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

दिनांक: 12 मार्च, 2025

सेवा में / To,

उ.क्षे.वि.स. एवं टीसीसी के सभी सदस्य एवं विशेष आमंत्रित (संलग्न सूचीनुसार)
Members of NRPC & TCC & Special Invitees (As per List)

विषय: 53 वीं तकनीकी समन्वय समिति (टीसीसी) और 78 वीं उत्तरी क्षेत्रीय विद्युत समिति (एनआरपीसी) बैठक की अतिरिक्त कार्यसूची।

Subject: Additional agenda for 53rd Technical Co-ordination Committee (TCC) & 78th Northern Regional Power Committee (NRPC) -reg.

महोदय / महोदया,

उत्तरी क्षेत्रीय विद्युत समिति (एनआरपीसी) की **तकनीकी समन्वय समिति (टीसीसी) की 53 वीं बैठक 16.03.2025 (सुबह 10:00 बजे) कोच्चि, केरल में होगी।** उत्तरी क्षेत्रीय विद्युत समिति (एनआरपीसी) की **78 वीं बैठक 17.03.2025 (सुबह 10:00 बजे)** को उसी स्थान पर आयोजित की जाएगी। बैठक की अतिरिक्त कार्यसूची संलग्न है । कृपया इसमें भाग लेना सुविधाजनक बनाएं या अपनी ओर से प्रत्येक बैठक में भाग लेने के लिए उपयुक्त प्रतिनिधि नियुक्त करें । बैठक की मेजबानी पावरग्रिड द्वारा की जा रही है।

The 53rd meeting of Technical Co-ordination Committee (TCC) will be held on **16.03.2025 (10:00 AM) at Kochi, Kerala.** The 78th meeting of Northern Regional Power Committee (NRPC) will be held on **17.03.2025 (10:00 AM) at same place.** Additional agenda for the above meetings is attached. Kindly make it convenient to attend the same or depute suitable representative for each meeting on your behalf. The meetings are being hosted by POWERGRID.

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भवदीय
Yours faithfully

(वी.के. सिंह)
Signed by Vijay Kumar Singh
(V.K. Singh)
Date: 12-03-2025 10:36:44

18 ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016 फोन:011-26513265 फेक्स: 011-26865206 ई-मेल: ms -nrpc@nic.in वेबसाईट: www.nrpc.gov.in
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सदस्य सचिव
Member Secretary

Copy to:
Chairperson, NRPC & MD, HPPTCL (md.tcl@hpmail.in)

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सत्यमेव जयते

उत्तर क्षेत्रीय विद्युत समिति

NORTHERN REGIONAL POWER COMMITTEE

Additional Agenda of

53rd meeting of

Technical Coordination Committee

&

78th meeting of

Northern Regional Power Committee

Date: 16-17 March 2025

Time: 10:00 AM

Venue- Kochi, Kerala

Contents

Agenda for TCC meeting

AA.1 Returning of spare 400/220 kV 315 MVA ICT provided to DTL and mechanism to devise rental charges for ICT provided on loan basis (agenda by POWERGRID)

AA.1.1 POWERGRID has submitted that 04 nos 400/220 kV 315 MVA ICTs has been provided to DTL by POWERGRID in last 05 years as per request of DTL for ensuring load management in National Capital Delhi. 03 out of 04 ICTs provided were POWERGRID assets and 01 no ICT is RPC spare to meet regional contingencies. All the ICTs provided to DTL were on non-chargeable basis in view of critical situation of maintaining uninterrupted power supply in National Capital Delhi.

AA.1.2 In additional to DTL, ICTs has been provided to other Utilities on non-chargeable basis. The present details of ICTs provided to other utilities is as below:

S. No.	ICT provided to other Utilities	Diverted from	Diverted to	Date	Status
1	BHEL Make 315 MVA 400/220 KV ICT	Ludhiana (POWERGRID)	Mundka (DTL)	Apr-23	Not returned. No schedule for returning provided
2	BHEL Make 315 MVA 400/220 KV ICT	Ludhiana (POWERGRID)	Jodhpur GSS - Surpura (RVPNL)	Nov-23	Not returned. No schedule for returning provided
3	CGL Make 315 MVA 400/220 KV ICT	Mandola (POWERGRID)	Bawana (DTL)	Jan-22	Not returned. No schedule for returning provided
4	BHEL Make 315 MVA 400/220 KV ICT	Mandola (POWERGRID)	Tikrikalan (DTL)	Feb-20	Not returned. No schedule for returning provided
5	BHEL Make 315 MVA 400/220 KV ICT	Ballabgarh (POWERGRID)	Tikrikalan (DTL)	Mar-24	Not returned. No schedule for returning provided

6	Toshiba make 500 MVA 400/220 KV ICT	Panchkula (POWERGRID)	Nakodar (PSTCL)	May-23	Expected to be returned to POWERGRID by 30th April'25

AA.1.3 Matter for returning ICTs provided to DTL has been taken up repeatedly however no firm schedule has been given by stating that ICT procurement is under progress and ICTs shall only be returned after finalisation of award and installation at sites.

AA.1.4 CAG audit of POWERGRID Northern region for FY 2022-24 has been carried out wherein non recovery of rent from DTL in respect of diversion of ICT transformer has been pointed out and compliance for the same is sought from POWERGRID. The observation of CAG audit is provided (**attached as Annexure-AA.I**)

AA.1.5 In addition to above, at present no spare 400/220 kV 315 MVA spare ICT is available in POWERGRID Northern Region-1 to meet out contingencies.

AA.1.6 Considering above situation, POWERGRID has proposed that mechanism of rental recovery for ICTs provided on non-chargeable basis to utilities may be devised at the earliest in reference to discussion held in 77th NRPC meeting (in agenda A.22). Further schedule for returning of 04 nos. ICTs may be provided by DTL in view of non-availability of spare ICT in region and CAG audit observations.

Decision required from Forum:

Forum may deliberate the mechanism of rental recovery for ICTs provided on non - chargeable basis to utilities & direct DTL to provide firm returning schedule of 04 nos. ICTs to POWERGRID.

AA.2 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 (RVPN) (agenda by CTUIL)

AA.2.1 In the 36th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 15.01.2025 (MoM attached at **Annexure-AA.II)** transmission scheme "*LILO of one circuit of 400kV Sikar – Agra D/c (Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher*

end of Sikar – Kumher 400 kV section" was deliberated. In the scheme LILO of existing 400 kV Sikar-Agra D/c line is proposed at 400 kV GSS Kumher (RVPN).

AA.2.2 As per the inputs received from POWERGRID, OPGW is not available on 400 kV Sikar-Agra D/c line.

AA.2.3 To meet data, voice & protection requirements between Agra, Sikar & Kumher Substations, OPGW needs to be installed over the 400 kV Sikar-Agra D/c line (**386 Km**) which is proposed to be LILOed at 400 kV GSS Kumher (RVPN). Further as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, "The primary path for tele-protection shall be on point-to-point Optical Ground Wire".

AA.2.4 Subsequently CEA PCD division vide letter Ref. CEA-PS-17-24/1/2024-PCD Division dtd. 22.11.2024 informed that in line with letter addressed to MoP from DoT, Ministry of Communication CTU, POWERGRID, STUs and all TSPs are requested to incorporate at least 48 Fiber OPGW in place of 24 Fiber in all upcoming schemes for utilization of additional fibers for Telecom licensees on leasing basis. (Letter attached at **Annexure-AA.III**) based on this 48 Fiber OPGW has been proposed for this scheme.

AA.2.5 This scheme is to be taken up in NRPC Meeting along with transmission scheme of RVPNL "*LILO of one circuit of 400kV Sikar – Agra D/c (Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section*" in matching timeframe. Scheme attached as **Appendix-I.**

AA.2.6 Scope of the scheme includes Supply and Installation of 48 Fiber OPGW on existing 400 kV Sikar (PG) – Agra (PG) D/c line (owned by PG) **(386 Km)** including Repeater which is proposed to be LILOed at 400 kV GSS Kumher (RVPN) including FOTE at Sikar S/s (PG) & Agra S/s (PG).

AA.2.7 The estimated cost of the scheme is approx. **Rs. 26.49 Crs.** The Implementation time frame is **30 months from date of allocation** with best effort to match time frame with transmission scheme of "*LILO of one circuit of 400kV Sikar – Agra D/c*

(Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section".

AA.2.8 After Review in NRPC, the Scheme shall be put up in NCT for approval in RTM mode to POWERGRID.

Decision required from Forum:

Forum may discuss and approve the above the scheme accordingly.

AA.3 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) (agenda by CTUIL)

AA.3.1 In the 36th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 15.01.2025 (MoM attached at **Annexure-AA.II**) transmission scheme "*LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun(Chittorgarh)*" was deliberated. In the scheme LILO of both circuits of 220 kV D/c Chittorgarh-RAPP-B lines has been proposed for creation of 220 kV GSS Begun (Chittorgarh).

AA.3.2 As per the inputs received from POWERGRID, OPGW is not available on 220 kV Chittorgarh-RAPP B D/c Line.

AA.3.3 To meet data, voice & protection requirements between Chittorgarh, RAPP-B & Begun Substations, OPGW needs to be installed over the 220 kV Chittorgarh-RAPP B D/c Line **(130 Km)** which is proposed to be LILOed at 220 kV GSS Begun (Chittorgarh). Further as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, "The primary path for tele-protection shall be on point-to-point Optical Ground Wire".

AA.3.4 Subsequently CEA PCD division vide letter Ref. CEA-PS-17-24/1/2024-PCD Division dtd. 22.11.2024 informed that in line with letter addressed to MoP from DoT, Ministry of Communication CTU, POWERGRID, STUs and all TSPs are requested to incorporate at least 48 Fiber OPGW in place of 24 Fiber in all upcoming schemes for utilization of additional fibers for Telecom licensees on leasing basis. (Letter

attached at **Annexure-AA.III**) based on this 48 Fiber OPGW has been proposed for this scheme.

AA.3.5 This scheme shall be taken up in NRPC Meeting alongwith transmission scheme of RVPNL "*LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun (Chittorgarh)*" in matching timeframe. Scheme attached as **Appendix-II.**

AA.3.6 The estimated cost of the scheme is approx. **Rs. 8.55 Crs.** The Implementation time frame is **24 months from date of allocation** with best effort to match time frame with transmission scheme of "*LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun (Chittorgarh)*".

AA.3.7 After Review in NRPC, the Scheme shall be put up in NCT for approval in RTM mode to POWERGRID.

Decision required from Forum:

Forum may deliberate and approve the above scheme accordingly.

AA.4 Redundant communication for Saharanpur (PG) S/s (agenda by CTUIL)

AA.4.1 Presently Saharanpur S/s (PG) is connected with ISTS network on radial and no redundant path is available.

AA.4.2 Redundant communication for Saharanpur S/s was deliberated in 2nd, 3rd & 4th CPM held on dtd 25.07.2022, 17.02.2023 & 25.07.2023 respectively. Later, this agenda was discussed in 23rd TeST Meeting, where it was decided that redundant communication for Saharanpur can be provided by sharing 3 pairs of fiber on the following UPPTCL links:

1. Sahararnpur (PG)- Deoband (UP)
2. Deoband (UP)- Saharanpur (UP)
3. Saharanpur (UP) -Nanauta (UP)
4. Nanauta (UP)-Shamli (UP)

5. Shamli (UP) -Muradnagar (UP)

AA.4.3 In the 23rd TeST Meeting, NRPC suggested CTU to write a letter to UPPTCL for consent on fiber sharing on the above links, thereafter CTU has written a letter dtd 02.11.2023 to UPPTCL. (Letter attached at **Annexure-AA.IV**)

AA.4.4 In the 24th TeST meeting held on 09.02.2024 this matter was again deliberated, and it was decided that two nos. of FOTE shall be required at Shamli and Muradnagar alongwith Fiber sharing on UPPTCL links.

AA.4.5 This agenda was also deliberated in the 72nd NRPC held on 29-30 March'24 where forum suggested that matter may be brough after formulation of fiber sharing policy by CEA for which a committee is formed.

AA.4.6 In the 26th TeST Meeting of NRPC held on 19.11.2024, NRLDC put up this agenda again for deliberation. POWERGRID informed that redundant communication of Saharanpur S/s can be made by installing OPGW on the second peak of 400kV Saharanpur- Roorkee/Baghpat line. i.e., OPGW shall be laid from Saharanpur Gantry to LILO point (Tower no. 59) of 400kV Roorkee/Baghpat line. Total 15.8 Kms of OPGW shall be laid along with one (01) STM16 communication equipment at Saharanpur S/S, Forum agreed for the same.

AA.4.7 For the formation of final scheme, CTU requested POWERGRID to provide complete connectivity details with schematic diagram so that scheme can be put up in the upcoming NRPC meeting for review. POWERGRID vide mail dtd. 28.02.2025 has provided their input regarding redundant connectivity of Saharanpur S/s (PG). Based on the input received and deliberations of the 26th TeST Meeting, scheme has been prepared by CTU which is attached as **Appendix-III.**

AA.4.8 Scope of the scheme includes supply & installation of 48F OPGW (**15.8 Km**) from Saharanpur Gantry to LILO point (Tower no. 59) of 400kV Roorkee/Baghpat line along with one (01) STM16 communication equipment at Saharanpur S/s.

AA.4.9 The estimated cost of the scheme is approx. **Rs. 1.33 Crs.** The Implementation time frame is **24 months from date of allocation.**

AA.4.10 After Review in NRPC, the Scheme shall be put up in NCT for approval in RTM mode to POWERGRID.

AA.4.11 Further CTUIL has mentioned that "***Comprehensive Guidelines for the Usage and Sharing of Fiber Cores of Optical Ground Wire (OPGW) and Underground Fiber Optic (UGFO) Cables for Power System Applications" are published by CEA vide letter dtd. 03.03.2025*** **(**Attached as **Annexure-AA.V).** UPPTCL may now share the fiber infrastructure which shall obviate the said scheme.

Decision required from Forum:

Forum may discuss.

AA.5 Redundant communication for Manesar (PG) S/s (agenda by CTUIL)

AA.5.1 This agenda was deliberated in 67th NRPC held on 30.06.2023 and later on sent for deliberation in 15th NCT Meeting by CTU but due to some observations of CEA PCD, agenda could not be deliberated in the NCT Meeting.

AA.5.2 In the 8th NR CPM held on 03.02.2025, POWERGRID asked CTU regarding the agenda for redundant communication of Manesar (PG) S/s. CTU asked POWERGRID to provide the revised agenda so that it can be reviewed in the upcoming NRPC. CTUIL also stated that this agenda needs to put in NRPC along with the recommendation of CEA-PCD first. POWERGRID informed CTU that Issue of Manesar redundancy has been briefed to PCD and NRPC by POWERGRID, and consent will be shared before NRPC meeting as per agenda of CTU/POWERGRID.

AA.5.3 POWERGRID vide mail dtd 28.02.2025 has provided their input regarding redundant connectivity of Manesar S/s (PG) which are mentioned below:

AA.5.4 Existing fiber connectivity for Manesar s/s:

a. Manesar – Sohna – *Gurgaon – Ballabhgarh* - - - up to NRLDC
b. Manesar – Neemrana – *Bhiwadi – Ballabhgarh* - - - up to NRLDC

AA.5.5 400kV D/C Manesar- Gurgaon line is LILOed at Sohna Sub-station and further proposed to be LILOed at Neemrana-II S/s under Rajasthan REZ Ph-IV (Part-B), which would be in opposite direction and would increase nos. of intermediate nodes on redundant path.

AA.5.6 Gurgaon S/s is established with LILO of 400kV S/C Ballabhgarh – Bhiwadi line, therefore OPGW of Ballabhgarh-Gurgaon & Ballabhgarh - Bhiwadi link are running on common towers on route of approximately 12kms of from Ballabhgarh gantry to Tower No-30.

AA.5.7 Recently in a tower sabotage case on 400kV S/C Ballabhgarh – Gurgaon line, OPGW of Ballabhgarh to Bhiwadi as well as that of Ballabgarh to Gurgaon link got damaged simultaneously because of common tower / route, which led to disruption of connectivity to Manesar and at the same time in-bound data from Rajasthan including the Solar pocket also got affected.

AA.5.8 It is also pertinent to mention that all the PMUs of POWERGRID are reporting at NTAMC Manesar and NTAMC WAMS system is connected with main NLDC as well as back-up NLDC, in case any of the RLDCs' WAMS system get down then NTAMC system would work as a back-up control centre for NLDC.

AA.5.9 In view of the above, redundant communication path for Manesar is very much required. Accordingly, an additional link may be created by laying OPGW on the following two nos. of POWERGRID lines to reach up to NRLDC/NLDC from Manesar.

a. 400kV Neemrana – Manesar line (on 2nd E/W peak) (from the crossing point of Neemrana – Manesar & Agra- Jhatikara line up to Manesar S/s (5 kms.)
b. 765kV Agra-Jhatikara line (from the crossing point of Neemrana – Manesar & Agra-Jhatikara line up to Jhatikara S/s (30 kms).

AA.5.10 Based on the inputs received from POWERGRID, CTU has prepared a scheme which is attached as **Appendix-IV.**

AA.5.11 Scope of the scheme includes supply and installation of OPGW 48F (35 Km) including SFPs from:

a. 400kV Neemrana – Manesar line (on 2nd E/W peak) (from the crossing point of Neemrana – Manesar & Agra- Jhatikara line up to Manesar S/s (**5 kms**.)
b. 765kV Agra-Jhatikara line (from the crossing point of Neemrana – Manesar & Agra-Jhatikara line up to Jhatikara S/s (**30 kms**).

(Figure attached as **Appendix -V**)

AA.5.12 The estimated cost of the scheme is approx. **Rs. 2.30 Crs**. The Implementation time frame is **24 months from date of allocation.**

AA.5.13 After Review in NRPC, the Scheme shall be put up in NCT for approval in RTM mode to POWERGRID.

Decision required from Forum:

Forum may deliberate.

AA.6 Replacement of Coriant make FOTE at Alstung, Drass, Kargil, Khalsti, Leh S/s (agenda by CTUIL)

AA.6.1 In the 26th TeST Meeting of NRPC, POWERGRID informed that six nos. of Coriant make FOTE installed at Alstung, Drass, Kargil, Khalsti, Leh & Kala-amb sub-stations. These sub-stations were originally under the ownership of J&K, later handed over to POWERGRID by the Ministry of Power (MoP). The cost recovery for these sub-stations is being handled under the RTM mode.

AA.6.2 POWERGRID informed that the useful life of the FOTE equipment has nearly been completed, as per CERC's new tariff regulations (2024–29), which specify a lifespan of 7 years for these assets.

AA.6.3 Due to difficulties in obtaining AMC services and spares for these aging equipment, replacement of these FOTE has become essential.

AA.6.4 Following was concluded in the 26th TeST Meeting:

a. POWERGRID will provide CTUIL with detailed information on the RTM declaration, commissioning dates, and cost estimates for replacing the FOTE equipment.
b. POWERGRID was advised to file a petition with CERC to seek approval for a revised tariff for the sub-stations under RTM mode, considering the completion of the FOTE's useful life.
c. Replacement of FOTE at Kala-Amb sub-station cannot be included under the useful life clause, as the sub-station falls under the TBCB mode.

AA.6.5 This agenda was further discussed in the 8th NR CPM held on 03.02.2025 where *POWERGRID stated the equipment commissioning date is March 2019 and the commissioning date for S/s is 31.01.2019. POWERGRID also shared their concerns about difficulties in obtaining AMC services and spares for Coriant make FOTE equipment*.

AA.6.6 POWERGRID to confirm about the CERC petition for revised tariff. Further, CTU requested POWERGRID to provide the details as deliberated in 26th TeST Meeting so that scheme can be prepared for the replacement of these Coriant make equipment.

AA.6.7 POWERGRID vide mail dtd. 04.03.2025 & 06.03.2025 provided following inputs:

a. Date of Commissioning: 11th Jan 2019 (Letter attached as **Annexure-AA.VI**)
b. RTM Declaration of the Asset: 31st Oct 2019 (Letter attached as **Annexure-AA.VII**)
c. Cost for supply and installation of STM-16 FOTE (5 No.): Rs 1.5 Crore

AA.6.8 Based on the inputs received from POWERGRID, CTU has prepared a scheme and is attached as **Appendix-VI.**

AA.6.9 Scope of the scheme includes supply and installation of STM-16 FOTE (5 No.) One no. each at the following location:

S. No.	Station	Date of Commissioning	No. of FOTE
1	Alstung S/s	Jan 2019	1
2	Drass S/s	Jan 2019	1
3	Kargil S/s	Jan 2019	1
4	Khalasti S/s	Jan 2019	1
5	Leh S/s	Jan 2019	1
Total FOTE Required			5

AA.6.10 The estimated cost of the scheme is approx. **Rs. 1.5 Crs.** The Implementation time frame is **12 months from date of allocation.**

AA.6.11 After Review in NRPC, the Scheme shall be put up in NCT for approval in RTM mode to POWERGRID.

Decision required from Forum:

Members may discuss

AA.7 Fiber sharing on STU Links for redundant communication to ISTS Nodes (agenda by CTUIL)

AA.7.1 This agenda was discussed in the 23rd NRPC TeST Meeting where CTU was suggested to write letter to PTCUL, HPPTCL, JKPTCL & UPPTCL to get consent on 3 pairs of fiber sharing on STU fiber network to provide redundant communication to following STU nodes:

Narora (NPCIL), Saharanpur (PG), Pithoragarh (PG), Sitarganj (PG), Chamera-III (PG), Budhil (GreenCo), Alusteng (PG), Drass (PG), Kargil (PG), Khalasti (PG), Leh (PG)"

AA.7.2 Letters written by CTU to PTCUL, HPPTCL, JKPTCL & UPPTCL are attached at **Annexure-AA.VIII.**

AA.7.3 Further this agenda was deliberated in the 72nd NRPC held on 29-30 March'24 where forum suggested that matter may be brough after formulation of fiber sharing policy by CEA.

AA.7.4 It is to mention that "**Comprehensive Guidelines for the Usage and Sharing of Fiber Cores of Optical Ground Wire (OPGW) and Underground Fiber Optic (UGFO) Cables for Power System Applications" are published by CEA vide letter dtd. 03.03.2025** (attached as **Annexure-AA.V**).

AA.7.5 State utility wise link details where fibre sharing is required are given below:

UPPTCL:

A. Links/Paths where fibre Sharing is required for NAPP (NPCIL):

1. Simbhavali (UP) - Shatabdi Nagar (UP)
2. Shatabdi Nagar (UP) - Modipuram (UP)-having ISTS FOTE

B. Links/Paths where fibre Sharing is required for Saharanpur (PG):

1. Sahararnpur (PG)- Deoband (UP)
2. Deoband (UP)- Saharanpur (UP)
3. Saharanpur (UP) -Nanauta (UP)
4. Nanauta (UP)-Shamli (UP)
5. Shamli (UP) -Muradnagar (UP)-having ISTS FOTE

PTCUL:

A. Links/Paths where fibre Sharing is required for Pithoragarh (PG):

1. Pithoragarh (PG) – Pithoragarh (PTCUL)
2. Pithoragarh (PTCUL) – Almora (PTCUL)
3. Almora (PTCUL) -Bhawoli (PTCUL)
4. Bhawoli (PTCUL) -Haldwani (PTCUL)
5. Haldwani (220kV) (PTCUL) Kamalwaganj (PTCUL)
6. 220kV Kamalwaganj (PTCUL) - Pantnagar (PTCUL)
7. Pantnagar (400kV) (PTCUL) Kashipur (PTCUL)

B. Links/Paths where fibre Sharing is required for Sitarganj (PG):

1. Sitarganj(PG) - Sitarganj(PTCUL)
2. Sitarganj(PTCUL) - Kiccha(PTCUL)

3. Kiccha(PTCUL) - Rudrapur(PTCUL)
4. Rudrapur (PTCUL) - Pantnagar (PTCUL)
5. Pantnagar (PTCUL) – Kashipur (PTCUL)

JKPTCL:

Links/Paths where fibre Sharing is required for Alusteng(PG), Drass(PG), Kargil(PG), Khalasti(PG), Leh(PG):

1. Alusteng (PG) - Zainakote (JKPTCL)
2. Zainakote (JKPTCL) - Wagoora (PG)

Decision required from Forum:

Members may deliberate.

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NRPC Members for FY 2024-25

S. No.	NRPC Member	Category	Nominated/ Notified/Delegated Member	E-mail
1	Member (GO&D), CEA	Member (Grid Operation & Distribution), Central Electricity Authority (CEA)	Member (GO&D), CEA	member.god@cea.nic.in
2	Member (PS), CEA	Nodal Agency appointed by the Government of India for coordinating cross-border power transactions	Member (PS), CEA	memberpscea@nic.in
3	CTUIL	Central Transmission Utility	Chief Operating Officer	pcgarg@powergrid.in
4	PGCIL	Central Government owned Transmission Company	Director (Operations)	tyagir@powergrid.in
5	NLDC	National Load Despatch Centre	Director (System Operation)	rk.porwal@grid-india.in
6	NRLDC	Northern Regional Load Despatch Centre	Executive Director	mkagarwal@grid-india.in
7	NTPC	Central Generating Company	Director (Finance)	jaikumar@ntpc.co.in
8	BBMB		Chairman	cman@bbmb.nic.in
9	THDC		CGM (EM-Design)	rrsemwal@thdc.co.in
10	SJVN		CMD	sectt.cmd@sjvn.nic.in
11	NHPC		Director (Technical)	rajkumar0610.rkc@gmail.com
12	NPCIL		Director (Finance)	df@npcil.co.in
13	Delhi SLDC	State Load Despatch Centre	General Manager	gmsldc@delhisldc.org
14	Haryana SLDC		Chief Engineer (SO&C)	cesocomml@hvpn.org.in
15	Rajasthan SLDC		Chief Engineer (LD)	ce.ld@rvpn.co.in
16	Uttar Pradesh SLDC		Director	directorsldc@upsldc.org
17	Uttarakhand SLDC		Chief Engineer	anupam_singh@ptcul.org
18	Punjab SLDC		Chief Engineer	ce-sldc@punjabsldc.org
19	Himachal Pradesh SLDC		Managing Director	mdhpsldc@gmail.com
20	DTL	State Transmission Utility	CMD	cmd@dtl.gov.in
21	HVPNL		Managing Director	md@hvpn.org.in
22	RRVPNL		CMD	cmd.rvpn@rvpn.co.in
23	UPPTCL		Managing Director	md@upptcl.org
24	PTCUL		Managing Director	md@ptcul.org
25	PSTCL		CMD	cmd@pstcl.org
26	HPPTCL		Managing Director	md.tcl@hpmail.in
27	IPGCL	State Generating Company	Managing Director	md.ipgpp@nic.in
28	HPGCL		Managing Director	md@hpgcl.org.in
29	RRVUNL		CMD	cmd@rrvun.com
30	UPRVUNL		Director (Technical)	director.technical@uprvunl.org
31	UJVNL		Managing Director	mdujvnl@ujvnl.com
32	HPPCL		Managing Director	md@hppcl.in
33	PSPCL	State Generating Company & State owned Distribution Company	CMD	cmd-pspcl@pspcl.in
34	UHBVN	State owned Distribution Company (alphabetical rotaional basis/nominated by state govt.)	Managing Director	md@uhbvn.org.in
35	Jodhpur Vidyut Vitran Nigam Ltd.		Managing Director	md.jdvvnl@rajasthan.gov.in
36	Paschimanchal Vidyut Vitaran Nigam Ltd.		Managing Director	md@pvvnl.org
37	UPCL		Managing Director	md@upcl.org
38	HPSEB		Managing Director	md@hpseb.in
39	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Head (Commercial & Regulatory)	sanjay.bhargava@tatapower.com
40	Aravali Power Company Pvt. Ltd		CEO	brahmajig@ntpc.co.in
41	Apraava Energy Private Limited		CEO	niraj.gupta@apraava.com
42	Talwandi Sabo Power Ltd.		COO	Vibhav.Agarwal@vedanta.co.in
43	Nabha Power Limited		CEO	sk.narang@larsentoubro.com
44	MEIL Anpara Energy Ltd		COO & WTD, Executive Director	anandkumar.singh@meilanparapower.com arun.tholia@meilanparapower.com
45	Rosa Power Supply Company Ltd		Station Director	Hirday.tomar@relianceada.com
46	Lalitpur Power Generation Company Ltd		Managing Director	vksbankoti@bajajenergy.com
47	MEJA Urja Nigam Ltd.		CEO	hopmeja@ntpc.co.in
48	Adani Power Rajasthan Limited		Head, Thermal, O&M	Kanti.Biswas@adani.com
49	JSW Energy Ltd. (KWHEP)		Head Regulatory & Power Sales	jyotiprakash.panda@jsw.in
50	TATA POWER RENEWABLE	IPP having less than 1000 MW installed capacity (alphabetical rotaional basis)	Zonal Head	dhmahabale@tatapower.com
51	UT of J&K	From each of the Union Territories in the region, a representative nominated by the administration of the Union Territory concerned out of the entities engaged in generation/ transmission/ distribution of electricity in the Union Territory.	Chief Engineer, JKSPDCL/JKPDD	cejkpcl2@gmail.com/sojpdd@gmail.com
52	UT of Ladakh		Chief Engineer, LPDD	cepdladakh@gmail.com
53	UT of Chandigarh		Executive Engineer, EWEDC	elop2-chd@nic.in
54	NPCL	Private Distribution Company in region (alphabetical rotaional basis)	Head-Commercial	ssrivastava@noidapower.com
55	Fatehgarh Bhadla Transmission Limited	Private transmission licensee (nominated by cetral govt.)	AVP-O&M	nitesh.ranjan@adani.com
56	NTPC Vidyut Vyapar Nigam Ltd.	Electricity Trader (nominated by central govt.)	CEO	ceonvvn@ntpc.co.in
57	ReNew Power Private Limited	RE Generating Company having more than 1000 MW installed capacity	CEO	sumant@renew.com
58	NTPC Green Energy Limited		CEO	rajivgupta@ntpc.co.in
59	Azure Power India Pvt. Limited		CEO	sunil.gupta@azurepower.com
60	Avaada Energy Private Limited		CEO	kishor.nair@avaada.com
61	Adani Green Energy Limited		COO	chaitanya.sahoo@adani.com

List of addressee (via mail)

TCC Members for FY 2024-25

S. No.	TCC Member	Category	Nominated/ Notified/Delegated Member	E-mail
1	Director (Operation), HPSEBL	Chairperson, TCC		manojupretisolan@gmail.com
2	Member (GO&D), CEA	Member (Grid Operation & Distribution), Central Electricity Authority (CEA)	Chief engineer(GM Division)	cegm-cea@gov.in
3	Member (PS), CEA	Nodal Agency appointed by the Government of India for coordinating cross-border power transactions	Chief Engineer, PSPA-I Division	i.sharan@nic.in
4	CTUIL	Central Transmission Utility	Dy Chief Operating Officer	ashok@powergrid.in
5	PGCIL	Central Government owned Transmission Company	ED, NR-I	aloksharma99@powergrid.in
6	NLDC	National Load Despatch Centre	Head of NLDC	susha@grid-india.in
7	NRLDC	Northern Regional Load Despatch Centre	Executive Director	mkagarwal@grid-india.in
8	NTPC	Central Generating Company	Regional ED, NR	rednr@ntpc.co.in
9	BBMB		Member (Power)	mp@bbmb.nic.in
10	THDC		GM (EMD)	neerajverma@thdc.co.in
11	SJVN		Director (Projects)	de.sectt@sjvn.nic.in
12	NHPC		ED (O&M)	hod-om-co@nhpc.nic.in
13	NPCIL		Outstanding Scientist & ED (commercial)	nrchoudhary@npcil.co.in
14	Delhi SLDC	State Load Despatch Centre		nomination awaited
15	Haryana SLDC		Chief Engineer/SO & Comml.	cesocomml@hvpn.org.in
16	Rajasthan SLDC			nomination awaited
17	Uttar Pradesh SLDC		Chief Engineer (PSO)/Chief Engineer (C&S)	cepso@upsldc.org
18	Uttarakhand SLDC			nomination awaited
19	Punjab SLDC		Chief Engineer	ce-sldc@pstcl.org
20	Himachal Pradesh SLDC			nomination awaited
21	DTL	State Transmission Utility	Director (Operation)	dir.opr@dtl.gov.in
22	HVPNL		Director (Projects)	directorprojects@hvpn.org.in
23	RRVPNL		Chief Engineer (PP&D)	ce.ppm@rvpn.co.in
24	UPPTCL		Director (Planning & Commercial)	director_comm@upptcl.org
25	PTCUL		Chief Engineer	ce_oandmk@ptcul.org
26	PSTCL		Director / Technical	dir-tech@pstcl.org
27	HPPTCL		GM (C&D)	gmcd.tcl@hpmail.in
28	IPGCL	State Generating Company	Director(Tech.)	corporate.ppcl@gmail.com
29	HPGCL		Director/Technical	dirtech@hpgcl.org.in
30	RRVUNL		Dy. Chief Engineer	dyce.elect.katpp@rrvun.com
31	UPRVUNL		Director (Technical)	director.technical@uprvunl.org
32	UJVNL		General Manager	kkjaiswal99@gmail.com
33	HPPCL		Director (Electrical) General Manager(Electrical)	dir_elect@hppcl.in gm_elect@hppcl.in
34	PSPCL	State Generating Company & State owned Distribution Company		nomination awaited
35	UHBVN	State owned Distribution Company (alphabetical rotaional basis/nominated by state govt.)		nomination awaited
36	Jodhpur Vidyut Vitran Nigam Ltd.			nomination awaited
37	Paschimanchal Vidyut Vitaran Nigam Ltd.			nomination awaited
38	UPCL		Director (P)	dpupcl29@gmail.com
39	HPSEB			nomination awaited
40	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Head – Commercial & Regulatory	Sanjay.bhargava@tatapower.com
41	Aravali Power Company Pvt. Ltd		CEO	brahmajig@ntpc.co.in
42	Apraava Energy Private Limited			nomination awaited
43	Talwandi Sabo Power Ltd.		Dy. Head O&M	ravinder.thakur@vedanta.co.in
44	Nabha Power Limited			nomination awaited
45	MEIL Anpara Energy Ltd		COO & WTD, Executive Director	anandkumar.singh@meilanparapower.com arun.tholia@meilanparapower.com
46	Rosa Power Supply Company Ltd		VP-Technical Services	Niranjan.Jena@relianceada.com
47	Lalitpur Power Generation Company Ltd		GM Electrical	aupadhyay.ltp@lpgcl.com
48	MEJA Urja Nigam Ltd.		GM (O&M)	piyushkumar@ntpc.co.in
49	Adani Power Rajasthan Limited		AVP	Manoj.taunk@adani.com
50	JSW Energy Ltd. (KWHEP)		Head of Plant	kaushik.maulik@jsw.in
51	TATA POWER RENEWABLE	IPP having less than 1000 MW installed capacity (alphabetical rotaional basis)		nomination awaited
52	UT of J&K	From each of the Union Territories in the region, a representative nominated by the administration of the Union Territory concerned out of the entities engaged in generation/ transmission/ distribution of electricity in the Union Territory.		nomination awaited
53	UT of Ladakh			nomination awaited
54	UT of Chandigarh			nomination awaited
55	NPCL	Private Distribution Company in region (alphabetical rotaional basis)		nomination awaited
56	Fatehgarh Transmission Limited	Private transmission licensee (nominated by cetral govt.)		nomination awaited
57	NTPC Vidyut Vyapar Nigam Ltd.	Electricity Trader (nominated by central govt.)		nomination awaited
58	ReNew Power Private Limited	RE Generating Company having more than 1000 MW installed capacity		nomination awaited
59	NTPC Green Energy Limited			nomination awaited
60	Azure Power India Pvt. Limited			nomination awaited
61	Avaada Energy Private Limited			nomination awaited
62	Adani Green Energy Limited			nomination awaited

Special Invitees:

1. Chairman, NERPC & Hon'ble Dy. Chief Minister & In-Charge of Power, Govt. of Arunachal Pradesh, Itanagar-791111 [E-mail: Prasantaphukan28@gmail.com]
2. Shri Gaurav Gupta, Chairperson, SRPC & Managing Director, Karnataka Power Corporation Limited & ACS Energy Department GoK, 240, 2nd floor Vikasa Soudha, Bengaluru, Karnataka-560001 [Email:prs.energy@gmail.com; acs@karnataka.gov.in]
3. Chairman, ERPC, Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim, Kazi Road, Gangtok – 737101, Sikkim [E-mail: secypower.sikkim@gmail.com]
4. Dr Rohit Yadav, Chairman CSPTCL & Chairman, WRPC, Office of Chairman, Vidyut Seva Bhavan, Danganiya, Raipur 492 013 (C.G.) [Email: chairmancspc@gmail.com]
5. Smt. Rishika Saran, Member Secretary, NPC, Sewa Bhawan, R. K. Puram, New Delhi-66 [Email-cenpc-cea@gov.in]
6. Shri Deepak Kumar, Member Secretary, WRPC, Plot No- F-3, MIDC Area, Marol, Opp. SEEPZ, Central Road, Andheri (East), Mumbai-40093. [email: ms- wrpc@nic.in]
7. Shri Asit Singh, Member Secretary, SRPC, No.29, Race Course Cross Road, Bengaluru-560009. [Email: mssrpc-ka@nic.in]
8. Shri N.S. Mondal, Member Secretary, ERPC,14,Golf Club Road, ERPC Building, Tollygunje,Kolkata-700033.[Email: mserpc-power@nic.in]
9. Shri K B Jagtap, Member Secretary, NERPC, NERPC Complex, Dong Parmaw, Lapalang, Shillong-793006. [Email: ms-nerpc@gov.in]
10. Shri Brieflee Lyngkhoi, Chief Engineer, GM Division, CEA, Sewa Bhawan, R. K. Puram, New Delhi-66 [Email: cegm-cea@gov.in]

Annexure-AA.I

सत्यमेव जयते

DIRECTOR GENERAL OF AUDIT
(ENERGY), NEW DELHI
5th,6th, 7th & 10th Floor Annexe Building,
10-Bahadur Shah Zafar Marg, NEW DELHI
- 110002

Local Audit Party : Compliance Audit of NR-I Region of PGCIL for the period 2022-23 to 2023-24
Auditee Unit Name : PGCIL NR-I, Faridabad
Dated : 04-Feb-25

Audit observation reference : #12 (OBS-1828864)

Subject: Compliance Audit of PGCIL NR1 region from the period 2022-24

Non recovery of rent from DTL in respect of diversion of ICT transformer

Delhi Transco Limited (DTL) vide letter dated 01.11.2019 requested PGCIL for lending of 2 Nos. 315 MVA transformers at their book value which was available as regional spares at Powergrid Mandola Substation. However, PGCIL refused its request to transfer the above transformer on book value. Subsequently DTL again requested PGCIL to hand over transformer on loan basis to maintain the uninterrupted power supply in Delhi. DTL assured to return both 315 MVA transformers after procurement and commissioning of new transformer at 400 kV substation Tikri Kalan. Finally, PGCIL accepted the request and hand over the two 315 MVA transformers to DTL in December 2019.

During audit it was noticed that NR1 Region temporarily diverted transformers without establishing a monthly rental agreement. As a result, management has failed to retrieve its spare transformers from DTL even after more than five years and transformers are still lying with DTL. The prolonged absence of these assets has resulted in a loss of potential revenue for PGCIL.

The inaction from management regarding the retrieval of its assets has not only led to significant financial losses for the NR1Region but has also hindered Region's ability to utilize its inventory from other regions during emergencies.

Thus, it is imperative for management to take immediate corrective actions to recover the spares and establish clear agreements moving forward to prevent similar occurrences in the future.

Facts and figures contained in the HM may be verified and comments of the management may be offered to audit.

Sandeep Kumar

Sr. Audit Officer

To,
PGCIL NR-I, Faridabad

Annexure-AA.II ~~Annexure-I~~

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया 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: CTU/N/00/CMETS_NR/36 **Date:** 24-02-2025

As per distribution list

Subject: 36th Consultation Meeting for Evolving Transmission Schemes in Northern Region-Minutes of Meeting

Dear Sir/Ma'am,

Please find enclosed the minutes of the 36th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 15th January 2025 (Wednesday) through virtual mode.

The minutes are also available at CTU website (www.ctuil.in)

Thanking you,

Yours faithfully,

(Partha Sarathi Das)
Sr. General Manager (CTU)

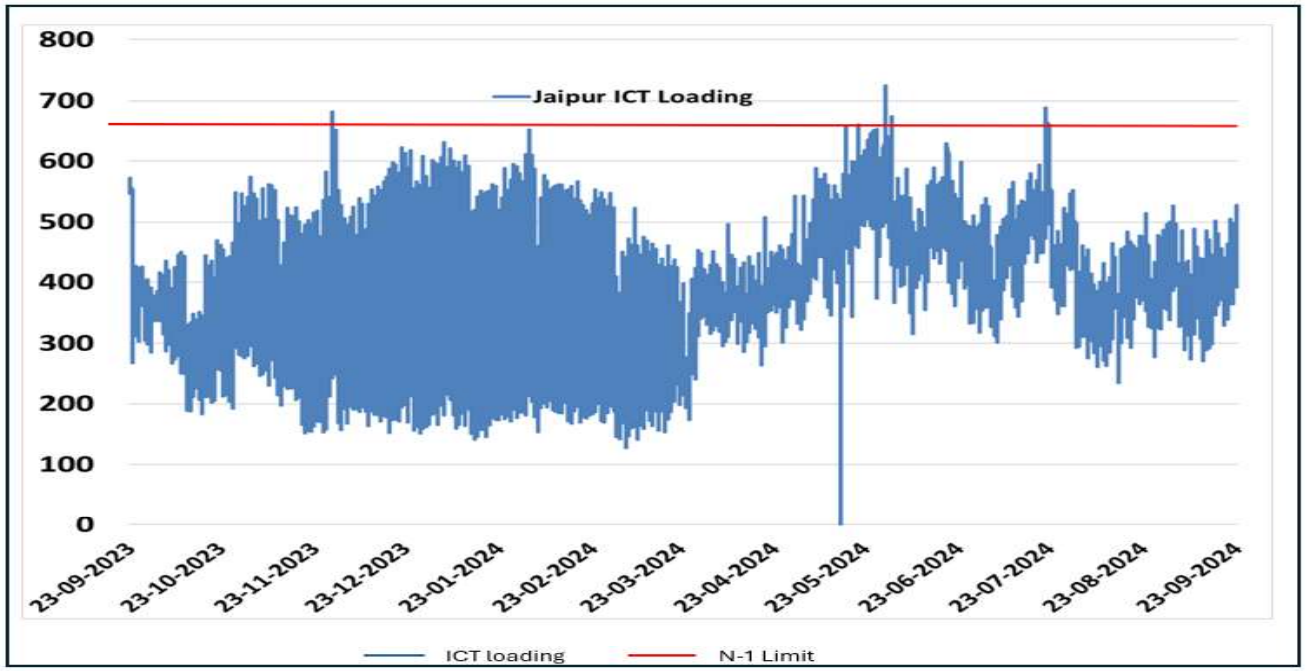


Fig : Loading of Jaipur South ICTs of Past one year (Source: Grid-India)

RVPN stated that LILO of one ckt of 220kV Dausa- Sawai Madhopur at Jaipur (South) is under implementation which may further increase the loading of Jaipur (South) ICTs. Considering above there is urgent requirement of ICT augmentation at 400/220kV Jaipur South (PG) S/s. CEA and NRLDC agreed on proposal. No other comments were received.

POWERGRID vide mail dated 30.09.2024 confirmed space availability for Augmentation of 400/220 kV transformer (3rd, 500MVA) along with transformer bays at 400/220kV Jaipur South (PG) S/s.

In view of above, following ICT augmentation scheme was agreed in ISTS :

- Augmentation of 400/220 kV ,1x500 MVA (3rd) ICT at 400/220kV Jaipur South (PG) S/s along with associated transformer bays

G4. LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun(Chittorgarh)

It was stated that RVPN vide letter dated 04.09.2024 to CTU requested for in principle approval for making LILO of 220kV Chittorgarh-RAPP-B D/c lines at RVPN's proposed 220 kV Begun (Chittorgarh) S/s. In the letter, RVPN mentioned that total length of 220 kV D/c RAPP-B- Chittorgarh line is 130kM (approx.) and LILO length would be about 5 kms. Further RVPN mentioned that 220kV D/c RAPP-B-Chittorgarh line is passing near to the proposed site of 220kV GSS Begun and after making LILO of this line at proposed 220 kV GSS Begun, length of 220kV D/c line between Begun-RAPP-B will be approximately 70kM. This will help to minimize the tripping on the line and will ensure availability of grid to units of RAPP-B.

CTUIL vide mail dated 19.09.24 to CEA, Grid-India & RVPN requested to provide comments/observations on RVPN's proposal (05km LILO of 220 kV D/C Chittorgarh-RAPP B Lines at RVPNs proposed 220 kV GSS Begun (Chittorgarh)) at the earliest for taking up in ensuing CMETS-NR meeting. CEA vide mail dated 10.10.2024 intimated following observations:

(i) It may be clarified whether LILO of both circuits or only one circuit of Chittorgarh-RAPP B 220 kV D/c line has been proposed at Begun (Chittorgarh).
(ii) Following details may be furnished:
- Timeline of the Begun substation as well as details of anticipated load.
- Details of additional connectivity of Begun substation at 220 kV level, if any.
- Peak loading experienced till date on 220 kV D/C Chittorgarh-RAPP B lines.
- Load flow studies for the above proposal.

Subsequently, RVPN vide letter dated 21.10.2024, submitted following clarification on the observations intimated by CEA

(i) LILO of both circuits of 220 kV D/C Chittorgarh-RAPP-B lines has been proposed for creation of 220 kV GSS Begun (Chittorgarh).
(ii) Following details are furnished as following

(a) Tentative timeline of the proposed 220 kV GSS Begun (Chittorgarh) will be 02 years from the date of approval of RERC. RERC approval will be received in 6 months.
(b) Additional connectivity at proposed 220 kV GSS Begun at 220 kV level is NIL
(c) Peak loading experienced till date on both 220 kV D/c Chittorgarh-RAPP-B line-I and II circuits are 150 MW and 150 MW respectively.
(d) A detailed justification note for creation of proposed 220 kV GSS Begun is attached. Load flow studies for above proposal are attached at Exhibit-1, Exhibit2, Exhibit-3 and Exhibit-4

Further Grid-India vide mail dated 22.10.2024 also intimated following comments /observations-:

- 220kV RAPPB-Chittorgarh line is also part of RAPS islanding scheme, therefore, islanding scheme would have to be modified after commissioning of 220kV Begun.
- Chittorgarh(220kV) substation is also fed from 400/220kV Chittorgarh substation of RVPN. To control loading of 400/220kV Chittorgarh ICTs, 220kV Chittorgarh-Chittorgarh line is often kept open by Rajasthan SLDC. Accordingly, it is suggested that ICT capacity augmentation at 400/220kV ICTs at Chittorgarh is also done timely so that opening of 220kV Chittorgarh-Chittorgarh line to control loading of 400/220kV ICTs is avoided.
- Further, as nuclear stations are generally not providing significant reactive power support in real-time, reactive power requirement at 220kV Begun may be met locally to avoid low voltage issues. Voltage profile of 400/220kV Chittorgarh (220kV bus) and 220kV RAPP B during winter 2023-24 is shown below:

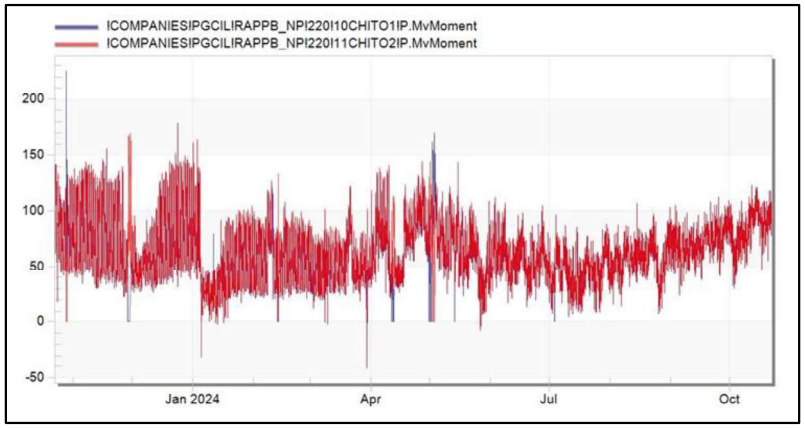
Further RVPN vide letter dated 04.11.2024, submitted following clarification on the comments /observations intimated by Grid-India:-

(i) It may be noted that 220kV RAPPB-Chittorgarh line is also part of RAPS islanding scheme and LILO has been proposed of both circuits of 220kV RAPPB-Chittorgarh line at RVPN's proposed 220 kV GSS Begun (Chittorgarh). Therefore, islanding scheme will be modified accordingly after commissioning of proposed 220kV Begun.

(ii) 220 kV GSS Chittorgarh (RVPN) is fed from 400 kV GSS Chittorgarh (RVPN). To control loading of 400/220kV Chittorgarh ICTs, 220kV Chittorgarh-Chittorgarh line is often kept open by Rajasthan SLDC. In this regards it is submitted that augmentation of additional 500 MVA, 400/220 kV ICT at 400 kV GSS Chittorgarh is under feasibility examination.

(iii) Nuclear stations are generally not providing significant reactive power support in real time. Therefore, to avoid low voltages issues, reactive power support at 220kV Begun has been taken as 5.43 MVAR shunt capacitor bank at 33 kV voltage level. Further, additional shunt capacitor bank will be installed by RVPN, if required.

Line loading pattern of 220kV RAPPB-Chittorgarh D/C lines and voltages of RAPPB and Chittorgarh buses for last one year was also provide by Grid-India which is shown below:



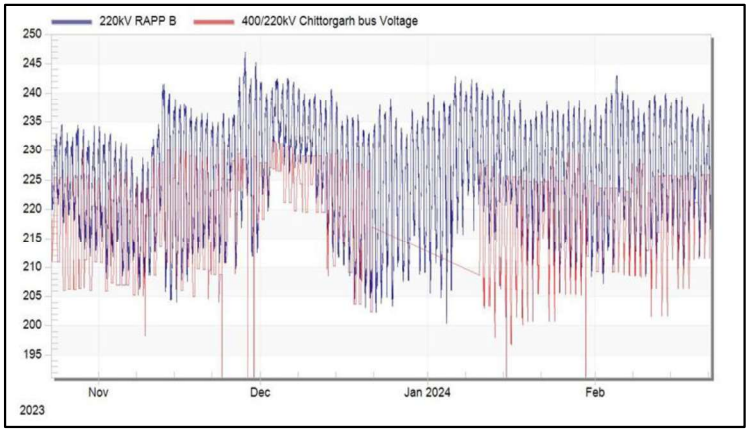


FIg : Line loading pattern and voltages of 220kV RAPP-B-Chittorgarh D/C lines (Source-Grid-india)

CTUIL also carried out studies on above proposal in planning file. In CTU planning files it emerged that loadings on 400/220kV ICTs (3x 315 MVA) of Chittorgarh (RVPN) S/s already higher (~295MW/ICT & ~342MW/ICT in 2027 & 2030 timeframe respectively) and these ICTs are already N-1 non-compliant in Planning study files. Further with proposed transmission scheme (5km LILO of 220 kV D/c Chittorgarh-RAPP B Lines at RVPN's proposed 220 kV GSS Begun S/s (considering 50MW load at Begun S/s) , loadings on 400/220 kV ICTs of Chittorgarh (RVPN) S/s further increases by 13-15 MW/ICT.

Therefore, in future ICT augmentation (4th ICT) may be required at 400/220 Chittorgarh (RVPN) S/s. it is recommended that RVPN may take up the augmentation of 400/220kV ICT (4th) at Chittorgarh (RVPN) S/s or replace 400/220kV, 3x315MVA ICTs with 3x500MVA ICTs (at least 2 nos. ICTs) in case of space constraint at Chittorgarh (RVPN) S/s on urgent basis to meet the drawl requirement from Chittorgarh (RVPN) S/s .

RVPN stated that replacement of 400/220kV, 1 no. 315MVA ICT with 500MVA ICT at Chittorgarh (RVPN) S/s is already approved with 18 months time schedule and based on future drawl requirement, replacement of other 315MVA ICTs with 500MVA ICT at Chittorgarh (RVPN) S/s may be taken up.

NRLDC also highlighted the N-1 non compliance issue of 400/220kV ICTs (3x315MVA) at Chittorgarh S/s and ICT loading will be reviewed and will be highlighted as part operational feedback report. NRLDC enquired about schedule of replacement of 1 no. 315MVA ICT with 500MVA ICT at Chittorgarh (RVPN) S/s. RVPN stated that implementation schedule for above replacement of 400/220kV ICT at Chittorgarh PG) is 18 months from award, however the ICT is not yet taken up for award due to approval at later stage. It was concluded that based on loading pattern and Grid-India operational feedback, RVPN may take up advance actions for replacement of other 2 nos. of 315MVA ICTs with 500MVA ICT at Chittorgarh (RVPN) S/s.

The comprehensive scheme proposal is intra state in nature, however the proposal involves LILO of ISTS line i.e. LILO of 220 kV D/C Chittorgarh-RAPP B Line at RVPNs proposed 220 kV GSS Begun (Chittorgarh)-. In view of above, the proposal is being discussed in present CMETS-NR meeting. NPCIL vide mail 28.01.25 informed their consent to consider the LILO of both the 220kV Chittorgarh- RAPP B D/C lines at Begun GSS.

During the meeting, RVPNL asked that whether they need to install OPGW on the LILO portion of 220kV Chittorgarh-RAPP B D/c line, they also asked who shall install OPGW on POWERGRID line if OPGW is not available. CTUIL stated that as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, "The primary path for tele-protection shall be on point-to-point Optical Ground Wire", further as per CEA letter dtd. 22.05.24 all the Central and State utilities to ensure the OPGW on their transmission network (attached at **Annexure-IA**). Therefore RVPNL needs to install OPGW on their LILO portion, for the main line i.e. 220kV Chittorgarh-RAPP B D/c if OPGW is not available POWERGRID shall needs to install the same. CTUIL asked availability of OPGW from POWERGRID, as Concerned representative from POWERGRID was not present in the meeting, later on vide email dtd. 24.01.25 POWERGRID informed that OPGW is not available on this line. CTUIL stated that as OPGW not available on 220kV Chittorgarh-RAPP B D/c line, a separate scheme shall be formed by CTU for review in the upcoming NRPC, forum agreed for the same

Considering above following scheme proposed to be implemented by RVPN under Intra state was agreed :

- LILO of 220 kV D/C Chittorgarh-RAPP B Lines at RVPNs proposed 220 kV GSS Begun (Chittorgarh)-5kms

G5. Deletion of Augmentation of 1x500 MVA, 400/220 kV ICT at Fatehgarh-III PS (6th ICT in Section-2)

It was stated that in 34th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 20.09.2024, it was stated that considering the connectivity quantum of 2120 MW at 220 kV level (Connectivity granted: 2070MW, connectivity margin:50MW) at Fatehgarh-III PS(Sec-II), augmentation of 1x500 MVA, 400/220 kV ICT at Fatehgarh-III PS (6th ICT in Section-2) is required to meet N-1 compliance. Accordingly, above ICT augmentation was agreed in the above meeting.

Earlier, POWERGRID vide mail 23.05.23 informed that space is available for 2 nos. ICTs (One ICT is 220kV Section-1 (ICT-5) and remining One ICT in 220kV Section-4 (ICT-11) at Fatehgarh-III PS. The above space requirement was communicated by POWERGRID to CTUIL after considering 2 nos. 400kV line Bays utilized for Barmer-I PS interconnection as part of Transmission System for Rajasthan Ph-IV scheme(Jaisalmer/Barmer) scheme. Based on above space confirmation, proposal for augmentation of 1x500 MVA, 400/220 kV ICT at Fatehgarh-III PS (6th ICT in Section-2) was put up in 34th CMETS-NR meeting.

Further during costing for ICT augmentation (6th ICT in Section-2) at Fatehgarh-III PS, POWERGRID vide mail 30.10.24 informed that space for additional 400/220KV ICT is not available at Fatehgarh-III S/s (Sec-2). POWERGRID vide mail dated 18.11.2024 to CTUIL informed that earlier earmarked bays (Main Bays -446, 449), for ICTs (ICT11 &12), have been utilized for termination of transmission line for RE Developers (Spring & Azure) and hence no additional ICT bay is available at 765/400/220kV Fatehgarh-III S/s.

- LILO of one ckt of 400kV Mandola – Dadri D/c line(Quad Bersimis) at Harsh Vihar S/s (DTL) (Incl. 400kV cable portion) (LILO length-12km incl. 0.7km cable)

G7. LILO of one circuit of 400kV Sikar – Agra D/c (Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section

It was stated that a meeting was held among CEA, Grid-India, CTUIL & RVPN on 25.10.2024 through VC to discuss the Intra-State Transmission Schemes proposed by RVPNL. In the meeting Proposal for Establishment of 400/220 kV, 2x500 MVA GSS and associated transmission system at Kumher, Bharatpur district, Rajasthan was deliberated. In the meeting, RVPN stated that presently, load of Bharatpur area is being fed mainly from Dholpur GTPS and Agra through 220 kV lines. However, generation at Dholpur GTPS is not being scheduled due to comparatively costly power due to prevailing high gas price. Hence, there is high power flow is from Chhabra TPS to 400 kV GSS Hindaun to Dholpur GTPS which in turn is connected to Bharatpur (load centre).

Further, 400 kV GSS Alwar is also fed radially from 400 kV GSS Hindaun. Due to radial nature of 400 kV network at 400 kV GSS Hindaun and 400 kV GSS Alwar, there is large voltage variations in the region especially during high agriculture load conditions. Condition further worsens with opening of Bharatpur – Agra 220 kV S/c line due to operational and maintenance activities. In order to address the above issues and to ensure reliable power supply in Bharatpur area, RVPN has proposed following intra state transmission scheme:

- New substation at Kumher with 2×500 MVA, 400/220 kV ICTs and 125 MVAR, 420 kV Switchable Bus Reactor
- LILO of one circuit of Sikar – Agra 400 kV D/c (Twin Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 50 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV Section (km)
- LILO of Hindaun – Alwar (Twin Moose) 400 kV S/c line at 400 kV GSS Kumher (45 ckm)
- LILO of Nadbai – Bharatpur 220 kV S/c line at 400 kV GSS Kumher (5 ckm)
- LILO of Sikri – Bharatpur 220 kV S/c line at 400 kV GSS Kumher (10 ckm)
- Future Elements at Kumher GSS:
  - Space for 4 Nos. 220 kV line bays
  - Space for 1×500 MVA (3rd), 400/220 kV ICT along with bays

In the same meeting CTUIL stated that this proposal seems to be in order & would enhance the stability of the system through LILO of 400kV Sikar- Agra line (386km) at Kumher GSS. Further it is suggested that instead of 50 MVAr line reactor, 80 MVAr line reactor may be considered at Kumher end of Sikar – Kumher 400 kV line section (formed after LILO) as considerable voltage rise is being observed for which 50 MVAr line reactor may not be adequate.

After the deliberations, the transmission scheme proposed by RVPN for establishment of a new 400 kV Kumher substation in Bharatpur district, Rajasthan was agreed in that meeting with following scope of work:

- New substation at Kumher with 2×500 MVA, 400/220 kV ICTs and 125 MVAR, 420 kV Switchable Bus Reactor. Future provisions:
  (i) Space for 4 Nos. 220 kV line bays
  (ii) Space for 1×500 MVA (3rd), 400/220 kV ICT along with bays

- LILO of one circuit of Sikar – Agra 400 kV D/c (Twin Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 50 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section
- LILO of Hindaun – Alwar (Twin Moose) 400 kV S/c line at 400 kV GSS Kumher (45 ckm)
- LILO of Nadbai – Bharatpur 220 kV S/c line at 400 kV GSS Kumher (5 ckm)
- LILO of Sikri – Bharatpur 220 kV S/c line at 400 kV GSS Kumher (10 ckm)

Subsequently, Grid-India vide email dated 27.12.2024 has clarified that the Sikar – Agra 400 kV D/c line has been implemented with Quad Moose conductor. POWERGRID has confirmed that conductor type of Sikar – Agra 400 kV D/c line is Quad Moose.

CTUIL also carried out studies on above proposal. In CTU planning files it emerged that loadings are in order. Further with the proposed 50 MVAr, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV line section (316 km), reactive compensation is on lower side (~40%) with Ferranti rise of about 17kV. Considering above, 80 MVAr, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV line section may be suggested in place of 50 MVAr, 420 kV switchable line reactor.

Subsequently, the minutes of the meeting circulated vide CEA letter dated 04.12.2025 were modified (vide CEA letter dated 03.01.25) with proposed Transmission scheme as below

- New substation at Kumher with 2×500 MVA, 400/220 kV ICTs and 125 MVAR, 420 kV Switchable Bus Reactor.
  Future provisions:
  (i) Space for 4 Nos. 220 kV line bays
  (ii) Space for 1×500 MVA (3rd), 400/220 kV ICT along with bays

- LILO of one circuit of Sikar – Agra 400 kV D/c (Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section
- LILO of Hindaun – Alwar (Twin Moose) 400 kV S/c line at 400 kV GSS Kumher (45 ckm)
- LILO of Nadbai – Bharatpur 220 kV S/c line at 400 kV GSS Kumher (5 ckm)
- LILO of Sikri – Bharatpur 220 kV S/c line at 400 kV GSS Kumher (10 ckm)

The comprehensive scheme proposal is intra state in nature, however the proposal involves LILO of ISTS line i.e. LILO of one circuit of Sikar – Agra 400 kV D/c (Quad) line at 400 kV GSS Kumher. In view of above, the proposal is being discussed in present CMETS-NR meeting.

During the meeting, RVPNL asked that whether they need to install OPGW on the LILO portion of Sikar – Agra 400 kV D/c line at Kumher, they also asked who shall install OPGW on POWERGRID line if OPGW is not available. CTUIL stated that as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, "The primary path for tele-protection shall be on point-to-point Optical Ground Wire", further as per CEA letter dtd. 22.05.24 all the Central and State utilities to ensure the OPGW on their transmission network (attached at **Annexure-IA**). Therefore, RVPNL needs to install OPGW on their LILO portion of Kumher S/s, for the main line i.e. Sikar – Agra 400 kV D/c if OPGW is not available POWERGRID shall needs to install the same. CTUIL asked availability of OPGW from POWERGRID, as Concerned representative from POWERGRID was not present in the meeting, later on vide email dtd. 24.01.25 POWERGRID informed that OPGW is not available on this line. CTUIL stated that as OPGW not available on Sikar – Agra 400 kV D/c line, a separate scheme shall be formed by CTU for review in the upcoming NRPC. Same was agreed in the meeting**.**

Considering above following scheme is agreed to be implemented by RVPN as part of comprehensive scheme discussed above under Intra state along with necessary communication infrastructure:

- LILO of one circuit of Sikar – Agra 400 kV D/c (Quad) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAr, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section

G8. Augmentation of 400/220 kV, 1x315 MVA (3rd) ICT at 400/220kV New Wanpoh substation

It was stated that in 21st CMETS-NR meeting, based on the request of JKPTCL to meet the growing demand of power in J&K, as well as to fulfill the N-1 criteria of ICTs in future, proposal to implement one no. of 400/220kV, 315 MVA ICT (3rd) at New Wanpoh (PG) S/s under ISTS was agreed.

Further, JKPTCL vide letter dated 07.10.23 informed that as per the present trend of power demand and the upcoming downstream projects, it is imperative that 400/220kV New Wanpoh substation is augmented by the end of 2025. In reply to CTU mail to provide firm schedule to implement 315 MVA ICT (3rd) at New Wanpoh (PG) S/s, JKPTCL vide mail dated 01.02.24 mentioned the firm schedule to be considered as 31.12.25 for above ICT augmentation.

Subsequently, as per CTU OM 22.03.24, CTU approved the implementation of the transmission scheme "Augmentation of Transmission Capacity at 400/220kV New Wanpoh (PG) S/s in Jammu and Kashmir by 400/220kV, 1x315 MVA ICT(3rd)" by the implementing agency "Power Grid Corporation of India Ltd." with timeline of 31.12.25

Recently, in the POWERGRID vide letter dated 24.12.24 informed about several challenges are being faced in awarding the contract execution of substation extension work at New-Wanpoh Substation with a completion schedule of 21 months i.e., Dec'25 based on CTUIL OM dated 22.03.24. POWERGRID also mentioned that the NIT had been issued in July'24 for the subjected work with a completion schedule up to Dec'25 and already 17 extensions have been given to bidders for submission of bids but not even a single

Annexure-AA.III

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 :)

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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@kalpatarupower.com, thakkarkaushal86@yahoo.com, ajay.tripathi@kalpatarupower.com
77.	Director, Torrent Power Ltd	Electricity House, Lal Darwaja, Ahmedabad – 380001	NAMANSHAH@torrentpower.com, kaushal.thakkar@kalpatarupower.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@junipergreenenergy.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.munjal@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

Appendix-I

S. No.	Items	Details
1.	Name of Scheme	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 (RVPN)
2.	Scope of the scheme	Supply and Installation of 48 Fiber OPGW on existing 400 kV Sikar (PG) – Agra (PG) D/c line (owned by PG) **(386 Km)** including Repeater which is proposed to be LILOed at 400 kV GSS Kumher (RVPN) including FOTE at Sikar S/s (PG) & Agra S/s (PG). **Total OPGW - 386 kms.** **Total FOTE – 2 Nos.** **Repeater- 1 No.**
3.	Objective / Justification	In the 36th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 15.01.2025 (MoM attached at **Annexure-I**) transmission scheme "*LILO of one circuit of 400kV Sikar – Agra D/c (Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section*" was deliberated. In the scheme LILO of existing 400 kV Sikar-Agra D/c line is proposed at 400 kV GSS Kumher (RVPN). As per the inputs received from POWERGRID, OPGW is not available on 400 kV Sikar-Agra D/c line. To meet data, voice & protection requirements between Agra, Sikar & Kumher Substations, OPGW needs to be installed over the 400 kV Sikar-Agra D/c line **(386 Km)** which is proposed to be LILOed at 400 kV GSS Kumher (RVPN). Further as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, "The primary path for tele-protection shall be on point-to-point Optical Ground Wire". Subsequently CEA PCD division vide letter Ref. CEA-PS-17-24/1/2024-PCD Division dtd. 22.11.2024 informed that in line with letter addressed to MoP from DoT, Ministry of Communication CTU, POWERGRID, STUs and all TSPs are requested to incorporate at least 48 Fiber OPGW in place of 24 Fiber in all upcoming schemes for utilization of additional fibers for Telecom licensees on

		leasing basis. (Letter attached at ***Annexure-II)*** based on this 48 Fiber OPGW has been proposed for this scheme. This scheme shall be taken up in NRPC Meeting alongwith transmission scheme "*LILO of one circuit of 400kV Sikar – Agra D/c (Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section*".
4.	Estimated Cost	**Rs. 26.49 crore (approx.)**
5.	Implementation timeframe	30 months from date of allocation with best effort to match time frame with transmission scheme of "*LILO of one circuit of 400kV Sikar – Agra D/c (Quad Moose) line at 400 kV GSS Kumher (6.5 ckm) along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section*"
6.	Implementation Agency	**POWERGRID**
7.	Implementation mode	**RTM mode**
8.	Deliberations in different meetings	36th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 15.01.2025

Appendix-II

S. No.	Items	Details
1.	Name of Scheme	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)
2.	Scope of the scheme	Supply and Installation of 48 Fiber OPGW on existing 220 kV Chittorgarh (RVPN)-RAPP B (NPCIL) D/c Line (owned by PG) (**130 Km**) which is proposed to be LILOed at RVPNs 220 kV GSS Begun (Chittorgarh) including FOTE at Chittorgarh S/s (RVPN) & RAPP B station (NPCIL). **Total OPGW - 130 kms.** **Total FOTE – 2 Nos.**
3.	Objective / Justification	In the 36th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 15.01.2025 (MoM attached at **Annexure-I**) transmission scheme "*LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun(Chittorgarh)*" was deliberated. In the scheme LILO of both circuits of 220 kV D/c Chittorgarh-RAPP-B lines has been proposed for creation of 220 kV GSS Begun (Chittorgarh). As per the inputs received from POWERGRID, OPGW is not available on 220 kV Chittorgarh-RAPP B D/c Line. To meet data, voice & protection requirements between Chittorgarh, RAPP-B & Begun Substations, OPGW needs to be installed over the 220 kV Chittorgarh-RAPP B D/c Line **(130 Km)** which is proposed to be LILOed at 220 kV GSS Begun (Chittorgarh). Further as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, "The primary path for tele-protection shall be on point-to-point Optical Ground Wire". Subsequently CEA PCD division vide letter Ref. CEA-PS-17-24/1/2024-PCD Division dtd. 22.11.2024 informed that in line with letter addressed to MoP from DoT, Ministry of Communication CTU, POWERGRID, STUs and all TSPs are requested to incorporate at least 48 Fiber OPGW in place of 24 Fiber in all upcoming schemes for utilization of additional fibers for Telecom

		licensees on leasing basis. (Letter attached at ***Annexure-II***) based on this 48 Fiber OPGW has been proposed for this scheme. This scheme shall be taken up in NRPC Meeting alongwith transmission scheme "*LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun (Chittorgarh)".*
4.	Estimated Cost	**Rs. 8.55 crore (approx.)**
5.	Implementation timeframe	24 months from date of allocation with best effort to match time frame with transmission scheme of "*LILO of 220 kV Chittorgarh-RAPP B D/c Lines at RVPNs proposed 220 kV GSS Begun (Chittorgarh)*"
6.	Implementation Agency	**POWERGRID**
7.	Implementation mode	**RTM mode**
8.	Deliberations in different meetings	36th Consultation Meeting for Evolving Transmission Schemes in Northern Region held on 15.01.2025

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया 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: C/CTU/Comm/UPPTCL/01 02.11.2023

Managing Director,
Uttar Pradesh Power Transmission Corporation Ltd,
7th Floor Shakti Bhawan,
14-Ashok Marg, Lucknow- 226001
Uttar Pradesh

Sub: Regarding Fibre Sharing on UPPTCL lines for ULDC purpose for redundant communication of Narora (NAPP) (NPCIL) and Saharanpur (PG) ISTS nodes

Sir,

This is in with reference to 23rd meeting of Telecommunication, SCADA & Telemetry Sub Committee (TeST) of NRPC held on 21.09.23 through video conference. The Minutes of Meetings (MoM) were issued on 23.10.2023 and are attached with this letter. In the meeting redundant communication of Narora, NPCIL (NAPP) & Saharanpur (PG) was deliberated which is minuted at para 6 & 14 of MoM.

Further, with reference to MoM clause 6.4 & 14.3, MS, NRPC requested CTUIL to write a letter to UPPTCL for fibre sharing on their OPGW links to provide redundant communication with the following details:

A. Fibre Sharing requirement for NAPP (NPCIL)

NAPP is presently connected via path NAPP (ISGS) -Khurja (UP)-Sikandarabad(UP)- Dadri (UP)– Muradnagar 400(UP) -Dadri (PG). To provide redundant communication for NAPP, laying of approx. 88 Km of OPGW from Narora (ISGS) to Simbhavali (UP) shall be installed under ISTS project and atleast 6 nos. of fibre sharing is required on the following links of UPPTCL:

1. Simbhavali (UP) - Shatabdi Nagar (UP)
2. Shatabdi Nagar (UP) - Modipuram (ULDC node under ISTS)

2 nos. of STM-16 FOTE are proposed under ISTS one each at Simbhavali (UP) and Shatabdi Nagar (UP).
This arrangement will also strengthen the redundancy of Modipuram which is backup SLDC of UPPTCL .

B. Fibre Sharing requirement for Saharanpur (PG)

Saharanpur (PG) is presently connected with Roorkee (PG), to provide redundant communication to Saharanpur (PG) atleast 6 nos. of fibre sharing is required on the following links of UPPTCL:

1. Sahararnpur (PG)- Deoband (UP)
2. Deoband (UP)- Sahararnpur (UP)
3. Sahararnpur (UP) -Nanauta (UP)
4. Nanauta (UP)-Shamli (UP)
5. Shamli (UP) -Muradnagar (ULDC node under ISTS)

5 Nos of STM-16 equipment at Sahararnpur (PG), Deoband (UP), Sahararnpur (UP), Nanauta (UP) and Shamli (UP) are proposed under ISTS.

It is to be mentioned that fibre required on UPPTCL links shall be solely used for ULDC & Grid Management purposes.

After receiving the confirmation of fibre sharing from UPPTCL, scheme shall be prepared by CTUIL and put up for approval in NCT after getting views of NRPC.

It is requested that UPPTCL may provide their consent for above mentioned sharing of fibers to CTUIL so that scheme shall be finalised at the earliest.

Thanking you,

Yours faithfully,

(H S Kaushal)
Sr. GM (CTUIL)

Appendix-III

S. No.	Items	Details
1.	Name of Scheme	Redundant communication for Saharanpur (PG) S/s
2.	Scope of the scheme	Supply & Installation of 48F OPGW (**15.8 Km**) from Saharanpur Gantry to LILO point (Tower no. 59) of 400kV Roorkee/Baghpat line along with one (01) STM16 communication equipment at Saharanpur S/s
3.	Objective / Justification	Presently Saharanpur S/s (PG) is connected with ISTS network on radial and no redundant path is available. Redundant communication for Saharanpur S/s was deliberated in 2nd, 3rd & 4th CPM held on dtd 25.07.2022, 17.02.2023 & 25.07.2023 respectively. Later, this agenda was discussed in 23rd TeST Meeting, where it was decided that redundant communication for SaharanpurS/s can be provided by sharing 3 pairs of fiber on the following UPPTCL links: 1. Sahararnpur (PG)- Deoband (UP) 2. Deoband (UP)- Saharanpur (UP) 3. Saharanpur (UP) -Nanauta (UP) 4. Nanauta (UP)-Shamli (UP) 5. Shamli (UP) -Muradnagar (UP) In the 23rd TeST meeting, NRPC suggested CTU to write a letter to UPPTCL for consent on fiber sharing on the above links, thereafter CTU has written a letter dtd 02.11.2023 to UPPTCL. (Letter attached as ***Annexure- IIA***) In the 24th TeST meeting held on 09.02.2024 this matter was again deliberated, and it was decided that two nos. of FOTE shall be required at Shamli and Muradnagar alongwith Fiber sharing on UPPTCL links. This agenda was also deliberated in the 72nd NRPC held on 29-30 March'24 where forum suggested that matter may be brough after formulation of fiber sharing policy by CEA for which a committee is formed. In the 26th TeST Meeting of NRPC held on 19.11.2024 NRLDC put up this agenda again for deliberation. POWERGRID informed that redundant communication of Saharanpur S/s can be made by installing OPGW on the

		second peak of 400kV Saharanpur- Roorkee/Baghpat line. i.e., OPGW shall be laid from Saharanpur Gantry to LILO point (Tower no. 59) of 400kV Roorkee/Baghpat line. Total 15.8 Kms of OPGW shall be laid along with one (01) STM16 communication equipment at Saharanpur S/S, Forum agreed for the same. For the formation of final scheme, CTU requested POWERGRID to provide complete connectivity details with schematic diagram so that scheme can be put up in the upcoming NRPC meeting for review. POWERGRID vide mail dtd. 28.02.2025 has provided their input regarding redundant connectivity of Saharanpur S/s (PG). Based on the input received and deliberations of the 26th TeST Meeting**.** Further it is to mention that "**Comprehensive Guidelines for the Usage and Sharing of Fiber Cores of Optical Ground Wire (OPGW) and Underground Fiber Optic (UGFO) Cables for Power System Applications" are published by CEA vide letter dtd. 03.03.2025 (Attached as Annexure-IV).** UPPTCL may now share the fiber infrastructure which shall obviate the said scheme.
4.	Estimated Cost	**Rs. 1.33 crore (approx.)**
5.	Implementation timeframe	**24 months from date of allocation**
6.	Implementation Agency	**POWERGRID**
7.	Implementation mode	**RTM mode**
8.	Deliberations in different meetings	**a.** 8th NR CPM held on 03.02.2025 b. 26th NRPC TeST Meeting held on 19.11.2024 c. 72nd NRPC held on 29-30 March'24

Annexure-AA.V

सत्यमेव जयते

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

Subject: Comprehensive guidelines for the usage and sharing of optical fibers of OPGW/UGFO cables for power system applications - reg

महोदय / Sir,

The rapid expansion and modernization of the power sector necessitate a robust, secure and efficient communication infrastructure. Optical Ground Wire (OPGW)/Underground Fiber Optic Cable (UGFO) plays a crucial role in ensuring seamless data exchange, real-time monitoring, and reliable operation of power systems. However, with increasing demands and multiple stakeholders involved in fiber usage, it became essential to establish a structured framework governing the sharing and utilization of fiber cores of OPGW/UGFO cable.

A Committee was constituted under the chairmanship of Member (Power System), CEA tasked with formulating 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.

With the collective efforts of the Committee, CEA has formulated 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. The list of nominated members and the Terms of Reference of the Committee are attached as Annexure to the guidelines.

It is requested that all utilities/TSPs, power system stakeholders, and users to adopt and adhere to these guidelines.

भवदीय,
Signed by Suman Kumar Maharana
Date: 03-03-2025 13:13:55
(S K Maharana)
Chief Engineer,
Power System Communication Development Division,
Central Electricity Authority

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

भारत सरकार
Government of India

केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority

विद्युत मंत्रालय
Ministry of Power

February 2025

Acknowledgement

The rapid expansion and modernization of the power sector necessitate a robust, secure and efficient communication infrastructure. Optical Ground Wire (OPGW)/Underground Fiber Optic Cable (UGFO) plays a crucial role in ensuring seamless data exchange, real-time monitoring, and reliable operation of power systems. However, with increasing demands and multiple stakeholders involved in fiber usage, it became essential to establish a structured framework governing the sharing and utilization of OPGW fibers.

The formulated guidelines establish a structured approach to fiber allocation, safeguarding power system communication needs and mitigating future conflicts. These guidelines also ensure that commercial leasing of fiber cores is managed in a way that does not hinder the grid's operational efficiency and reliability.

A committee was constituted with the approval of the Chairperson, CEA, to formulate comprehensive guidelines for the usage and sharing of fiber cores of OPGW/UGFO cable for power system applications. The complete list of the nominated members of the Committee as well as Terms of Reference of the Committee has been annexed with the guidelines.

As the Convenor of the Committee, I express my deepest gratitude to all committee members for their invaluable contributions in shaping these guidelines. Their collective efforts have resulted in a standardized framework that will ensure transparency and efficiency in the usage and sharing of OPGW fiber infrastructure. The technical insights and dedication of all Committee members have played a crucial role in developing these comprehensive guidelines, which will significantly mitigate conflicts and enhance the reliability of grid communications.

I extend special thanks to Shri Ghanshyam Prasad, Chairperson, CEA, for his vision and leadership in constituting this Committee. I am also grateful to Shri A K Rajput, Member (Power Systems), CEA, for chairing the Committee and steering discussions towards a balanced and effective outcome.

Furthermore, I would like to acknowledge the specific contribution made by the officers of Power System Communication Development Division, CEA namely Ms. Priyam Srivastava, Deputy Director; Shri Akshay Dubey, Deputy Director and Shri Arjun Agarwal, Assistant Director. The guidelines have been brought out by the dedicated and sincere efforts of these officers.

Shri S K Maharana,
Chief Engineer, PSCD Division & Convenor of the Committee

Table of Contents

Abbreviations:

1.	AGC - Automatic Generation Control
2.	CERC - Central Electricity Regulatory Commission
3.	CTU - Central Transmission Utility
4.	FOTE - Fiber Optic Terminal Equipment
5.	GSS - Grid Substation
6.	IEEE - Institute of Electrical and Electronics Engineers
7.	IEC - International Electrotechnical Commission
8.	InSTS - Intra-State Transmission System
9.	IPPs - Independent Power Producers
10.	ISGS - Inter-State Generating Station
11.	ISTS - Inter-State Transmission System
12.	LILO - Loop-in-Loop-Out
13.	NLDC - National Load Dispatch Center
14.	NoC - No Objection Certificate
15.	OPGW - Optical Ground Wire
16.	PMU - Phasor Measurement Unit
17.	PSCD - Power System Communication and Development
18.	RLDC - Regional Load Dispatch Center
19.	RoW - Right of Way
20.	SCADA - Supervisory Control and Data Acquisition
21.	SERC - State Electricity Regulatory Commission
22.	SLDC - State Load Dispatch Center
23.	STU - State Transmission Utility
24.	TSP - Transmission Service Provider
25.	UGFO – Under Ground Fiber Optic Cable
26.	VoIP - Voice over Internet Protocol

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

---

1. Introduction

1.1. These guidelines have been formulated to establish a uniform procedure for the sharing of fiber cores of Optical Ground Wire (OPGW)/ Under Ground Fiber Optic (UGFO) Cable deployed across the power transmission network, ensuring reliable, secure, and continuous monitoring and operation of the grid. They provide a comprehensive framework for fiber allocation, addressing the diverse needs of grid operations, system protection, as well as authorized commercial use. It establishes principles for effective resource allocation, maintaining sufficient redundancy to support future requirements, such as Loop-in-Loop-Out (LILO) expansions, network reconfiguration and scalability to accommodate evolving operational demands.

1.2. In alignment with the *Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020*, and the *Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022*, these guidelines have been formulated to support seamless communication needs for power system at national level, regional level, inter-state and intra-state level. By fostering a consistent approach to fiber sharing and allocation, these guidelines intends to promote interoperability and efficiency across multiple entities and users within the power system, ensuring reliable and uninterrupted communication system, which is critical for grid stability and operations.

2. Allocation Requirements

2.1. On any transmission line, minimum of 6 fibers are always in use for critical grid communication, supporting Supervisory Control and Data Acquisition (SCADA), Phasor Measurement Unit (PMU), Voice over Internet Protocol (VoIP), Automatic Generation Control (AGC), and other real-time operations (2 Main, 2 Hot Standby, 2 Spares).

Additionally, for transmission lines requiring line differential protection:

- **4 fibers** are used for reliable differential protection of single feeder (S/c line).
- **8 fibers** are used for reliable differential protection of a double circuit (D/c) line.

2.2. Over and above these fibers which are already in use, the fibers that shall be spared for future grid communication requirements, based on need, is tabulated below:

Type of Future Grid Communication Requirements	**Fiber Allocation**	**Remarks**
Alternate Communication Path/Future expansion/Reconfiguration/LILO requirement/Inter-Utility Communication etc.	Upto 6 Fibers	Shall be spared as and when required for future grid communication requirements of ISTS/In-STS/ISGS/Radial feeders etc.

Type of Future Grid Communication Requirements	Fiber Allocation	Remarks
Line Differential Protection with future reconfiguration, if applicable.	Upto 4 Fibers per circuit	Shall be spared in case new differential protection schemes are required due to system expansion, reconfiguration or LILO additions.
Technology Migration/Centralised Asset Management & Control.	Upto 4 Fibers	Shall be spared for simultaneous transition to next-generation communication networks (e.g., packet-based systems).

Additional Considerations:

1. The actual number of healthy fiber cores to be spared free of cost for future grid telemetry requirements, within the limits stipulated in table above, shall be decided as and when the need arises.
2. **Commercial Utilisation of Fiber cores** –

   - While leasing excess fibers for **non-grid applications**, utilities/Transmission Service Providers (TSPs) must **reserve the right to intervene, seek withdrawal, or cease utilization of leased fibers** to address any emerging grid requirements. The contract to include flexibility for renewal or termination based on evolving needs.

   - The **number of fiber cores to be leased** and the **duration of leasing** must be planned in a rational way, such that, whenever the need arises to spare fibers for grid applications, their availability cannot be denied on the premise that the spare fibers are already leased out for commercial purpose. Additionally, under no circumstances should the routing of grid application data to the SLDC/RLDC (State/Regional Load Dispatch Centers) be adversely affected.

3. Commercial Utilization of OPGW Fibers for other purposes

3.1. While Optical Ground Wire (OPGW) is primarily implemented on transmission assets for telemetering power system parameters and ensuring reliable grid communication, spare fiber cores may be commercially utilized under the following conditions:

3.1.1. **Grid Applications Take Priority** – Spare fibers can be leased for commercial purposes, provided that whenever the need arises for grid applications, the number of cores within the limits stipulated in the Allocation Requirements, is made available without exception.

3.1.2. **Assessment of Future Grid Communication Needs –** Before leasing fiber cores, STUs/TSPs must conduct an assessment of impending grid communication requirements for atleast next five years. This assessment shall be holistic considering state/regional/national level requirements for routing of the data to SLDCs/RLDCs. STUs/TSPs intending to lease fiber cores to collaborate with CTU to discuss:

- Upcoming **grid expansion plans** and their communication requirements.
- Possible dependencies where **ISTS/STU networks need mutual data routing support**.
- The spare fiber capacity that should be **retained for future grid needs** before considering commercial leasing.

Based on this assessment, entities must determine **how many cores can be leased** and the **duration of leasing**, without affecting the availability for future grid applications.

3.1.3. **Termination Clause in Leasing Contracts** – All leasing contracts must include a termination clause, mandating at max 18 month notice period for making the fiber cores available for grid applications whenever required. This ensures that grid operator can reclaim the necessary fibers for critical grid operations with adequate notice. However, it is always advisable to retain some spare fibers for emergency or future grid communication needs in advance, rather than having to invoke the termination clause of the contract when the need arises.

3.1.4. **Regulatory Compliance** – Any commercial utilization of spare fibers must adhere to applicable CERC/SERC regulations pertaining to the 'Sharing of Revenue Derived from Utilization of Transmission Assets for Other Business.'

3.1.5. **Intimation to RPCs for ISTS Fiber Leasing** –

Any ISTS licensee/TSPs proposing to lease fiber cores on a commercial basis must provide prior intimation to the concerned Regional Power Committees (RPCs) regarding:

i. The number of fiber cores proposed for commercial utilization.
ii. The duration of the lease.
iii. The mechanism incorporated in the contract to ensure fiber availability in case of future grid requirements.

3.2. It must be emphasized that the primary purpose of fibers in OPGW/UGFO implemented as part of a transmission scheme is reliable telemetering of power system parameters. Commercial utilization of these transmission assets can only be done after a prudent evaluation of future grid communication needs, ensuring that grid operations are never compromised.

3.3. Proper planning and foresight are necessary to ensure that the commercial use of spare fibers does not jeopardize the security, reliability, and expansion needs of the power system communication network.

4. Sharing Scenarios

The table below outlines fiber-sharing arrangements across different transmission line ownership scenarios, ensuring that:

- Fibers essential for grid operations are spared free of cost, irrespective of whether they are required for Intra-State (InSTS) or Inter-State (ISTS) communication needs.
- Entities to spare healthy fibers, within the limits stipulated in the Allocation Requirements, whenever grid needs arise.

Scenario	**Entity to manage the allocation for grid operation purposes.**	**Fiber Sharing**
i) OPGW Laid Under ULDC Scheme on ISTS Lines	Owned and maintained by POWERGRID. Allocation to be managed by CTU.	Fibers to be **spared free of cost** as per Allocation Requirements outlined in Clause 2, whenever required by **STUs, ISTS Licensees/TSPs** for any type of future grid communication requirements.
ii) OPGW Laid Under ULDC Scheme on Intra-State Lines (InSTS)	Owned and maintained by POWERGRID. Allocation to be managed by STU with CTU coordination.	Fibers to be **spared free of cost** as per Allocation Requirements outlined in Clause 2, whenever required by **STUs, ISTS Licensees/TSPs** for any type of future grid communication requirements.
iii) OPGW Laid by STUs on Intra-State Lines	Owned and maintained by STU. Allocation to be managed by STU.	Fibers to be **spared free of cost** as per Allocation Requirements outlined in Clause 2, whenever required by **STUs, ISTS Licensees/TSPs** for any future grid communication requirements.
iv) OPGW Laid by CTU/POWERGRID on Intra-State Lines	Owned and maintained by POWERGRID. Allocation to be managed by CTU with STU coordination.	50% fibers allocated for **ISTS operations**, 50% for **Intra-State operations**. If more than 50% is required by either, fibers to be **spared free of cost**, for any type of future grid communication requirements.
v) OPGW Laid by TSPs on ISTS Lines under TBCB/RTM Projects	Owned and maintained by TSP. Allocation to be managed by CTU	Fibers to be **spared free of cost** as per Allocation Requirements outlined in Clause 2, whenever required by **STUs, ISTS Licensees/TSPs** for any type of

Scenario	Entity to manage the allocation for grid operation purposes.	Fiber Sharing
		future grid communication requirements.
vi) OPGW Laid by TSPs on Intra-State Lines through TBCB	Owned and maintained by TSP. Allocation to be managed by STU	Fibers to be **spared free of cost** as per Allocation Requirements outlined in Clause 2, whenever required by **STUs, ISTS Licensees/TSPs** for any type of future grid communication requirements.
vi) OPGW Laid by POWERGRID/STU's on Deemed ISTS Lines	Owned and maintained by POWERGRID/STU. Allocation to be managed by CTU with STU coordination.	50% fibers allocated for **ISTS operations**, 50% for **Intra-State operations**. If more than 50% is required by either, fibers to be **spared free of cost** for any type of future grid communication requirements.
vi) OPGW Laid by TSPs at their own cost, utilizing the ISTS asset/RoW, with necessary approvals from CERC.	Owned and maintained by TSP. Allocation to be managed by CTU, as the OPGW now, is forming integral part of backbone ISTS Communication network. It is assumed that: • No OPGW was included in the originally approved scheme for the transmission line. • The TSP obtained necessary approvals from the competent authority prior to laying the OPGW.	Fibers to be **spared free of cost** as per Allocation Requirements outlined in Clause 2, whenever required by **STUs, ISTS Licensees/TSPs** for any type of future grid communication requirements.

5. Integration of FOTE for Differential Protection

5.1. Differential teleprotection is a vital component of power system protection, ensuring rapid and selective fault clearance. The choice of communication medium, whether IEEE C37.94 (herein after referred as C37.94) protocol over a shared fiber or separate optical fibers, significantly impacts the reliability and performance of this protection scheme.

5.2. The choice between C37.94 compliant FOTE and separate fiber cores for differential teleprotection depends on a variety of factors, including line length, voltage level, criticality, and network conditions. While C37.94 can be a cost-effective solution for certain applications, separate fibers offer superior reliability and faster fault clearance, making them the preferred choice for critical transmission lines, especially at higher voltage levels.

5.3. The Regional Power Committees (RPCs) generally prioritize a **reliable and dedicated communication link for line differential protection** to ensure the integrity and security of protection signals, especially given the criticality of fast and accurate fault detection for power system stability.

5.4. While specific practices may vary depending on the line's voltage level, length, and criticality, however, in order to guarantee reliable communication for line differential protection systems, the Committee recommends the following provisions:

Condition	**Recommendation**	**Reason**
High-Criticality and High-Voltage Lines (220 kV and above) requiring line differential protection	Preference to dedicated or separate fiber cores for line differential protection rather than shared fibers.	As per IEC 60834, which governs teleprotection equipment, the RPCs lean towards using communication setups that meet high reliability and availability standards, favoring separate fibers to reduce signal attenuation and improve reliability for critical protection.
Lower-Criticality or lines with Voltage below 220 kV requiring line differential protection	Line differential protection may be allowed on shared fibers via Fiber Optic Terminal Equipment (FOTE) using the C37.94 protocol	Multiplexing protection signals over a shared fiber can be a cost-effective solution, particularly when the risk of latency and interference is lower due to shorter transmission distances and moderate fault current levels.
High-Criticality and High-Voltage Lines (220 kV and Above) requiring line differential protection. However, having constraint in availability of dedicated Optical fibers.	Line differential Protection using C37.94-compliant FOTE over shared fiber may be allowed with the following condition: • The setup must meet the provisions of IEC 60834 regarding speed, security, and dependability standards under real-time conditions.	By ensuring reliable and timely communication, C37.94-compliant FOTEs can contribute to meeting the requirements of IEC 60834.

6. Routing of OPGW Fibers during LILO

6.1. In case of Loop-In-Loop-Out (LILO) of transmission lines, routing OPGW fibers must be done in a way that preserves the operational integrity of the grid's communication infrastructure. Key recommendations are elucidated in table below:

Main Line and LILO Configuration	**LILO Tower Type**	**OPGW Installation Requirement**	**Fiber Routing/Splicing in New Substation**	**Configuration Adjustments in Existing Substations**
Main Line: D/c, 24-Fiber OPGW; S/c LILO	M/c Or D/c Tower (Single Tower for Loop In and Out) with two Earth wire peaks	Install 24 F OPGW on both earthwire peaks i.e same Nos. of OPGW as that of main line on both earth wire peaks.	Route required no. of fibers only through the new substation. Splice the required number of fibers for the LILO section at the appropriate point.	Configure protection schemes and data transfer systems to accommodate the new line and substation Ensure fiber continuity for main line traffic.
Main Line: D/c, 24-Fiber OPGW; D/c LILO	Two Separate D/c Towers (Separate Loop In and Out)	Install 24F OPGW i.e same Nos. of fiber cores as that of main line on one earthwire peak per tower.	Route all fibers of OPGW from the main line through the new substation. Splice the required number of fibers for the LILO line at the new substation, if the new S/stn is of different entity.	Configure protection schemes and data transfer systems to accommodate the new line and substation Ensure fiber continuity for main line's traffic through the new S/stn
Main Line: D/C, 24-Fiber OPGW; D/c LILO	Multi-Circuit Tower	Install 24 F OPGW on both earthwire peaks i.e same Nos. of OPGW as that of main line on both earth wire peaks.	Route all fibers of OPGW from the main line through the new substation. Splice the required number of fibers for the LILO line at the new substation, if the new S/stn is of different entity.	Configure protection schemes and data transfer systems to accommodate the new line and substation Ensure fiber continuity for main line's traffic through the new S/stn

Main Line and LILO Configuration	LILO Tower Type	OPGW Installation Requirement	Fiber Routing/Splicing in New Substation	Configuration Adjustments in Existing Substations
Main Line: D/c (220 kV/132 kV), 24-Fiber OPGW; S/c LILO	Tower with Singe Earth wire peak	Install 48F OPGW i.e., double the number of fiber cores as that of main line on single peak available in LILO portion	Route half number of fibers (12F) of OPGW from the main line through the new substation Splice the required number of fibers for the LILO section at the appropriate point.	Configure protection schemes and data transfer systems to accommodate the new line and substation. Ensure fiber continuity for main line traffic.
Main Line: S/C (220kV/132 kV), 24-Fiber OPGW; S/c LILO	Tower with Singe Earth wire peak	Install 48F OPGW i.e., double the number of fiber cores as that of main line on single peak available in LILO portion	Route all fibers (24F) of main line OPGW through the new substation to maintain continuity between the existing stations. Splicing of all the fibers at the new S/stn to be done to integrate LILO traffic.	Configure protection schemes and data transfer systems to accommodate the new line and substation. Ensure fiber continuity for main line's traffic through the new S/stn.

6.2. Whenever a Transmission Licensee implements a Loop-In-Loop-Out (LILO) arrangement on an existing transmission line, adjustments must be made in the **existing Substations**, including **Fiber Optic Terminal Equipment (FOTE)**, **relays**, and **other protection equipment** to ensure seamless integration and reliable protection.

Table summarizing LILO adjustments in existing Substations

Equipment	Adjustments Required	Details
Fiber Optic Terminal Equipment (FOTE)	Signal reconfiguration, routing modifications, capacity upgrades, synchronization, integration with new FOTE, supply of necessary optical	Ensure compatibility with new LILO traffic, enhance capacity if required, and synchronization with relays.

Equipment	Adjustments Required	Details
	interfaces to meet link budget requirement.	
Relays	Reconfiguration of protection schemes, distance zone adjustments, differential protection tuning.	Modify relay settings for fault detection across LILO, adjust impedance settings, and back-up coordination.
SCADA and Telemetry	Data routing, alarm configuration, SCADA system updates.	Integrate new LILO substation data into SCADA, configure additional alarms for LILO events.
Amplifiers/Signal Boosters	Installation if required, signal quality testing.	Ensure strong signal levels across LILO paths, perform attenuation checks.
Protection Redundancy	Ensure redundancy, perform testing and commissioning.	Verify that no single point of failure exists, conduct fault simulations, and document updated settings.

6.3. The entity undertaking the LILO installation and commissioning of the new substation shall ensure that all necessary adjustments, interfaces, and configuration support are implemented to maintain seamless data communication and reliable operation of protection schemes without signal degradation or loss. It is incumbent upon this entity to provide comprehensive support to the owner of the existing substation, facilitating integration and ensuring that all configuration and interoperability requirements are met to uphold continuous, high-integrity signal transmission and effective protection functionality across the network.

6.4. When the LILO is performed at the substation, the leased fiber cores, if any, by the main line owner must be routed continuously through the LILO section. Entity undertaking LILO cannot commercialize fibers routed for main line owner's use to prevent potential disputes.

7. Maintenance of Database:

7.1. CTU for ISTS/ STUs for InSTS shall be responsible for monitoring the utilization of OPGW fibers and ensuring compliance with the established conditions. The CTU/STU shall maintain a comprehensive database that clearly segregates:

1. **Total number of OPGW fiber cores:** The total number of fiber cores available on the OPGW of the transmission lines.
2. **Number of cores utilized for grid applications:** The number of fiber cores currently being used for essential grid operations
3. **Spare cores reserved for grid applications:** The number of fiber cores specifically retained for future grid applications.

4. **Number of fiber cores already being shared for grid applications:** The number of fiber cores shared with other grid entities (e.g., other TSPs, STUs, DISCOMs) for grid-related purposes. This should include details of the entities involved in each sharing arrangement.
5. **Number of cores leased on a commercial basis:** The number of fiber cores leased to entities for non-grid applications (e.g., telecom providers, internet service providers). This should include details of the lease agreements, including the lessee, lease period, and terms of termination.

7.2. CTU/STU shall prepare a standardized format/procedure for the TSPs/Licensees to furnish the above data pertaining to OPGW fibers. CTU/STU shall display the data on its website.

8. OPGW Implementation in New Transmission Projects and Upgradation Schemes

8.1. In all the new transmission projects and upgradation schemes, the Planning agency should ensure that any decision regarding deployment of fiber cores considers both present needs and future expansions, balancing the infrastructure's capability with associated costs.

8.2. Planning of OPGW with a minimum of 48 fiber cores to be done, as per feasibility and requirement. For installations within city limits, OPGW may be equipped with 96 fiber cores to also facilitate usage by DISCOMs, SLDCs, RLDCs, and NLDC for last-mile connectivity, contingent upon the load-bearing capacity of the line. This approach will accommodate any additional future requirements, including Loop-In-Loop-Out (LILO) configurations or increased capacity utilizing the same Right of Way (ROW).

8.3. Additionally, since OPGW fibers can also support long-distance telecommunications network across India, the planning exercise should also take into account the dynamics of the telecom industry while determining the number of fibers to be deployed.

8.4. This strategy will facilitate the establishment of a robust, scalable communication network while maintaining efficiency and responsiveness to evolving operational needs across all areas.

9. Implementation Strategy for Existing ISTS/ InSTS Lines

9.1. Any ISTS TSP/In-STS utility/entity planning to lease out spare fiber cores of its OPGW on existing lines on commercial basis shall adhere to all the provisions and framework for fiber sharing and usage, as outlined in these guidelines.

9.2. For TSPs/utilities that have already leased out fiber cores before the issuance of these guidelines, it is expected that, as and when the need arises to spare fibers for grid applications, they will explore all possible means to make available the minimum no. spare fibers that can serve the purpose, free of cost. In cases where conflicts or stalemate arises regarding the availability of requisite number of fibers, a resolution committee shall be formed. This committee will include representatives from the RPCs, PSCD Division of CEA, CTU, concerned STUs /TSPs , with the goal of resolving the issue in a fair and balanced manner.

10. Conclusion

10.1. These guidelines aim to establish a standardized approach to the allocation and sharing of Optical Ground Wire (OPGW) fibers across power sector, ensuring secure, reliable, and scalable communication infrastructure that meets both present and future grid requirements. By implementing uniform principles for fiber allocation and usage, entities across the power sector—including CTU, STU, TSPs, DISCOMs, SLDCs, RLDCs, and NLDCs—can achieve consistent and efficient communication system for grid operations, protection, and commercial applications. These guidelines provide a clear and standardized framework for the allocation and sharing of Optical Ground Wire (OPGW) fibers, balancing the commercial prospects of fiber usage with the imperative of maintaining secure, reliable, and scalable grid operations.

11. Brief of Recommendations for Adoption

11.1. Uniform Fiber Allocation

Entities should adhere to this fiber allocation guidelines/framework for grid operations, ensuring designated fibers for essential communication and protection. Excess fibers may be designated for commercial use, subject to periodic review and regulatory oversight, thereby maximizing resource utilization without compromising the grid stability.

11.2. Compliance with CEA Regulations

All implementations should align with the CEA (Technical Standards for Communication System in Power System Operations) Regulations, 2020 , CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, CERC Interface Requirements and CEA Cyber Security Guidelines, to promote standardized, high-quality communication infrastructures across the power transmission networks.

11.3. Scalability for Future Needs

In areas with high potential for future growth or within city limits, entities are encouraged to install OPGW with 48/96 fiber cores to provide sufficient capacity for last-mile connectivity, future expansions, and LILO requirements, leveraging the Right of Way (ROW) effectively.

11.4. Commercial Usage Protocol

Any commercial usage should adhere to the applicable CERC/SERC Regulations. All leasing contracts must include a termination clause, mandating at max of 18-month notice period for making the fiber cores available for grid applications whenever required. This ensures that grid operator can reclaim the necessary fibers for critical grid operations with adequate notice. However, it is always advisable to retain spare fibers for emergency or future grid communication needs in advance, rather than having to invoke the termination clause of the contract when the need arises.

11.5. **Coordination and Monitoring**

For LILO implementations and OPGW installations in new and upgraded transmission schemes, the entity responsible for installation of the same must provide continuous support to existing substations, facilitating configuration adjustments and ensuring reliable data transfer. Continuous monitoring by CTU is recommended to assess the impact of commercial use and maintain high standards of operational reliability.

These recommendations will ensure that all stakeholders in power system communication can operate within a unified framework, promoting efficiency, compliance, and grid security.

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Composition of the Committee constituted under the chairmanship of Member (Power System), CEA tasked with formulating comprehensive guidelines for the usage and sharing of optical fibers (OPGW) for power system applications:

S.no	Members	Organisation/Association
1.	Member (Power System) (Chair)	CEA
2.	Chief Engineer, PCD	CEA
3.	Chief Engineer, NPC	CEA
4.	Chief Engineer, ET & I	CEA
5.	Member Secretary, RPCs	RPCs
6.	Executive Director, CTU	CTU
7.	Executive Director, Grid India	GridIndia
8.	Executive Director, Powergrid	Powergrid
9.	Representative of Electric Power Transmission Association – 2 TSPs	EPTA
10.	Representative from STUs (at the level of Chief Engineer or equivalent)	• Northern Region: UPPCL, RRVPNL • Western Region: GETCO, MPPTCL •Southern Region: KSEBL,TANTRANSCO • Eastern Region: WBSETCL, OPTCL • North Eastern Region: AEGC

The Terms of Reference (ToR) of the Committee is as follows:

1) **Scope and Purpose:** Define the need to develop guidelines that address the unique requirements and challenges associated with the sharing of OPGW fibers among CTU, STUs, and Private Transmission Licensees.

2) **Allocation Requirements:** Define/determine the number of fibers required for catering to varied applications/services for grid management such as data, speech, protection etc., including minimum spare fibres to be earmarked for grid applications/requirements.

3) **Sharing Scenarios**: Analyse the scenarios wherein the spare fibers in the OPGW laid by an entity is to be shared amongst several entities (CTU, STU, TSPs) to facilitate real time grid monitoring. Formulating the uniform mechanism governing the access, usage, or other aspects of the shared fibers in following scenarios:

(i) Sharing of OPGW laid under ULDC scheme on the ISTS lines.
(ii) Sharing of OPGW laid under ULDC scheme on the Intra-State lines.
(iii) Sharing of OPGW laid by STUs on the Intra State lines.
(iv) Sharing of OPGW laid by CTU/Powergrid on the Intra State lines.
(v) Sharing of OPGW on the ISTS lines laid by TSPs under TBCB and RTM projects.

Identify and define the role and responsibilities of Centre, State, and Private Transmission Licensees in the sharing of OPGW fibers.

4) Investigate the integration of Fiber Optic Terminal Equipment (FOTE) for differential protection in accordance with the C37.94 protocol and bring out recommendations.

5) Define the uniform mechanism of routing of OPGW fibers in case of LILO taken up on any transmission line.

6) Recommend the scenarios/limit of OPGW fibers beyond which it can be utilized for other commercial purposes.

7) Formulate recommendations for seamless adoption of these guidelines.

Nominated Members of the Committee

S. No.	Nominated Member's Name	Designation	Division & Organisation
1.	Shri A K Rajput	Member (Power Systems)	Central Electricity Authority
2.	Shri V K Singh	Member Secretary	NRPC, CEA
3.	Shri Asit Singh	Member Secretary	SRPC, CEA
4.	Shri N S Mondal	Member Secretary	ERPC, CEA
5.	Shri Deepak Kumar	Member Secretary	WRPC, CEA
6.	Shri K B Jagtap	Member Secretary	NERPC, CEA
7.	Smt Rishika Sharan	Chief Engineer	NPC, CEA
8.	Shri Surata Ram	Chief Engineer	ET&I, CEA
9.	Shri S K Maharana	Chief Engineer	PSCD, CEA
10.	Shri J B Len	SE	SRPC, CEA
11.	Shri Shiv K Gupta	Sr. DGM	Comm, CTUIL
12.	Shri Ankur Gulati	DGM	GRID-INDIA
13.	Shri. Doman Yadav	Executive Director	Grid Automation & Communication (GA&C), Powergrid
14.	Smt S.Kannika Parameswari	Chief Engineer	P&C, TANTRANSCO
15.	Shri. Viju Rajan John	Chief Engineer	Transmission System Operation, KSEBL
16.	Shri Binaya Ku Mallick	DGM(Telecom)	E & Q, OPTCL,HQRS
17.	Shri N. K Patel	SE (Telecom)	TR Department, Corporate Office, GETCO, Vadodara
18.	Shri R. B Kathiria	EE (Telecom),	Telecom Unit, 220kV S/s, GETCO, Gondal
19.	Shri Jayesh A Mehta	DE (Telecom)	Telecom Unit, 220kV S/s, GETCO, Ranasan
20.	Shri Arup Sarmah	AGM	LA Communication Division, Kahilipara, AEGCL
21.	Smt. Punam Biswakarma	AGM	CA Communication Division, Samaguri, AEGCL
22.	Shri Ashutosh Bhattacharjee	GM	(T&C and Comm.)
23.	Shri Rajesh Gupta	SE (SLDC)	MPPTCL
24.	Shri Sudhir Nema	SE (Planning)	MPPTCL

S. No.	Nominated Member's Name	Designation	Division & Organisation
25.	Smt. Kshama Shukla	EE (P&D)	MPPTCL
26.	Shri Debasis Sarkar	Chief Engineer	Communication Department, WBSETCL
27.	Shri Vivek Dixit	Chief Engineer	Sanchar and Niyantran, UPPTCL
28.	Shri Sanjay Johari	VP	Business Development & Adani Energy Solutions Ltd.
29.	Shri Tarun Tayal	Head- Govt. Alliances and Partnerships	Sterlite Power

Special Invitee - Power System Technology Development Division, CEA

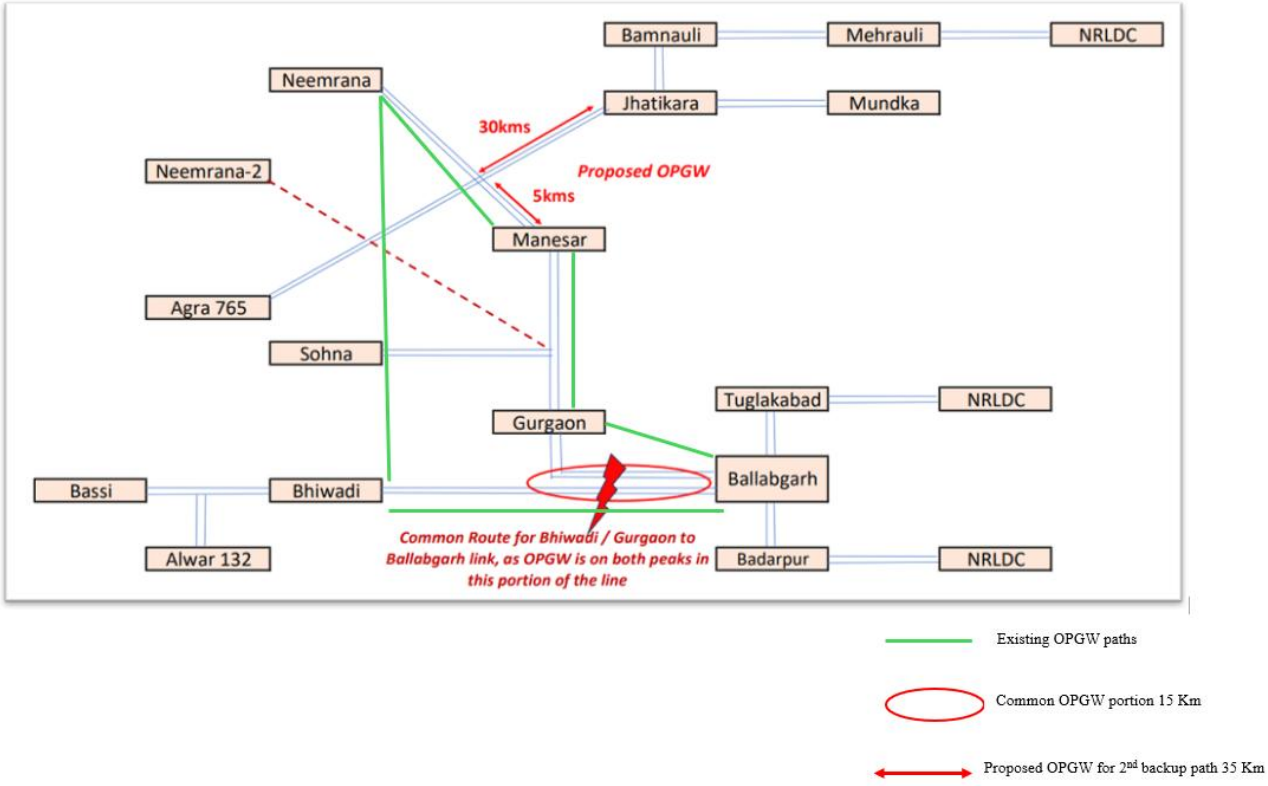
Appendix-IV

S. No.	Items	Details
1.	Name of Scheme	Redundant communication for Manesar (PG) S/s
2.	Scope of the scheme	Supply and Installation of OPGW 48F (35 Km) including SFPs from a. 400kV Neemrana – Manesar line (on 2nd E/W peak) (from the crossing point of Neemrana – Manesar & Agra- Jhatikara line up to Manesar S/s (**5 kms**.) b. 765kV Agra-Jhatikara line (from the crossing point of Neemrana – Manesar & Agra-Jhatikara line up to Jhatikara S/s (**30 kms**).
3.	Objective / Justification	This agenda was deliberated in 67th NRPC held on 30.06.2023 and later on sent for deliberation in 15th NCT Meeting by CTU but due to some observations of CEA PCD, agenda could not be deliberated in the NCT Meeting. In the 8th NR CPM held on 03.02.2025, POWERGRID asked CTU regarding the agenda for redundant communication of Manesar (PG) S/s. CTU asked POWERGRID to provide the revised agenda so that it can be reviewed in upcoming NRPC. CTUIL also stated that this agenda needs to put in NRPC along with the recommendation of CEA-PCD first. *POWERGRID informed CTU that Issue of Manesar redundancy has been briefed to PCD and NRPC by POWERGRID, and consent will be shared before NRPC meeting as per agenda of CTU/POWERGRID.* POWERGRID vide mail dtd 28.02.2025 has provided their input regarding redundant connectivity of Manesar S/s (PG) which are mentioned below: Existing fiber connectivity for Manesar s/s: a. Manesar – Sohna – *Gurgaon – Ballabhgarh* - - - up to NRLDC b. Manesar – Neemrana – *Bhiwadi – Ballabhgarh* - - - up to NRLDC 400kV D/c Manesar- Gurgaon line is LILOed at Sohna Sub-station and further proposed to be

		LILOed at Neemrana-II S/s under Rajasthan REZ Ph-IV (Part-B), which would be in opposite direction and would increase nos of intermediate nodes on redundant path. Gurgaon S/s is established with LILO of 400kV S/C Ballabhgarh – Bhiwadi line, therefore OPGW of Ballabhgarh-Gurgaon & Ballabhgarh - Bhiwadi link are running on common towers on route of approximately 12kms of from Ballabhgarh gantry to Tower No-30. Recently in a tower sabotage case on 400kV S/C Ballabhgarh – Gurgaon line, OPGW of Ballabhgarh to Bhiwadi as well as that of Ballabgarh to Gurgaon link got damaged simultaneously because of common tower / route, which led to disruption of connectivity to Manesar and at the same time in-bound data from Rajasthan including the Solar pocket also got affected. It is also pertinent to mention that all the PMUs of POWERGRID are reporting at NTAMC Manesar and NTAMC WAMS system is connected with main NLDC as well as back-up NLDC, in case any of the RLDCs' WAMS system get down then NTAMC system would work as a back-up control centre for NLDC. In view of the above, redundant communication path for Manesar is very much required. Accordingly, an additional link may be created by laying OPGW on the following two nos. of POWERGRID lines to reach up to NRLDC/NLDC from Manesar. a. 400kV Neemrana – Manesar line (on 2nd E/W peak) (from the crossing point of Neemrana – Manesar & Agra- Jhatikara line up to Manesar S/s (5 kms.) b. 765kV Agra-Jhatikara line (from the crossing point of Neemrana – Manesar & Agra-Jhatikara line up to Jhatikara S/s (30 kms).
4.	Depiction in Figure	Figure attached as ***Appendix-V***
5.	Estimated Cost	**Rs. 2.30 crore (approx.)**

6.	Implementation timeframe	**24 months from date of allocation**
7.	Implementation Agency	**POWERGRID**
8.	Implementation mode	**RTM mode**
9.	Deliberations in different meetings	a. 8th NR CPM held on 03.02.2025 b. 67th NRPC held on 30.06.2023

Appendix-V



Annexure-AA.VI

पावरग्रिड

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उपक्रम)

POWER GRID CORPORATION OF INDIA LTD

(A Government of India Enterprise)

OB-26, "GRID BHAWAN" (Near Bahu Plaza), Rail Head Complex, NR-II, Jammu-180012.
TEL.: 0191- 2475639 .FAX : 0191-2477395,Grams:'NATGRID'
CIN: L40101DL1989GOI038121

संधर्भ स.: **N2JM/PESM/LTS/2019** **दिनांक:** 28.01.2019

To

The Development Commissioner(Power)
Power Development Department, Govt of J&K,
Grid Substation Complex, Janipur,
Jammu (J&K)

SUB.: **Construction of 220KV Srinagar to Leh Transmission system- Regarding deployment of Manpower and taking over by JKPDD.**

Sir,

With great pleasure, it is being informed that complete 220kV Srinagar(Alusteng)-Leh Transmission System has been successfully test charged on 11.01.2019 with support of PDD & Govt. of J&K and this system is going to be dedicated to the Nation by Hon' able Prime Minister of India on 3rd Feb'19. After the dedication the system has to be put under 24x7 operation and cannot be de-energized.

Please refer to our letter Ref No. N2JM/JKPROJ/2019/SLTS/529 dtd 21.01.2019 wherein you have already been requested to take over the system as per MOU. So far PDD has not deputed their manpower to take over the system for its smooth O&M. However, as a special case considering harsh weather, POWERGRID is making arrangement for smooth and uninterrupted operation of SLTS for 3 months i.e upto 30th of April'19. The expenditure in this regard shall be booked **in the project cost**. Meanwhile, it is requested to depute PDD staff, so that they can be made aware/familiarize with the operation and the system can be taken over by PDD smoothly before 30th April'19.

Thanking You

Yours Faithfully

28.01.2019

(Amar Jit)
Chief General Manager
(Commercial & Consultancy), Jammu

CC : Commissioner Secretary,(POWER), Govt. of J&K, Civil Secretariat ,Jammu.

No. 3/18/2011-Trans Vol (2)
भारत सरकार / Government of India
विद्युत मंत्रालय / Ministry of Power
(पारेषण प्रभाग / Transmission Division)
*****

श्रम शक्ति भवन, रफी मार्ग, नई दिल्ली- 110001
Shram Shakti Bhawan, Rafi Marg, New Delhi-110001

दिनांक: 23rd March, 2021

To,

The CMD,
Power Grid Corporation of India Ltd (POWERGRID)
Gurugram, Harayana

Sub:- Maintenance of 220 kV Srinagar-Leh S/c Transmission System -regarding

Sir,

I am directed to say that the 220 kV Srinagar-Leh Transmission System (SLTS) was constructed by POWERGRID with 95% funding from Central Govt and 5% funding from State Government, and commissioned in 2019. As per agreement between POWERGRID and erstwhile Jammu and Kashmir Power Development Department (JKPDD), the said Srinagar Leh Transmission System (SLTS) was to be taken over by JKPDD after commissioning. However, JKPDD is yet to take over the system. Considering the importance of the System, POWERGRID is still maintaining the System, but it is not getting any maintenance charges.

2. The Technical Committee headed by CEA in the meeting held on 28.12.2020 (MoM at **Annex I**) inter-alia recommended that UT of J&K and UT Ladakh to communicate their consent regarding handing over the System as ISTS. UT of J&K and UT of Ladakh vide their letters 3.2.2021 (**Annex II**) and dated 7.1.2021 (**Annex III**) respectively have mentioned that they have no objection regarding declaration of 220 kV Srinagar – Leh Transmission System as Inter State Transmission System (ISTS).

3. In this regard, it may be noted that as per Section 2(36) of the Electricity Act 2003, definition of inter-state transmission system includes "any system for the conveyance of electricity by means of main transmission line from the territory of one State to another State" and accordingly, 220 kV Srinagar- Leh Transmission System has automatically become an inter-state System, after bifurcation of erstwhile State of Jammu and Kashmir into UT of J&K and UT of Ladakh.

23/3/2021.

4. Keeping in view the importance of the Srinagar-Leh Transmission System and recommendation received from Technical Committee headed by CEA, and also the fact that both these UTs have given their consents for declaring the System as ISTS, it is decided to transfer the 220kV Sringar-Leh Transmission System to POWERGRID as ISTS. The O&M charges prior to date of transfer would be shared between two UTs in proportion of respective line length in the UTs. POWERGRID is advised to approach CERC for determination of tariff, so that CERC can decide tariff and other terms and conditions for the Srinagar-Leh Transmission System from the date of transfer, after hearing all the related parties including UT of J&K and UT of Ladakh, after considering POWERGRID's operation and maintenance charges, as well as UT of J&K and UT of Ladakh's contribution in the construction of the line. Date of formation of the two UTs of J&K and Ladakh i.e. 31st October,2019 will be construed as date of transfer of above asset as ISTS to POWERGRID.

5. This issues with the approval of Hon'ble Minister of State (Independent Charge) for Power and NRE and Minister of State for Skill Development and Entrepreneurship.

Encl: As above.

Yours faithfully,

23/3/2021.

(Bihari Lal)
Under Secretary to the Govt. of India
E-mail: transdesk-mop@nic.in
Tele-fax: 23325242

To

1. Chairperson (CEA), R K Puram, New Delhi.
2. Secretary (CERC), New Delhi
3. Commissioner/ Secretary Power Dev. Department, UT of J&K.
4. Commissioner/ Secretary (Power, New & Renewable Energy) to Government of UT of Ladakh.

Appendix-VI

<table>
<tr><th>S. No.</th><th>Items</th><th>Details</th></tr>
<tr><td>1.</td><td>Name of Scheme</td><td>Replacement of Coriant make FOTE at Alstung, Drass, Kargil, Khalsti, Leh S/s</td></tr>
<tr><td>2.</td><td>Scope of the scheme</td><td>Supply and installation of STM-16 FOTE (5 No.) One no. each at the following location:

<table>
<tr><th>S. No.</th><th>Station</th><th>Date of Commissioning</th><th>No. of FOTE</th></tr>
<tr><td>1</td><td>Alstung S/s</td><td>Jan 2019</td><td>1</td></tr>
<tr><td>2</td><td>Drass S/s</td><td>Jan 2019</td><td>1</td></tr>
<tr><td>3</td><td>Kargil S/s</td><td>Jan 2019</td><td>1</td></tr>
<tr><td>4</td><td>Khalasti S/s</td><td>Jan 2019</td><td>1</td></tr>
<tr><td>5</td><td>Leh S/s</td><td>Jan 2019</td><td>1</td></tr>
<tr><td colspan="3">Total FOTE Required</td><td>5</td></tr>
</table>
</td></tr>
<tr><td>3.</td><td>Objective / Justification</td><td>In the 26th TeST Meeting of NRPC, POWERGRID informed that six nos. of Coriant make FOTE installed at Alstung, Drass, Kargil, Khalsti, Leh & Kala-amb sub-stations. These sub-stations were originally under the ownership of J&K, later handed over to POWERGRID by the Ministry of Power (MoP). The cost recovery for these sub-stations is being handled under the RTM mode.

POWERGRID informed that the useful life of the FOTE equipment has nearly been completed, as per CERC's new tariff regulations (2024–29), which specify a lifespan of 7 years for these assets.

Due to difficulties in obtaining AMC services and spares for these aging equipment, replacement of these FOTE has become essential.

Following was concluded in the 26th TeST Meeting:
a. POWERGRID will provide CTUIL with detailed information on the RTM declaration, commissioning dates, and cost estimates for replacing the FOTE equipment.
b. POWERGRID was advised to file a petition with CERC to seek approval for a revised tariff for the sub-stations under RTM mode, considering the completion of the FOTE's useful life.
c. Replacement of FOTE at Kala-Amb sub-station cannot be included under the useful life clause, as the sub-station falls under the TBCB mode.</td></tr>
</table>

		This agenda was further discussed in the 8th NR CPM held on 03.02.2025 where POWERGRID stated the equipment commissioning date is March 2019 and the commissioning date for S/s is 31.01.2019. POWERGRID also shared their concerns about difficulties in obtaining AMC services and spares for Coriant make FOTE equipment. CTU requested POWERGRID to provide the details as deliberated in 26th TeST Meeting so that scheme can be prepared for the replacement of these Coriant make equipment. POWERGRID vide mail dtd. 04.03.2025 provided following inputs: a. Date of Commissioning: 11th Jan 2019 (Letter attached as ***Annexure-IV***) b. RTM Declaration of the Asset: 31st Oct 2019 (Letter attached as ***Annexure-V***) c. Cost for supply and installation of STM-16 FOTE (5 No.): Rs 1.5 Crore
4.	Estimated Cost	**Rs. 1.5 Crs (approx.)**
5.	Implementation timeframe	**12 months from date of allocation**
6.	Implementation Agency	**POWERGRID**
7.	Implementation mode	**RTM mode**
8.	Deliberations in different meetings	**a.** 8th NR CPM held on 03.02.2025 b. 26th NRPC TeST Meeting held on 19.11.2024

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया 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: C/CTU/Comm/HPPTCL/01 08.11.2023

DGM (Protection & Communication),
Himachal Pradesh Power Transmission Corporation Ltd,
V.P.O. Chowki Jamwalan,
Hamirpur- 177020
Himachal Pradesh

Sub: Regarding Fibre Sharing on HPPTCL lines for ULDC purpose for Redundant Communication for Chamera-III (NHPC) & Budhil (GreenCo)

Sir,

This is with reference to 23rd meeting of Telecommunication, SCADA & Telemetry Sub Committee (TeST) of NRPC held on 21.09.23 in virtual mode. The Minutes of Meetings (MoM) were issued on 23.10.2023 and are attached with this letter. In the meeting Redundant Communication for Chamera-III (NHPC) & Budhil (GreenCo) was deliberated at para 8 of MoM.

Further with reference to MoM clause 8.2 of minutes MS, NRPC requested CTUIL to write a letter to HPPTCL for fibre sharing on their OPGW links to provide redundant communication links as under

Fibre Sharing requirement for Chamera-III (NHPC) & Budhil (GreenCo)
Budhil is presently connected via POWERGRID fibre network through Budhil – Chamera III-Chamera PS (ISTS node). To provide redundant communication to Budhil and Chamera III, HPPTCL to share atleast 6 nos. of fibers for ULDC purpose on the following links:

1. Budhil(GreenCo) - Lahal(HP)
2. Lahal (HP) – Chamera PS (ISTS node)

It was deliberated during the meeting that one no. of STM-16 FOTE shall also be planned at Lahal (HPPTCL) in ISTS project alongwith the sharing of fibers mentioned above.

It is to be mentioned that fibres required on HPPTCL links are solely used for ULDC & Grid Management purpose.

After receiving the confirmation of fibre sharing from HPPTCL, scheme shall be prepared by CTUIL and put up for approval in NCT after getting views of NRPC.

It is requested that HPPTCL may provide their consent to CTUIL with copy to NRPC so that scheme shall be finalised at earliest.

Thanking you,

Yours faithfully,

(H S Kaushal)
Sr. GM (CTUIL)

CC:

1. Member Secretary Northern Regional Power Committee 18A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi – 110 016	**2.GM Projects,** Himachal Pradesh Power Transmission Corporation Ltd, New ISBT Road, Panjari (Below Old MLA Quarters), Shimla- 171005, Himachal Pradesh

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)
(भारत सरकार का उद्यम)
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Ref: C/CTU/Comm/J&K/01 08.11.2023

To,
Managing Director,
J&K Power Transmission Corporation Limited,
Janipur, Jammu- 180001

Sub: Regarding Fibre Sharing on JKPTCL links for ULDC purpose for redundant communication of Alusteng, Drass, Kargil, Khalasti, Leh ISTS Nodes

Sir,

This is with reference to 23rd meeting of Telecommunication, SCADA & Telemetry Sub Committee (TeST) of NRPC held on 21.09.23 in virtual mode. The Minutes of Meetings (MoM) were issued on 23.10.2023 and are attached with this letter. In the meeting redundant communication of Alusteng, Drass, Kargil, Khalasti, Leh was deliberated which was deliberated at para 5 of MoM.

Further, with reference to MoM clause 5.2, MS, NRPC requested CTUIL to write a letter to JKPTCL for fibre sharing on their OPGW links to provide redundant communication links as under:

Fibre Sharing requirement for Alusteng, Drass, Kargil, Khalasti, Leh.

Alusteng, Drass, Kargil, Khalasti, Leh are presently connected with RLDC using PowerTel and J&K links upto Wagoora(ISTS node). To provide redundant path to these stations other pairs of fibre of existing OPGW shall be used with existing ISTS FOTE established under substation packages. JKPTCL to share atleast 6 nos. of fibers for ULDC purpose on the following links:

1. Alusteng - Zainakote
2. Zainakote - Wagoora

It was deliberated during the meeting that two nos. of STM-16 FOTE shall be planned one each at Zainakote and Wagoora in ISTS project alongwith the sharing of fibers mentioned above.

It is to be mentioned that fibres required on JKPTCL links are solely used for ULDC & Grid Management purpose.

After receiving the confirmation of fibre sharing from JKPTCL, scheme shall be prepared by CTUIL and put up for approval in NCT after getting views of NRPC.

It is requested that JKPTCL may provide their consent to CTUIL with copy to NRPC so that scheme shall be finalised at earliest.

Thanking you,

Yours faithfully,

(H S Kaushal)
Sr. GM (CTUIL)

CC:

1. Member Secretary Northern Regional Power Committee 18A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi – 110 016	**2.Chief Engineer,** Transmission – Kashmir, J&K Power Transmission Corporation Limited, Bemina, Srinagar, J&K

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
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Ref: C/CTU/Comm/PTCUL/01 08.11.2023

Er. Anupam Singh,
Chief Engineer (SCADA & SLDC)
Power Transmission Corporation of Uttarakhand Ltd.
Dehradun-24800,
Uttarakhand

Sub: Regarding Fibre Sharing on PTCUL lines for ULDC purpose for redundant communication of Pithoragarh (PG) and Sitarganj (PG) stations

Sir,

This is with reference to 23rd meeting of Telecommunication, SCADA & Telemetry Sub Committee (TeST) of NRPC held on 21.09.23 in virtual mode. The Minutes of Meetings (MoM) were issued on 23.10.2023 and are attached with this letter. In the meeting redundant communication of Pithoragarh(PG) and Sitarganj(PG) was deliberated at para 22.1(Sr. No. 8) of MoM.

Further, in the meeting it was deliberated that CTUIL shall write a letter to PTCUL for fibre sharing on their OPGW links to provide redundant communication links as under:

A. Fibre Sharing requirement for Pithoragarh (PG)

Pithoragarh (PG) is presently connected to RLDC with radial path via Jauljivi(ISTS), redundant path of Pithoragarh(PG) can be created via PTCUL OPGW network, PTCUL to share atleast 6 nos. of fibers for ULDC purpose on the following links:

1. Pithoragarh (PG) – Pithoragarh (PTCUL)
2. Pithoragarh (PTCUL) – Almora
3. Almora -bhawoli
4. bhawoli -Haldwani
5. Haldwani -220kv Kamalwaganj
6. 220kv Kamalwaganj - pantnagar
7. Pantnagar - 400kv Kashipur (PTCUL)

At Kashipur (PTCUL), ISTS FOTE is available which is further connected with Bareiley(PG) through ISTS link.

It is understood that links mentioned at 1 & 2 above are in the process of implementation, same may be expedited at your end in order to establish the said redundant path at the earliest.

B. Fibre Sharing requirement for Sitarganj(PG)

Sitarganj (PG) is presently connected to RLDC with radial path via CB Ganj (UP Network), redundant path of Sitarganj (PG) can be created via PTCUL OPGW network, PTCUL to share atleast 6 nos. of fibers for ULDC purpose on the following links:

1. Sitarganj(PG) - Sitarganj(PTCUL)
2. Sitarganj(PTCUL) - Kiccha
3. Kiccha - Rudrapur
4. Rudrapur - Pantnagar
5. Pantnagar – Kashipur (PTCUL)

At Kashipur (PTCUL), ISTS FOTE is available which is further connected with Bareiley(PG) through ISTS link.

It is to be mentioned that fibre required on PTCUL links shall be solely used for ULDC & Grid Management purpose.

After receiving the confirmation of fibre sharing from PTCUL, scheme shall be prepared by CTUIL and put up for approval in NCT after getting views of NRPC.

It is requested that PTCUL may provide their consent to CTUIL with copy to NRPC so that scheme shall be finalised at earliest.

Thanking you,

Yours faithfully,

(H S Kaushal)
Sr. GM (CTUIL)

CC:

1. Member Secretary Northern Regional Power Committee 18A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi – 110 016	**2. Er. D.P. Singh,** Superintendent Engineer (SCADA), Power Transmission Corporation of Uttarakhand Ltd. Haldwani-263139, Uttarakhand

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)
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CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
(A wholly owned subsidiary of Power Grid Corporation of India Limited)
(A Government of India Enterprise)

Ref: C/CTU/Comm/UPPTCL/01 02.11.2023

Managing Director,
Uttar Pradesh Power Transmission Corporation Ltd,
7th Floor Shakti Bhawan,
14-Ashok Marg, Lucknow- 226001
Uttar Pradesh

Sub: Regarding Fibre Sharing on UPPTCL lines for ULDC purpose for redundant communication of Narora (NAPP) (NPCIL) and Saharanpur (PG) ISTS nodes

Sir,

This is in with reference to 23rd meeting of Telecommunication, SCADA & Telemetry Sub Committee (TeST) of NRPC held on 21.09.23 through video conference. The Minutes of Meetings (MoM) were issued on 23.10.2023 and are attached with this letter. In the meeting redundant communication of Narora, NPCIL (NAPP) & Saharanpur (PG) was deliberated which is minuted at para 6 & 14 of MoM.

Further, with reference to MoM clause 6.4 & 14.3, MS, NRPC requested CTUIL to write a letter to UPPTCL for fibre sharing on their OPGW links to provide redundant communication with the following details:

A. Fibre Sharing requirement for NAPP (NPCIL)

NAPP is presently connected via path NAPP (ISGS) -Khurja (UP)-Sikandarabad(UP)- Dadri (UP)– Muradnagar 400(UP) -Dadri (PG). To provide redundant communication for NAPP, laying of approx. 88 Km of OPGW from Narora (ISGS) to Simbhavali (UP) shall be installed under ISTS project and atleast 6 nos. of fibre sharing is required on the following links of UPPTCL:

1. Simbhavali (UP) - Shatabdi Nagar (UP)
2. Shatabdi Nagar (UP) - Modipuram (ULDC node under ISTS)

2 nos. of STM-16 FOTE are proposed under ISTS one each at Simbhavali (UP) and Shatabdi Nagar (UP).
This arrangement will also strengthen the redundancy of Modipuram which is backup SLDC of UPPTCL .

B. Fibre Sharing requirement for Saharanpur (PG)

Saharanpur (PG) is presently connected with Roorkee (PG), to provide redundant communication to Saharanpur (PG) atleast 6 nos. of fibre sharing is required on the following links of UPPTCL:

1. Sahararnpur (PG)- Deoband (UP)
2. Deoband (UP)- Sahararnpur (UP)
3. Sahararnpur (UP) -Nanauta (UP)
4. Nanauta (UP)-Shamli (UP)
5. Shamli (UP) -Muradnagar (ULDC node under ISTS)

5 Nos of STM-16 equipment at Sahararnpur (PG), Deoband (UP), Sahararnpur (UP), Nanauta (UP) and Shamli (UP) are proposed under ISTS.

It is to be mentioned that fibre required on UPPTCL links shall be solely used for ULDC & Grid Management purposes.

After receiving the confirmation of fibre sharing from UPPTCL, scheme shall be prepared by CTUIL and put up for approval in NCT after getting views of NRPC.

It is requested that UPPTCL may provide their consent for above mentioned sharing of fibers to CTUIL so that scheme shall be finalised at the earliest.

Thanking you,

Yours faithfully,

(H S Kaushal)
Sr. GM (CTUIL)