerGrid may be requested to take up the matter with M/s GE to immediately depute the second database engineer to the HVPNL site and prioritize all pending commissioning activities to expedite project completion at the earliest please. It is also requested to share the tentative AMC extension period required at the earliest to facilitate necessary approvals from higher management and to confirm the extension to PowerGrid/Siemens.

19. Delivery of pending Hardware (Amended) in ULDC Phase-III (Agenda by HVPNL)

- 19.1. The amended quantities under ULDC Phase-III conveyed to PowerGrid in August 2024 in respect of HVPNL have still not been delivered by M/s GE, nor has any delivery timeline been provided.
- 19.2. These hardware items are essential for the successful commissioning of the SCADA system. PowerGrid is therefore requested to kindly take up the matter with GE to ensure that the materials are delivered to the sites at the earliest.

20. Regarding RTU and SIC panels delivered at BBMB stations under ULDC Phase-III Scheme (Agenda by BBMB)

- 20.1. It is noteworthy to mention here that 10 Nos. RTU's were to be replaced and installed at BBMB stations under ULDC Phase-III Scheme. However, during the delivery of RTU panel, an extra SIC panel has been received for all BBMB stations.
- 20.2. As per Clause 1.23 of Vol-II, Part-D of Technical spec., it is very clear that SIC panel will be required at the discretion of owner who don't have space to mount the MFT's in the existing consumer panel. Also, the site survey report prepared by M/s GE representative has not taken into consideration space for the installation of SIC panel as shared by M/s GE after the delivery of material at site.
- 20.3. Keeping in view the space constraint at BBMB stations, it is requested to take the requisite steps to solve this issue at the earliest.

Members may deliberate.

21. Regarding implementation of URTDSM Phase-II (Agenda by BBMB)

- 21.1. BBMB vide Memo No. 265/LD/G-140 dated 14.01.2026 enquired regarding the tentative costing and timeline of setting up complete Data centre including PDC or only remote consoles are required to be set up for BBMB. In this regard, it is requested to provide the requisite details at the earliest please.

Members may deliberate.

ANNEXURE-I

S No.	Agenda	Decision of 29th TeST Meeting	Status of action taken
9	Inconsistent Real-Time Data from Tanda NTPC Station	NTPC and UPPTCL shall conduct a site survey at Tanda NTPC to identify the exact cause of the real-time data inconsistencies and communication outages. Based on the findings, an action plan may be prepared and corrective actions shall be implemented at the earliest.	NTPC and UPPTCL to update status
10	Intermittent Telemetry Data from ICTs at Meerut (PG) Substation	UPSLDC and NRLDC shall continue to monitor the telemetry data and coordinate to ensure correct data reporting.	UPSLDC and NRLDC to update status
12	GE N60 model PMUs in the Phasor Data Concentrators (PDCs) is causing multiple operational challenges.	POWERGRID to take up the matter with GE and resolve the issue at the earliest and communicate the forum accordingly.	POWERGRID to update status
13	Furnishing of inputs for maintaining database of fiber uses as Fiber sharing	All the TSPs and STUs to provide the details as requested by CTU for comprehensive database preparation as per the format attached at Annexure-1.1	All TSPs and STUs to update status
15	Latest Power maps (132 kV and above) and Fiber Optic maps of STU network	All the STUs to share the Latest available Power maps (132 kV and above) and Fiber Optic maps of STU network with CTU.	STUs to update status
17	Establishment of Redundant Communication Network for Centre Sector and RRVPNL	A separate meeting shall be convened amongst NRPC, NRLDC, RRVPNL (STU), Rajasthan SLDC, CTU, POWERGRID and NMT to finalize the desired scheme.	Meeting conducted on 12.01.2026
AA3	Regarding OPGW connectivity to Baglihar HEP	A separate meeting to be convened amongst NRPC, NRLDC, J&K (SLDC), JKSPDC, CTU, POWERGRID and NMT. Accordingly, JKSPDC to take up agenda to NRPC with detailed scheme with inputs of POWERGRID and CTU.	Meeting conducted on 12.01.2026
AA4	Implementation of Process Bus technology in Substations	Matter to be taken to Protection Sub Committee for deliberation	To be taken in next Protection Sub Committee Meeting

ANNEXURE-II

S No.	Agenda	Decision of 29 th TeST Meeting	Status of action taken																				
2	J&K Telemetry Issues	POWERGRID to expedite installation of OPGW to ensure connectivity of J&K. Until OPGW connectivity is fully operational, POWERGRID to explore alternate communication options, including GPRS and other services, so that connectivity with ULDC Phase-III is in matching timeframe i.e., March 26. POWERGRID to ensure OPGW installation by June 2026.	POWERGRID to update status																				
3	Redundant RTU Communication for Main / Backup RLDC	<p>NRLDC to provide a complete list of RTUs where SCADA data channels are not reporting in main and backup mode (1+1) with one main channel to RLDC and one backup channel to Backup RLDC, to respective entities.</p> <p>All entities shall ensure redundancy in communication for both the Main and Backup RLDC for their respective stations as per list provided by NRLDC.</p> <p>POWERGRID to begin configuration of ports in Synergy RTUs so that 2 main and 2 backup channels report to RLDCs as well as back up RLDCs with available free ports.</p>	<p>NRLDC has provided a complete list (through e-mail) of RTUs/SAS reporting at NRLDC to respective entities, containing the following details (as available with NRLDC):</p> <ul style="list-style-type: none"> • RTU Name / Location • Current status of Main, Standby, Backup and Backup Standby channels • RTU / SAS make • Firewall details <p>POWERGRID to update status</p>																				
4	Display of DC/Schedule of Generating Stations in SCADA Display	<p>Punjab, Haryana, Uttarakhand and J&K to complete integration within mentioned timelines :</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Sl. No.</th> <th style="text-align: center;">State</th> <th style="text-align: center;">Status</th> <th style="text-align: center;">Remarks & Timelines</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Punjab</td> <td style="text-align: center;">Available</td> <td>After the NCIIPC visit in Sept 2025, the integration path has been rerouted through the firewall for cyber-security compliance. Expected timeline: 4-6 weeks</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Haryana</td> <td style="text-align: center;">Available</td> <td>SAMAST is getting implemented; schedule & DC is expected to get integrated within next 1 months.</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Uttarakhand</td> <td style="text-align: center;">Not Available</td> <td>SAMAST has been implemented and the firewall delivered. Expected to be completed within 2 months' timeframe.</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Jammu & Kashmir</td> <td style="text-align: center;">Not Available</td> <td>Integration not yet started; proposal for SAMAST has been submitted for management approval. State generators except Baglihar are being covered under ULDC Phase -III.</td> </tr> </tbody> </table>	Sl. No.	State	Status	Remarks & Timelines	1	Punjab	Available	After the NCIIPC visit in Sept 2025, the integration path has been rerouted through the firewall for cyber-security compliance. Expected timeline: 4-6 weeks	2	Haryana	Available	SAMAST is getting implemented; schedule & DC is expected to get integrated within next 1 months.	3	Uttarakhand	Not Available	SAMAST has been implemented and the firewall delivered. Expected to be completed within 2 months' timeframe.	4	Jammu & Kashmir	Not Available	Integration not yet started; proposal for SAMAST has been submitted for management approval. State generators except Baglihar are being covered under ULDC Phase -III.	States to update status
Sl. No.	State	Status	Remarks & Timelines																				
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					For Baglihar, it is to be taken up separately on priority with JKSPDC, to be completed within one month.	
5	Non-availability of Real-Time data from PTCUL	PTCUL to take up the matter with PSDF on priority				PTCUL to update the status
6.	Non-Reliable Telemetry from RRVPN Sub-stations	RRVPN to expedite the integration process and complete work of 22 SAS stations and replacement of 132 obsolete RTUs by March 2026				RRVPN to update the status
7.	Non-availability of Telemetry from HVPNL Sub-stations	HVPNL was advised to implement rate contract with vendors for AMC similar to POWERGRID to address AMC-related delays and expedite restoration of telemetry.				HVPNL to update the status
8.	Communication channel redundancy/ Telemetry Issues to NRLDC	Sl. No.	Name of RTU	Owner	Remarks/Updates	Entities to update the issues as per the timelines mentioned in the table
		1	KISHANGANGA	NHPC	Hardware and software have been upgraded, but compatibility issues persist. Being taken up with BHEL, resolution may take about one month.	
		2	PARBATI-2	NHPC	Parbati-Koldam section of around 68 kms. to be done in hilly terrain on live-line conditions. Basic issue being faced is identification of vendors for which independent competitive bidding needs to be done before filing expenditure in CERC. To be completed by Indigrid by Jan'26. Terminal equipment procurement by POWERGRID is under process; tender has been placed.	
		3	PARBATI-3	NHPC	Basic issue being faced is identification of vendors for which independent competitive bidding needs to be done before filing expenditure in CERC. To be completed by Indigrid by Jan'26.	

				POWERGRID is under process; tender has been placed.	
		4	Salal	NHPC	Creation of “communication loop” being faced. Can be issue related to Fibre to Ethernet Converter. Heavy rains delayed restoration of OPGW; the link was restored in November. NHPC, with support from POWERGRID and NRLDC, will resolve the issue.
		5	Budhil	IPP	Had been informed to GreenCO.
		6	Bhiwadi HVDC	POWERGRID	Second gateway Faulty for which upgradation required through M/s Siemens (Germany) as the same is a proprietary system. The matter has been escalated for price negotiations. Related petition before CERC for additional capitalization is pending. Target completion: June 2026.
		7	Bhiwadi 400 101	POWERGRID	RTU is faulty. POWERGRID is coordinating with GE for restoration, expected by December 2025.
		8	Jhajjar	IPP	The communication path became ready on 09/02/2026, and the gateway configuration still needs verification.
		9	Shree Cement	Shree Cement	Currently reporting on PLCC, highly intermittent. POWERGRID is laying fiber; expected completion: June 2026.
		10	Chamera 3	NHPC	NHPC, with support from NRLDC, will rectify the issue.
		11	Fatehgarh 3	POWERGRID	Both 765 kV and 400 kV Gateways are highly intermittent. The analog values from the 400 kV gateways occasionally report zero.

14	Nomination of Nodal officers for coordination with Regional Network Monitoring Team of UNMS (Agenda by UNMS and CTU)	All the members/ constituents to nominate nodal officer for coordination in their organization and share the details with NMT and CTU.	Members may update
16	Updated Status of schemes approved in various NCT	Updated Status of schemes approved in various NCT attached in Minutes	Status to be updates as per Annexure 2.1
27	Regarding storage of Logs of URTDSM System	POWERGRID informed that the technical approval has been completed. The work order is expected to be issued within 15 days, and the implementation is likely to be completed within 2–3 months.	POWERGRID to update status

Status of communication schemes agreed in various NCT

S. No.	Name of the Scheme	Implementing Agency	Implementation schedule	FOTE (No.)	OPGW (Km.)	Cost (Cr.)	Constraint Faced	Status update by TSP
Schemes approved in 33rd NCT, awarded through OM Letter dtd. 26.09.2025								
1	Redundant communication for Narora Atomic Power Plant (NPCIL) (NAPP)	POWERGRID	24 months from date of allocation	2	88	6.45		
2	Redundant communication for Saharanpur S/s (PG)	POWERGRID	12 months from date of allocation	5		2.1		
3	Redundant communication for Manesar S/s	POWERGRID	24 months from date of allocation		30	2.1		
Schemes approved in 30th NCT, awarded through OM Letter dtd. 25.06.2025								
4	OPGW installation on existing 400 kV Sikar (PG) - Agra (PG) D/c line (owned by PG) which is proposed to be LILoed at 400 kV GSS Kumher (RRVPN)	POWERGRID	Matching time frame with transmission scheme of "LILo of one circuit of 400kV Sikar - Agra D/c (Quad Moose) line at 400 kV GSS Kumher	3	386	26.49		

			(6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar - Kumher 400 kV section”					
5	OPGW installation on existing 220 kV Chittorgarh (RVPN)-RAPP B (NPCIL) D/c Line (owned by PG) which is proposed to be LILOed at RVPNs 220 kV GSS Begun (Chittorgarh)	POWERGRID	Matching time frame with transmission scheme of “LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun (Chittorgarh)”	2	130	8.55		
Schemes approved in 27th NCT, awarded through OM Letter dtd. 24.02.2025								
6	OPGW installation on existing 765 kV Fatehpur-Varanasi S/c & 765 kV Fatehpur-Sasaram S/c Lines which are proposed to be LILO at New Prayagraj (ISTS)	POWERGRID	24 months from the date of allocation or with matching timeframe of the transmission project “Interregional (NR-WR) Transmission System	2	579	33.24		

			strengthening to relieve the loading of 765 kV Vindhyachal-Varanasi D/c line” whichever is earlier					
Schemes approved in 26th NCT, awarded through OM Letter dtd. 30.01.2025								
7	Redundant Communication for Salal (NHPC) station	POWERGRID	18 months from the date of allocation		62	3.41		
Schemes approved in 22nd NCT, awarded through OM Letter dtd. 02.09.2024								
8	Optical fiber connectivity for NLDC new building August Kranti Marg, New Delhi	POWERGRID	02.03.2026 (Revised in 26th NCT)	3	35	7.2		
Schemes approved in 20th NCT, awarded through OM letter dtd. 15.07.2024								
9	Supply and installation of 24 Fibre OPGW on PKTCL lines for providing redundant communication for Parbati Pooling (Banala) (PG) S/s, Parbati-II (NHPC) & Parbati-III (NHPC) stations	PKTCL	18 months from the date of allocation		88.635	5.31		

10	Supply and installation of 24 Fibre OPGW & FOTE to providing redundant communication for Parbati Pooling (Banala) (PG) S/s, Parbati-II (NHPC) & Parbati-III (NHPC) stations	POWERGRID	18 months from the date of allocation (with matching schedule with Scheme 4)	4	0.783	1.24		
11	Redundant Communication for Chamera-III (NHPC) & Budhil (GreenCo) using 3 pairs of fibers sharing from HPPTCL network.	POWERGRID	18 months from the date of allocation	1	0	0.3		
Schemes approved in 19th NCT, awarded through OM letter dtd. 29.05.2024								
12	OPGW installation on existing 400 kV Kota - Merta line which is LILoed at Shri Cement & proposed to be LILoed at 765/400 kV Beawar (ISTS) S/s	POWERGRID	24 months from the date of allocation	3	311	18.5		
13	Supply and Installation of 12 nos. FOTE and additional ethernet (125 nos.) cards for existing FOTE in view of resource disjoint and critical	POWERGRID	12 months from the date of allocation	12	0	5.2		

	locations.							
14	Supply and Installation of 11 nos. FOTE Equipment at Backup SLDCs in NR & Backup NRLDC.	POWERGRID	12 months from the date of allocation	11	0	3.3		
15	Supply and installation of OPGW on 400kV Fatehgarh I (Adani) - Fatehgarh-II (PG) line (6.5 kms), (Fatehgarh-I (Adani) - Bhadla(PG) line LILoed at Fatehgarh-II) as redundant communication for Fatehgarh-I (Adani)	Adani Transmission Ltd.	18 months from the date of allocation	0	6.5	0.325		complete
16	OPGW installation on 765kV Agra (PG) -Fatehpur (PG)D/c line may be considered as a separate scheme in matching timeframe of Ph-IV (Part-4:3.5GW) scheme	POWERGRID	24 months from the date of allocation	2	335	16.5		
17	OPGW installation on existing 400 kV Kurukshetra - Malerkotla line. Part-A	NRSSXXXI (B) Transmission Ltd (Sekura)	18 months from the date of allocation		140	9		As on 31st Aug 25, Work complete and ready to commission.
18	Communication Equipment	POWERGRID	18 months from the	2		0.6		

	(FOTE) installation on existing 400 kV Kurukshetra - Malerkotla line at both ends. Part-B		date of allocation (with matching time frame of OPGW on 400 kV Kurukshetra - Malerkotla transmission line)					
Schemes Modified/approved in 16th NCT, awarded through OM letter dtd. 03.01.2024								
19	Supply and Installation of OPGW on 400kV Kishenpur-Wagoora line.	POWERGRID	21.11.2026 (Revised in 26th NCT)	2	183	9.15		
20	Supply and Installation of OPGW on 400kV Agra-Ballabgarh line.	POWERGRID	21.05.2026 (Revised in 26th NCT)	2	181	9.05		
Schemes approved in 11th NCT, awarded through OM letter dtd. 16.02.2023								
21	OPGW installation on existing 400 kV Jalandhar (PG) - Kurukshetra (PG) line which is to be LILOed at 400 kV Dhanansu (PSTCL)	POWERGRID	10.01.2027 (Revised in 26th NCT)	2	229	10.3		
22	Supply and Installation of OPGW on existing 400 kV Koldam-Ludhiana (PG) line which is to be LILOed at 400 kV Ropar (PSTCL)	Indigrid	implementation timeframe of 18 months	2	150	6.7		Work completed.

23	Redundant communication System for Bhinmal (PG) and Kankroli (PG) ISTS stations	POWERGRID	21.05.2026 (Revised in 26th NCT)	8	5	2.55		
24	OPGW installation on 220 kV Anta (NTPC) - Bhilwara Line	POWERGRID	implementation timeframe of 18 months	2	187	9.35		Work completed.
Schemes approved in 9th NCT, awarded through OM letter dtd. 15.11.2022								
25	Transmission lines which are to be provided with OPGW alongwith necessary accessories and FOTE are mentioned as under <ul style="list-style-type: none"> • 765kV S/c Jaipur (Phagi) (RVPNL) - Gwalior line (312 km) (Ckt-1 is proposed) (to be LILOed at Dausa) • 400kV D/c Agra - Jaipur (South) (PG) line (254 km) (to be LILOed at Dausa) 	POWERGRID	21.11.2026 (Revised in 26 th NCT)		312 254	28.5		



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली संचार विकास प्रभाग

Power System Communication Development Division

ANNEXURE-III

सेवा में / To

As per list enclosed

विषय/ Subject: Compliance with CEA (Technical Standards for Construction of Electric Plants and Lines), 2022 - Installation of Optical Ground Wire on Transmission Lines - reg

This is to bring to the attention, the crucial requirement outlined in the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, pertaining to the installation of Optical Ground Wire (OPGW) on transmission lines of 110 kV and above voltage level.

The aforementioned CEA standard **under Chapter IV, PART-A "SUBSTATIONS AND SWITCHYARDS (66 kV AND ABOVE)" Clause 48, sub clause (5)**, mandates the provision of Optical Ground Wire, along with necessary terminal equipment, on transmission lines of voltage rating 110 kV and above for speech transmission, line protection, and data channels. Additionally, it specifies that the primary path for tele-protection should be on point-to-point Optical Ground Wire, with an alternative path on either Power Line Carrier Communication or predefined physically diversified Optical Ground Wire paths.

The use of Optical Ground Wire facilitates speech transmission, data channels and also plays a crucial role in enhancing line protection. Ensuring compliance with these standards is paramount for the efficient and reliable operation of grid.

Therefore, as directed by Chairperson, CEA in the 19th meeting of National Committee on Transmission, it is requested that all the Central and State Sector utilities prioritize the implementation of the OPGW laying across its transmission network to ensure compliance with regulatory requirements.

Transmission utilities are requested to furnish the monthly progress report pertaining to OPGW installation.

Powergrid and CTU are requested to identify all such ISTS links wherein the OPGW implementation is still to be done and take up its implementation.

**Signed by Suman Kumar भवदीय,
Maharana**

Date: 22-05-2024 17:25:26

(एस.के.महाराणा / S. K. Maharana)
मुख्य अभियन्ता /Chief Engineer

प्रतिलिपि/ Copy to,

- (i) Member (Power System), CEA
- (ii) Member Secretary, NRPC
- (iii) Member Secretary, WRPC
- (iv) Member Secretary, ERPC
- (v) Member Secretary, SRPC
- (vi) Member Secretary, NERPC

With a request to issue suitable instructions to states for expediting furnishing of requisite data

1.	Executive Director(AM and LD&C) Power Grid Corporation of India Ltd., Saudamini, Plot No.2, Sector-29, Gurugram-122001.
2.	COO Central Transmission Utility of India Ltd., Plot No. 2, Sector-29, Gurugram, Haryana-122001.

ISTS Licensees:

1.	Chief-Business & Regulatory Sterlite Power Transmission Ltd., F-1, The Mira Corporates Suits, Plot No. 1 &2, C-Block, 2 nd Floor, Ishwar Nagar, Mathura Road, NewDelhi-110065.	2.	Head Projects Adani Transmission Ltd., Adani Corporate House, Shantigram, SG Highway, Ahmedabad-382421, Gujarat.
3.	CFO Essel Infraprojects Ltd., NRSS XXXVI Transmission Ltd., (Essel Infraprojects Ltd.), Sec 16A, Plot No.-19, Film City, Gautam Budhha Nagar-201301.	4.	Director Kalpataru Power Transmission Ltd., Plot No. 101, Part-III, G.I.D.C., Sector-28, Gandhinagar-382028.
5.	Director Kudgi Transmission Ltd., Mount Poonamallee Road, Manapakkam, P.B. No. 979, Chennai-600089.	6.	AGM (Comm. & Reg. Affairs) Sekura Energy Pvt. Ltd., 504 & 505, 5 th Floor, Windsor, Off CST Road, Kalina, Santacruz, Mumbai-400098.
7.	Project Incharge Raichur Sholapur Transmission Company Ltd., Patel Estate, S.V. Road, Jogeshewari(West), Mumbai-400102.		

Northern Region:

1.	Director (Projects) Himachal Pradesh Power Transmission Corporation Ltd., Barowalias, Khalini, Shimla- 171002.	2.	Director(W&P) Uttar Pradesh Power Transmission Company Ltd., Shakti Bhawan Extn, 3rd floor, 14, Ashok Marg, Lucknow-226 001.
3.	Director (Technical) Punjab State Transmission Corp.Ltd. Head Office, The Mall, Patiala - 147001, Punjab.	4.	Director (Projects) Power Transmission Corporation of Uttrakhand Ltd., Vidyut Bhawan, Near

			ISBT Crossing, Saharanpur Road, Majra, Dehradun.
5.	Development Commissioner (Power) Power Development Department, Grid Substation Complex, Janipur, Jammu.	6.	Director (Technical) Rajasthan Rajya Vidyut Prasaran Nigam Ltd., Vidyut Bhawan, Jaipur, Rajasthan-302005.
7.	Director (Technical) Haryana Vidyut Prasaran Nigam Ltd. Shakti Bhawan, Sector-6, Panchkula-134109, Haryana.	8.	Chief Engineer (Operation) Administration of Chandigarh Electricity Department, UT Secretariat Sector-9 D, Chandigarh – 161009.
9.	Director (Operations) Delhi Transco Ltd., Shakti Sadan, Kotla Road, New Delhi-110002.		

Eastern Region:

1.	CMD Damodar Valley Corporation DVC Towers, VIP Road, Kolkata-700054.	2.	CMD Odisha Power Transmission Corporation Ltd. (OPTCL), Bhoinagar Post Office, Jan path, Bhubaneshwar-751022.
3.	CMD Bihar State Power Transmission Company Ltd. (BSPTCL), Vidyut Bhavan, 4th floor, Bailey Road, Patna-800021.	4.	CMD Jharkhand Urja Sancharan Nigam Ltd. (JUSNL), Engineering Building, HEC, Dhurwa, Ranchi -834004.
5.	Principal Chief Engineer cum Secretary Power Department, Government of Sikkim, Gangtok, Sikkim.	6.	Managing Director West Bengal State Electricity Transmission Company Ltd. (WBSETCL), Vidyut Bhavan, 8th Floor, A-Block Salt Lake City, Kolkata-700091.

North Eastern Region:

1.	Managing Director Manipur State Power Company Ltd. (MSPCL), Electricity Complex, Patta No. 1293 under 87(2), Khwai Bazar, Keishampat, Imphal West, Manipur- 795001.	2.	CMD Tripura State Electricity Corporation Ltd., Bidyut Bhavan, Banamalipur, Agartala, Tripura.
3.	Managing Director Assam Electricity Grid Corporation Ltd., Bijulee Bhawan, Paltan Bazar Guwahati (Assam) - 781001.	4.	Engineer-in-Chief Power & Electricity Department, Kawlphetha Building, New Secretariat Complex, Khatla, Aizawl, Mizoram- 796001.
5.	CMD Meghalaya Energy Corporation Ltd., Lum Jingshai, Short Round Road, Shillong (Meghalaya) - 793001.	6.	Chief Engineer (T&G) Department of Power, Electricity House, A.G. Colony, Kohima, Nagaland- 797001.
7.	Chief Engineer (Power) Vidyut Bhawan, Department of Power Zero Point Tinali, Itanagar (Arunachal Pradesh)- 791111.		

Western Region:

1.	Managing Director Gujarat Energy Transmission Corp. Ltd., Sardar Patel Vidyut Bhawan, Race Course, Vadodara -390007.	2.	Director (Operation) Maharashtra State Electricity Transmission Co. Ltd., 4th Floor, “Prakashganga”, Plot No. C-19, E- Block, Bandra – Kurla Complex, Bandra (East), Mumbai- 400051.
3.	Managing Director, Chhattisgarh State Power Transmission Co. Ltd., Dangania, Raipur- 492013.	4.	Chairman & Managing Director Madhya Pradesh Power Transmission Co. Ltd., Block No. 3, Shakti Bhawan, Rampur, Jabalpur-482008.
5.	Executive Engineer Administration of Union Territory of Dadra & Nagar Haveli and Daman & Diu Secretariat, Moti Daman -395 220.	6.	The Chief Engineer Electricity Department The Government of Goa, Panaji.

Southern region:

1.	Director (Grid Operation) Transmission Corp. of Telangana Ltd., Vidyut Soudha, Hyderabad – 500082.	2.	Director (Transmission) Karnataka State Power Transmission Corp. Ltd., Cauvery Bhawan, Bangalore – 560009.
3.	Director (Trans. & System Op.) Kerala State Electricity Board Ltd., Vidyuthi Bhawanam, Pattom, P.B. No. 1028, Thiruvananthapuram – 695004.	4.	Director (Transmission Projects) Tamil Nadu Transmission Corporation Ltd. (TANTRANSCO), 6th Floor, Eastern Wing, 800 Anna Salai, Chennai – 600002.
5.	Superintending Engineer –I First Floor, Electricity Department Gingy Salai, Puducherry – 605001.	6.	Director (Transmission) Transmission Corp. of Andhra Pradesh Ltd. (APTRANSCO), Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh – 520004.



सत्यमेव जयते

**भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत संचार विकास प्रभाग
Power Communication Development Division

CEA-PS-17-24/1/2024-PCD Division/

Date: 22-11-2024

To,

(As per the attached list)

**Subject: Facilitating Broadband expansion by allowing leasing of fiber on OPGW -
regd.**

This has reference to the DO letter dated 11th November 2024(No. 5-5/NBM-2024/PGCIL-OPGW) addressed to Secretary (MoP) from Department of Telecommunications, Ministry of Communications. Wherein MoP has been requested to consider laying at least 48F (48 Fibres) OPGW (Optical Ground Wire) in future transmission projects making provision for leasing of additional fibers for the use of telecom licensees i.e TSP (Telecom Service Provider)/ ISP (Internet Service Provider)/ IP (Internet Protocol)-1 etc.

During a review meeting of NER (North Eastern Region) Telecom projects, Hon'ble Minister for Communication had directed to facilitate broadband expansion by allowing leasing of fibers on OPGW of POWERGRID in place of leasing of bandwidth, so that rural areas and hinterlands can get good and reliable telecom connectivity.

In view of this, CTU (Central Transmission Utility), POWERGRID, STUs (State Transmission Utilities) and all the TSPs (Transmission Service Providers) are requested to incorporate the necessary provisions in the technical specifications of their future transmission schemes supporting the laying of at least 48F OPGW instead of 24F OPGW for the upcoming TBCB (Tariff based Competitive Bidding)/RTM (Regulated Tariff Mechanism) schemes. It is further advised that the schemes which are presently in bidding stage may also be modified accordingly by the BPCs (Bid Process Coordinators) wherever applicable.

This issues with the approval of Chairperson, CEA.

22/11/24
Chief Engineer (PCD)

(Addressed to the list below :)

S.No.	Designation	Address	E-mail
1.	COO, CTUIL	Plot No. 2, Sector – 29 Near IFFCO chowk Metro station, Gurugram – 122001	df@powergrid.in , do@powergrid.in , pchgarg@powergrid.in
2.	CMD, PGCIL	Powergrid, Saudamini, Plot No – 02, Sector – 29, Gurugram, Haryana 122001	cmd@powergridindia.com
3.	Chairman & Managing Director, PGCIL	Saudamini, Plot No. 2, Sector-29 Gurgaon-122001 (Haryana)	cmd@powergrid.in
4.	Chairman & Managing Director, APTRANSCO	Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh 520004	cmd@aptransco.gov.in
5.	Chairman, APPGCL, Andhra Pradesh	Vidyut Soudha, Gunadala Eluru Road, Vijaywada Andhra Pradesh – 520 004	chairman@apgenco.gov.in
6.	Chairman & Managing Director, TCTL	Vidyut Soudha, Khairatabad, Hyderabad – 500082	cmd@tgtransco.com
7.	Chairman & Managing Director, TSPGCL	Vidyut Soudha, ‘A’ Block, Khairatabad, Hyderabad – 500 082 (Telangana)	cmd@tsgenco.co.in cmdtransco@telangana.gov.in
8.	Managing Director, TANTRANSCO	10th Floor/NPKRR Malikai, No. 144 Anna Salai, Chennai-600002	mdtantransco@tnebnet.org
9.	Chairman & Managing Director, KSEBL Kerala	Board Secretariat, Vidyuthi Bhavanam Pattom, Thiruvananthapuram – 695004	cmdkseb@kseb.in
10.	Managing Director, KPTCL	1st floor, Kaveri Bhawan, K. G. Road, Bangalore-560009	md@kpcl@gmail.com

11.	Director (Operations), MSETCL	C-19, E-Block Prakashganga, Bandra- Kurla Complex Bandra(E), Mumbai 400 051.	dirop@mahatransco.in , sealdc8100@mahatransco.in
12.	Managing Director, MSPGCL Maharashtra	Prakashgad, Plot No. G- 9, 4th Floor Bandra (E), Mumbai-400051	md@mahagenco.in
13.	Chief Engineer (Elect.), Goa Electricity	Department Vidyut Bhawan, Panji, Goa - 403001	cee-elec.goa@nic.in , elec.goa@nic.in
14.	Chairman, GUVNL Gujarat	Sardar Patel Vidyut Bhawan, Race Course, Vadodara- 390 007	md.guvnl@gebmail.com
15.	Chairman, Gujarat Urja Vikas Nigam Ltd.	Sardar Patel Vidyut Bhawan, Race Course, Vadodara- 390007	md.guvnl@gebmail.com
16.	Managing Director, GETCO	Sardar Patel Vidyut Bhawan, Race Course, Vadodara- 390 007	md.getco@gebmail.com
17.	Secretary, Dadra & Nagar Haveli Electricity Department	Dadar Nagar Secretariat, Silvassa- 396230	tapasyaraghav@gmail.com
18.	Director (Operations) , RRVNL	Vidyut Bhawan, Jyoti Nagar Jaipur, Rajasthan	dir.oper@rvpn.co.in cmd.rvpn@gmail.com
19.	Chairman, HVPNL	Shakti Bhawan, C4, Sector No. 6 Panchkula – 134109, Haryana	chairmanpu@gmail.com
20.	Managing Director, J&KPTCL	JKPTCK ,Power complex , bemina Srinagar (J&K) janipur jammu	mdjkptcl1@gmail.com
21.	Managing Director, HPPTCL	Himfed Building, BCS, New Shimla - 171009 (H.P.)	md@hppcl@gmail.com
22.	Managing Director, HPGCL Haryana	Room No.411,3rd Floor, Urja Bhawan,C-7, Sector-6, HPGCL Panchkula	md@hpgcl.org.in

23.	Managing Director, PTCL of Uttarakhand	Vidyut Bhawan, Saharnpur Road, Near I.S.B.T. Crossing, Dehradun,Uttarakhand – 248002	md.ptcul@rediffmail.com
24.	Managing Director, UJVNL (Uttarakhand)	Maharani Bagh, G M S Road, Dehradun	mdujvnl@ujvnl.com , md@ujvnl.com
25.	Chairman& Managing Director, BSPTCL	Vidyut Bhawan, Bailey Road Patna – 800021	mdcellbsptcl@gmail.com , cmd.bsphcl@gmail.com
26.	Managing Director, BSPGCL Bihar	5th Floor, Vidyut Bhawan, Bailey Road, Patna	md.bspgcl@gmail.com
27.	Chairman & Managing Director, PSTCL Punjab	The Mall, Mall Road, Patiala – 147001	cmd@pstcl.org
28.	Chairman & Managing Director, UPPTCL	7th Floor Shakti Bhawan, 14-Ashok Marg Lucknow Lucknow- 226001	cmd@upptcl.org , chairman@upptcl.org
29.	CMD, UPRVUNL	Shakti Bhawan,14- Ashok Marg, Lucknow226001	chairmanuppcl@gmail.com md@uprvunl.org
30.	Managing Director, MPPTCL	Shakti Bhawan, Rampur, Jabalpur(MP) - 482 008	md@mptransco.nic.in , ce.pnd@mptransco.nic.in
31.	Managing Director, MPPGCL	Shakti Bhawan, Vidyutnagar, P.O. Jabalpur- 482 008	mppgcl@mp.nic.in
32.	Chairman, Jharkhand Urja Utpadan Nigam Ltd.	Engineering Building, HEC Dhurwa, Ranchi- 834004	mdjuunl2018@gmail.com
33.	Managing Director, JUSNL Jharkhand	Engineering Buliding, HEC, Dhurwa, Ranchi – 834004	mdjusnl@gmail.com , md@jusnl.in
34.	Chairman & Managing Director, CSPHCL, Chhattisagarh	Vidyut Seva Bhawan,P.O. Sunder Nagar, Danganiya,	mdtransco@cspc.co.in , chairman@cspc.co.in

		Raipur- 492 013	
35.	Chairman & Managing Director, WBSETCL	Bidhan Nagar, Kolkata-700 091.	md@wbsetcl.in
36.	Chairman & Managing Director, WBPDCCL	Bidyut Unnayan Bhaban, plot 3/C, LABlock, Sector-III Salt Lake City, Kolkata - 700	wbpdccl@wbpdccl.co.in
37.	Chairman & Managing Director, OPTCL	Janpath, Bhubaneswar-751022.	ele.bpmohapatra@optcl.co.in , ele.ssahu@optcl.co.in , dir.operation@optcl.co.in , cmd@optcl.co.in
38.	Chairman, OPGCL Odisha	Zone-A,7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar - 751023 Odisha	energy@nic.in
39.	Managing Director, CSPGCL	Vidyut Seva Bhawan P.O. Sunder Nagar, Danganiya, Raipur- 492 013 Chhattisgarh	mdgenco@cspc.co.in
40.	Chairman, Jharkhand Urja Utpadan Nigam Ltd.	Engineering Building, HEC Dhurwa, Ranchi-834004	mdjuun12018@gmail.com
41.	Managing Director, SPDCL Sikkim	NH- 10, Near UD&HD Dept. Gangtok East Sikkim 737101	spdcskm@gmail.com
42.	Chairman, APGCL, Assam	Bijulee Bhawan, Paltan Bazar, Guwahati, Assam.	cgm.ppd@aegcl.co.in , anjanjc.aegcl@gmail.com , gm.mpr@aegcl.co.in , rakesh.kumar@apgcl.org
43.	Managing Director, AEGCL (Assam)	Bijulee Bhawan, Paltan Bazar, Guwahati- 781 001	managing.director@aegcl.co.in , md_aegcl@yahoo.co.in

44.	The Engineer-in-Chief, Power and Electricity Dept, Govt of Mizoram	Kawlphetha Building New Secretariat Complex, Khatla, Aizawl Mizoram 796001	eincpower@gmail.com
45.	Chief Engineer (P), Manipur Electricity Dept.	South Block, Imphal, Manipur- 795 001.	md.mspl@gmail.com , snandei@gmail.com , ed.tech.mspl@gmail.com , ce-power@man.nic.in
46.	Chief Engineer, Nagaland Dept. of Power	Chief Engineer (D&R) Electricity House. A.G. Colony, Kohima – 797001	miaziekho77kehie@gmail.com
47.	Chairman & Managing Director, Meghalaya	Lumjingshai Short Round Road Shillong- 793001	ewnong@yahoo.com , directormeptcl@gmail.com , cetranzemeptcl@gmail.com
48.	Chairman, TSECL Tripura	Bidyut Bhaban, Banamalipur, Agartala, Tripura - 799001	managing.director@tsecl.in
49.	Chief Engineer (P) Dept. of Power , Govt of Arunachal Pradesh	Itanagar, Arunachal Pradesh – 791 111	setrans26@gmail.com , tktara@hotmail.com , vidyutarunachal@rediffmail.com , vidyutarunachal@gmail.com , setrans26@gmail.com , tktara@hotmail.com , ee.ced@hotmail.com
50.	Commissioner-cum- Secretary(P), ANED (Andaman)	Secretariat , Andaman and Nicobar Islands, Port Blair- 744101	secyit.and@nic.in
51.	Secretary, Lakshadweep Electricity Dept.	Lakshadweep Electricity Dept. Kavaratti - 682555	lk-ktelect@nic.in
52.	Secretary, Puducherry Electricity	Department Secretariat, Puducherry- 605001	secyces.pon@nic.in , secytran@py.gov.in
53.	Chairman & Managing Director, DTL Delhi	Shakti Sadan, Kotla Marg, New Delhi – 110002	gmoml.dtl@gmail.com , dgmtoperationl.dtl@gmail.com , md@dtl.gov.in

54.	Chairman & Managing Director, NTPC Ltd	NTPC Bhawan, Core 7, Scope Complex 7, Institutional Area Lodhi Road, New Delhi-110003	cmd@ntpc.co.in , amanna@ntpc.co.in , kamalverma@ntpc.co.in shipratyagi@ntpc.co.in
55.	Chairman & Managing Director, NHPC Ltd	Corporate Office, NHPC Office Complex, Sector 33 Faridabad- 121003, Haryana	cmd@nhpc.nic.in
56.	Chairman & Managing Director, NLC Ltd	Cuddalore District Block - 1, Neyveli Tamilnadu- 607 801	cmd@nlcindia.in
57.	Chairman & Managing Director, THDC Ltd	Pragatipuram, By Pass Road, Rishikesh 249 201	cmd@thdc.co.in
58.	Chairman & Managing Director, NPCIL	Nabhikiya Urja Bhavan, Anushaktinagar, Mumbai-400094	npciltecrectt@npcil.co.in , cmdsecretariat@npcil.co.in
59.	Chairman & Managing Director, NEEPCO Ltd.	NEEPCO Ltd., Lower New Colony, Shillong-793003	cmdneepco@neepco.co.in
60.	Chairman, BBMB (Bhakhra)	Sector -19B, Madhya Marg, Chandigarh – 160019	cman@bbmb.nic.in
61.	Chairman & Managing Director, Damodar Valley Corp.	Head Quarter DVC Towers, VIP Road Kolkata-700054	chairman@dvc.gov.in
62.	Director General, EPTA	First Floor, 6 Basant Lok, Vasant Vihar, New Delhi - 110070	Dg.epta@epta.in , epta.dg@gmail.com
63.	Chairman & Managing Director, TATA Power	NDPL House, Hudson Lines, Kingsway Camp Delhi-110 009	vrshrikhande@tatapower.com , BD@tatapower.com , nitin.kumar@tatapower.com , neeraj.srivastava@tatapower.com , piyushkumar@tatapower.com

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65.	Managing Director, Adani Power Limited	Shantigram, Near Vaishnodevi Circle, S.G. Highway, Ahmedabad-382421 Gujarat	manish.karna@adani.com
66.	Manager, AESL	Adani Power Limited, 7th Floor, Sambhav Building, Judges Bungalow Road, Bodakdev, Ahmedabad, Gujarat-380015	Praveen.tamak@adani.com
67.	Managing Director, L&T IDPL	L&T Campus, TCTC Building, First Floor, Mount Poonamallee Road, Manapakkam, Chennai – 600089.	csr@lntec.com
68.	Chairman & Managing Director, Reliance Power	Reliance Centre, Ground Floor 19, Walchand Hirachand Marg, Ballard Estate, Mumbai 400 001	
69.	Director, Darbhanga – Motihari Transmission Co. Ltd.	6th Floor, Plot No. 19 & 20, Film City, Sector 16 –A, Noida, Uttar Pradesh – 201301	Nimish.Sheth@SEKURA.IN , Neeraj.Verma@SEKURA.IN , Vijayanand.Semletty@Sekura.in
70.	Chairman & Managing Director, SJVN Ltd	SJVN Corporate Head Quarters, Shanan Shimla- 06. SHIMLA – 171006 HP	sectt.cmd@sjvn.nic.in , nandlal.sharma@sjvn.nic.in
71.	Director, G R Infra Project Ltd	2nd Floor, Novus Tower, Plot No. 18, Sector 18, Gurugram, Haryana - 122015,	modassar.a@grinfra.com , ashwin@grinfra.com , transmission@grinfra.com , akul.s@grinfra.com

72.	Dy GM, G R Infra Project Ltd	Rajgarh Transmission Limited, C/O: G R INFRAPROJECTS LIMITED, 2nd Floor, Novus Tower, Plot No. 18, Sector 18, Gurugram State - Haryana Pin Code – 122015	rajgarhtransmission@grinfra.com
73.	CMD, Megha Engineering & Infrastructures Ltd	S-2 Technocrat Industrial Estate Balanagar Hyderabad - 500 037	jsrinivaskumar@meilgroup.in
74.	Chairman & Managing Director, PPCL	Himadri, Rajghat Power House Complex, New Delhi – 110002	md.ipgpp@nic.in
75.	Director & CEO, Indian Transmission Business Sterlite Power Transmission Ltd	DLF Cyber Park, Tower B, 9th Floor, Udyog Vihar Phase -III, Sector-20 Gurugram- 122008 Ph – 0124-4562000	balaji.sivan@sterlite.com , fahim.alam@sterlitepower.in , Sterlite.bd@sterlitepower.com , chandan.dutt@sterlite.com
76.	Dy. President Kalpataru Power Transmission Ltd	101, Kalpataru Synergy, Opp. Grand Hyatt, Vakola, Santacruz (E), Mumbai 400055. India.	milind.nene@kalptarupower.com , kaushal.thakkar@kalptarupower.com , thakkarkaushal86@yahoo.com , ajay.tripathi@kalptarupower.com
77.	Director, Torrent Power Ltd	Electricity House, Lal Darwaja, Ahmedabad – 380001	NAMANSHAH@torrentpower.com , kaushal.thakkar@kalptarupower.com , kashyapdesai@torrentpower.com , MAYANKGUPTA@torrentpower.com , VATSALPATEL@torrentpower.com
78.	Associate Director, Commercial & Regulatory, Sekura	503A, Windsor, Off CST Road, Kalina Mumbai-400098	Vijayanand.Semletty@Sekura.in

79.	CMD, KEC International Limited	RPG House, 463, Dr. Annie Besant Road, Worli, Mumbai – 400030	kecindia@kecrpg.com
80.	CMD, Juniper Green Transmission Private Limited	F-9 First Floor, Manish Plaza-1, Plot No. 7, MLU, Sector 10, Dwarka South West Delhi 110075	rohit.gera@junipergreeneenergy.com , rohit.gera91@gmail.com
81.	CMD, ReNew Transmission Ventures Private Limited	ReNew , Commercial Block-1, Zone 6, Golf Course Road DLF City Phase-V, Gurugram-122009	mohit.jain@renewpower.in , anuj.jain@renewpower.in , amit.kumar1@renewpower.in
82.	CMD, Apraava Energy Private Limited	7th Floor, FULCRUM, Sahar Road, Andheri (East) Mumbai 400 099	sumit.sinha@apraava.com naveen.munjhal@apraava.com , roshni.shah@apraava.com
83.	Head & VP, Regulatory & Contracts	Unit No. 101, First Floor, Windsor, Village KoleKalyan, off CST Road, Vidyanagari Marg, Kalina, Santacruz (East), Mumbai – 400 098	venkatraman.inumula@indigrid.com
84.	Senior Manager (Bidding & Business Development), IndiGrid Ltd	Unit No. 101, First Floor, Windsor, Village KoleKalyan, off CST Road, Vidyanagari Marg, Kalina, Santacruz (East), Mumbai – 400 098 Maharashtra	wasim.alam1@indigrid.com
85.	Managing Director, L&T IDPL	L&T campus TCTC building , First Floor, Mount Poonamalle Road, Manapakkam, Chennai-600089, Tamil Nadu	contactus@lntidpl.com csr@lntecc.com
86.	Chief Engineer, Electric M &RE Division	Electric M &RE Division, Choglamsar, Leh-Ladakh-194101	cepladakh@gmail.com

87.	Director (BD & Commercial), Apraava Energy	Apraava Energy Private Limited (FULCRUM 7th Floor, Next to Hyatt Regency, Sahar Road, Andheri (East), Mumbai – 400 099. India.	sumit.sinha@apraava.com
88.	Manager, Megha Engineering & Infrastructures Ltd	-	shivaprasad@meilgroup.com
89.	Manager ReNew Transmission Ventures Pvt Ltd	Renew.Hub, Commercial Block-1, Zone-6, Golf Course Road, DLF City Phase V, Gurugram, Haryana – 122009	mohit.jain@renew.com
90.	Asst. Vice President, Sterlite Power	DLF Cyber Park, 9th Floor, B Block, Udyog Vihar Phase III, Sector 20, Gurugram – 122008, Haryana, India	yash.tandon@sterlite.com
91.	Head Environment & Corporate Affairs, Resergent Power (TATA)	NRSS - XXXVI, Tata Power B-12 & 13 Shatabdi Bhawan, Sector-4, Noida State - Uttar Pradesh - 201301	rajnishmehrotra@tatapower.com



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/160

Date: 15.09.2025

To
(As per distribution list)

विषय: 04.07.2025 को शिलांग, मेघालय में आयोजित एनपीसी की 16वीं बैठक का कार्यवृत्त के संबंध में।
Subject: Minutes of the 16th Meeting of NPC held on 04.07.2025 at Shillong, Meghalaya -
reg.

04.07.2025 को शिलांग, मेघालय में आयोजित एनपीसी की 16वीं बैठक का कार्यवृत्त आपकी जानकारी और आवश्यक कार्रवाई के लिए संलग्न है।

The Minutes of the 16th meeting of NPC held on 04.07.2025 at Shillong, Meghalaya is enclosed herewith for your kind information and necessary action, please.

भवदीय/Yours faithfully

Encl: As above

Rishika Sharan
15/09/2025

(ऋषिका शरण/Rishika Sharan)
मुख्य अभियन्ता एवं सदस्य सचिव, रा.वि.स /
Chief Engineer & Member Secretary, NPC

crore. The project is proposed to be implemented in three phases: **Phase-I** by 2030–31, **Phase-II** by 2031–32, and **Phase-III** by 2033–34. The implementation timeline includes 2~3 years for complete manufacturer readiness and 36 months for execution from the date of allocation. Route alignment analysis, including possible overlaps with wildlife/protected areas, will be undertaken using the PM Gati Shakti portal. Load flow studies indicate that power flow, bus voltages, and bus angles remain within permissible limits under both normal and contingency scenarios.

2.16.4 **CMD, GRID-INDIA** suggested that the proposed scheme of 1100 kV could be examined for other scenarios in addition to the two scenarios that were presented by CTUIL.

2.16.5 After detailed deliberations, it was agreed by all the members that CTUIL may share the proposal for the 1100 kV Ultra High-Capacity Transmission Corridor interconnecting the WR, ER, and SR grids with GRID-India for their feedback. Upon receipt of feedback from GRID-India, CTUIL may circulate the revised proposal to all RPCs for their comments, following which the agenda will be placed before the NCT for approval. Additionally, the CEA Manual on Transmission Planning Criteria (2023) shall be updated to incorporate provisions for 1100 kV systems by Power System Wing, CEA. The study for this corridor shall also consider a broader set of scenarios to ensure a comprehensive system analysis.

2.16.6 Decision of the NPC:

i. **CTUIL shall share the proposal of 1100 kV Ultra High-Capacity Transmission Corridor for interconnection of WR, ER and SR grids with GRID-India for their feedback.**

(Action: CTU and GRID India)

ii. **CTU shall share the revised proposal after receipt of the feedback from GRID-INDIA, with all RPCs for their views. Accordingly, an agenda will be placed before the NCT meeting for approval.**

(Action: CTU and All RPCs)

iii. **The CEA Manual on Transmission Planning Criteria, 2023, need to be updated to include provisions for 1100 kV systems.**

(Action: Power System Wing, CEA)

iv. **The Study shall be conducted by considering a broader set of scenarios to ensure comprehensive analysis.**

(Action: CTUIL and All RPCs)

2.17 Installation of OPGW on the existing lines of ISTS and STU (Agenda of CTUIL):

2.17.1 **Representative of CTUIL** briefed the agenda to the Committee and informed that the CEA's communications dated 22.05.2024 and 22.11.2024 mandates all

transmission lines of 110 kV and above to be provided with Optical Ground Wire (OPGW) along with necessary terminal equipment for speech transmission, line protection, and data channels, with upcoming lines specifically to be equipped with 48-fiber OPGW. However, during the planning of new transmission schemes, several existing lines are often having LILO systems at upcoming ISTS/STU substations. In the absence of OPGW on such existing lines, meeting data and voice communication requirements for the new substations becomes a challenge. Moreover, installation of OPGW under live-line conditions is time-consuming and operationally complex compared to its implementation on new lines. He mentioned that a proactive approach is needed to address this issue and enhance the reliability and redundancy of the ISTS communication network which is critical for secure and stable grid operations.

2.17.2 He further informed that in line with the suggestions in the NCT meeting, CTUIL has identified ISTS lines lacking OPGW across various TBCB, RTM, and JV projects, and has compiled the details in **Tables I, II, and III** for preparation of a comprehensive augmentation scheme.

Table –I: POWERGRID Transmission lines under RTM without OPGW

S. No.	Region	Line Length (Kms)
1	NR	4091
2	WR	5200
3	SR	644
4	ER	2754
5	NER	146
Grand Total:		12835

Table-II: TATA Powerlink (Joint Venture of POWERGRID & TATA Power) Transmission lines without OPGW

S. No.	Region	Line Length (Kms)
1	ER	309
2	NR	742
Grand Total:		1051

Table- III: TBCB Transmission Lines (Private) without OPGW

S. No.	TSP Name	Region	Line Length (Kms)
1	Indigrid	ER	162
		WR	615
2	Adani	WR	1892
Total:			2669

2.17.3 The NPC agreed that the proposal of Installation of OPGW on the existing lines of ISTS and STU may be put in next NCT meeting for deliberation.

2.17.4 Decision of the NPC:

- i. **The proposal for installation of OPGW on the existing lines of ISTS may be put in upcoming RPCs/NCT meeting for deliberation. STU may also put up the scheme for OPGW on existing lines in respective RPCs.**

(Action: CTUIL/ All RPCs)

2.18 Sustained High Frequency in Indian power system during solar hours (Agenda of Grid India) :

2.18.1 **Representative of Grid-India** highlighted the issue of high frequency on several days in May 2025 and requested implementation of provisions of CEA Flexible Operation Regulations.

2.18.2 **Chairperson, CEA/NPC**, acknowledged the issue and highlighted the importance of implementation of Hydro-based Pumped Storage Projects (PSPs) and the incentives being extended to such projects under various policy frameworks. It was further advised that the matter may be taken up with RE-rich states for a detailed study and examination of the issue.

2.18.3 Decision of the NPC:

- i. **Grid-India may carry out an assessment of RE capacity addition in the coming years to understand its potential impact on grid frequency. The must run plants contributing to high frequency during solar hours may also be studied and reviewed.**

(Action: Grid-India)

2.19 Frequent outages of HVDC Champa-Kurukshetra and its impact on Indian power system (Agenda of Grid India):

2.19.1 **Representative of Grid-India** shared the issue of repeated tripping in HVDC Champa – Kurukshetra line as well as stability related concerns raised by generating units in WR/ER.

2.19.2 **Chairperson, CEA/NPC**, proposed for constitution of a Committee under Member (PS), CEA, examining the issue as well as for suitable SPS design. He further advised CTUIL to plan dynamic reactive compensation devices near load centres.

2.19.3 The NPC agreed that a Committee may be constituted under the chairmanship of the Member (Power Systems), CEA, comprising representatives from NRPC, WRPC, ERPC, PGCIL, NLDC, NRLDC, ERLDC, WRLDC, PSETD Division, CEA and NPC Secretariat, to study the issue in detail and recommend appropriate mitigation measures.

ANNEXURE-VI

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

दिनांक: अगस्त, 2025

सेवा में/To,

एनआरपीसी एवं टीसीसी के सभी सदस्य एवं विशेष आमंत्रित (संलग्न सूचीनुसार)
 Members of NRPC & TCC & Special Invitees (As per List)

विषय: 55 वीं तकनीकी समन्वय समिति (टीसीसी) और 80 वीं उत्तरी क्षेत्रीय विद्युत समिति (एनआरपीसी) बैठक का कार्यवृत्त।

Subject: MoM of 55th Technical Co-ordination Committee (TCC) and 80th Northern Regional Power Committee (NRPC) -reg

महोदय/महोदया,

55th meeting of Technical Co-ordination Committee (TCC) was held on 17.07.2025 (09:30 AM) and 80th meeting of Northern Regional Power Committee (NRPC) was held on 18.07.2025 (09:30 AM) at Udaipur, Rajasthan. MoM of the same is attached herewith. The same is also available on [NRPC Website](#).

भवदीय,

(Handwritten signature)
 21/08/2025

(ऋषिका शरण)

(Rishika Sharan)

सदस्य सचिव

Member Secretary

Copy to:

1. Sh. H Rajesh Prasad, IAS, Chairperson, NRPC and Principal Secretary to Government Power Development Department, J&K (jkpdd9@gmail.com)
2. Er. Raheela Wani, Chairperson, TCC and Managing Director, JKPTCL (mdjkptcl1@gmail.com)

55th TCC & 80th NRPC Meeting (17-18 July 2025)-MoM

- *Scheme shall be taken up in NCT for approval in RTM mode to POWERGRID*
- **Scope:** *Installation of 5 No. of STM-16 FOTE at Saharanpur (PG), Deoband (UP), Saharanpur (UP), Nanauta (UP) and Shamli (UP)*
- **Estimated cost:** *Rs. 2.10 Crs.*
- **Implementation time frame:** *12 months from date of allocation*

A.9 Installation of OPGW on the existing lines of ISTS (Agenda by CTUIL)

TCC Deliberation

A.9.1 CTU apprised that as per, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 mandates provision of

“Optical Ground Wire along with necessary terminal equipment shall be provided on transmission lines of voltage rating of 110 kV and above for speech transmission, line protection, and data channels”

“The primary path for tele-protection shall be on point-to-point Optical Ground Wire and alternative path shall be either on Power Line Carrier Communication or predefined physically diversified Optical Ground Wire paths.”

A.9.2 **Chairperson, CEA in 19th meeting of NCT** requested all the Central and State Sector utilities to prioritize implementation of the OPGW laying across its transmission network for regulatory requirement compliance.

A.9.3 Subsequently, **CEA letter dtd. 22.05.2024**, all the lines 110kV and above shall have Optical Ground Wire along with necessary terminal equipment for speech transmission, line protection, and data channels.

A.9.4 During planning of new Transmission Schemes many existing lines get LILLOed at upcoming S/s (ISTS/STU). In view of non-availability of OPGW on the existing lines data and voice requirement for new S/s become critical. Further installation of OPGW in live line condition took lot of time on exiting lines compared to new transmission lines.

A.9.5 The installation of OPGW will further enable seamless data transmission from IEMs to the upcoming 5-minute Automatic Meter Reading (AMR) system.

A.9.6 CTU has identified ISTS Transmission lines in Northern Region which are not having OPGW have been identified and same is attached at **Annexure-A.III** which

55th TCC & 80th NRPC Meeting (17-18 July 2025)-MoM

comprises RTM/TBCB/JV projects. Summary of transmission lines without OPGW is given below:

A.9.7	Sr. No.	A.9.8	Projects	A.9.9	Total Transmission Length (Kms)
A.9.10	1	A.9.11	RTM	A.9.12	4084
A.9.13	2	A.9.14	JV	A.9.15	742
A.9.16	Grand Total			A.9.17	4826

Tentative Estimated Cost: Rs. 265 Crs.

A.9.18 Accordingly, it's proposed that for ISTS lines CTU will formulate the schemes of implementation of OPGW on existing system on which OPGW is not available, which could be taken up as follows:

- a. For TBCB projects, the scheme would be implemented by respective TSP under Change in Law / RTM
- b. For RTM projects, the scheme would be implemented by respective TSP under RTM

A.9.19 MS, NRPC stated that as this is regulatory requirement, it should be should be considered with due importance. She further suggested CTU to make comprehensive scheme for installation of OPGW on the existing lines of ISTS.

A.9.20 CTUIL stated that it is seeking in principle technical approval from NRPC forum. It will prepare the detailed scheme after reviewing FOTE requirement at both end of the lines. The scheme shall be deliberated in the CTUIL CPM meetings and comprehensive schemes will be put up in the NRPC for approval.

A.9.21 Forum agreed with the proposal of CTUIL and accorded in principal approval for the same.

NRPC Deliberation

A.9.22 Forum noted the discussion held in the TCC meeting and concurred the same.

Decision of Forum

- *CTU to formulate a comprehensive scheme for implementation of OPGW on existing ISTS lines where OPGW is not available.*

55th TCC & 80th NRPC Meeting (17-18 July 2025)-MoM

- *State Sector utilities advised to prioritize implementation of the OPGW laying across its transmission network for regulatory requirement compliance.*

A.10 Regarding the non-availability of Ethernet Port at Bhakra Left Bank Power House- Purchase of new Communication Equipment (i.e. SDH Panel) for Bhakra Left Bank Power House under ULDC Scheme through PowerGrid for BBMB (agenda by BBMB)

TCC Deliberation

A.10.1 BBMB apprised that during the process of reporting pending RTUs directly to the Backup Control Centre by BBMB, it was observed that no spare Ethernet ports are available at Bhakra Left Bank Power House. Powergrid informed that the existing communication equipment requires replacement with new one as the existing Fibrehome equipment does not support additional card installations.

A.10.2 Keeping in view of the above requirement, it is requested to add this additional requirement in the existing replacement of Fibrehome equipment by PowerGrid under ULDC Scheme, so that the remaining RTU's may be directly reported to Backup Control Centre of BBMB and any additional future requirement of Ethernet ports for connecting any other equipment may also be catered to.

A.10.3 BBMB also mentioned that this matter was discussed in 26th TeST Sub Committee Meeting wherein it was decided to put up this agenda in NRPC meeting for approval. Minutes of 26th TeST Meeting:

Decisions of the Forum

- POWERGRID and BBMB may proceed bilaterally with the replacement of Fibrehome equipment, subject to mutual agreement.
- For the replacement to be considered under the ULDC Scheme, NRPC Board approval is required. BBMB was advised to present this agenda in the upcoming NRPC meeting for formal approval.

A.10.4 POWERGRID stated that the replacement work may be undertaken bilaterally, with the cost to be borne by BBMB.

A.10.5 BBMB and POWERGRID agreed.

NRPC Deliberation

A.10.6 Forum concurred the deliberation held in the TCC meeting.

Decision of Forum:



ANNEXURE-VII

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कारपोरेशन ऑफ इण्डिया लिमिटेड के स्वामित्व में)
(भारत सरकार का उद्यम)

CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
(A wholly Owned Subsidiary of Power Grid Corporation of India Limited)
(A Government of India Enterprise)

Ref: CC/CTU/COMM/CPM/NR/9

Date: 22.09.2025

Subject: Minutes of 9th Northern Region ISTS Communication Planning Meeting (NR-CPM) held in virtual mode (MS-Teams) on 19th August 2025

Dear Sir/Madam,

Please find enclosed the Minutes of the 9th Northern Region ISTS Communication Planning Meeting (NR-CPM) held on 19th August 2025 through virtual mode.

Thanking you,

Yours faithfully,

(Nutan Mishra)
Sr. GM (CTUIL)

Minutes of 9th ISTS Communication Planning Meeting (CPM) of Northern Region held on 19.08.2025 in virtual mode.

The 9th Meeting of NR-CPM was held on 19.08.2025 through virtual mode. The list of participants is attached at **Appendix-I**.

DGM (CTU) welcomed all the participants and proceeded with the agenda items.

A. Confirmation of minutes of 8th NR-CPM

The Meeting of the 8th NR-CPM was held on 03.02.2025 and MoM of same were issued on dtd. 25.02.2025. As no comments were received, the minutes were considered to be confirmed as circulated.

B. Agenda wise deliberation of 9th NR-CPM

Agenda 1. Installation of OPGW on the existing lines of ISTS and STU

- i. CEA has intimated vide letter dtd.22.05.2024 (attached at **Annexure-I**) that all the transmission lines of 110kV and above shall have Optical Ground Wire (OPGW) along with necessary terminal equipment for speech transmission, line protection, and data channels. Further primary path for tele-protection shall be on point-to-point Optical Ground Wire and alternate path shall be either on Power Line Carrier Communication or predefined physically diversified Optical Ground Wire paths. Subsequently CEA vide their letter dtd. 22.11.24 (attached at **Annexure-II**) communicated that all the upcoming lines shall be provided with 48 Fiber OPGW to cater for broadband and internet requirements in the rural areas and hinterlands to provide reliable Telecom connectivity.
- ii. In the present scenario of increased RE penetration, frequent system expansion and strengthening, many of the existing lines are proposed for LILO frequently during transmission planning. However, it has been observed many times during planning/execution of these LILO systems that main line is not having OPGW, which leads to issues such as compromising on the alternate path/ redundancy/ protection. Further installation of OPGW on the existing lines being LILOed leads to time mismatch. Moreover, these OPGW laying schemes take even more time than execution of planned TBCB/RTM schemes such as Live Line installation of OPGW require PTW from respective RLDCs and involve ROW for OPGW laying.
- iii. As per para (ii) above, ISTS Transmission lines in Northern Region which are not having OPGW have been identified which comprises RTM/TBCB/JV projects. Summary of transmission lines without OPGW is given below:

Sr. No.	Projects	Total Transmission Length (Kms)
1.	RTM	4084
2.	JV	742
Grand Total		4826

Tentative Estimated Cost: Rs. 265 Crs.

iv. This agenda was put up by CTU in the 16th NPC held on 04.07.2025 and thereafter in 80th NRPC meeting held on 18.07.2025 where agenda was agreed in principle by the forum (**Minutes are awaited**).

v. CTU has again requested input from all the TSPs regarding the transmission line where OPGW is not available. However, inputs from Sterlite, Adani and Indigrd are yet to be received. Based on the input received from POWERGRID, POWERLINKS (PTL) and SEKURA, and the database available with CTU, one transmission line of PKTCL has also been considered and revised summary of OPGW lines is given below:

Sr. No.	TSP/Ownership	Total Transmission Length (Kms)
1.	POWERGRID	4142
2.	POWERLINKS (PTL)	846
3.	SEKURA	149
4.	PKTCL	67
Grand Total		5204

vi. Summary of FOTE requirement is given below:

Sr. No.	TSP / Ownership	Total FOTE requirement (Tentative)
1.	POWERGRID	50

vii. Detailed list of transmission lines alongwith the requirement of FOTE is studied by CTU and is attached at **Annexure-III**. Respective TSP may confirm the same. After deliberation, final scheme shall be prepared by CTU and shall be deliberated in the separate CPM for finalization.

Deliberations:

CTU explained the agenda regarding OPGW installation on all EHV transmission lines where OPGW is not available. This is in line with CEA letter dtd.22.05.2024 (attached at **Annexure-I**) where it was communicated that all the transmission lines of 110kV and above shall have Optical Ground Wire (OPGW) along with necessary terminal equipment for speech transmission, line

protection, and data channels. Further as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines), 2022:

“Optical Ground Wire along with necessary terminal equipment shall be provided on transmission lines of voltage rating of 110 kV and above for speech transmission, line protection, and data channels.”

“The primary path for tele-protection shall be on point-to-point Optical Ground Wire and alternative path shall be either on Power Line Carrier Communication or predefined physically diversified Optical Ground Wire paths”

This agenda was also deliberated in the 16th NPC meeting held on 04.07.2025 (Minutes awaited) where forum suggested CTU to make a comprehensive scheme regarding OPGW installation and after review in RPCs same can be put up in NCT for approval.

CTU has identified such lines where OPGW is not available based on the inputs received from TSPs and the agenda for the same was put up in the 80th NRPC meeting held on 16-17.07.2025. NRPC forum has given in-principal approval for the same and asked CTU to prepare a detailed scheme considering FOTE requirements for these OPGW links.

CTU has again collected input from all TSPs and prepared consolidated list where OPGW is not available and same is attached at **Annexure-III** which also includes FOTE requirement.

POWERGRID informed that some of the lines have multiple ownership e.g., State and POWERGRID. CTU clarified that on such lines OPGW is to be installed by the respective Transmission Line owners as per their owned portion of transmission lines. CTU requested States to identify such lines and give their confirmation to install OPGW on their respective portions in STU schemes so that final scheme can be prepared by CTU under ISTS for the lines under ISTS. UPPTCL, PSTCL and RRVPNL stated that they shall review and confirm the same within 15 days.

Powerlinks (PTL) and Indigrd enquired about the methodology that shall be adopted for installation of OPGW on lines with multiple ownership. CTU stated that similar methodology as stated above for STUs shall be adopted for lines with ownership of different TSPs i.e., respective TSP shall install OPGW on the line under their ownership.

CTU requested UPPTCL to review the lines which have multiple ownership i.e. POWERGRID and UPPTCL regarding OPGW. In case OPGW is not available on these lines than UPPTCL to install OPGW on their respective transmission line portions. UPPTCL stated that they shall update the status of the lines within 15 days to CTU.

CTU also requested PSTCL & RRVPNL to identify the portion of transmission lines with multiple ownership so that scheme can be finalized. RRVPNL & PSTCL also stated that they shall revert on the same within 15 days.

SEKURA and Powerlinks (PTL) enquired about the number of fibers to be considered in the OPGW cable which is to be installed. CTU informed that as per CEA letter dtd. 22.11.2024 (Attached at **Annexure-II**), 48 fiber OPGW shall be installed in all upcoming schemes (New as well as existing transmission lines).

CTU requested all the TSPs in the meeting to provide the details of the transmission lines without OPGW, if not included in the list attached at **Annexure-III**. These details are to be provided to CTU within 15 days.

POWERGRID, Indigrid, Adani, Sterlite, Powerlinks (PTL) all TSPs agreed to revert within 15 days.

SEKURA confirmed that they have already provided all the details to CTU.

Powerlinks (PTL) enquired regarding installation of FOTE equipment, CTU informed that as per the ownership of Bay/ Substation, FOTE to be installed by the respective Bay/Substation owner.

As per the database/ inputs from UNMS, CTU has identified the tentative requirement of FOTE for these lines and same is displayed by the CTU in the meeting, however there are some clarifications required in the FOTE quantity. For this purpose, CTU suggested that a separate meeting shall be conducted by CTU among CTU, POWERGRID and NMT. After finalization of FOTE requirement and Transmission lines as stated above, a separate CPM shall be called for this agenda purpose.

Agenda 2. Furnishing of inputs for maintaining database of fiber uses as per Fiber sharing guidelines

- i. CEA has issued “Comprehensive guidelines for the usage and sharing of fiber cores of Optical Ground Wire (OPGW)/ Under Ground Fiber Optic (UGFO) Cable for power system applications” 2025. As per clause no. 7 of said guidelines, CTU for ISTS/ STUs for In-STS shall maintain a comprehensive database of fibers of OPGW installed on transmission lines. Accordingly, it is requested that all entities provide fiber sharing information as per the format attached at **Annexure-IV**.
- ii. Only Resonia (erstwhile Sterlite Power) has provided the data, and all other TSPs are requested to expedite.
- iii. This agenda was also deliberated in the 28th TeST meeting held on 23.07.2025 where forum requested all the members to provide the details as per the format shared by CTU.
- iv. As CTU to develop a portal for the fiber database management in the N-UNMS project as finalized in the 15th NPC and 27th NCT held on 14.11.24 and 06.02.2025 respectively. In this database, STU fibers database also to be included. STUs can also view and manage their fiber database



ANNEXURE-VIII

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कारपोरेशन ऑफ इण्डिया लिमिटेड के स्वामित्व में)
(भारत सरकार का उद्यम)

CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
(A wholly Owned Subsidiary of Power Grid Corporation of India Limited)
(A Government of India Enterprise)

Ref: CC/CTU/COMM/CPM/NR/10

Date: 30.01.2026

Subject: Minutes of 10th Northern Region ISTS Communication Planning Meeting (NR-CPM) held in virtual mode (MS-Teams) on 31st December 2025

Dear Sir/Madam,

Please find enclosed the Minutes of the 10th Northern Region ISTS Communication Planning Meeting (NR-CPM) held on 31st December 2025 through virtual mode.

Thanking you,

Yours faithfully,

(Nutan Mishra)
Sr. GM (CTUIL)

Contents

Agenda 1. Comprehensive Scheme for OPGW installation on the existing lines of ISTS in Northern Region.....2

Agenda 2: Replacement of FOTE at ISTS Locations due to Bandwidth congestion in Northern Region.....9

Minutes of 10th ISTS Communication Planning Meeting (CPM) of Northern Region held on 31.12.2025 in virtual mode.

The 10th Meeting of NR-CPM was held on 31.12.2025 through virtual mode. The list of participants is attached at **Appendix-A**.

DGM (CTU) welcomed all the participants and proceeded with the agenda items.

A. Confirmation of minutes of 9th NR-CPM

The Meeting of the 9th NR-CPM was held on 19.08.2025 and MoM of same were issued on dtd. 22.09.2025. As no comments were received, the minutes were considered to be confirmed as circulated.

B. Agenda wise deliberation of 10th NR-CPM

Agenda 1. Comprehensive Scheme for OPGW installation on the existing lines of ISTS in Northern Region

- I. As per the CEA letter dtd. 22.05.2024 (attached at **Annexure-I**), all lines 110kV and above shall have Optical Ground Wire along with necessary terminal equipment for speech transmission, line protection, and data channels. Further as CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 primary path for tele-protection shall be on point-to-point Optical Ground Wire and alternative path shall be either on Power Line Carrier Communication or predefined physically diversified Optical Ground Wire paths.

During planning of new Transmission Schemes many existing lines get LILOed at upcoming S/s (ISTS/STU). In view of non-availability of OPGW on the existing lines data and voice requirement for new S/s become critical. Further installation of OPGW in live line condition took lot of time on existing lines compared to new transmission lines. The installation of OPGW will also enable seamless data transmission from IEMs to the upcoming 5-minute Automatic Meter Reading (AMR) system.

Subsequently CEA vide their letter dtd. 22.11.2024 (attached at **Annexure-II**) communicated that all the upcoming lines shall be provided with 48 Fiber OPGW to cater to broadband and internet requirements in the rural areas and hinterlands to provide reliable Telecom connectivity.

- II. In the 16th NPC meeting held on dtd. 04.07.2025 (relevant extract of MoM attached at **Annexure-III**), proposal for installation of OPGW on the existing ISTS & STU lines were deliberated. In the meeting it was decided that a comprehensive scheme for installation of OPGW on existing ISTS lines may be put up in the upcoming TCC/RPC meetings by CTU.

- III. Thereafter, the scheme for OPGW installation on the existing lines of ISTS in Northern Region was prepared by CTU based on the inputs received from all TSPs and database available with CTU. Based on these inputs, OPGW requirement was summarized for ISTS lines and given in the table below which comprises lines of JV/RTM/TBCB:

Sr. No.	Projects	Total Transmission Length (Kms)
1.	RTM	4084
2.	JV	742
Grand Total		4826

The tentative cost estimate of above requirement is **Rs. 265 Crs.**

Further implementation methodology was proposed for this scheme:

- a. For TBCB projects, the scheme would be implemented by the respective TSP under Change in Law.
 - b. For RTM projects, the scheme would be implemented by respective TSP under RTM.
- IV. This scheme was put up by CTU in the 55th TCC/ 80th NRPC meeting held on 17.07.2025/ 18.07.2025 (relevant extract of MoM attached at **Annexure-IV**) in line with the 16th NPC MoM. The scheme was agreed in principle by the NRPC forum, and CTU was requested to formulate a comprehensive scheme for implementation of OPGW on existing ISTS lines where OPGW is not available.
- V. Accordingly, CTU has again collected inputs from all the TSPs e.g. POWERGRID, POWERLINKS (PTL), INDIGRID, ADANI and SEKURA etc. Based on these inputs Requirement of OPGW and FOTE is studied by CTU and detailed list of OPGW & FOTE transmission line is attached at **Annexure-V**.

Sr. No.	TSP/Ownership	Total Transmission Length (Kms)
1.	POWERGRID	4142
2.	POWERLINKS (PTL)	846
3.	SEKURA	149
4.	PKTCL	67
Grand Total		5204

- VI. Based on the above inputs, a comprehensive scheme for OPGW installation is revised and the agenda for the same was put up by CTU in the 9th CPM (Communication Planning Meeting) held on 19.08.2025 of NR for deliberations.
- VII. In the 9th CPM, POWERGRID informed that some of the lines in the list having multiple ownership e.g., State and POWERGRID which needs clarification in point of OPGW installation. CTU requested TSPs/ States to identify such lines and give the details (kms

wise) for such lines so that schemes can be finalized. Major portion of transmission lines having mixed ownership of STUs belong to UPPTCL, PSTCL and RRVPNL. CTU requested UPPTCL, PSTCL and RRVPNL and other TSPs to provide confirmation on the same by email so that the final scheme can be formulated along with FOTE requirement.

VIII. POWERGRID, UPPTCL, PSTCL and RRVPNL furnished the inputs regarding mixed ownership line portion details vide their email references as given below:

Sr. No.	Utility name	Email Reference
1.	POWERGRID	Received mail dtd. 13.11.2025
2.	UPPTCL	Received mail dtd. 07.11.2025
3.	RRVPNL	Received mail dtd. 14.11.2025
4.	PSTCL	Received mail dtd. 14.11.2025

IX. As per CERC order on Petition No. 94/MP/2021 dated 25.06.2021 *OPGW shall be installed by replacing earth wire by owner of the transmission line and FOTE to be installed by respective Substation / Bay Owner following the required procedure with the approval of the competent authority.* Similar type of methodology adopted for the schemes agreed previously in 71st NRPC, 72nd NRPC for PKTCL and Sekura schemes of OPGW.

X. Based on the above inputs scheme is revised and formulated TSP / STU wise for deliberations. Scheme consists of List of lines with Kms, Tentative No of FOTE and their locations, Tentative Cost Estimate, mode of implementation and implementation schedule.

Deliberations:

DGM, CTU explained the agenda regarding Comprehensive Scheme for installation of OPGW on all the ISTS transmission lines where OPGW is not available. He apprised the members regarding updates on this scheme after the 9th NR CPM meeting. He stated that scheme was deliberated in the 9th CPM meeting where it was noted that some ISTS lines have multiple ownership e.g. POWERGRID, UPPTCL, RRVPNL, BBMB, PSTCL, Indigrid, Powerlink. In the 9th CPM input was sought from all the members regarding the ownership details. As per inputs received from all members scheme has been updated and is attached with the agenda.

Further CTU stated that Member, PS (CEA) in the 55th TCC/ERPC meeting, suggested that a combined proposal for all the five regions' schemes to be put up in the upcoming NCT and this may be expedited. CTU also mentioned that a comprehensive OPGW scheme has already been deliberated in the NERPC & ERPC for the respective regional communication networks.

CTU stated that as few lines have mixed ownership between POWERGRID, TSPs & STUs etc, accordingly scheme needs to be formulated and also to address the related aspects. As per CERC

order on Petition No. 94/MP/2021 dated 25.06.2021 *OPGW shall be installed by replacing earth wire by owner of the transmission line and FOTE to be installed by respective Substation / Bay Owner following the required procedure with the approval of the competent authority.*

Similar type of methodology has been adopted for the schemes agreed previously in 71st NRPC, 72nd NRPC for Sekura and PKTCL schemes of OPGW. Regarding OPGW and FOTE installation in mixed ownership between different TSPs, methodology can be adopted in a similar manner as done earlier in the case of Malerkotla – Kurukshetra line (Owned by Sekura) approved under 19th NCT dtd. 29.04.2024 and PKTCL lines owned by Indigrd approved in 20th NCT dtd. 25.06.2024. Therefore, OPGW & FOTE to be installed by respective transmission element owner as per their ownership portions and also for clarity of maintenance & other related aspects.

However, during deliberations, POWERGRID and STUs (RRVPL, UPPTCL) suggested that a combined scheme can be formed which includes POWERGRID and STU portion.

Powerlink stated that they own Bareilly-Mandola line which is LILOed at Meerut S/s. The LILO portion is owned by POWERGRID. The main line length under Powerlink is 297 kms. and under POWERGRID 56 kms. Further, they stated that for the complete portion including POWERGRID they want to install OPGW in a similar manner as approved in the Eastern Region Scheme. POWERGRID stated that they have no objection if this work is done by POWERLINK on the complete line of Bareilly-Mandola line including LILO portion at Meerut (Owned by POWERGRID).

SEKURA stated that they agree with the methodology approved for OPGW work under change in law in line with earlier scheme approved under 19th NCT dtd. 29.04.2024. Further he asked regarding the time frame of scheme, CTU stated that all the schemes shall be done in the matching time frame with main OPGW schemes to be awarded to POWERGRID which is having FOTE of most of the links. Therefore, all TSPs maintain the same time schedule. All members agreed for the same.

POWERGRID stated that it is better if time schedule can be considered 36 months from the date of allocation. CTU stated that as per the MoM of 26th NCT meeting held on 6th January 2025, time schedule for lines >200 kms can be taken as 30 months and for hilly terrain it can be taken as 36 months. CTU also stated that time schedule related matter may also be deliberated in the TeST/NRPC meeting for view of all the members.

POWERGRID and STUs enquired about the fiber sharing on such lines which have mixed ownership of different utilities and asked regarding utilization of fibers for commercial purposes. CTU stated that this scheme is for ISTS communication purpose and to strengthen the ISTS backbone communication network which caters to important data required for Grid-Operation e.g.

SCADA, PMU, VoIP, Protection etc. Fiber sharing shall be as per CEA *Comprehensive guidelines for the usage and sharing of fibre cores of Optical Ground Wire (OPGW)/ Under Ground Fiber Optic (UGFO) Cable for power system applications*. CTU also stated that all the utilities are requested to provide their fiber optic map and Power Maps for better comprehensive planning.

RRVPNL stated that some lines having complete ownership with POWERGRID e.g. RAPP B – Udaipur, Bassi – Phagi where at STU S/s end FOTE can be considered under ISTS scheme. All members agreed for this philosophy for all such type of lines.

INDIGRID stated that they are having difficulty in awarding the project due to lack of suitable bidders for Live Line installation. This delayed the projects as per their past experience.

PSTCL clarified that the lines Dehar–Panchkula, Panipat–Panchkula, Dehar–Rajpura and Bhiwani–Rajpura completely belong to BBMB/POWERGRID and are not under PSTCL’s scope. CTU stated that OPGW on the lines under the ownership of BBMB shall be installed by the transmission line owner. As representative of BBMB was not present in the meeting, therefore scheme pertaining to BBMB shall be deliberated in the upcoming TeST meeting.

Utility-wise deliberations on the schemes are given below:

1) RRVPNL:

- ✓ Both Sikar and Ratangarh have no FOTE, and both stations belong to RRVPNL.
- ✓ In line Sikar-Sikar (RJ), Sikar (RJ) belongs to RRVPNL, and it requires 1 FOTE.

RRVPNL vide mail dtd 01.01.2026 furnished their inputs as per the mail following are proposed:

- ✓ No FOTE is required at Ratangarh end of Sikar-Ratangarh Link.
- ✓ FOTE at three Nos. of RRVPNL S/s are to be added in the RRVPNL scheme i.e. at Dausa, Sawai Madhopur and Lalsot S/s alongwith OPGW of 10 Km on LILO portion of main line Anta – Bassi at Lalsot.

CTU Remark: OPGW on the main line i.e. 220 kV Bassi (PG) – Anta (NTPC) is already available and is not part of ISTS Communication Network and is also not part of this scheme, therefore, RRVPNL is advised to take care this requirement under STU scheme.

2) UPPTCL:

- ✓ OPGW is not present on Jhusi–Phulpur line getting LILOed at Machlishaher.
- ✓ For Raebareli–CG City line, OPGW is already present.
- ✓ UPPTCL apprised that no such line exists for Mau (132kV) – Ballia.

- ✓ Meerut – Shatabdi Nagar OPGW has been installed by UPPTCL on their portion, for POWERGRID Portion, POWERGRID may update.

UPPTCL vide mail dtd 05.01.2026 furnished their inputs as per the mail following are proposed:

- ✓ OPGW is already laid for Meerut - Shatabdinagar Line and No FOTE considered for Shatabdinagar.
Jhusi - Phulpur is getting LILOed at Machlishaher. For Machlishaher – Phulpur portion OPGW is already present.

3) PSTCL:

- ✓ Lines Dehar (BBMB)–Rajpura (PSTCL), Bhiwani (BBMB)–Rajpura (PSTCL), Dehar–Panchkula (except LILO Portion) & Panipat–Panchkula (except LILO Portion) all belong to BBMB.
- ✓ Lines Kishenpur–Sarna and Sarna–Dasuya are owned by POWERGRID; only FOTE belongs to the respective entity.

PSTCL vide mail dtd 05.01.2026 furnished their inputs as per the mail following are proposed:

- ✓ No FOTE considered for Lines Dehar (BBMB)–Rajpura (PSTCL), Bhiwani (BBMB)–Rajpura (PSTCL) at PSTCL end.

4) POWERGRID

POWERGRID vide mail dtd 08.01.2026 furnished their inputs as per the mail following are proposed:

- ✓ 400kV Ballia - Mau line (13 kms) is under ownership of POWERGRID and from Ballia POWERGRID. There are 2 nos. of UPPTCL lines which are 132kV Ballia PG - Bansdih and 132kV Ballia PG - Sikandarpur. Further, the transmission line mentioned at S.No. 32 i.e. 132kV Mau - Ballia may be line of UPPTCL which is from their Mau (Kasara) s/s to 132kV S/s of UPPTCL at Ballia city.
- ✓ Two more lines are added 400kV Muzaffarnagar - Roorkee and 400kV Roorkee – Rishikesh whereas original line is 400kV Muzaffarnagar - Rishikesh under PTCUL ownership and line then LILOed at Roorkee PG, LILO portion of 3.73kms pertains to POWERGRID. OPGW installation on these lines of PTCUL to be deliberated in the TeST meeting.

Summary of “Comprehensive Scheme for OPGW installation on all the ISTS transmission lines in Northern Region”

A. ISTS

S. No	TSP	OPGW (Km)	FOTE (Nos.)	Cost (Cr.)
1	POWERGRID	4168.33	63	271.83
2	POWERLINK	856.3		47.09
3	SEKURA	149		8.195
4	PKTCL	66.381		3.65
Grand Total		5240.01	63	330.78

B. BBMB/STU

S. No	Utility	OPGW (Km)	FOTE (Nos.)	Cost (Cr.)
1	BBMB	576.2	3	Through BBMB/STU Schemes
2	RRVPNL	124.61	6	
3	UPPTCL	135.9	4	
4	PTCUL	121.66	2	

Based on the inputs received from all the STUs/ TSPs schemes has been updated and attached at **Appendix-I**.

The scheme “Comprehensive Scheme for OPGW installation on the existing lines of ISTS in Northern Region” (**Appendix-I**) shall be put up in upcoming NRPC TeST meeting thereafter to be put up in TCC/NRPC for review.

All members agreed for the same

Appendix-I

ISTS Schemes

Scheme-1.1: POWERGRID

Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	4168.33 Kms.
2.	Total No of FOTE (STM-16 with minimum 5 MSP) (including Repeaters and its shelter, FODP, NMS, Amplifiers, Approach cable, Power supply etc.)	55+8=63 Nos.
3.	Estimated Cost	271.83 Crs.
4.	Implementation Schedule	30+6 (6 months for hilly terrain etc) = 36 months from date of allocation
5.	Implementation Mode	To be decided in NCT

List of Transmission lines where OPGW installation is proposed along FOTE locations is given table below:

S. No	Region	Line Name	Total line length(km)	Powergrid Portion(km)	Shared/Multiple ownership with Utility	FOTE Requirement		Repeater
						End A	End B	
1	NR1	220KV BASSI-BAGRU	63.954	35.353	RRVPNL (28.601)	1	0	0
2	NR1	220KV BASSI-IG NAGAR	30.351	22.478	RRVPNL (7.873)	0	0	0
3	NR1	220KV HIRAPURA-IG NAGAR	27.345	24.875	RRVPNL (2.47)	0	0	0
4	NR1	220KV HIRAPURA-SANGANER	220kv Heerapura-Mansarovar, Length: 6.74 Km 220kv Mansarovar - Sanganer,	0.7	RRVPNL (6.74) (14.137)	0	0	0

S. No	Region	Line Name	Total line length(km)	Powergrid Portion(km)	Shared/Multiple ownership with Utility	FOTE Requirement		Repeater
						End A	End B	
			Length: 14.137 Km	8.097				
5	NR1	220KV MEERUT-NARA	32.138	2.316	UP (29.822)	1	0	0
6	NR1	220KV MEERUT-SHTBDNGR	33.5	8.234	UP (25.266)	0	0	0
7	NR1	220KV MEERUT-SIMBHOLI	51.428	9.254	UP (42.174)	0	0	0
8	NR1	220KV RAPPB-UDAIPUR	230.297	230.297	-	1	1	1
9	NR1	220KV SIKAR-RATANGARH	76.43	2.83	RRVPLN (73.6)	0	0	0
10	NR1	220KV SIKAR-SIKAR(RJ)	3	3	-	0	1	0
11	NR1	400KV BAGPAT-DEHRADUN	165	165	-	1	1	0
12	NR1	400KV BAGPAT-SAHARANPUR	121	121	-	0	1	0
13	NR1	400KV BASSI-PHAGI (JAIPUR RRVPLN)	48.432	48.432	-	0	1	0
14	NR1	400KV BASSI-SIKAR	169.8	169.8	-	0	0	0
15	NR1	400KV HISAR-KAITHAL	113.12	113.12	-	1	1	0
16	NR1	400KV MEERUT-BAREILLY	249.518	0 (PG portion (66 Km) to be done by POWERLINK)	POWERLINK (183)	0	1	0
17	NR1	765KV AGRA-JHATIKALA	253.076	253.076	-	1	1	1

S. No	Region	Line Name	Total line length(km)	Powergrid Portion(km)	Shared/Multiple ownership with Utility	FOTE Requirement		Repeater
						End A	End B	
18.A	NR1	765KV BHIWANI-PHAGI(JPR) CKT-I	271.51	271.571	-	1	0	1
18.B	NR1	765KV BHIWANI-PHAGI(JPR) CKT-II (separate line)	277.3	277.3	-	0	0	0
19	NR1	765KV MOGA-BHIWANI	273	273	-	1	0	1
20	NR2	220KV Kishenpur-Sarna	103.64	103.64	-	1	1	0
22	NR2	220KV Salal-Kishanpur-III	2	2	-	1	1	0
23	NR2	220KV Sarna-Dasuya	53.07	53.07	-	0	1	0
24	NR2	400 KV Dehar (BBMB) - Rajpura (PSTCL) (LILO Portion)	131.21	14.4	BBMB	0	1	0
25	NR2	400KV Bhiwani (BBMB) - Rajpura (PSTCL) (LILO Portion)	212.51	14.4	BBMB	0	0	0
26	NR2	400 KV Dehar-Panchkula (LILO Portion)	125	9.06	BBMB	0	1	0
27	NR2	400 KV Panipat-Panchkula (LILO Portion)	155	9.06	BBMB	0	0	0
28	NR2	400kV Ludhiana - Patiala	76.215	76.215	-	1	1	0
29	NR2	400kV NALAGARH-Patiala	93.78	93.78	-	1	0	0
30	NR2	400kV Uri 1 - Uri 2	10.456	10.456	-	1	1	0
31	NR2	220KV Salal-Jammu-I	56.33	56.33	-	0	0	0

S. No	Region	Line Name	Total line length(km)	Powergrid Portion(km)	Shared/Multiple ownership with Utility	FOTE Requirement		Repeater
						End A	End B	
32	NR3	220kV AGRA(PG)-BHARATPUR(RRV PNL)	55.858	55.858	-	0	1	0
33	NR3	220kV AGRA(PG)-SIKANDARA(UP)	55.858	55.858	-	0	1	0
34	NR3	220KV ALLD-JHUSI(UP)	28.079	21.879	UP (6.2)	1	0	0
35	NR3	220KV AUR-SIKANDARA	182.176	182.176	-	1	0	0
36	NR3	220KV JHUSI(UP)-PHULPUR(UP)	220KV JHUSI(UP)-Machhlishahar (UP), Length: 72.56 220KV Machhlishahar (UP) - PHULPUR(UP), Length: 50.072	16.686 0.2	UP (56) (49.4)	0	0	0
37	NR3	220KV KANPUR(PG) - RANIYA(UP)-1	1.683	1.683	-	1	1	0
37	NR3	220KV KNP-MAINPURI	10.4	10.4	-	0	1	0
39	NR3	220KV KNP-NAUBASTA	14.86	14.86	-	0	1	0
40	NR3	220KV KNP-PANKI-II	14.86	14.86	-	0	1	0
41	NR3	220KV KNP-UNCHR-III	144.63	144.63	-	0	1	0
42	NR3	220KV RAIBRLY-CG CITY(UP)	2	2	-	1	1	0
43	NR3	400KV AGRA-BHIWADI	208.98	208.98	-	0	1	0
44	NR3	400KV BALIA-MAU 400kV	13	13	-	0	1	0

S. No	Region	Line Name	Total line length(km)	Powergrid Portion(km)	Shared/Multiple ownership with Utility	FOTE Requirement		Repeater
						End A	End B	
45	NR3	400KV LUCKNOW-UNNAO	73.286	73.826	-	1	1	0
46	NR3	400KV SINGRAULI-FATEHPUR	330.953	330.953	-	1	1	1
47	NR3	765KV ALIGARH-JHATIKARA	158	158	-	1	0	0
48	NR3	765KV KANPUR(GIS)-ALIGARH	327	327	-	1	0	1
49	NR2	400kv NALAGARH-BANALA-I	112.78	46.399	PKTCL (66.381)	0	1	0
50	NR1	400kv Muzaffarnagar – Roorkee (LILO portion)	69.28	3.73	65.55 (PTCUL)	0	1	0
51	NR1	400kv Roorkee - Rishikesh (LILO portion)	52.38	3.73	48.65 (PTCUL)	0	0	0
52	NR1	400kv Malerkotla – Amritsar	149	0	-	1	1	0
53	NR3	400kv Muzaffarpur-Gorakhpur	260	0	-	1	1	1
54	NR3	400kv Lucknow-Gorakhpur	245	0	-	0	0	1
55	NR3	400 kv Meerut - Mandola	101.8	0 (54.3 Km of PG portion to be laid by POWERLINK)	47.5 (POWERLINK)	0	1	0
Total OPGW Length (PG Ownership): 4168.33 Km						Total FOTE 55+8= 63		

- 55 No. of FOTE at ISTS S/s for OPGW on POWERGRID Lines and 8 No. of FOTE at ISTS S/s for OPGW of POWERLINK and INDIGRID. Total 63 FOTE at ISTS stations.

ISTS Scheme-1.2: POWERLINK
Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	735.7 Kms. + 120.5 Kms. (PG portion to be done by POWERLINK) Total OPGW = 856.3 Km
2.	Estimated Cost	47.09 Crs.
3.	Implementation Schedule	Matching with Scheme 1.1
4.	Implementation Mode	To be decided in NCT

List of transmission lines where OPGW installation is proposed along FOTE locations is given in Table below

Sr. No.	Line Name	Total Line Length	Total Line Length under POWERLINK	Shared/Multiple ownership with Utility
1.	400kV Muzaffarpur-Gorakhpur	260	260	-
2.	400kV Lucknow-Gorakhpur	245	245	-
3.	400kV Bareilly-Meerut	249.58	183.2	POWERGRID (66.18Km)
4.	400 kV Meerut -Mandola	101.8	47.5	POWERGRID (54.3 Km)

*POWERGRID agreed to the proposal of POWERLINK that OPGW installation on POWERGRID portion in 400kV Bareilly-Meerut (66.18 Km) and 400 kV Meerut -Mandola (54.3 Km) to be done by POWERLINK

Scheme-1.3: PKTCL (INDIGRID)

Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	66.38 Kms.
2.	Estimated Cost	3.65 Crs.
3.	Implementation Schedule	Matching with Scheme 1.1
4.	Implementation Mode	To be decided in NCT

List of transmission lines where OPGW installation is proposed along FOTE locations is given in Table below:

Sr. No.	Line Name	Total Line Length	Line Ownership Under PKTCL	Shared/Multiple ownership with Utility
1.	400kV Nalagarh-Banala-I	112.78	66.381	POWERGRID (46.4 Km)

Scheme-1.4: NRSS XXXI (B) Transmission Ltd

Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	149 Kms.
2.	Estimated Cost	8.19 Crs.
3.	Implementation Schedule	Matching with Scheme 1.1
4.	Implementation Mode	To be decided in NCT

List of transmission lines where OPGW installation is proposed along FOTE locations is given in Table below

Sr. No.	Line Name	Total Line Length	Line Ownership Under SEKURA	Shared/Multiple ownership with Utility
1.	400kV Malerkotla – Amritsar C1	149	149	-

STU/BBMB Schemes

Scheme-2.1: BBMB

Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	575.8 Kms.
2.	Total No of FOTE (STM-16 with minimum 5 MSP) (including Repeaters and its shelter, Amplifiers, FODP approach cable, Power supply etc.)	3 Nos.
3.	Implementation Schedule	Matching with Scheme-1.1

List of transmission lines where OPGW installation is proposed along FOTE locations is given in Table below

Sr. No.	Line Name	Total Line Length	Line Ownership Under BBMB	Shared/Multiple ownership with Utility	FOTE Requirement	
					END A	END B
1.	Dehar (BBMB) - Rajpura (PSTCL) (except LILO Portion)	131.2	116.35	POWERGRID	1	0
2.	Bhiwani (BBMB) - Rajpura (PSTCL) (except LILO Portion)	212.5	198.11	POWERGRID	1	0
3.	Dehar-Panchkula (except LILO Portion)	125	115.866	POWERGRID	0	0
4.	Panipat-Panchkula (except LILO Portion)	155	145.866	POWERGRID	1	0

Scheme-2.2: RRVPNL

Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	124.61 Kms.
2.	Total No of FOTE (STM-16 with minimum 5 MSP) (including Repeaters and its shelter, FODP, Amplifiers, approach cable, Power supply etc.)	6
3.	Implementation Schedule	Matching with Scheme-1.1

List of Transmission lines where OPGW installation is proposed alongwith FOTE locations is given below:

Sr. No.	Line Name	Total Line Length(km)	Line Ownership Under RRVPNL (km)	Shared/Multiple ownership with Utility	FOTE Requirement	
					END A	END B
1.	BASSI(PG)-IG NAGAR	30.351	7.873	POWERGRID (22.478 Km)	0	1
2.	HIRAPURA (220KV GSS)-IG NAGAR	27.345	2.47	POWERGRID (24.875 Km)	1	0
3.	HIRAPURA (400KV GSS)-SANGANER	220kV Heerapura-Mansarovar, Length: 6.74 Km	6.04	POWERGRID (0.7 Km)	1	1
		220kV Mansarovar - Sanganer, Length: 14.137 Km	6.04	(8.097 Km)		
4.	BASSI(PG)-BAGRU	63.954	28.601	POWERGRID (35.353 Km)	0	1
5.	220KV SIKAR-RATANGARH	76.43	73.6	POWERGRID (2.83 Km)	1	0

Scheme-2.3: UPPTCL

Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	135.896 Kms.
2.	Total No of FOTE (STM-16 with minimum 5 MSP) (including Repeaters and its shelter, Amplifiers, FODP approach cable, Power supply etc.)	4
3.	Implementation Schedule	Matching with Scheme-1.1

List of transmission lines where OPGW installation is proposed along FOTE locations is given in Table below:

Sr. No.	Line Name	Total Line Length		Line length under ownership of UPPTCL	Shared/Multiple ownership with Utility	FOTE Requirement	
						END A	END B
1.	MEERUT-NARA	32.138		29.822	POWERGRID (2.31 Km)	0	1
3.	MEERUT-SIMBHOLI	52.2		44	POWERGRID (9.254 Km)	0	1
4.	ALLD-JHUSI(UP)	28.07		6.2	POWERGRID (21.879 Km)	0	1
5.	220KV JHUSI(UP)-PHULPUR(UP)	220KV JHUSI(UP)-Machhlishahar (UP):73	122.63	55.874	POWERGRID (16.686 Km) (0.572Km)	0	1
		220KV Machhlishahar (UP) - PHULPUR(UP): 50					

Scheme-2.4: PTCUL

Summary of Scheme

Sr. No.	Items	Details
1.	Total OPGW (48F)	121 Kms.
2.	FOTE (STM-16 with minimum 5 MSP) (including Repeaters and its shelter, Amplifiers, FODP approach cable, Power supply etc.)	2
3.	Implementation Schedule	Matching with Scheme 1.1

List of transmission lines where OPGW installation is proposed along FOTE locations is given in Table below

Sr. No.	Line Name	Total Line Length	Line Ownership Under SEKURA	Shared/Multiple ownership with Utility	FOTE Requirement	
					END A	END B
1.	400kV Muzaffarnagar - Roorkee (except LILO portion)	69.28	65.55	POWERGRID (3.73)	1	0
2.	400kV Roorkee -Rishikesh (except LILO portion)	52.38	65.65	POWERGRID (3.73)	0	1



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power CommitteeDated: 22nd May, 2025

सेवा में/ To,

संलग्न सूची के अनुसार/ As per list attached

विषय: दूरसंचार, स्काडा और टेलीमेटरी उपसमिति की 27 वीं बैठक।**Subject: 27th meeting of Telecommunication, SCADA & Telemetry Sub Committee-reg.**

उत्तर क्षेत्रीय विद्युत समिति की दूरसंचार, स्काडा और टेलीमेटरी (टेस्ट) उप-समिति की 27 वीं बैठक दिनांक 21.04.2025 को 10:30 बजे **सम्मेलन कक्ष**, एन.आर.पी.सी, **नई दिल्ली** में आयोजित की गई। बैठक में कार्यवृत्त इस पत्र के साथ संलग्न है। यह उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट (Northern Regional Power Committee) पर भी उपलब्ध हैं।

27th meeting of Telecommunication, SCADA & Telemetry (TeST) Sub-committee of NRPC was held on 21.04.2025 at 10:30 am in conference room, NRPC, New Delhi. Minutes of the meeting are enclosed herewith. The same are available on NRPC website at Northern Regional Power Committee.

भवदीय

Yours faithfully,

Signed by Anzum Parwej**Date: 22-05-2025 17:28:39**

(अंजुम परवेज)/ (Anzum Parwej)

अधीक्षण अभियंता /Superintending Engineer

16. Issues being faced during OPGW installation and Diamond creation works specially in RE Pocket / Whole Rajasthan Area (Agenda by POWERGRID)

- 16.1. POWERGRID apprised that during installation of OPGW in live line condition (under Non-Auto Mode), work permits are being denied by NRLDC, resulting delay in completion of works. Further, works in night hours specially in LIVE LINE conditions suffers a lot. Hardly 2 to 3 hours of working window was available to workers and this is also a safety concern specially in LIVE LINE works.
- 16.2. Further, POWERGRID mentioned that OPGW installations are being carried out by Power Transmission Utilities for establishment of their communication system for Grid operation purpose. At power line crossings, OPGW diamonds are being created to ensure adequate clearance and prevent line tripping at the crossings. However, now-a-days shutdowns are approved in night hours, especially in RE pockets. Poor visibility in remote areas, increases risks to manpower and complicates precise measurements of clearance with risk of potential line tripping at the time of charging or during bad weather conditions whereas in daytime work permits could address these issues, leveraging natural light for improved visibility and safety.
- 16.3. NRLDC mentioned that permit has been issued as per prevailing grid condition on daily basis.
- 16.4. MS, NRPC stated that solar hours need to be avoided and early morning and evenings may be considered for work permit.

Decision of the forum:

- Optimization of work permits should be undertaken, taking into consideration the prevailing grid conditions, to facilitate the installation of OPGW. However, solar generation hours should be avoided while scheduling the work, to minimize the impact on renewable energy generation and overall grid stability.

17. Issues being faced by NMT Team at UNMS Control Centre (Agenda by POWERGRID)

- 17.1. Representative from POWERGRID informed that U-NMS project, implemented by POWERGRID in the Northern Region through M/s Sterlite, has been in place for over a year since its commissioning. However, since then, a significant number of new equipment installation/replacements have taken place, making it challenging to track whether these nodes and devices have been updated in the U-NMS system. In this context, all constituents are requested to nominate a nodal officer to help address and resolve this issue.
- 17.2. CTUIL may take up the issue of integration of Network Equipment of IPPs and TBCB assets with respective utility.
- 17.3. DTL is requested to arrange to rectify their AC system, so that UNMS servers can be powered on.
- 17.4. PTCUL is requested to provide uninterrupted power supply (UPS) for UNMS system, so that system can be powered on and services can be utilised.
- 17.5. CTUIL informed that they will examine the case for upgradation of equipment where bandwidth is being choked specially in STM-4 routes. System generated report from UNMS system is attached where B.W. Utilization over 75%.

Source Node	Source Port	Destination Node	Destination Port	Layer Rate	B.W. Utilization (%)
Allahabad_PG	STM4-1-2-4	varanshi 765	STM4-1-7-1	STM-4	86.51
LUCKNOW400_SDH-01	STM4-1-1-1	Sohwal	STM4-1-1-5	STM-4	88.89
BAGPAT	STM4-1-2-2	Meerut01	STM4-1-111-1	STM-4	80.95
Saharanpur	STM4-1-3-1	Dehradun PG	STM4-1-1-1	STM-4	77.78
Patiala_PG	STM4-1-2-3	SLDC_CHD.	STM4-1-111-1	STM-4	88.89
Bhiwani	STM4-1-2-2	Bhiwani 2	STM4-1-3-1	STM-4	82.94
SLDC_Panipat	STM4-1-3-5	BBMB_DADRI_HR	STM4-1-2-3	STM-4	77.38
SHAHJAHANPUR	STM4-1-3-1	LUCKNOW400_SDH-01	STM4-1-3-5	STM-4	85.71
Gagal	STM4-1-3-1	HAMIRPUR 2	STM4-1-3-1	STM-4	87.7
Ludhiana_PG	STM4-1-1-1	PG_MALERKOTLA	STM4-1-2-1	STM-4	80.95
Jalandahr-PG	STM4-1-1-5	Rep Jalandhar	STM4-1-2-2	STM-4	85.71
Jalandahr-PG	STM4-1-3-1	HAMIRPUR PG	STM4-1-3-1	STM-4	78.97
HAMIRPUR 2	STM4-1-2-3	HAMIRPUR PG	STM4-1-2-3	STM-4	80.16
Ballabgharh02	STM16-1-2-1	Tuglakabad 400	STM16-1-2-1	STM-16	82.84

Decision of the forum:

- MS, NRPC mentioned that UNMS system has been implemented after the approval of all stakeholders considering the benefits that this scheme provides, therefore all states may provide necessary infra in their respective scope to efficiently operate the UNMS.
- All constituents to nominate a nodal officer to help track whether all nodes and devices have been updated in the U-NMS system and resolve the issues.

18. SDH equipment of FIBCOM make installed under Package-IV(a) & IV(c) at different locations in Himachal Pradesh are maloperating during transmission of real-time data. (Agenda by HPSEBL)

- 18.1. HPSEB apprised that SDH equipment of FIBCOM make installed under Package-IV(a) & IV(c) at different locations in Himachal Pradesh are maloperating during transmission of real-time data. The issue has already been taken up time and again with the FIBCOM Engineer posted at Shimla, however, the issues always remain unresolved.
- 18.2. POWERGRID stated that the issue appears to be related to earthing; however, the reason it is occurring specifically in FIBCOM equipment requires further analysis. It was suggested that a third-party assessment may be conducted to analyze the earthing issue.
- 18.3. MS, NRPC stated that POWERGRID should take up the issue with the vendor.

Decision of the forum:

- POWERGRID to resolve the issue at the earliest.



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

Dated: 28th August, 2025

सेवा में/ To,

संलग्न सूची के अनुसार/ As per list attached

विषय: दूरसंचार, स्काडा और टेलीमेटरी उपसमिति की 28 वीं बैठक।

Subject: 28th meeting of Telecommunication, SCADA & Telemetry Sub Committee-reg.

उत्तर क्षेत्रीय विद्युत समिति की दूरसंचार, स्काडा और टेलीमेटरी (टेस्ट) उप-समिति की 28 वीं बैठक दिनांक 23.07.2025 को 11:00 बजे **सम्मेलन कक्ष, एन.आर.पी.सी, नई दिल्ली** में आयोजित की गई। बैठक में कार्यवृत्त इस पत्र के साथ संलग्न है। यह उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट ([Northern Regional Power Committee](#)) पर भी उपलब्ध हैं।

28th meeting of Telecommunication, SCADA & Telemetry (TeST) Sub-committee of NRPC was held on 23.07.2025 at 11:00 am in conference room, NRPC, New Delhi. Minutes of the meeting are enclosed herewith. The same are available on NRPC website at [Northern Regional Power Committee](#).

भवदीय

Signed by Anzum Parwej

Date: 28-08-2025 16:28:18

(अंजुम परवेज)/ (Anzum Parwej)

अधीक्षण अभियंता /Superintending Engineer

AA11 Issues being faced by NMT Team at UNMS Control Centre (Agenda by POWERGRID)

AA.11.1 Subject agenda raised by UNMS team during 27th TeST meeting regarding integration of balance Network Elements (15-20%) and challenges to get the updated / current data or status of NEs pending for integration with UNMS, due to inadequate support from States/IPPs/ISTS. Accordingly, during 27th TeST, it was deliberated for nomination of nodal officers from all the constituents to help, coordinate and resolve the issue.

AA.11.2 Representative from POWERGRID / UNMS team again mentioned regarding the inadequate support and requested all States/IPPs/ISTS licensees to share details of nodal officers for day-to-day coordination and integration. Further, requested for escalation matrix for ISTS nodes for intimation and resolution of outage issues.

AA.11.3 NMT team has also raised issues w.r.t upgradation of software version of existing ECI NMS / Nodes (at DTL) due to lack spares, power supply issue at Kashipur, PTCUL and integration of JKPTCL communication system.

AA.11.4 Representatives of DTL & JKPTCL were not present in the meeting and representative of PTCUL mentioned for arrangement of uninterrupted power supply within 03 months for UNMS system at Kashipur.

AA.11.5 CTUIL informed that they are examining the case for upgradation of equipment where bandwidth is being choked specially in STM-4 routes. System generated report from UNMS system is attached where B.W. utilization over 75%.

Sr. No.	Source Node	Source Port	Destination Node	Destination Port	Layer Rate	Utilization (%)
1	Sohawal	STM4-1-2-3	Ballia_400	STM4-1-4-3	STM-4	92.06
2	PG_KURUKSHETRA	STM4-1-3-1	Abdullapur PG	STM4-1-3-1	STM-4	90.08
3	Ballabgarh03	STM16-1-4-3	BHIWADI_SDH-02	STM16-1-2-3	STM-16	92.26
4	KOTPUTLI	STM16-1-2-3	BHIWADI_SDH-02	STM16-1-2-4	STM-16	78.97
5	BAREILLY	XS A:SAMQ o Port 2	SHAHJAHANPUR	XS B:SAMQ oPort 2	STM-4	99.6
6	Jalandhar-PG	STM4-1-2-3	Ludhiana_PG	STM4-1-3-1	STM-4	94.84
7	Kunihar LDC_HP	STM4-1-1-1	Gagal	STM4-1-2-3	STM-4	75
8	Abdullapur PG	STM4-1-1-1	Dehradun PG	STM4-1-3-1	STM-4	90.87
9	BAREILLY_400	STM4-1-1-1	SHAHJAHANPUR	STM4-1-1-1	STM-4	96.03

- **Decision of the forum:**

All constituents are again requested to nominate nodal officer for day-to-day operational activities, integration of all nodes (pending / upcoming) with UNMS and providing escalation matrix for intimation and resolution of outage issues.

AA12 Frequent 48V DC Power Supply issues at State Nodes (Agenda by POWERGRID)

AA.12.1 Representative from POWERGRID informed regarding the integrated nature of ULDC communication network involving Centre Sector as well as State Constituent's transmission lines/sub-stations and challenges in maintaining the communication network

Nodes for which bandwidth congestion discussed in 27th TeST meeting

Sl. No.	Source Node	Source Port	Destination Node	Destination Port	Layer Rate	B.W. Utilization (%)	CTUIL Remarks BW Utilization (%)
1	Allahabad_PG	STM4-1-2-4	VARANASI_765	STM4-1-7-1	STM-4	86.51	87.3
2	LUCKNOW400_SDH-01	STM4-1-1-1	Sohwal	STM4-1-1-5	STM-4	88.89	90.87
3	BAGPAT	STM4-1-2-2	Meerut01	STM4-1-111-1	STM-4	80.95	69.44
4	Saharanpur	STM4-1-3-1	Dehradun PG	STM4-1-1-1	STM-4	77.78	80.16
5	Patiala_PG	STM4-1-2-3	SLDC_CHD.	STM4-1-111-1	STM-4	88.89	96.03
6	Bhiwani	STM4-1-2-2	Bhiwani 2	STM4-1-3-1	STM-4	82.94	55.16
7	SLDC_Panipat	STM4-1-3-5	BBMB_DADRI_HR	STM4-1-2-3	STM-4	77.38	66.67
8	SHAHJAHANPUR	STM4-1-3-1	LUCKNOW400_SDH-01	STM4-1-3-5	STM-4	85.71	91.27
9	Gagal	STM4-1-3-1	HAMIRPUR 2	STM4-1-3-1	STM-4	87.7	95.24
10	Ludhiana_PG	STM4-1-1-1	MALERKOTLA_PG	STM4-1-2-1	STM-4	80.95	81.75
11	Jalandahr-PG	STM4-1-1-5	Rep Jalandhar	STM4-1-2-2	STM-4	85.71	84.92
12	Jalandahr-PG	STM4-1-3-1	HAMIRPUR PG	STM4-1-3-1	STM-4	78.97	84.92
13	HAMIRPUR 2	STM4-1-2-3	HAMIRPUR PG	STM4-1-2-3	STM-4	80.16	82.14
14	Ballabgharh02	STM16-1-2-1	Tuglakabad 400	STM16-1-2-1	STM-16	82.84	87.1

Nodes for which bandwidth congestion discussed in 28th TeST meeting

Sl. No.	Source Node	Source Port	Destination Node	Destination Port	Layer Rate	B.W. Utilization (%)	CTUIL Remarks BW Utilization (%)
15	Sohwal	STM4-1-2-3	Ballia_400	STM4-1-4-3	STM-4	92.06	94.05
16	PG_KURUKSHETRA	STM4-1-3-1	Abdullapur PG	STM4-1-3-1	STM-4	90.08	91.67
17	Ballabgharh03	STM16-1-4-3	BHIWADI_SDH-02	STM16-1-2-3	STM-16	92.26	95.04
18	KOTPUTLI	STM16-1-2-3	BHIWADI_SDH-02	STM16-1-2-4	STM-16	78.97	76.79
19	BAREILLY	XS A:SAMQ oPort 2	SHAHJAHANPUR	XS B:SAMQ oPort 2	STM-4	99.6	99.6
20	Jalandahr-PG	STM4-1-2-3	Ludhiana_PG	STM4-1-3-1	STM-4	94.84	95.63
21	Kunihar LDC_HP	STM4-1-1-1	Gagal	STM4-1-2-3	STM-4	75	79.76
22	Abdullapur PG	STM4-1-1-1	Dehradun PG	STM4-1-3-1	STM-4	90.87	91.67
23	BAREILLY_400	STM4-1-1-1	SHAHJAHANPUR	STM4-1-1-1	STM-4	96.03	96.43

ANNEXURE-XI

Nodes for which bandwidth congestion discussed in 27th TeST meeting																
Sr.No.	Source Node	Source Port	FOTE Requirement at Source node	Destination Node	Destination Port	FOTE requirement at Destination Node	Layer Rate	Distance (Km)	B.W.Utilization (%)	Ctull Remarks BW Utilization(%)	Proposed FOTE capacity	Quantity Required	Estimated Unit Cost Per SDH Equipment(Lakh)	Estimated Cost(Lakh)	Remark	
1	Allahabad_PG	STM4-1-2-4	0	Varanasi_765	STM4-1-7-1	0	STM-4	99	86.51	87.3	STM-64	0	74	0	catering interregional data transfer	
2	LUCKNOW400_S DH-01	STM4-1-1-1	0	Sohwal	STM4-1-1-5	1	STM-4	98	88.89	90.87	STM-16	1	62	62		
3	BAGPAT	STM4-1-2-2	0	Meerut01	STM4-1-111-1	1	STM-4	71	80.95	69.44	STM-16	1	62	62		
4	Saharanpur	STM4-1-3-1	0	Dehradun PG	STM4-1-1-1	0	STM-4		77.78	80.16	STM-16	0	62	0	One FOTE approve din 33rd NCT at Saharanpur PG	
5	Patiala PG	STM4-1-2-3	0	SLDC_CHD.	STM4-1-111-1	0	STM-4		88.89	96.03	STM-16	0	62	0	One FOTE approve din 19th NCT at SLDC BBMB (Chandigarh)	
6	Bhiwani	STM4-1-2-2	0	Bhiwani 2	STM4-1-3-1	1	STM-4		82.94	55.16	STM-16	1	62	62		
7	SLDC_Panipat	STM4-1-3-5	0	BBMB_DADRI_HR	STM4-1-2-3	1	STM-4		77.38	66.67	STM-16	1	62	62	One FOTE approve din 19th NCT at SLDC Panipat	
8	SHAHJAHANPUR	STM4-1-3-1	1	LUCKNOW400_SD H-01	STM4-1-3-5	0	STM-4	170	85.71	91.27	STM-16	1	62	62	Already considered at Sr No 2	
9	Gagal	STM4-1-3-1	1	HAMIRPUR 2	STM4-1-3-1	1	STM-4		87.7	95.24	STM-16	2	62	124		
10	Ludhiana_PG	STM4-1-1-1	0	MALERKOTLA_PG	STM4-1-2-1	0	STM-4	36	80.95	81.75	STM-16	0	62	0	One FOTE approve din 19th NCT at Malerkotla PG	
11	Jalandhar-PG	STM4-1-1-5	0	Rep Jalandhar	STM4-1-2-2	1	STM-4		85.71	84.92	STM-16	1	62	62	One FOTE approve din 11th NCT at Jalandhar PG	
12	Jalandhar-PG	STM4-1-3-1	0	HAMIRPUR PG	STM4-1-3-1	1	STM-4	135	78.97	84.92	STM-16	1	62	62	One FOTE approve din 11th NCT at Jalandhar PG	
13	HAMIRPUR 2	STM4-1-2-3	0	HAMIRPUR PG	STM4-1-2-3	0	STM-4		80.16	82.14	STM-16	0	62	0	Already considered at Sr No 12	
14	Ballabgarh02	STM16-1-2-1	0	Tuglakabad 400	STM16-1-2-1	1	STM-16	40	82.84	87.1	STM-64	1	74	74	One FOTE approve din 16th NCT at Ballabgarh proximity to NRLDC	
Nodes for which bandwidth congestion discussed in 28th TeST meeting																
Sr.No.	Source Node	Source Port	FOTE at Source node	Destination Node	Destination Port	FOTE at destination Node	Layer Rate	Distance (Km)	B.W.Utilization (%)	Ctull Remarks BW Utilization(%)	Proposed FOTE capacity	Quantity Required	Estimated Unit Cost Per SDH Equipment(Lakh)	Estimated Cost(Lakh)	Remark	
15	Sohwal	STM4-1-2-3	0	Ballia_400	STM4-1-4-3	0	STM-4	229	92.06	94.05	STM-16	0	62	0		
16	PG_KURUKSHETRA	STM4-1-3-1	0	Abdullapur PG	STM4-1-3-1	1	STM-4	52	90.08	91.67	STM-16	1	62	62	One FOTE approve din 19th NCT at Kurukshetra PG	
17	Ballabgarh03	STM16-1-4-3	0	BHIWADI_SDH-02	STM16-1-2-3	0	STM-16		92.26	95.04	STM-64	0	74	0	One FOTE approve din 16th NCT at Ballabgarh	
18	KOTPUTLI	STM16-1-2-3	1	BHIWADI_SDH-02	STM16-1-2-4	0	STM-16	132	78.97	76.79	STM-64	1	74	74	Already considered at Sr No 17	
19	BAREILLY	XS A:SAMQ oPort 2	0	SHAHJAHANPUR	XS B:SAMQ oPort 2	0	STM-4	116	99.6	99.6	STM-16	0	62	0	Already considered in Sr.no.8	
20	Jalandhar-PG	STM4-1-2-3	0	Ludhiana_PG	STM4-1-3-1	0	STM-4	85	94.84	95.63	STM-16	0	62	0	One FOTE approve din 11th NCT at Jalandhar PG. Already considered in Sr.no. 10	
21	Kunihar LDC HP	STM4-1-1-1	1	Gagal	STM4-1-2-3	0	STM-4		75	79.76	STM-16	1	62	62	Already considered in sr.no.9	
22	Abdullapur PG	STM4-1-1-1	0	Dehradun PG	STM4-1-3-1	0	STM-4	89	90.87	91.67	STM-16	0	62	0	Already considered in sr.no.16 & 4	
23	BAREILLY_400	STM4-1-1-1	0	SHAHJAHANPUR	STM4-1-1-1	0	STM-4	116	96.03	96.43	STM-16	0	62	0	Already considered in sr.no.8	
		Considered in Comprehensive scheme		Considered in FOTE scheme		Considered in other schemes		To be reviewed in upcoming interregional scheme								Total FOTE: 13 (2 No. STM-64 and 1 No. of STM-16)
													Total Estimated Cost(lakhs)	830		