सत्यमेव जयते

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

Dated: 27th May, 2024

सेवा में/ To,

संलग्न सूची के अनुसार/ As per list attached

विषय: दूरसंचार, स्काडा और टेलीमेटरी उपसमिति की 24 वीं बैठक।
Subject: 24th meeting of Telecommunication, SCADA& Telemetry Sub Committee-reg.

उत्तर क्षेत्रीय विद्युत समिति की दूरसंचार,स्काडा और टेलीमेटरी **(**टेस्ट**)** उप-समिति की 24 वीं बैठक दिनांक **09**.02.2024 को 11:00 बजे **सम्मेलन कक्ष**, **एन.आर.पी.सी**, **नई दिल्ली** में आयोजित की गई। बैठक में कार्यवृत इस पत्र क साथ संलग्न है । यह उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट **(**http://164.100.60.165) पर भी उपलब्ध हैं ।

24th meeting of Telecommunication, SCADA & Telemetry (TeST) Sub-committee of NRPC was held on 09.02.2024 at 11:00 am in conference room, NRPC, New Delhi. Minutes of the meeting are enclosed herewith. The same are available on NRPC website at Northern Regional Power Committee.

भवदीय
Yours faithfully,

(प्रवीण जाँगड़ा)/ (Praveen Jangra)
कार्यपालक अभियंता/ Executive Engineer

Signed by Praveen Jangra
Date: 27-05-2024 13:38:15

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Contents

Minutes of
24th Meeting of Telecommunication, SCADA & Telemetry (TeST) Sub- Committee

1. Confirmation of Minutes

1.1. NRPC informed that 23rd meeting of TeST sub-committee was held on 21.09.2023 and the minutes were issued on 23.10.2023.

1.2. Following amendments were requested by DTL vide email dated 26.02.2024 in the minutes of 23rd TeST meeting, and agreed:

Agenda Point	Minutes of 23rd TeST meeting	Amendment Accepted
35.Agenda regarding settlement of issue of MW tower (Asset of HVPNL) installed at 400KV S/s, Bawana (Agenda by HVPNL)	35.1. NRPC informed that issue of MW tower is still pending and asked DTL to update the status. DTL informed that its management is in the process of approval of payment for equivalent scrap value. 35.2. HVPNL stated that vendor is not agreeing for equivalent amount. He is asking for equivalent iron of weight 66.8MT. 35.3. Member Secretary, NRPC suggested that HVPNL should ask the contractor to take the equivalent amount along with interest (as applicable) for scrap and resolve this matter bilaterally. DTL and HVPNL agreed.	35.1. NRPC informed that issue of MW tower is still pending and asked DTL to update the status. DTL informed that its management is in the process of approval of payment for equivalent scrap value. 35.2. HVPNL stated that vendor is not agreeing for equivalent amount. He is asking for equivalent iron of weight 66.8MT. 35.3. Member Secretary, NRPC suggested that HVPNL should ask the contractor to take the equivalent amount along with interest (as applicable) for scrap and resolve this matter bilaterally. DTL and HVPNL noted.

2. Fibre Sharing on STU links for redundant communication to ISTS Nodes (Agenda by CTU)

2.1. CTU explained the agenda to forum and also provided status of various STU fiber sharing as mentioned below:

2.2. HPPTCL has provided the confirmation of fiber sharing with the conditions that Fiber are only to be used for ULDC data purpose and not for any commercial application, further if any guideline/ regulations come in future in such fiber sharing same shall supersede this approval.

2.3. PTCUL stated that they cannot share the fibers however ports can be provided for ISTS data.

2.4. UPPTCL also agreed to share the dark fibers however, they need certain clarifications on the commercial obligations.

2.5. JKPTCL informed that at present Fiber Based Project is being conducted by POWERGRID which is yet to commissioned, after completion of that project they can provide fiber sharing details.

2.6. CTU suggested that in line of HPPTCL other states can also provide their confirmation on 3 pairs of fiber sharing so that scheme can be prepared by CTU.

2.7. MS, NRPC requested UPPTCL and PTCUL to provide the confirmation at earliest. Both replied that they shall revert soon after internal discussion with their management. Since, JKPTCL was not present in the meeting, MS, NRPC suggested that an agenda may be taken up in upcoming NRPC meeting.

Decision of the forum:

2.8. UPPTCL and PTCUL to provide the confirmation at earliest.

2.9. Agenda will be taken up in upcoming NRPC meeting.

3. Hot Line Speech Communication System for Northern Region Nodes (Agenda by CTU)

3.1. CTU stated that at the time of project conceptualization of Hot Line Speech Communication System, CTU, POWERGRID & Grid-India were single entity and planning/ deployment of Hot Line exchange system was done by POWERGRID similar to SCADA system owned by Grid-India. In this regard clarification is required for the planning/implementation/ownership of Hotline exchange system. Further as per CEA Grid Standard, 2010 RLDC and SLDC are responsible for the recording of instruction of grid operation over telephone and keep data upto 6 months. In view of that Hot Line Exchange system seems to be part of Control Centre and not ISTS communication system.

3.2. All members expressed concern about availability of Hotline Exchange that it is a critical infra for Grid Operation and requested CTU to take necessary action for upgradation / replacement of Hotline exchange.

3.3. CTU apprised that scheme is already under planning and it would be finalized after getting inputs form RLDC/ SLDCs for which a separate meeting will be convened by CTU.

3.4. CTU enquired about the present status of petition to be filed by POWERGRID in CERC for the revised depreciation of Hot Line exchange system. POWERGRID stated that they shall file the petition by March'24 and also inform the CTU for the same.

Decision of the forum:

3.5. Forum agreed that Hot Line exchange should be considered as part of communication system.

3.6. Further, in order to reduce time, POWERGRID shall file revised petition and CTU, simultaneously, shall start the finalizing scheme for upgradation/ replacement of Hotline Exchange. Subsequently, CTU shall take up scheme in all RPCs for approval and then in in NCT.

4. Scheme for providing connectivity of STU node on fibre in view of AMR (Agenda by CTU)

4.1. CTU explained that a list has been provided by NRLDC for the stations where ISTS meters (IEM) are installed but their data is intermittent and in public domain. CTU stated that details of such links like line name, kms, etc. were sought by CTU in various meeting for planning of OPGW in view of upcoming AMR system. However, it has not received any data.

4.2. MS, NRPC requested all the SLDCs present in the meeting to get the data from their respective STUs and provide the data by one week to CTU so that CTU can plan a scheme.

Decision of the forum:

4.3. SLDCs to collect requisite data from their respective STUs and provide the data by one week to CTU.

5. J&K Telemetry Issues (Agenda by NRLDC)

5.1. Representative from NRLDC informed that issue of telemetry from J&K is still persisting and there is no improvement. He further emphasized that non-availability/visibility of data to System Operators is causing hindrance to System Operators.

5.2. Member Secretary, NRPC showed serious concern regarding no improvement in telemetry from J&K. He informed that NRPC will write DO letter to Power Secretary J&K for telemetry issues from J&K. He further informed that matter would be taken up in upcoming NRPC meeting since J&K is not present in this meeting.

Decision of the forum

5.3. NRLDC to take up matter in upcoming NRPC meeting.

6. Communication plan for channel redundancy to NRLDC (Agenda by NRLDC)

6.1. Representative from NRLDC informed that redundant communication from below mentioned stations is not updating at NRLDC since long and requested concerned for immediate resolution of the issue. After Discussion following timelines was given:

S.NO.	Name of RTU	Comments	Timeline
1	KISHANGANGA	NHPC	*NHPC informed that work is in progress and redundant communication would be made available in next 7 day,*
2	PARBATI-2	NHPC	*NHPC informed that redundant communication from Parbati-2 and Prabati-3 is linked to installation of OPGW on Parbat2- Prabati-3 – Parbati Pooling and Parbati- Koldam transmission links.* *NRLDC requested that concerned may expedite Installation of OPGW as decided in special meeting between CTU, POWERGRID, NRPC and Grid-India.*
4	PARBATI-3	NHPC	
5	KARCHAM WANGTOO	IPP	*Representative from Karcham and AD Hydro was not available in the meeting.*

6	AD Hydro	AD Hydro	*However as per information received from IPPs, tendering work for the same is in progress and likely to be completed in next 6 months.*
7	Bhiwadi HVDC	POWERGRID	*Representative from POWERGRID informed that proposal for upgradation of gateways at Bhiwadi HVDC was approved in 68th NRPC meeting held on 18.08.2023. However, M/s Siemens is not able to provide suitable solution for upgradation of gateways at Bhiwadi and Ballia in view of old and obsolete version of HVDC system (being proprietary item), POWERGRID has also tried for resolution through third party (M/s Synergy) but they are also not able to find the solution.* *After discussion it was decided that POWERGRID will find some other feasible solution in this matter and submit the details in next RPC Meeting.*

7. Redundant communication to NRLDC (Agenda by NRLDC)

7.1. Additional fibre connectivity to NRLDC via Tughlakabad-NRLDC-R.K. Puram was approved in 19th TeST Meeting held on 07th March 2022. POWERGRID was required to commission the link.

7.2. Connectivity has been commissioned in first week of February 2024.

8. Redundant RTU Communication for Main / Backup RLDC (Agenda by NRLDC)

8.1. Representative from NRLDC informed that as decided in meeting with CEA and CTU and as per communication regulations, redundant communication from all Sub-Stations/Generating Stations shall be made available to Main and Backup control centers i.e., 2 separate channels/ports to Main Control Centre and 2 separate channels/ports to Backup Control Centre.

8.2. He further informed that till date most of the stations have one link to Main Control Centre and one link to Backup Control Centre. He further requested all to please comply the requirement.

8.3. Following updates were shared by concerned:

a. CTU: Representative from CTU informed that they included the requirement in new RfP and also taking up with already approved TBCB projects.

b. POWERGRID: Representative from POWERGRID informed that they have analyzed the requirement of providing additional ports and shall take up for further approval. He further informed that for upgradation 3 categories for stations will come up.

i) Stations with spare ports available: All Sub-stations where Huskey make RTU were commissioned in 2021, additional ports are available and same shall be configured as per requirement during visit of AMC personal.

ii) Stations where additional Cards are required for meeting the requirement.

iii) Stations where SAS needs to be upgraded.

8.4. He further they are preparing detailed proposal for Point ii and iii above and shall put up for approval in next meeting. He further informed that requirement of additional ports at communication level has already been approved in RPC and POWERGRID shall take up for tendering and implementation of the same.

8.5. NRLDC further requested all Generating Stations NHPC, NTPC, NPCIL / TBCB projects / IPP for necessary compliance at the earliest.

Decision of the forum:

Forum agreed and confirmed that necessary actions would be taken at the earliest.

9. EOL/EOS for firewalls supplied under URTDSM Project (Agenda by NRLDC)

9.1. Representative from NRLDC informed that licenses of Internal and External firewall has not been renewed by M/s GEE since October 2023 even after multiple reminders. He further informed that matter has been taken up with top management of POWERGRID since AMC is being executed by POWERGRID through M/s GE. He further requested to please take up with vendor on highest priorities since URTDSM has been declared as CII (Critical Information Infrastructure) and all actions shall be taken to comply NCIIPC, CEA and CERT-In guidelines in respect to Cyber Security requirements.

9.2. Representative from POWERGRID informed that they have taken up with vendor and expecting the renewal of license of firewall at RLDC, NLDC and NTAMC within next 15 days. He further informed that firewall at all SLDCs have gone End of Support /End of Life. They are taking up with vendor for replacement of the same.

9.3. MS NRPC requested POWERGRID to expedite the process.

10. PMU integration of RRVPNL stations supplied under STNAMS (Agenda by NRLDC)

10.1. Representative from NRLDC informed that Integration of PMU installed under STNAMS with URTDSM PDC is still pending and requested RRVPNL to expedite the process. Representative from Rajasthan SLDC informed that ISSC committee has expressed some cyber security concerns and they are taking up with RRVPNL for resolution of the same and it is expected that integration shall be completed within one month.

11. Redundant Communication from Sub-stations/Generating Stations (Agenda by NRLDC)

S.No	Link	Discussion in 24nd TeST Meeting
1.	Redundant communication for Alusteng, Drass, Kargil, Khalasti, Leh	CTU informed that they redundant link can be commissioned through JK link of Alusteng – Ziankote-Wagoora and requested JK to share 3 pair for ULDC purpose. They further informed that two FOTE will be required at Alusteng and Ziankote.

		J&K informed that OPGW is available. However, they will confirm availability after confirmation from higher management. CTU was requested to put up the agenda in forthcoming NRPC meeting after receiving consent from J&K.
2.	Redundant communication for Narora (NAPP) (NPCIL)	CTU informed that they redundant link can be commissioned after commissioning OPGW link on NAPPS – Simbhauli and further utilizing UP links till Modipuram. UP informed that OPGW is available. However, they will confirm availability after confirmation from higher management. CTU was requested to put up the agenda in forthcoming NRPC meeting after receiving consent from UP.
3.	Redundant communication for Sewa-II	POWERGRID confirmed that link has been commissioned.
4.	Redundant Communication for Chamera-III (NHPC) & Budhil	CTU informed that they redundant link can be commissioned through HPPTCL link of Budhil-Lahal-Chamba Pooling Stations and requested HPPTCL to share 3 pair for ULDC purpose. They further informed that two FOTE will be required at Lahal. HPPTCL informed that OPGW is available. However, they will confirm availability after confirmation from higher management. CTU was requested to put up the agenda in forthcoming NRPC meeting after receiving consent from HPPTCL.
5.	Redundant Communication for Pithoragarh (PG) Sitarganj (PG) stations	CTU informed that they redundant link can be commissioned through PTCUL and requested HPPTCL to share 3 pair for ULDC purpose. HPPTCL informed that tender for OPGW is going to be floated and technical approval is in process. However, they will confirm availability after confirmation from higher management and requested to give request letter to PTCUL higher management. CTU agreed to give request letter and after consent for PTCUL higher management they will put the agenda in NRPC for approval.
6.	Redundant communication for Saharanpur (PG) S/s	CTU informed that they redundant link can be commissioned through UPPTCL link of Sahararnpur (PG)- Devband (UP)-Sahararnpur (UP)-Nanauta (UP)-Shamli (UP) -Muradnagar (UP) and requested UPPTCL to

		share 3 pair for ULDC purpose. They further informed that two FOTE will be required at Shamli and Muradnagar. UPPTCL informed that one pair of OPGW is available and can be utilized . However, they will confirm availability for 3 pairs after confirmation from higher management. Further , UPPTCL was requested to integrate Deoband , Sharanpur(UP) and Nanuta equipment's for integration in NMS and better maintenance etc. CTU was requested to put up the agenda in forthcoming NRPC meeting .

12. Implementation of U-NMS Project (Agenda by NRLDC)

12.1. Representative from NRLDC informed although UNMS has been commissioned integration of many Network Elements is still pending and requested CTU/POWERGRID to please take up for integration of pending NEs in UNMS. Following points were discussed.

a) Integration of ABB /Tejas/Fibcom equipments from UPPTCL: POWERGRID informed that they are in process of integration of ABB equipments in UNMS. Further, integration of UNMS of Tejas is complete, Once UPPTCL integrate NEs in their Tejas NMS it will be integrated in UNMS.

b) Regarding integration of Network Equipments from IPPs and TBCB, it was requested that CTU shall convene special meeting with IPPs and other transmission licensee for integration of the same.

c) Regarding integration of GE make equipments from HPPTCL, POWERGRID requested HPPTCL to provide links for integration of the same. HPPTCL confirmed that there were some commercial issues with GE due to which link could not be provided. They are taking up with OEM for integration and trying to resolve the issue at the earliest.

d) Regarding integration of Keymile equipment, POWERGRID informed that there is no support from HVPNL/Keymile for integration of Keymile equipment in UNMS.

Decision of the forum

12.2. After detailed discussion it was agreed and POWERGRID shall share with CTU the list of NEs which are yet to be integrated with UNMS in next 7 days. Upon receipt of list, CTUIL shall take with all concerned for integration of NEs in UNMS and try to resolve all the issues at the earliest.

13. Non-Availability / Reliability of Telemetry from RRVPNL sub-Stations (Agenda by NRLDC)

13.1. Representative from NRLDC noted that proper telemetry is lacking in numerous RRVPNL substations. A list of significant substations is provided in the Annexure-I. The representative urged RRVPNL to prioritize the resolution of these issues promptly/

13.2. Representative of Rajasthan SLDC informed that they have already taken up the issue with STU. However, resolution is still pending from STU.

13.3. MS NRPC expressed concern regarding non-availability of telemetry from RRVPNL stations and requested RRVPNL to expedite the resolution at the earliest. He further informed that matter would be taken up in upcoming NRPC meeting.

Decision of the forum

13.4. NRLDC to take up matter in upcoming NRPC meeting.

14. Display of DC/Schedule of Generating Stations in SCADA Display (Agenda by NRLDC)

14.1. Representative from NRLDC informed that as per requirement from MoP, NRLDC/ NLDC has to monitor reserve available in real-time. Hence it is essential that DC/Schedule of all generators shall be made available in SCADA. Status of DC/Schedule integration is as follows:

1. HVPNL/Punjab: DC/ schedule has been integrated in SCADA; however, automation of the script is pending. They confirmed that same will be completed in next 15 days.

2. Rajasthan: Representative from Rajasthan informed that they have already taken up with OEM and it is likely to be completed in next 7 days.

3. PTCUL: Representative from PTCUL informed that they will expedite the process of integration and will try to integrate within one month.

15. Extension of AMC and Upgradation of Hot Line Speech Communication System implemented by M/s ORANGE (Agenda by NRLDC)

15.1. As per discussion and deliberation in Agenda 2.

16. Calculation of actual drawl by states based on SLDC end SCADA data (Agenda by PSLDC)

16.1. PSTCL informed that all points corresponding to Punjab Drawl have been telemetered and are being used along with ISTS points.

17. Expiration of insurance of Equipment supplied under ULDC Ph-II (Agenda by PSLDC)

17.1. POWERGRID informed that they have covered the insurance through their mega insurance policy. Details of the insurance coverage shall be provided by POWERGRID to all the concerned members.

18. Regarding reporting of RTU/SAS to backup SLDC during ULDC PH-III (Agenda by PSLDC)

18.1. POWERGRID informed that RTU/SAS data reporting to backup SLDC feature is available in existing SCADA system, however due to limitation of communication links during ULDC Phase-II period, scheme was implemented on some alternate method. However, now communication system has been established with redundant routes and RTU/SAS system is also capable of 104 protocol data reporting after replacement/upgradation of old RTU/SAS system. Therefore, this issue might not arise during ULDC phase-III.

18.2. PSTCL / other states are requested to kindly arrange for configuration of multiple ports in RTU/SAS system for reporting of RTU/SAS to main and back up control centers similar to NRLDC and back up NRLDC system.

19. Regarding end of life of Internal Firewall and antivirus (Agenda by BBMB)

19.1. POWERGRID informed that they are in process of procurement of internal firewalls, extension of subscription for external firewalls and antivirus for ULDC Phase-II system under centralized procurement based on discussion in previous NRPC/TEST meetings and joint meeting with state constituents. POWERGRID informed work is expected to be awarded within one month to M/s Siemens.

20. Existing SCADA/EMS System under ULDC Phase-ll scheme and the upcoming ULDC Phase-III Scheme (Agenda by BBMB)

20.1. As per the DPR of upcoming ULDC Phase-III scheme circulated by POWERGRID, the ULDC Phase-III scheme is likely to be commissioned by November, 2025 and the existing SCADA system equipment AMC is valid till 08.06.2025. As such, the AMC Contract for the remaining time period w.e.f. 08.06.2025 to November, 2025 (or any extra time taken by the project to be installed/ commissioned) may get extended from M/s Siemens till the commissioning of ULDC Phase-III Scheme at the same rates, terms and conditions.

20.2. In addition, it is informed that the Bank Guarantee for the Original AMC Contract for BBMB has expired on 30.06.2023. As such, the revised Bank Guarantee for the extended AMC Contract may get submitted from M/s Siemens at the earliest.

21. Regarding EOL of Firewalls for URTDSM Project (Agenda by BBMB)

21.1. As per discussion and deliberation in Agenda 9.

22. Regarding SOC and NOC of Protected System (Agenda by BBMB)

22.1. BBMB stated that SOC and NOC can be implemented by POWERGRID in centralized way for all northern region constituents, similar to ULDC scheme. Rajasthan and Punjab agreed.

Decision of the forum

It was decided that BBMB can request for implementation of centralized scheme for NOC and SOC from POWERGRID. POWERGRID stated that it will be done as per decision of higher management.

23. Pending Payment of M/s Synergy against Annual Maintenance Contract (AMC) of 06 years post Defect Liability Period of Contract: "Replacement of S900 RTUS for Centre Sector and State Constituents for Package-B" (Agenda by BBMB)

23.1. BBMB informed that they have AMC agreement for installed RTUs with M/s Synergy Systems and Solutions. It informed that advanced payment has been done to M/s Synergy but, BBMB has received payment only from UP. BBMB requested other partner states for timely payment to avoid any further delay.

24. End of life Internal Firewall replacement (Agenda by UPSLDC)

24.1. As per discussion and deliberation in Agenda 19.

25. SCADA upgradation project of ULDC Phase-III (Agenda by UPSLDC)

25.1. As per discussion and deliberation in Agenda 20.

26. End of Life/End of support for Internal firewall (Agenda by UPSLDC)

26.1. As per discussion and deliberation in Agenda 9.

27. Mandatory Testing and Certification of Telecom Equipment (MTCTE) (Agenda by NRPC Secretariat)

27.1. EE, NRPC informed that Department of Telecom vide letter no. 6-6/2021-TC/TEC dated 17.10.2023 has requested to ensure that only MTCTE certified Telecom and Networking products are procured and connected in the Indian Telecom Network as mandated by Indian Telegraph (Amendment) Rules, 2017.

27.2. Letter from DoT along with list of equipment is attached at Annexure-II for necessary action.

28. Regarding funding scheme in the present tender of SCADA upgradation under ULDC Phase-III (Agenda by HVPNL)

28.1. POWERGRID informed that it is not possible to change mode at this stage of project. HVPNL can take up this issue separately with POWERGRID.

29. Provision of check meters (SEMs) on outgoing feeders of a generating station. (NRLDC email dated 12.10.2023) (Agenda by NAPS)

29.1. NAPS explained requirement of check meters for five UPPCL 220 kV lines at NAPS as per CEA metering regulation 2006.

29.2. CTU informed that as per standard procedure, NAPS shall approach NRLDC for metering scheme and then approach CTU for further implementation.

30. Calibration of special energy meters / Problem rectification in NAPS-1 GT-1 main meter (Agenda by NAPS) revision of check meters (SEMs) on outgoing feeders of a generating station. (NRLDC email dated 12.10.2023) (Agenda by NAPS)

30.1. NAPS informed about the issue of difference in readings of main and check meters.

30.2. CTU informed that as per regulation 18(3) of Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006,

"Energy Accounting and Audit Meters: Energy Accounting and Audit Meters shall be tested at site through accredited test laboratory at least once in five years or whenever the accuracy is suspected or whenever the readings are inconsistent with the reading of *other meters, e.g., Check Meters, Standby Meters and defective meters shall be recalibrated, if required: Provided that the testing shall be carried out without removing the Instrument Transformers connection*."

Therefore, calibration of meters needs to be carried out at site by respective agencies.

31. Failure of SAN-2 Storage of SCADA system of SLDC BBMB (Agenda by BBMB)

31.1. POWERGRID stated that BBMB can take up this issue with Siemens as minor issues of repair/procurement can be done by respective constituents. Other constituents are also taking up with M/S Siemens for similar type of items on case-to-case basis. POWERGRID will provide support on common issues including major cost implications.

32. S.O.P for Communication Audit for Substations (Agenda by NRPC secretariat)

32.1. EE, NRPC informed that as per CERC (Communication System for inter-State transmission of electricity) Regulations, 2017, SOP for communication audit has been finalized in 14th NPC meeting dated 03.02.2024.

32.2. As per SOP, communication audit shall be conducted in two phases: Scrutiny of documents and Physical verification. Following are pre-requisites for carrying out communication audit:

1. Each User/entity, using inter-state transmission or the intra-state transmission incidental to inter-state, shall submit the detailed report of respective year to RPC Secretariat and RLDC, as per prescribed format on yearly basis **by April end.**
2. In respect of intra-state users/entities, SLDC shall submit detailed reports yearly by the April end of the respective year, to RPC Secretariat and RLDC.
3. Outage report of all the channels (including Network Management System, PLCC etc) report for a month shall be submitted by the Users/entities to RLDC and respective SLDCs, on monthly basis, by **7th day of the next month**. RLDC and SLDCs after verifying the NMS data shall submit report to RPC Secretariat by 15th day.
4. All users/entities and Control Centers shall get the third-party cyber security audits done from a Cert-in certified vendor in compliance of CEA (Cyber Security in Power Sector) and submit detailed report of the Cyber Security Audit by **15th April** for the previous financial Year.

32.3. As per SOP, communication sub audit group comprising **one member each from RPC, RLDC, PowerGrid and One of the respective Region SLDCs is to be formed**. Therefore, nomination is required from NRLDC, POWERGRID and each SLDCs in northern region for communication sub audit group. Communication sub audit group shall scrutinize the information received in RPCs.

32.4. In the second phase, Physical Verification will take place. Based on recommendations of communication audit sub group, audit team shall be constituted for physical inspection and audit plan shall be prepared by NRPC.

32.5. For more details regarding the audit, SOP can be referred. SOP is enclosed as Annexure-III for reference.

32.6. EE, NRPC stated that communication audit process can be started from April 2024 and constituent members can start sending data as per approved SOP.

33. SOP for Communication System Outage Planning (Agenda by NRPC secretariat)

33.1. EE, NRPC informed that as per CERC (Communication System for inter-State transmission of electricity) Regulations, 2017 and Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020, SOP for communication audit has been finalized in 14th NPC meeting dated 03.02.2024.

33.2. As per decision taken in 14th NPC meeting, web Portal named as “Communication System Outage Planning Portal” shall be developed by NRLDC.

33.3. Entities/Users/Owners shall apply for outage of communication links/equipment through web portal by **7th /8th of every month.** NRPC shall circulate the list of outage proposals by **15th of every month**. Communication System Outage Planning (CSOP) meeting shall be conducted **during 3rd week of every month**. Approved outages shall be published on NRPC website **within 3 days from date of CSOP meeting.** Communication outage shall be availed as per procedure mentioned in SOP.

33.4. There is also provision of availing emergency outage in approved SOP. 32.5. For more details regarding the audit, SOP can be referred. SOP is enclosed as Annexure-III for reference.

33.5. EE, NRPC stated that until the web portal gets developed, outage information shall be shared in spreadsheet in a pre-defined format to be finalized by NRPC secretariat in consultation with NRLDC. Subsequently, Communication System Outage Planning shall start from the month of April.

34. SOP for Voice over Internet Protocol (VOIP) connectivity to utilities from RLDC Exchange (Agenda by NRPC secretariat)

34.1. EE, NRPC informed that draft SOP from CTU for VOIP connectivity to utilities from RLDC exchange was discussed in NPC meeting dated 3rd February 2024.

34.2. As per deliberation in NPC meeting, a sub-committee shall be formed having representations from all RPCs, CEA, RLDCs/Grid India, CTU, POWERGRID and concerned private entities to finalize SOP for providing the VOIP connectivity to control centers of TSPs/ Gencos, etc. SOP finalized by the sub-committee shall be taken to NPC for approval.

Annexure-I

STATION	DIGITAL	ANALOG
AAU	LINE ISO	1. BUS V AND FREQ
		2. ICT P AND Q
ADANI KAWAI	ALL ISO	
AJMER 220	ISO	ALL ANALOG VALUE
AKAL	CB AND ISO	BUS VOLTAGE
		BR Q
		JODHPUR LINE P AND Q
ALWAR 400	OK	OK
AMARSAGAR 220	ISO AND CB	ICT HV SIDE ANALOG
BARMER	RAJWEST DIA DIGITAL	ICT HV SIDE ANALOG
BARSINSAR		BUS VOLATGE
BADDISID		BUS VOLATGE
BABAI 400		BUS2 V AND FREQ
		ICT ANALOG
BHILWARA		COMPLETE DATA
BHAINSARA 400		BUS V AND FREQ
	BARMER LINE DATA	BARMER LINE DATA
BHINMAL 220		ANALOG DATA
BIKANER 400	ISO	ICT HV SIDE
BHADLA	ALL DATA	ALL DATA
BHOPALGARH	ALL DATA	ALL DATA
CHIRAWA	ALL DATA	ALL DATA
CHITTORGARH 220	ALL DATA	ALL DATA
CHITTORGARH 400		ICT DATA HV AND LV
CHABBRA 400	DIGITAL DATA	ANALOG DATA
DHOLPUR 220	ALL DATA	ALL DATA
DUNI 220	ALL DATA	ALL DATA
HERAPURA 400	ALL DATA	ALL DATA
HINDAUN 400		ICT HV SIDE DATA
KAWAI 220		ICT ANALOG
KANKANI	ALL DATA	ALL DATA
KANKROLI 220		ANALOG DATA
PHAGI 765		LR Q VALUE
RAMGARH 400		ICT 1 ANALOG VALUE
		BUS 1 V AND FREQ
RATANGARH 400		ICT VALUE
		BUS1 FREQ
RATANGARH 220	ISO	
SRI GANGANAGAR		ICT DATA
PRATAPGARH	ISO	
FALODI	ALL DATA	ALL DATA

Annexure-II

No. 14/02/2021-UR&SI-II-Part(1)(E-258136)
Government of India
Ministry of Power
****

Shram Shakti Bhawan, Rafi Marg
New Delhi, Dated: 10th January, 2024

To

The Chairperson,
Central Electricity Authority,
Seva Bhavan, R.K. Puram,
New Delhi.

Subject: Mandatory Testing and Certification of Telecom Equipment (MTCTE).

Sir,

With reference to the subject cited above, I am directed to say that the Department of Telecom vide letter no. 6-6/2021-TC/TEC dated 17.10.2023 has requested to ensure that only MTCTE certified Telecom and Networking products are procured and connected in the Indian Telecom Network as mandated by Indian Telegraph (Amendment) Rules, 2017. It was also requested that regulatory requirement of obtaining MTCTE certification by OEMs/ Importers before sale of notified Telecom & Networking products may also be communicated to Manufacturers/ Sellers, who are supplying / selling such Telecom & Networking products.

2. In this regard, it was also informed that MTCTE certificate for 12 products being connected to Telecom Network/ used for data transfer (such as Router, LAN Switch, Smart Electricity Meters etc.) will become mandatory from 01.04.2024 and for remaining 32 products from 01.01.2024 (list enclosed).

3. In view of the above, it is requested to take all necessary measures in this regard so that the requirement for MTCTE certification can be made mandatory for OEMs/ Importers as per the stipulated timelines. It is further requested to submit a detailed action plan in this regard to this Ministry latest by 12.01.2024.

5. This is issued with the approval of Competent Authority.

Yours faithfully

Encl.: As above.

(Bimlesh Pawar)
Under Secretary (UR&SI-II)

Copy to:

1. **CMD, REC**
2. **CMD, PFC**

Also copy to: PPS to Secretary (Power)/ PSO to Joint Secretary (Distribution)/ PPS to Dy. Secretary (UR&SI)

डॉ. नीरज मित्तल, भा.प्र.से.
सचिव

DR. NEERAJ MITTAL, IAS
Secretary

सत्यमेव जयते

Azadi ka Amrit Mahotsav

भारत सरकार
संचार मंत्रालय
दूरसंचार विभाग

GOVERNMENT OF INDIA
MINISTRY OF COMMUNICATIONS
DEPARTMENT OF TELECOMMUNICATIONS

DO. No. 6-6/2021-TC/TEC
17th October, 2023

Dear Pankaj,

This letter pertains to procurement of telecom equipment (that may be procured for projects such as Bharatnet and local state telecom/ IT projects) by the State Governments that need to be MTCTE certified. In this regard, Department of Telecommunications (DoT) has notified the 'Indian Telegraph (Amendment) Rules, 2017' vide Gazette Notification No G.S.R. 1131(E) dated 5th September 2017 on 'Testing and Certification of Telegraph.' The said notification mandates that *any telegraph (telecom) equipment which is used or capable of being used with Indian telecom network, shall have to undergo prior Mandatory Testing & Certification in respect of parameters as determined by the telegraph authority from time to time.* The above rules have come into force on 1st October 2018. (Copy of Gazette Notification dated 5th September 2017 is available on DoT website https://dot.gov.in/act-rules.

2. The objective of said mandatory testing and certification is to ensure:

(i) That any Telecom Equipment does not degrade performance of existing network to which it is connected;
(ii) Safety of the end–users;
(iii) Protection of users and general public by ensuring that radio frequency emissions from equipment do not exceed prescribed standards;
(iv) That telecom equipment complies with the relevant national and international regulatory standards and requirements and
(v) Security of Telecom Network/ Systems.

3. In pursuance to above Rules, Telecommunication Engineering Centre (TEC), the technical body under Department of Telecommunications (DoT) is administrating the implementation of Mandatory Testing & Certification of Telecom Equipment (MTCTE) Scheme. The specific Telecom & Networking product covered under MTCTE scheme is notified by TEC from time to time on MTCTE website (https://www.mtcte.tec.gov.in) indicating certification enforcement date.

4. As on date, MTCTE certificate is mandatory for Telecom & Networking product such as Cordless/CLIP/Landline Phone, PABX, FTTH OLT/ONT/ ONU used for broadband services etc. prior to their sale/use in India (Annexure-A).

Contd....2/-

कमरा नं. 210, संचार भवन, 20, अशोका रोड, नई दिल्ली-110001 / Room No. 210, Sanchar Bhawan, 20, Ashoka Road, New Delhi - 110001
Ph.: +91-11-23719898, Fax : +91-11-23711514, E-mail : secy-telecom@gov.in

Further, from 1st January 2024, MTCTE certificate for more products (such as Router, LAN Switch, wifi Access Modems, IoT gateway, Tracking Device, Smart electricity meter, End Point Device for Environmental Monitoring, Optical Fibre, Optical Fibre Cable, Walkie-talkie etc.) will become mandatory as being connected to Telecom network/used for data transfer. The complete list of such notified Telecom product is available on MTCTE website.

Presently, the MTCTE certificate has been issued to more than 3,000 Telecom & Networking product models. The details of MTCTE certified products are available on website (https://www.mtcte.tec.gov.in > certified equipment).

5. In view of the above, it is requested to kindly inform about Mandatory Testing & Certification of notified Telecom equipment to IT Department and other concerned departments/Autonomous bodies/attached offices etc., so as to ensure that only MTCTE certified Telecom & Networking products are procured and connected in the Indian Telecom Network as mandated by Indian Telegraph (Amendment) Rules, 2017. Further, the regulatory requirement of obtaining MTCTE certification by OEMs/Importers before sale of notified Telecom & Networking products may also be communicated to Manufacturers/Sellers, who are supplying/selling such Telecom & Networking products.

6. In case of any further details or clarification in this regard, Director (TC-1), TEC, New Delhi may be contacted on e-mail id: dirta.tec@gov.in.

Yours sincerely

Encl: as above

(Neeraj Mittal)

Shri Pankaj Agarwal
Secretary
Ministry of Power
Room No.205, Shramshakti Bhawan
Rafi Marg
New Delhi – 110 001.

Annexure-A

List of Notified Telecom & Networking Products under Mandatory Testing & Certification of Telecom Equipment (MTCTE)

S.N	Essential Requirement/ Product Name	Main Product Variants	MTCTE Phase	Mandatory date of certification of product underMTCTE
1.	2- Wire Telephone Equipment	2-Line Feature Phone; CLIP (Calling Line Identification Presentation) Phone; Electronic Telephone Instrument; Executive Telephone Systems; Key Telephone Systems; Key Telephone Systems with proprietary interface;	Phase-1	1st October, 2019
2.	G3 Fax Machine	FAX machine with & without handset	Phase-1	1st October, 2019
3.	Modem	V.90 or V.92 or V.21 to V.34 Modem	Phase-1	1st October, 2019
4.	Cordless Telephone	Cordless Telephone	Phase-1	1st October, 2019
5.	ISDN (Integrated Services Digital Network) Customer Premises Equipment	ISDN Gateway; ISDN Terminal;	Phase-1	1st October, 2019
6.	Private Automatic Branch Exchange	Private Automatic Branch Exchange	Phase-1	1st October, 2019
7.	PON (Passive Optical Network) Family of Broadband Equipment	PON OLT (Optical Line Terminal); PON ONT (Optical Network Terminal); PON ONU (Optical Network Unit);	Phase-2	1st October, 2020
8.	Feedback Device	Feedback Device	Phase-2	1st October, 2020
9.	Transmission Terminal Equipment	Multiplexing Equipment; SDH (Synchronous Digital Hierarchy) Equipment	Phase-2	1st October, 2020

Note 1: The complete list/details of MTCTE notified products with enforcement date are available on website https://www.mtcte.tec.gov.in

Note 2: The details of MTCTE certified products (make & model) are available on website (https://www.mtcte.tec.gov.in > certified equipment)

Telecommunication Engineering Centre
(Department of Telecommunications)
Khurshid Lal Bhawan, Janpath, New Delhi - 110 001
https://www.tec.gov.in/

No. 5-2/2021-TC/TEC/185 Dated: 27/12/2023

Amendment Notification

Subject: Extension of mandatory certification date for 12 products (ERs) notified under phase-III & IV of MTCTE by three months i.e. from 01.01.2024 to 01.04.2024 -reg.

Ref: No. 5-2/2021-TC/TEC/131 dated 23/06/2023 & no. 5-2/2021-TC/TEC/172 dated 27/09/2023

In partial modification to this office Notification no. 5-2/2021-TC/TEC/131 dated 23/06/2023 & no. 5-2/2021-TC/TEC/172 dated 27/09/2023, w.r.t. the testing and certification of telecom & networking equipment notified under Phase-III & Phase-IV of MTCTE regime, the following amendments are hereby notified with immediate effect as mentioned below:

a. Extension of date of mandatory certification of 12 products (ERs) out of 44 products notified under MTCTE phase-III and IV by three months i.e. from 01.01.2024 to 01.04.2024. The list of 12 products is placed at Annexure-I.
   Mandatory date of certification for remaining 32 products (ERs) shall remain unchanged i.e. 01.01.2024. The list of 32 products is placed at Annexure-II.

b. Extension of last date of acceptance of test reports issued by labs accredited by International Laboratory Accreditation Cooperation (ILAC) signatories from non-border sharing countries by three months for technical parameters only i.e. from 31.12.2023 to 31.03.2024 for the 08 products (ERs) mentioned in Annexure-III.

This issues with the approval of Competent Authority.

अवधेश सिंह 27/12/2023

अवधेश सिंह/Avadhesh Singh
निदेशक (टी°सी°-I)/Director (TC-I)
Email- dirta.tec@gov.in

Copy to (through email):

i. PS to Hon' ble MoC, DOT, New Delhi
ii. PS to Hon'ble MoSC, DOT, New Delhi
iii. PPS to Secretary (T), DOT, New Delhi
iv. PPS to Member(S)/ Member(T)/ Member(F)/ DG(Telecom), DOT, New Delhi
v. Advisor, TEC New Delhi / Sr. DDG, NCCS Bangalore/ CEO, C-DOT
vi. JS (Customs), CBIC
vii. AD (IT)/AD (TC), TEC for uploading on TEC/MTCTE website
viii. Office copy

Annexure-I

List of 12 products (ERs) under phase-III & IV of MTCTE with mandatory certification date as 01.04.2024

S No	ER/Product	Notified in Phase
1.	Base Station for cellular network	Phase-III
2.	Repeater for Cellular Network	Phase-III
3.	Smart Electricity Meter	Phase-III
4.	SIM	Phase-IV
5.	HF Radio	Phase-IV
6.	Mobile Radio Trunking System	Phase-IV
7.	VHF UHF Radio System Equipment	Phase-IV
8.	PTP PMP Microwave Fixed Radio System	Phase-IV
9.	LAN Switch	Phase-IV
10.	Router	Phase-IV
11.	IP Security Equipment	Phase-IV
12.	Satellite Communication Equipment	Phase-IV

27/12/2023

Annexure-II

List of 32 products (ERs) under phase-III & IV of MTCTE with mandatory certification date as 01.01.2024

S.No	ER/Product	Notified in Phase
1.	Compact Cellular Network	Phase-III
2.	Equipments Operating in 2.4 GHz and 5 GHz Band	Phase-III
3.	IoT Gateway	Phase-III
4.	Tracking Device	Phase-III
5.	End Point Device for Environmental Monitoring	Phase-III
6.	Radio Broadcast Receiver RBR	Phase-IV
7.	Optical Fibre-Single Mode	Phase-IV
8.	Optical Fibre Cable	Phase-IV
9.	DSL Equipments	Phase-IV
10.	Signalling Gateway	Phase-IV
11.	Session Border Controller	Phase-IV
12.	Softswitch	Phase-IV
13.	Media Gateway	Phase-IV
14.	Precision Timing Protocol Grand Master Equipment	Phase-IV
15.	Infiniband Switch	Phase-IV
16.	IP Multimedia Conferencing Equipment	Phase-IV
17.	Conferencing Equipment	Phase-IV
18.	Transmission Terminal Equipment-2 (DWDM, Digital Cross Connect)	Phase-IV
19.	Mobility Management Entity (MME)	Phase-IV
20.	Serving GPRS Support Node (SGSN)/Gateway GPRS Suppor Node (GGSN)	Phase-IV
21.	Base Station Controller (BSC)/Radio Network Controller (RNC)	Phase-IV
22.	Cell Broadcast Centre (CBC)	Phase-IV
23.	Gateway Mobile Location Centre (GMLC)	Phase-IV
24.	Home Location Register (HLR)/Authentication Centre(AUC)/Home Subscriber Server (HSS)	Phase-IV

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25.	Mobile Switching Centre (MSC)/MSC-Server (MSC-S)/ Gateway MSC (GMSC) / Gateway MSC- Server (GMSC-S) including Visitor Location Register (VLR)	Phase-IV
26.	OTA and DM or FOTA	Phase-IV
27.	Service Control Point (SCP)	Phase-IV
28.	Operation Maintenance Support (OMC) / Element Management System (EMS) / Network Management System (NMS) / Operation Support System (OSS)	Phase-IV
29.	Serving Gateway (S-GW) / Packet Gateway (P-GW)	Phase-IV
30.	Short Message Service Centre (SMSC)	Phase-IV
31.	Serving Mobile Location Centre (SMLC) or eSMLC	Phase-IV
32.	Equipment Identity Register (EIR)	Phase-IV

27/12/2023

Annexure-III

List of 08 products (ERs) under phase-III & IV of MTCTE for acceptance of test reports in respect of 'Technical Parameter' up to 31.03.2024 from labs accredited by ILAC signatories from non- border sharing countries

S. No	ER/Product	Notified in Phase
1.	Base Station for cellular network	Phase-Ill
2.	Repeater for Cellular Network	Phase-Ill
3.	Compact Cellular Network	Phase-1 II
4.	SIM	Phase-IV
5.	HF Radio	Phase-IV
6.	VHF UHF Radio System Equipment	Phase-IV
7.	Radio Broadcast Receiver RBR	Phase-IV
8.	Satellite Communication Equipment	Phase-IV

Note: - *As on the date of submission of test reports, the validity of test reports/results issued by foreign labs accredited by ILAC signatories from non-border sharing countries for technical parameters only shall be up to two years in respect of the above products (ERs).*

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27/12/2023

Annexure-III

Final Standard Operating Procedure (SOP) for Communication audit of Substations

1. This procedure has been prepared in compliance to Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017. As per clause 10 of the Regulation, RPC shall conduct annual audit of the communication system annually as per the procedure finalized in the forum of the concerned RPC. However, this SOP for communication audit of substations is finalized to maintain uniformity at the national level. It also mandates that RPC Secretariat shall issue necessary instructions to all stakeholders to comply with the audit requirements within the time stipulated by the RPC Secretariat based on the audit report. An Annual Report on the audit carried out by respective RPC is to be submitted to the Commission within one month of closing of the financial year.
2. The Audit would be conducted in two phases. In first phase scrutiny of the reports, documents etc. In the second phase physical verification shall be carried out.
3. Each User/entity, using inter-state transmission or the intra-state transmission incidental to inter-state, shall submit the detailed report to RPC Secretariat and RLDC, as per prescribed format on yearly basis. The detailed report shall be submitted by the April end of the respective year. This report shall be considered as self-certificate regarding availability and healthiness of the Communication system of respective user/entity.
4. In respect of intra-state users/entities, SLDC shall submit detailed reports yearly by the April end of the respective year, to RPC Secretariat and RLDC.
5. Outage report of all the channels (including Network Management System, PLCC etc) report for a month shall be submitted by the Users/entities to RLDC and respective SLDCs, on monthly basis, by 7th day of the next month. RLDC and SLDCs after verifying the NMS data shall submit report to RPC Secretariat by 15th day.
6. All users/entities and Control Centers shall get the third-party cyber security audits done from a Cert-in certified vendor in compliance of CEA (Cyber Security in Power Sector) Guidelines,2021. The detailed report of the Cyber Security Audit shall be submitted by 15th April for the previous financial Year.
7. RPC Secretariat may ask any other information required for Audit of the communication system in addition to these periodic reports.

Phase-I Audit: Scrutiny of the Information

8. A Communication System Audit Sub-Group comprising one member each from RPC, RLDC, PowerGrid and One of the respective Region SLDCs shall be constituted by RPC Secretariat with the approval of Member Secretary, RPC. The sub-group may co-opt any other member from any organization for facilitating the activities of the sub-group. Further, consultation from CEA may be taken, if required. The Audit team shall be formed excluding the member forthe Organization/Utility whose system is to be audited.
9. The Communication System Audit Sub-group shall scrutinize the information received in RPC Secretariat. The Sub-group may also ask any additional information necessary for its activities. All the users/entities, RLDC, SLDCs shall provide the information to the sub-group on priority within the stipulated time period.
10. The sub-group shall also identify the nodes for physical inspection based on the criticality of the node in view of performance of the communication network or based on the deficiencies observed in the communication system.
11. The Audit would include but not limited to following aspects:
    a. Availability of communication channels. The outage reason needs to be clearly specified whether it is on account of the concerned entity or on account of any other entity, force majeure etc. The list of communication channels would be finalized by Communication System Sub Group in consultation with other stakeholders.
    b. Availability of terminal equipment. The outage reason needs to be clearlyspecified whether it is on account of the concerned entity or on account of any other entity, force majeure etc. The list of terminal equipment would be finalized by Communication System Sub Group. Part outage like failure of specific cards etc. would also be furnished along-with reasons.
    c. Availability of Auxiliary System e.g. Battery Charger, Battery bank, sufficient cooling equipment etc.
    d. Compliance of CERC and CEA Regulations and the procedures under these Regulations.
    e. Completion of periodic testing of the communication system in accordance with procedure for maintenance and testing prepared by CTU.
    f. Audit of all newly commissioned communication equipment within six months of its commissioning.
    g. Completion of 3rd party Cyber Security Audits.
    h. Network traffic w.r.t capacity.
    i. Spare availability, replenishment etc.
    j. Any other parameters as agreed by the Communication Sub Group.

Phase-II Audit: Physical Verification

12. Based on the Recommendations of the Communication System Audit Sub-group, Audit team shall be constituted and the physical inspection Audit plan shall be prepared by RPC Secretariat.
13. Audit team shall be formed on regional basis.
14. Audit shall be carried out in a planned manner as included in this document by a team of three members. The audit team shall comprise of one representative from the RPC Secretariat, one representative from RLDC and one representative from any of the Utilities or SLDCs of respective Region. The Audit team shall be formed excluding the member for the Organization/Utility whose system is to be Audited. The Audit team may co-opt any other member from any organization for facilitating the activities of the committee.
15. Once the plan is finalized, minimum 3 days advance notice shall be served to the concerned Auditee entity intimating the detailed plan so that availability of required testing equipment and the required documents is ensured by Auditee entity and is made available to the Audit team during the site visit.
16. Member Secretary, RPC in consultation with the Communication System Audit Sub-Group may decide on any additional nodes/locations for physical inspection if a location is very critical in view of performance of the communication network at any time of the year.
17. The Scope of the physical verification shall include but not limited to thefollowing:
    a. Available communication Network for its redundancy
    b. Availability of channel redundancy for all the functions for which it is configured.
    c. Communication equipment (hardware and software configuration) of all thenodes including repeater stations for its recommended performance.
    d. Documentation of the configuration of the respective site and its updation.
    e. Fibre layout / usage of fibre / Availability of dark fibre and its healthiness.
    f. Cable Schedule and identification / tagging.
    g. Healthiness of Auxiliary supply including the healthiness of Battery backup.
    h. Healthiness of Earthing / Earth protection for communication system.
    i. Availability of sufficient cooling equipment at the User's premises to maintain the stipulated temperature for the communication equipment.
    j. Optical power level
    k. Alternate modes of communication for speech

18. The format for collecting the details of Communication channels/links and Equipment is at **Annexure-I** and the same shall be furnished by the Auditee entity.

19. Communication Audit Checklist points are given in **Annexure-II** and the same are to be thoroughly verified by the Audit team.
20. Expenses towards Lodging, Boarding & Transportation (Excluding Air/Train Fair) between various places within the jurisdiction of Auditee entity shall be borne by respective Auditee entity. The Coordinating Officer(s) from the Auditee Utilities identified for each Team is (are) responsible for facilitating them to all the Members of respective Team.
21. Audit team shall submit report including recommendations for action on deficiencies, if any, found during the inspection, within 15 days from the date of inspection to Member Secretary, RPC. After approval of MS, RPC, the report would be communicated to the Auditee entity for compliance.

Audit Compliance Monitoring

22. Communication System Audit Sub-group would monitor the compliance of audit observations as applicable. Non-compliance of Audit Recommendations, if any, shall be put up to TCC and RPC.
23. The Annual Audit Report would be reviewed by a Communication System Sub Group at RPCs level. After considering the observations of Sub Group, RPC Secretariat shall issue necessary instructions to all stakeholders to comply with the audit requirements within the time stipulated by the RPC Secretariat based on the audit report. An Annual Report on the audit carried out by RPC would be submitted to the Commission within one month of closing of the financial year.

***

REGIONAL COMMUNICATION AUDIT REPORT			
General Information:			
1	**Substation Name**		
2	**SS Voltage level**		
3	**Date of commissioning of the substation**	**XX.XX.XXXX**	
4	**Region & State / Auditee**	**/**	
5	**Audit Date**		
6	**Name of the Utility which owns the SS**		
Details of Audit Team Members :			
SL	**Name**	**Designation**	**Organization**
1			
2			
3			
4			
Attached Documents, if any			
SL	**Name of the document**		**Original / Signed / Copy**
1			
2			
3			
4			
5			
6			
7			

8		
9		
10		
11		
12		
13		
14		
15		
16		
17		

Communication Channels and Equipments Audit Format

(A) List of channels in usage for data (64 kbps, 104, PMU, VC, 101) / Voice / Protection circuits / others:

Sl	Description (64 kbps, 104, PMU, VC, 101) / Voice / Protection circuits / Others)	Source	Destination	Channel Routing	Ownership details of terminal equipment / Links
1					
2					
3					
4					
5					
6					
7					
8					

(B) List of terminal communication equipments:

Sl	Name of Station	Equipment Type (SDH / PDH / Radio / VSAT / EPABX)	Make / Model	Ownership
1				
2				
3				
4				
5				
6				
7				
8				

(C) Communication System Details:

I. SDH Equipment

(1) Card Details:

Slot No	IP Address & Path / Direction Name	Card Details	Place a ✓mark if on usage, else Write as "Spare"	Whether Card is healthy / Faulty ? (H / F)	Cards Redundancy available (Yes / No)	Power Supply Card / Optical Card (Yes / No)	MSP configured? (Yes / No)	Action Plan for faulty cards	Other Information, if any
1									
2									
3									
And so on									

(2) Whether equipment is time synchronized : Yes / No

If Yes, how is it being done?

(3) Failures during last Fin. year / since last Audit :

Particulars	Number of failures of Card / Power Supply	Reason for failures	Measures taken for rectification
Card		**(i)** **(ii)** **(iii)**	**(i)** **(ii)** **(iii)**
Power Supply		**(i)** **(ii)** **(iii)**	**(i)** **(ii)** **(iii)**

(4) Configuration of the Node:

Name of Equipment	Number of Nodes	Number of directions	Name of Directions	Number of links down, with details	Details of corrective action, if any, taken

(5) Preventive maintenance schedule and its compliance:

Date of Last Preventive maintenance	Maintenance carried out as per schedule? (Yes / No)	Whether all the defects have been attended? (Yes / No) Give details

II. PDH Equipment

(1) Card Details :

Slot No	IP Address	Card Details	Place a ✓mark if on usage, else Write as "Spare"	Whether Card is healthy / Faulty ? (H / F)	Cards Redundancy available (Yes / No)	Power Supply Card / Optical Card (Yes / No)	MSP configured? (Yes / No)	Action Plan for faulty cards	Other Information, if any
1									
2									
3									
And so on									

(2) Whether equipment is time synchronized : Yes / No

If Yes, how is it being done?

(3) Failures during last Fin. year / since last Audit :

Particulars	Number of failures of Card / Power Supply	Reason for failures	Measures taken for rectification
Card		**(i)** **(ii)**	**(i)** **(ii)**

		(iii)	**(iii)**
Power Supply		**(i)** **(ii)** **(iii)**	**(i)** **(ii)** **(iii)**

(4) Configuration of the Node:

Name of Equipment	Number of Nodes	Number of directions	Name of Directions	Number of links down, with details	Details of corrective action, if any, taken

(5) Preventive maintenance schedule and its compliance:

Date of Last Preventive maintenance	Maintenance carried out as per schedule? (Yes / No)	Whether all the defects have been attended? (Yes / No) Give details

III. OPGW / Optical Fibre Details

Number of Directions	**Name of Direction**	**No. of Pairs**	**No. of Fibers used**	**No. of spare & healthy Fibers**	**Unarmoured cable laid within PVC/Hume duct pipe?**	**Fibre Count in OPGW? Whether matching with Approach cable to FODP?**	**Overall Optical Fibre Path Attenuation (dB/km)**	**Power Received**	**Conformation to Compliance of CEA Standards**

IV. Healthiness of Auxiliary System:

(1) Details of 2 independent Power Sources :

Source	Commissioning Date	Battery Back up (Hour)	Battery capacity (AH)	Supply Voltage (V)	Healthiness of Battery (Yes / No)	Make of Charger	Charger Capacity (A)	Periodicity of Maintenance Schedule	Date of Last 2 Actual Maintenance carried out	Remarks
1										
2										

(2) Conformation to Compliance of CEA Standards :

V. Healthiness of Earthing of each equipment:

Sl	Equipment	Status on Healthiness of Earthing

VI. Details of Voice communication available between Sub-station and Control Centre:

Sl	Voice communication (Sub-station - Control Centre)	Status on Healthiness of Voice communication	Healthiness of air-conditioning of communication room as per OEM recommendation

VII. PLCC Details:

Number of Panels	Make and Model	Direction	Frequency (Tx & Rx) KHz	Status on Healthiness	Last preventive maintenance		Details of defects, if any, attended	Status of Availability of Spares	Conformation to Compliance of CEA Standards
					Schedule	Actual			

VIII. Radio Communication Details:

Number of Equipments	Make and Model	Status on Healthiness	Last preventive maintenance		Details of defects, if any, attended	Status of Availability of Spares	Conformation to Compliance of CEA Standards
			Schedule	Actual			

IX. Data Retention :

(i) Earliest Date of availability of data: _____

(ii) Historical data availability : ____ days.

X. Control Command Delay :

(i) Time delay in seconds from Control Centre for SCADA : ____ Seconds

(ii) Time delay in seconds from Control Centre for WAMS : ____ Seconds

XI. Wide Band Network :

(i) Absolute channel delay in protection applications : _____ ms

(ii) Channel delay asymmetry in protection applications : _____ ms

(iii) Switching Time delay to alternate path/route during failure of one path : _____ ms

XII. Any other information :

Audit Team Member	Audit Team Member	Audit Team Member	Audit Team Member
SRPC	Co-Ordinator	PGCIL (Internal / External)	State (Internal / External)

Communication Audit Checklist (Annexure-II)

S.No	Check list points	Expected	Actual	Reference
1	Whether OPGW is terminated properly. Down lead shall be fixed property in sufficient locations. Metallic part shall be connected to earth mat riser.	Yes		
2	Distinct approach cable shall be laid 1 Protection & Communication 2 Fibers for commercial applications Item no 1 cable shall be terminated in communication room FODP One number FODP panel shall be available in communication room			
3	Fiber Identification shall be done in FODP properly			
4	Whether End to end tests were carried out during installation and records are available (both Optical Power Source/receiver testand OTDR Test results			
5	Whether patch chords 1 Cross labelled (source/ receive) 2 Tx – Rx Marking 3 Mechanical protection is provided for pach chords laid between panels			
6	Whether separate room for communication is available with following:- 1 Air conditioning with standby A/C Unit 2 AC Distribution board with ELCB 3 Single point earthing bar which shall be connected to substation Earth mat			
7	Two sets of 48 V (Positive Earthed) DC Systemshall be available with 1 Common DC Distribution board/ Panels with incoming MCB, coupler MCB , out doing MCBsetc 2. Minimum 200 Ah (2 sets of battery) VRLA batteries are preferred to keep chargers and battery in communication room. 3. Battery Charger shall be Thryristorised/SMPS			
8	Battery Charger alarms /measurements shallbe made available to SAS (if available) It can be achieved through MOD bus or connecting analogue/ digital signals to Common BCU of SAS. If such system is not available major			

	alarms shall b alarmed in common substation annunciator			
9	2 nos of substation Data (From RTU or SAS Gateway)shall route in different roots to Main and Standby Load Dispatch centres			
10	Kindly assure proper protection is available for AC Distribution (ELCB, MCB, Backup fuse),			
11	Aux Transformer neutral Earthing shall be connected to Stations earth mat (Aux Transformers shall be installed in yard earth mat area only)			
12	Whether DG sets with AMF panels are provided for Aux AC Supply			
13	Whether 2 nos 11 kV (or 33kV) supplies are available for Each station aux Transformer			

Annexure-IV 14th NPC

Final Standard Operating Procedure (SoP) for Communication System Outage Planning

1. As per the following CEA and CERC Regulations, the Communication Outage for the Region shall be carried out by RPC Secretariat:
   a) Regulation 7.3 of Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017 stipulates as below:

   Quote:

   7.3 Role of National Power Committee (NPC) and Regional Power Committee (RPC):

   ……

   (iv) The RPC Secretariat shall be responsible for outage planning for communication system in its region. RPC Secretariat shall process outage planning such that uninterrupted communication system is ensured.

   ……

   Unquote

   b) Regulation 10 Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 notified on 27.02.2020 envisages as below:

   Quote:

   10. Outage Planning: Monthly outage shall be planned and got approved by the owner of communication equipment in the concerned regional power committee, as per detailed procedure finalized by the respective regional power committee.

   Unquote

2. A Communication System Outage Planning Sub-Group/ TeST Sub Committee shall be formed in each region constituting the members from all the entities connected to ISTS including all CGS, ISGS, REGs/SPPDs/SPDs, STUs, SLDCs etc., of the respective Region, RLDC/Grid-India, PGCIL, CTUIL, Private Transmission licensees in respective region & RPC secretariat. The sub-group/ Sub Committee may co-opt any other member from any organization for facilitating the activities of the sub-group/ Sub Committee.

3. Communication System Outage Planning will be limited to the following systems:
   (i) ISTS Communication System including ISGS
   (ii) Intra-state Communication System being utilized for ISTS Communication
   (iii) ICCP links between Main & Backup RLDCs, Main & Backup SLDCs & Main & Backup NLDCs.
   (iv) Inter-regional AGC links.

(v) Any other system agreed by the sub-group.

4. Communication Equipment/link within the scope of the Procedure would include :

   (i) Optic Fibre links
   (ii) Any other link being used for ISTS communication
   (iii) ICCP links between Main & Backup RLDCs, Main & Backup SLDCs & Main & Backup NLDC
   (iv) VC links between LDCs
   (v) Inter-regional AGC links
   (vi) SPS Links
   (vii) Tele-Protection
   (viii) AMR
   (ix) PMU
   (x) SDH & PDH
   (xi) DCPC
   (xii) RTU & its CMU cards
   (xiii) DTPCs
   (xiv) Battery Banks and Charging Equipment
   (xv) EPABX
   (xvi) Any other equipment/link agreed by the sub-group

5. A Web Portal named as "Communication System Outage Planning Portal" shall be developed by respective RLDCs. Log-in credentials shall be provided to all the ISTS connected entities/concerned entities.

6. Entities/Users/Owners shall add their communication links and the equipment to the Web Portal as soon as they are commissioned. The same has to be furnished to RPC Secretariat /RLDCs.

7. Entities/Users/Owners of the communication equipment shall upload the outage proposals of communication links and the equipment (in the prescribed format only) to be availed during subsequent month by 7th/8th of every month in the Web Portal.

8. RPC Secretariat consolidates the list of outage proposals received from various Entities/Users/Owners of the communication links and equipment by downloading from the Web portal and circulate the same among all the respective region entities by 15th of every month. Communication outages affecting other regions would be coordinated by respective RLDC through NLDC.

9. Communication System Outage Planning (CSOP) meeting shall be conducted during the third week of every month normally (preferably through VC) to discuss and approve the proposed outages of communication links and equipment.

10. The approved outages of Communication links and equipment in the CSOP meeting shall be published in the RPC website and respective RPCs Communication Outage Portal within 3 days from the date of CSOP meeting.

11. Outage of the approved communication links and equipment shall be availed by the respective owner /entities after confirming the same with RLDC on D-3 basis.
12. In case of any emergency outage requirement of communication links and equipment, Entities/Users/Owners may directly apply to respective RLDC with intimation to respective RPCs on D-2 basis. Confirmation of approval/rejection will be provided on D-1 basis by RLDCs in consultation with respective RPCs considering 24hrs processing window.
13. Entities/Users/Owners shall take the code from the respective RLDC before availing the planned outage of the communication links & equipment and before restoration of the same.
14. Entities/Users/Owners of the communication links and equipment shall submit the deviation report for the approved outages (approved dates & approved period) availed during the previous month and the report on planned / forced / other outage of communication links / equipment by 10th of the month to RPC Secretariat as per the format at **Annexure-I** .
15. In the monthly CSOP meetings, communication links and equipment whose outage duration (Planned / Forced / Others) more than 48 hours for the last 12 months of rolling period shall be deliberated for the measures to be taken in future for the better outage management. The date deviations and non-availing the outages that were approved in the previous CSOP meetings shall also be deliberated in the CSOP meetings.

Note: The manual for implementation of Communication System Outage Planning through web portal received from SRPC is attached at **Annexure-II** for ready reference.

***

Annexure: DCOA-I

Outage Deviation Report : List of outages of Communication Links, availed / deviated during the month of June, 2021

Dated :

A Details of Communication Links (Point to Point) availed :

SL	Name of Requesting Agency	Description of Link	Source	Destination	Channel Routing	Ownership	Reason for availing outage with the details of equipment attended	Approved Start Date : Time [dd-mm-yy<>hh:mm]	Approved End Date : Time [dd-mm-yy<>hh:mm]	Approved Outage Hours	Outage availed Start Date : Time [dd-mm-yy<>hh:mm]	Outage availed End Date : Time [dd-mm-yy<>hh:mm]	Total hours of outage availed now	Deviation ? (Y/N)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**Example**	Back up Control Center (BCC) : Data	KAYATHAR 230 kV SS	MADURAI LDC	Data will be availble throu	TANTRANSCO	Shifting of FODB panel at Kayathar 230 KV SS	10-Mar-2021 09:00	10-Mar-2021 18:00	**09:00**	10-Mar-2021 14:07	10-Mar-2021 17:30	**03:23**	**N**

Annexure: DCOA-II

Outage Deviation Report : List of outages of Communication Equipment availed / deviated during the month of June, 2021

Dated : **00:00**

B Details of Communication Equipment availed :

SL	Name of Requesting Agency	Name of the communication equipment	Location of the Equipment / Name of Station	Name of the Link/Channel/Path / directions affected	Alternate Channel/Path available ? (Furnish details)	Ownership	Reason for availing outage with the details of faults	Approved Start Date : Time [dd-mm-yy<>hh:mm]	Approved End Date : Time [dd-mm-yy<>hh:mm]	Approved Outage Hours	Outage availed Start Date : Time [dd-mm-yy<>hh:mm]	Outage availed End Date : Time[dd-mm-yy<>hh:mm]	Total hours of outage availed now	Deviation ? (Y/N)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**Example**	DC Charger -2, Amararaja, 48v	Edamon	Nil	Nil	KSEBL	Monthly maintenance. No interruption as alternate chargers available	16-Mar-21, 11:00	16-Mar-21, 16:00	**05:00**	16-Mar-21, 10:30	16-Mar-21, 16:00	**05:30**	**Y**

COMSR

MANUAL-2023

ग्रिड-इंडिया
GRID-INDIA

PREPARED BY

SRLDC, GRID-INDIA

Table of Contents

1. Need for Communication Outage Portal?

In line with the requirements for outage planning of communication equipment as per CERC Communication System for Inter State Transmission of Electricity Regulations 2017, SRPC has devised a procedure for Outage planning for Communication system in Southern Region available at the website of Southern Regional Power Committee (SRPC) (https://www.srpc.kar.nic.in/website/2020/communication/com_outg_proc.pdf) and attached as **Annex-I**. As per the "Procedure on Outage Planning for Communication System -SR", monthly meetings are being conducted with participation of Nodal Officers from users, SLDCs, SRLDC, SRPC & CTU. These meetings are conducted to discuss and approve/reschedule / dispose of the proposed list of outages pertaining to communication links / equipment scheduled for the next month. In order to provide a seamless experience for applying and availing communication outages and monitoring availed outage timelines, SRLDC has developed a web portal which is used to register communication equipment/links, configure outage proposals for already registered equipment/links, view deviations between approved outage timelines and actual outage timelines .The web portal facilitates entering observations/remarks by RLDC/RPC on any outage proposal with the facility to concur/deny the proposal by SRPC.

2. COMSR (Communication Equipment Outage Coordination Meeting - SR) Outage Portal:

The web portal is accessible through the following URL: https://srcom.srldc.in/login

2.1. Login Page:

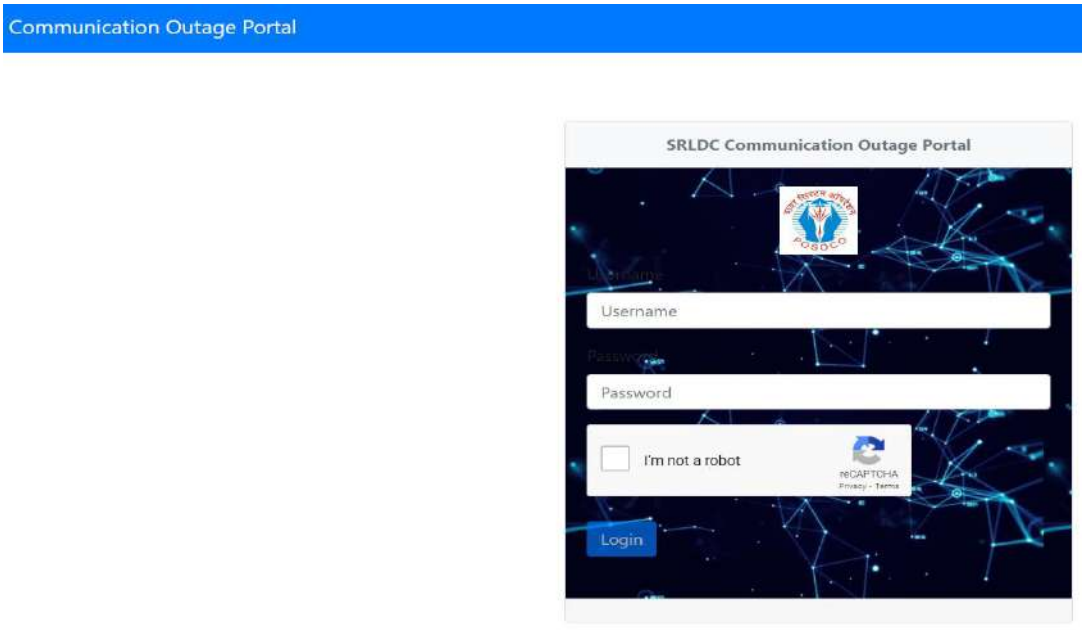


Figure 1 COMSR Portal Login Page

- User name & initial password are created and shared by web admin (SRLDC).
- Note: Password Change can be enforced after first time login.

2.2. Roles defined in the Communication outage portal

1. **Administrator (RPC)**
2. **Supervisor (RLDC)**
3. **User**
4. **Operator**

The administrator role is assigned to the respective RPC. Supervisor Role is assigned to the respective RLDC. User Role is assigned to each entity/utility, who can apply for outages. Operator Role is assigned to real time shift operators at RLDC.

- Only Administrator can approve/deny the proposed outages. Supervisor can provide remarks against each proposed outage and do necessary configuration and maintenance of web-portal front end and Db for smooth functioning of the entire process.
- Operator can view the portal for list of approved outages and issue codes for availing outages
- User can apply for the outages proposed for the next month and once the outage is approved, the respective user can view the approval details under their account login . User can also apply for emergency outages. User can also update the actual time duration (Start time, End time) of each outage availed.

2.3. Main Tabs in COMSR Portal:

- **Meetings**
- **Links**
- **Equipment**
- **COA1(Link) -** Communication Outage Approval for Communication Links
- **COD1(Link) -** Communication Outage Deviation for Communication Links
- **COA2(Equipment)-** Communication Outage Approval for Communication Equipment
- **COD2(Equipment) -** Communication Outage Deviation for Communication Equipment
- **Rolling Report- 12 Months Outage Time > 48hours**
    - **COD3- Communication Outage Rolling 12 Months Deviation – Links**
    - **COD4-Communication Outage Rolling 12 Months Deviation - Equipment**

Note:
1. Formats for COA1, COA2, COD1, COD2, COD3 & COD4 have been finalized by SRPC.
2. All Reports can be downloaded from the web portal in Excel Format

2.4. Meetings Tab

Figure 2 below shows the Meeting summary Page, where details for upcoming monthly meeting can be configured with a unique meeting number for each meeting. The details configured include opening and closing dates for receipt of applications for

communication links/equipment outages proposed for next month (M+1month outages proposed in timelines defined in Mth month).

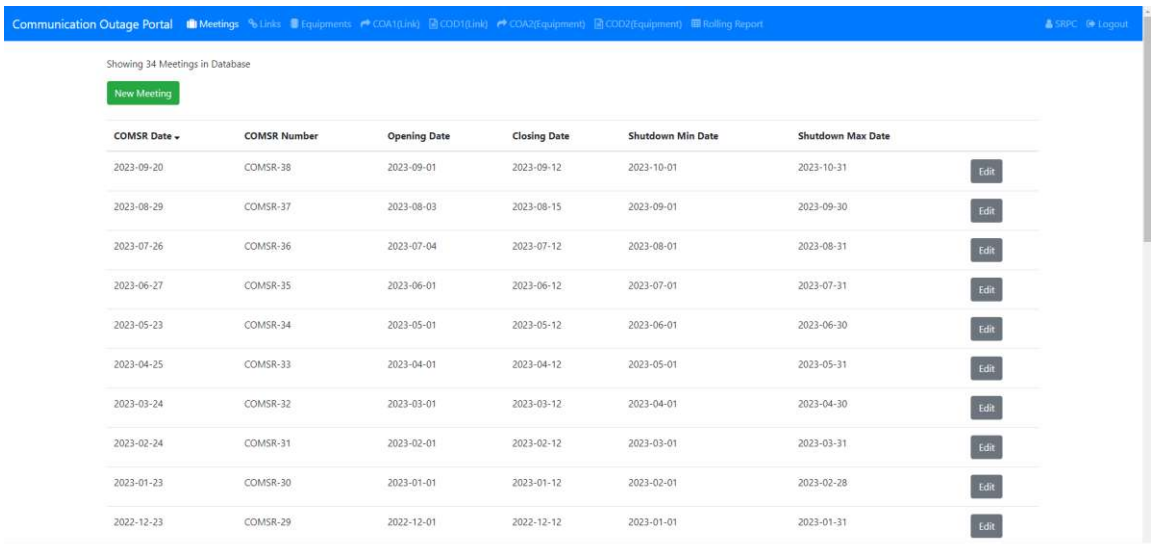


Figure 2 Meeting summary Page

A sample meeting creation page screen in shown in Figure 3 below:

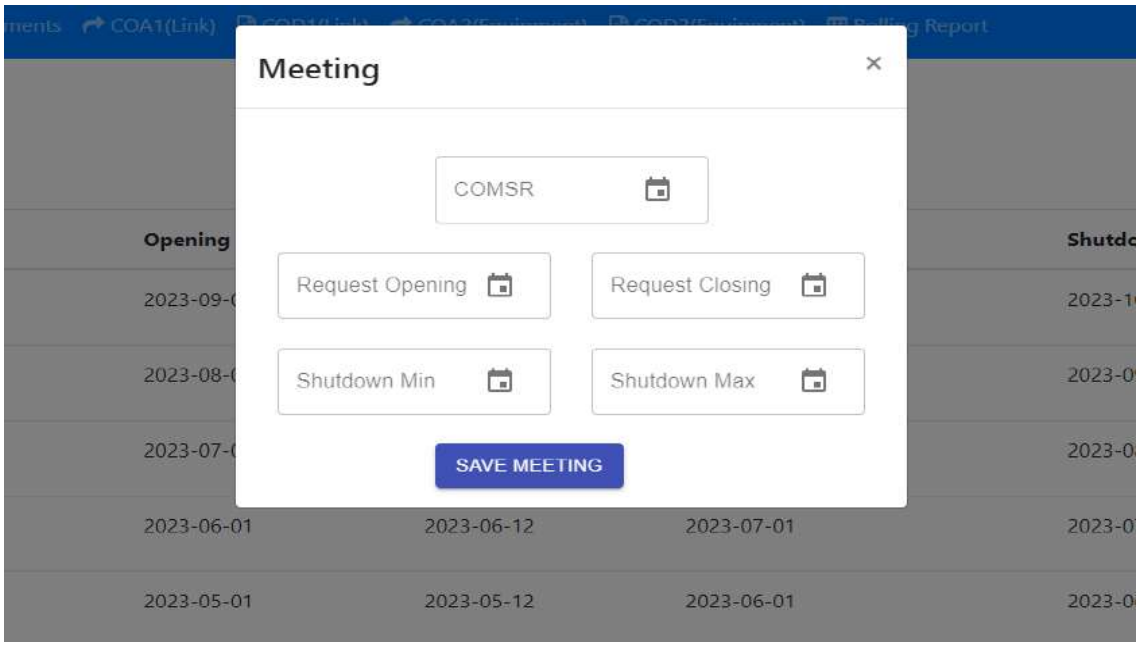


Figure 3 New Meeting Creation Page

All options available on this webpage are customisable and presently the meeting creation option is automated with default Opening and Closing dates for proposed outages as 1st and 12th of the current month.

2.5. Work Flow for availing communication outages:

RPC (Administrator Login) configures the upcoming COMSR Meeting details in the web portal through manual/automated mode and intimation for the next meeting is sent to all stakeholders through e-mail.

2.5.1. Planned Outages:

- User can apply planned outages for the M+1 month by furnishing various details during current month (M) window (planned outages to be submitted between defined timelines---*opening and closing date* as shown in Figure 3 above) and the applied outage details intimation are sent automatically through mail to RLDC and RPC by the portal itself.
- User can edit their applied outages till end of c*losing date* of requests for M+1 Month.
- RLDC can provide observations for the proposed outages.
- RPC consolidates the list of outage proposals received from various Users/Owners and releases the list around mid of the M^{th} month for outages proposed for M +1 month.
- On the meeting date, the proposed outages are deliberated, and RPC approves, revises or rejects the applied outages as per the outcome of discussions.
- Facility has been provided in the portal for RPC to change/defer (approval/rejection) of approved requests till D-1 day (D being the day of availing outage).
- User need to intimate RLDC about availing approved outages(confirmation) before D-3 through email (D being the date of availing outage).
- A consolidated view of day-wise approved outages is available under Operator Login. The facility has been made available to enable Grid Operators to issue unique codes to the concerned user seeking equipment/link outage on the day of outage.

Detailed flowcharts covering activities involved in creating a meeting instance on web portal, entering of planned outages by Users, provision for entering review/observations by RLDC/RPCs, discussions on proposed outages in monthly meeting, approval/denial of proposed outages, availing of outages on the proposed dates, computing deviations between actual outage timeline with proposed timeline and preparation of Rolling Window for outages for last 12 months are depicted in figures 4 and 5 below.

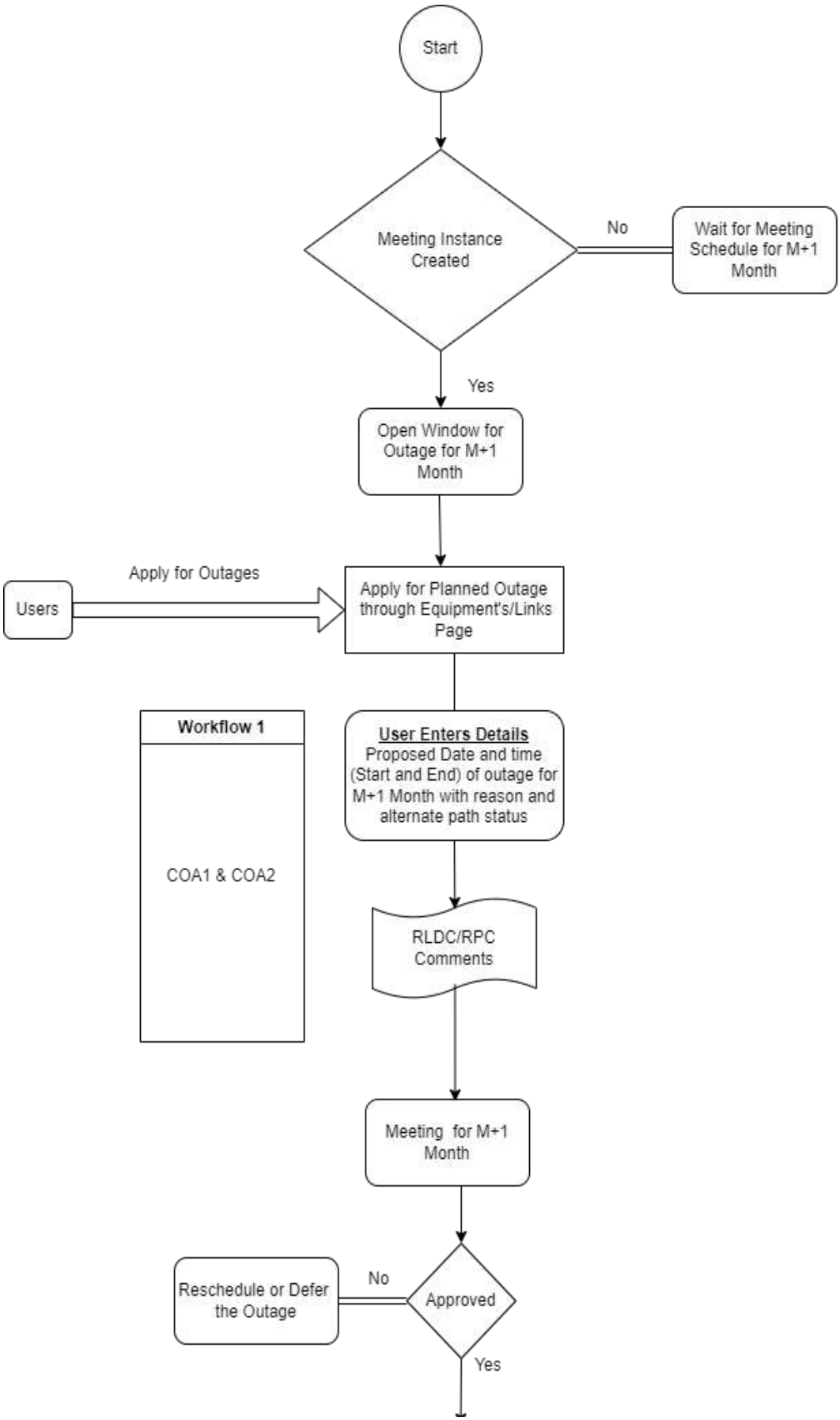


Figure 4 Flowchart for Planned Outage processing through web portal

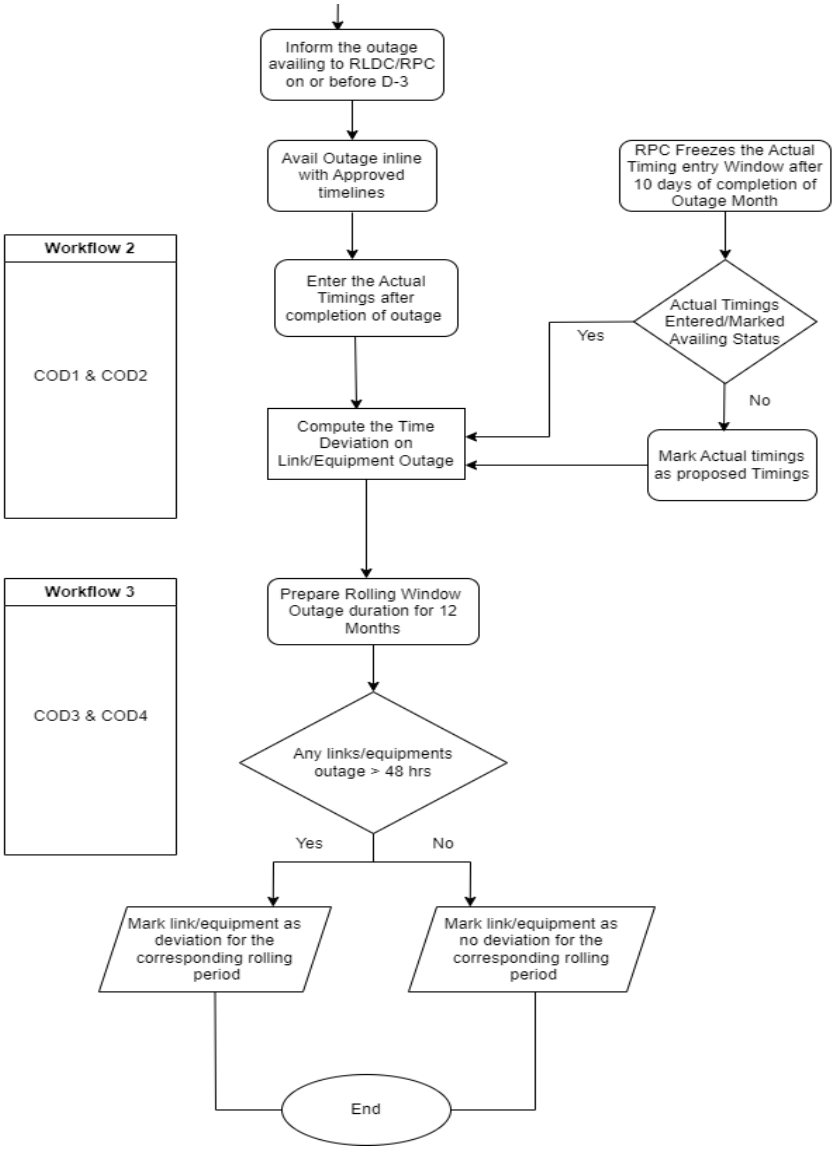


Figure 5 Flowchart for availing approved outages and entering deviations between approved/actual outage timelines through web portal

2.5.2. Emergency & Forced Outages:

- User can apply Emergency outages for D Day on D-1 Day i.e1 Day before the proposed outage. The details of applied Emergency Outage will be sent to registered email ids of RLDC and RPC for concurrence.
- User can submit details for Forced outages availed for links/equipment in previous Month (M-1) till 12th of the current Month(M). The details of reported Forced Outages will be sent to registered email ids of RLDC and RPC.

Flowchart covering various activities involved in application and approval of emergency outages is depicted in Figure 6 below.

Flowchart covering various activities involved in reporting of forced outages and its inclusion in 12 months rolling report is depicted in Figure 7 below.

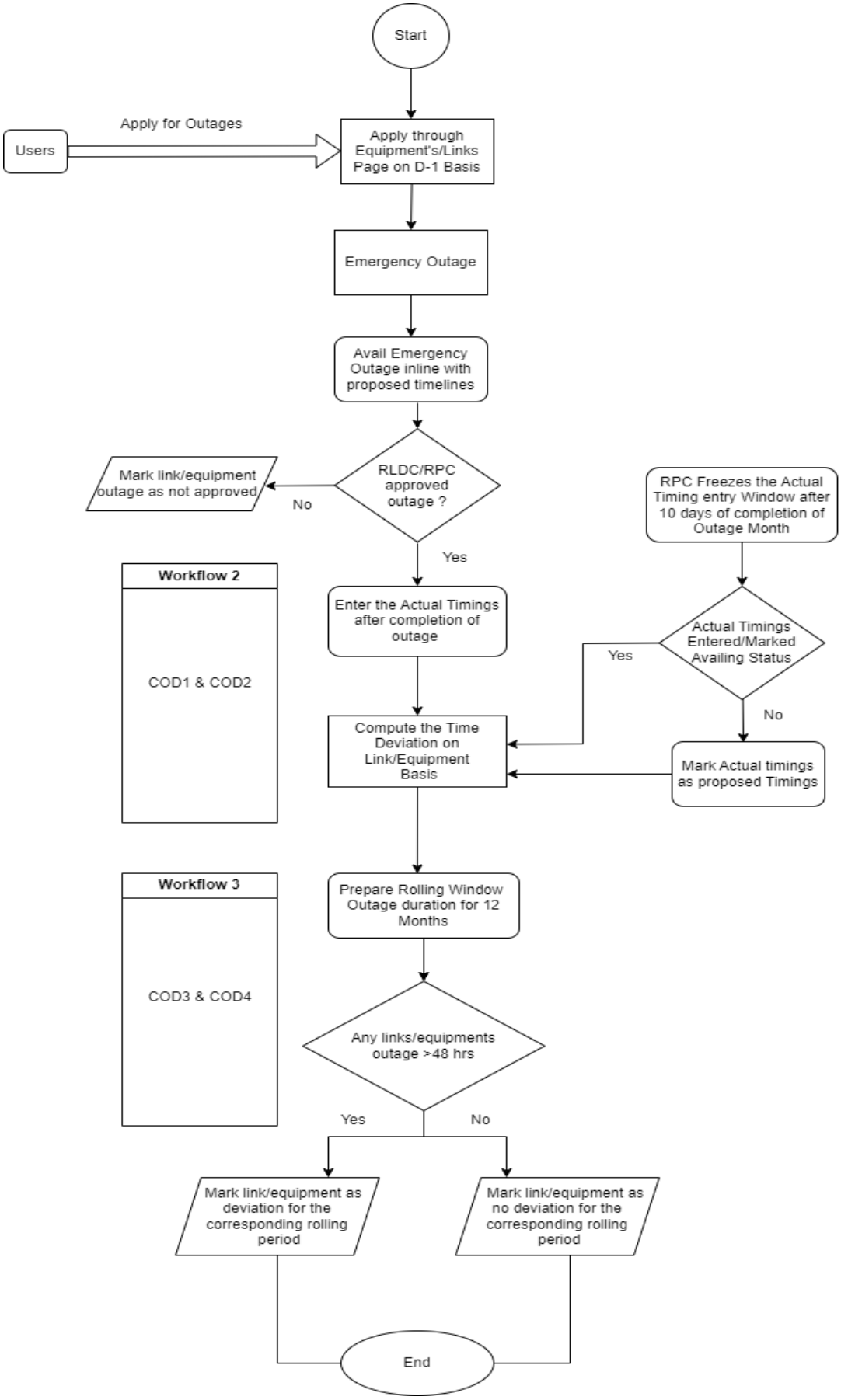


Figure 6 Emergency Outage Workflow

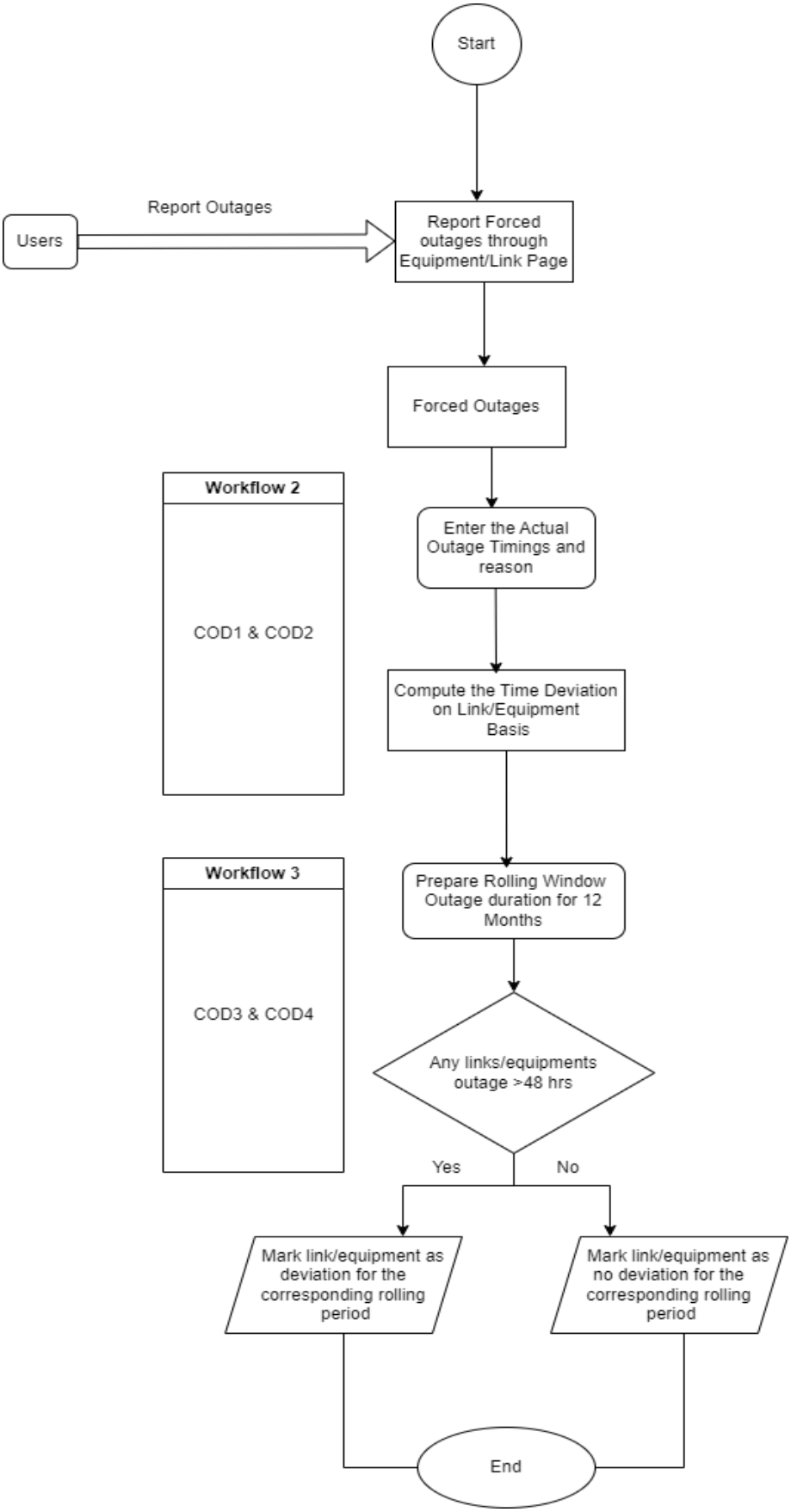


Figure 7 Forced Outage Workflow

2.6. Adding new/modified Equipment/Link to the portal database:

- Under the **Equipment** Tab, provision is there for User to add new/modified equipment details and request RPC/RLDC for addition/updating of the equipment in COMSR Database through "Request to Add new Equipment to Database option". Screenshot of the "Create New Equipment" widget is shown in Figure 8 below.

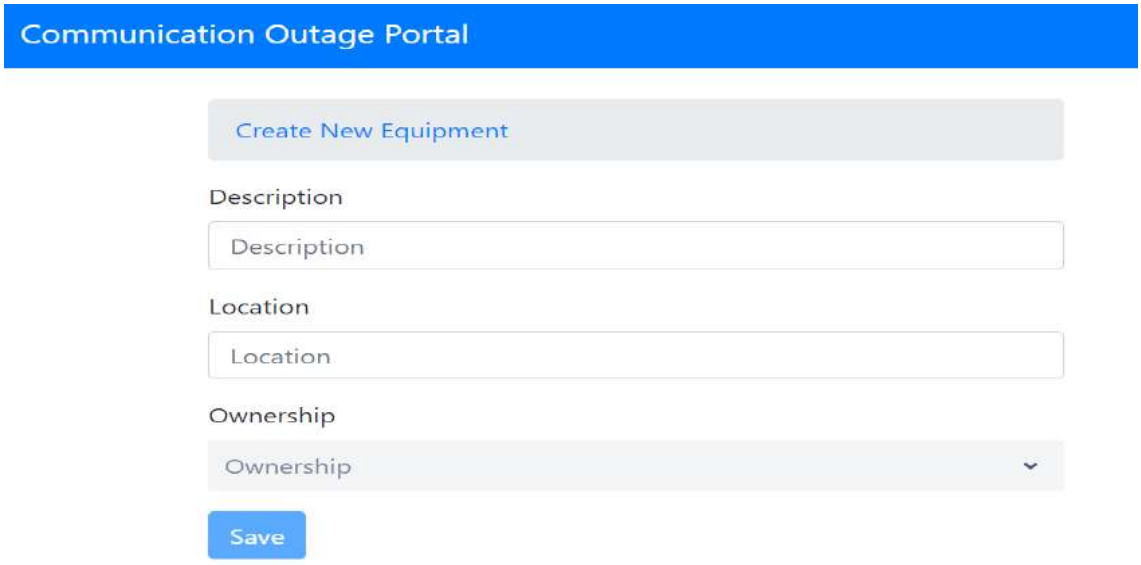


Figure 8 Create new Equipment Request screen

Similarly, any new/modified Communication Channel (links) can be added through the **Links** Tab by User and User can further request RPC/RLDC for approval of addition of the same in Communication outage portal database, Screenshot of the "Create New Link" widget is shown in Figure 9 below.

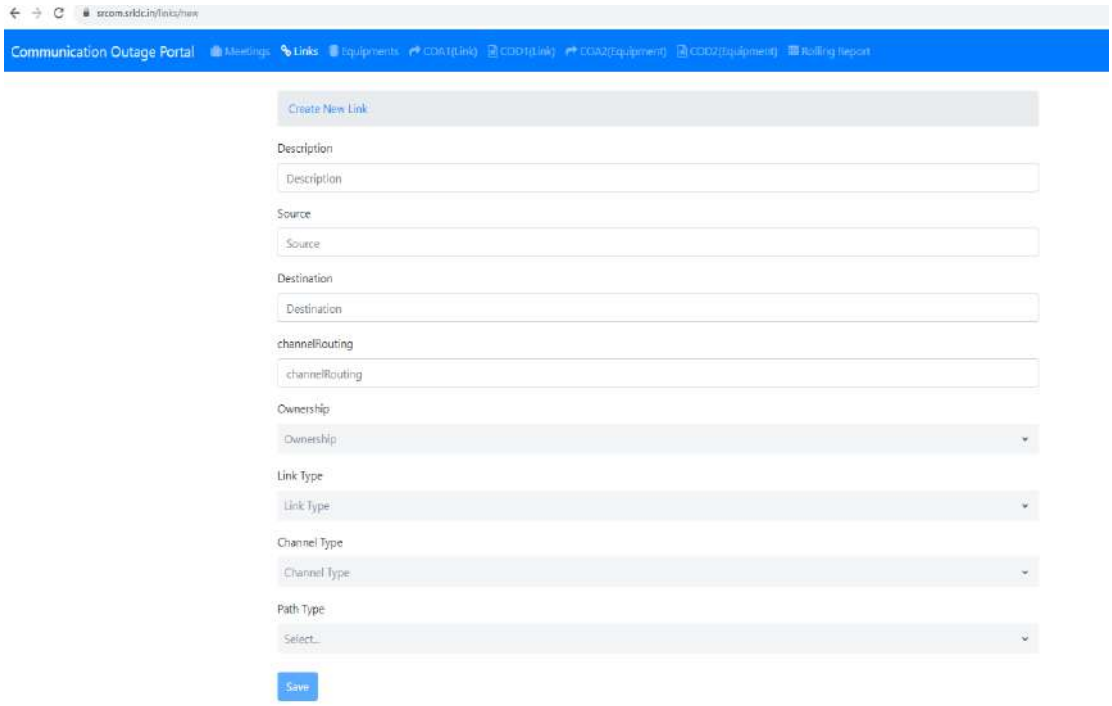


Figure 9 Create the communication Channel screen

Workflow depicting activities involved in adding new/modified Equipment/Link to the portal database is depicted below (Figure 10).

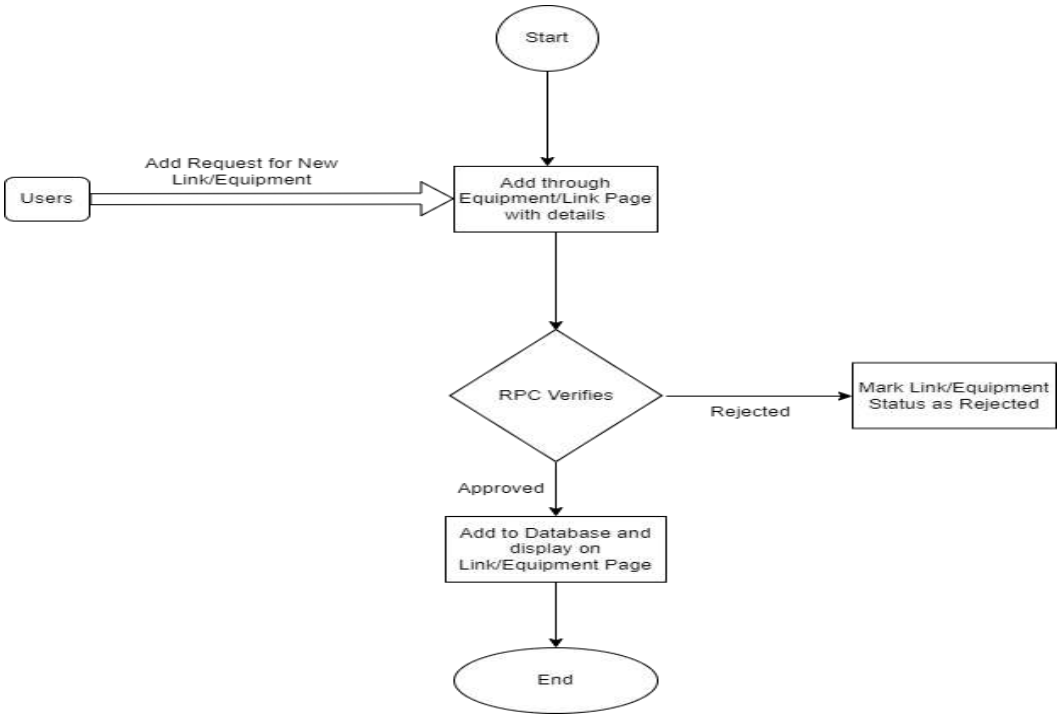


Figure 10 Adding New Links/Equipment's Workflow

Once a user requests for the addition/modification of the communication equipment or links, the request is forwarded to RPC for approval. Screenshot of widget showing the pending equipment/link approval of respective RPC/RLDC sample view is shown in Figure 11 below.

Figure 11 Pending Approval Widget for equipment's

- RPC/RLDC can add/update the Communication outage portal database with equipment/links proposed by users through **Equipment** tab on the web portal which contains a widget for **Pending Equipment to be added to Database** or through **Links** tab on the web portal with a widget for **Pending Links to be added to Database.**

2.7. Links Tab

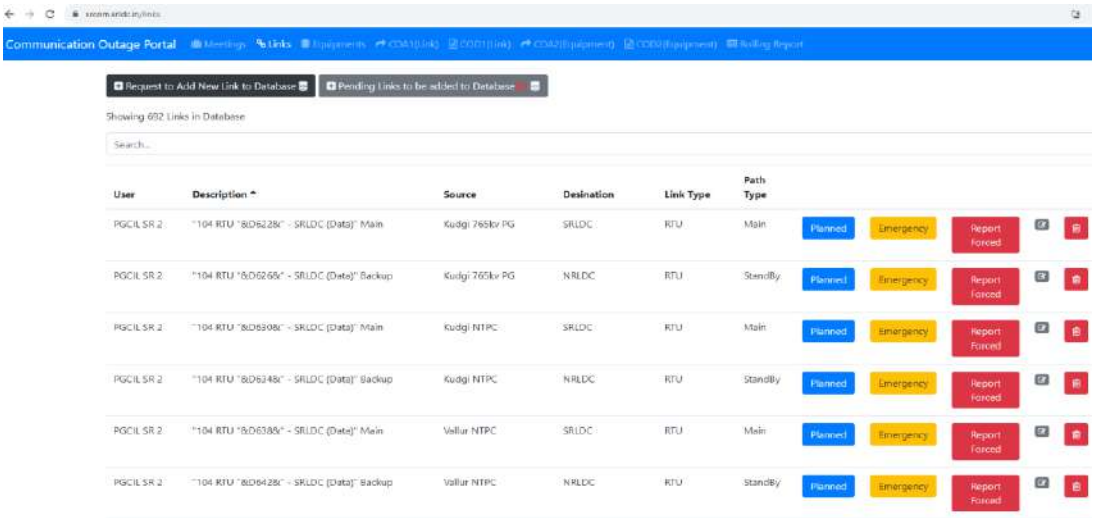


Figure 12 Links Tab sample screen

From **Links** tab, user can apply for proposed outages in communication links in either planned or emergency category and can also report the forced outages availed.

Sample View page screens for entering planned, emergency or forced outage details for communication equipment by the User are shown below in Figures 13,14 and 15 respectively.

2.7.1. Planned Outage Application for Links:

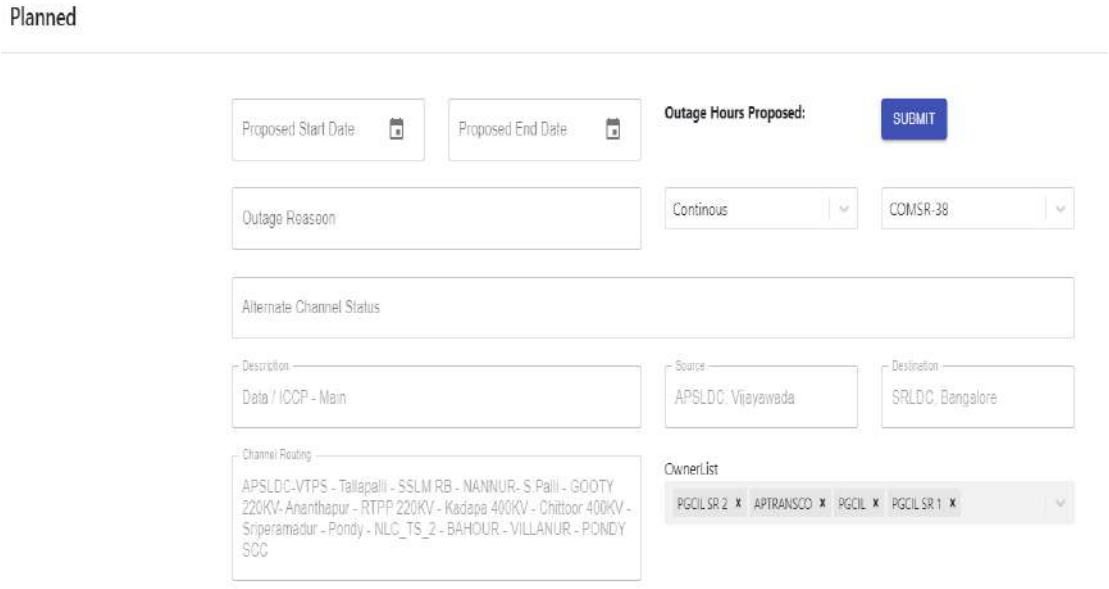


Figure 13 Planned Outage Application Screen for Links

2.7.2. Emergency Outage Application for Links:

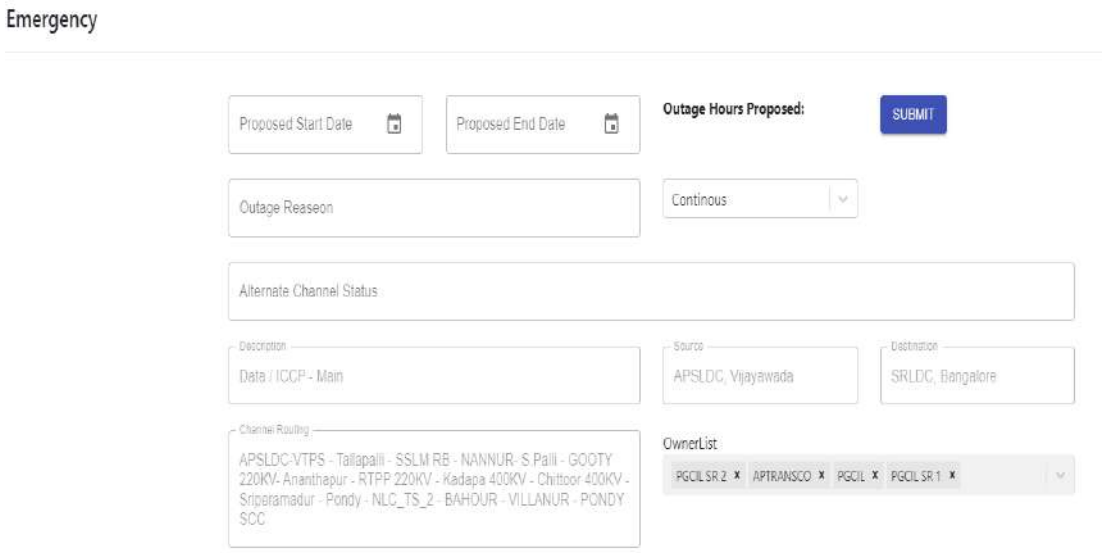


Figure 14 Emergency Outage Application Screen for Links

2.7.3. Forced Outage Reporting for Links:

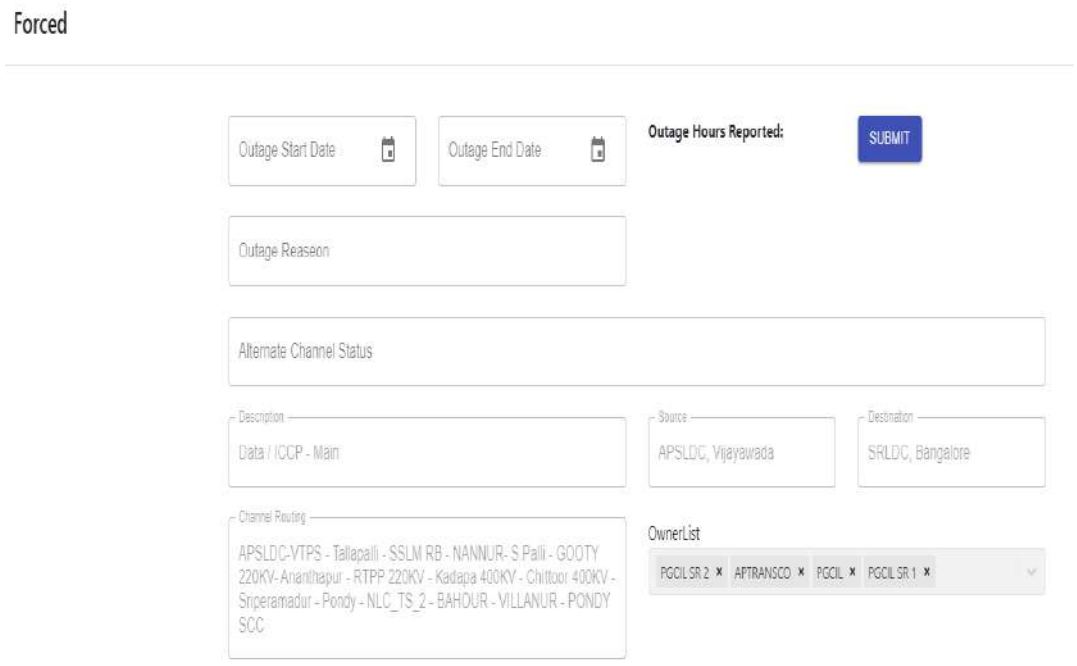


Figure 15 *Forced Outage Reporting Screen for Links*

2.8. Equipment Tab

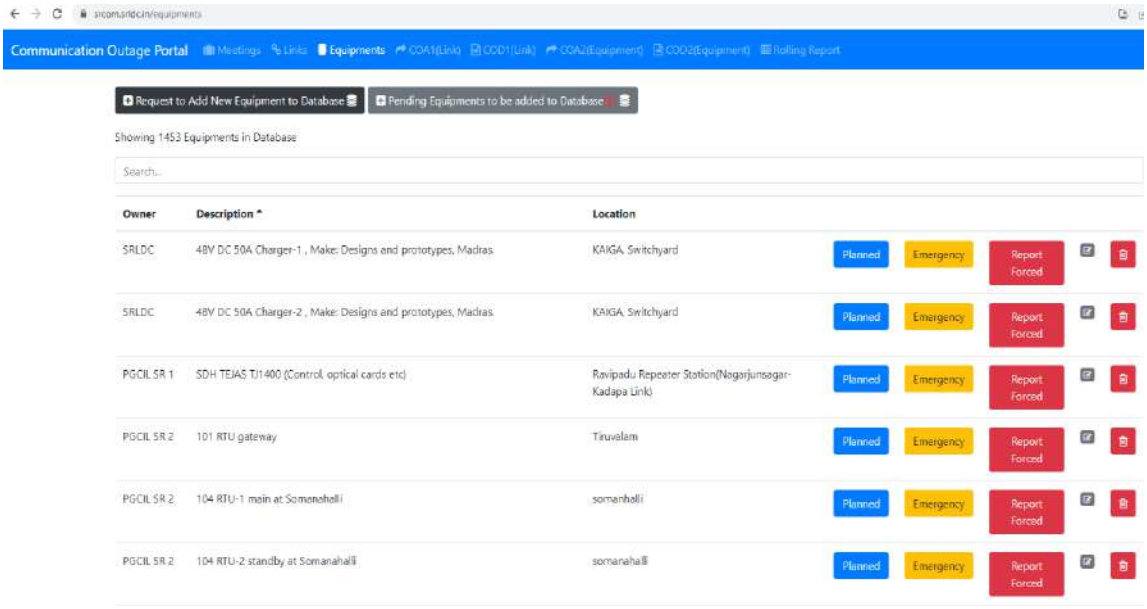


Figure 16 Equipment Tab sample screen

From **Equipment** tab (Figure 16 above), user can apply for proposed outages in communication equipment in either planned or emergency category and can report the forced outage availed. Sample View page screens for entering planned, emergency or forced outage details for communication equipment by the User are shown below in Figures 17,18 and 19 respectively.

2.8.1. Planned Outage Application for Equipment:

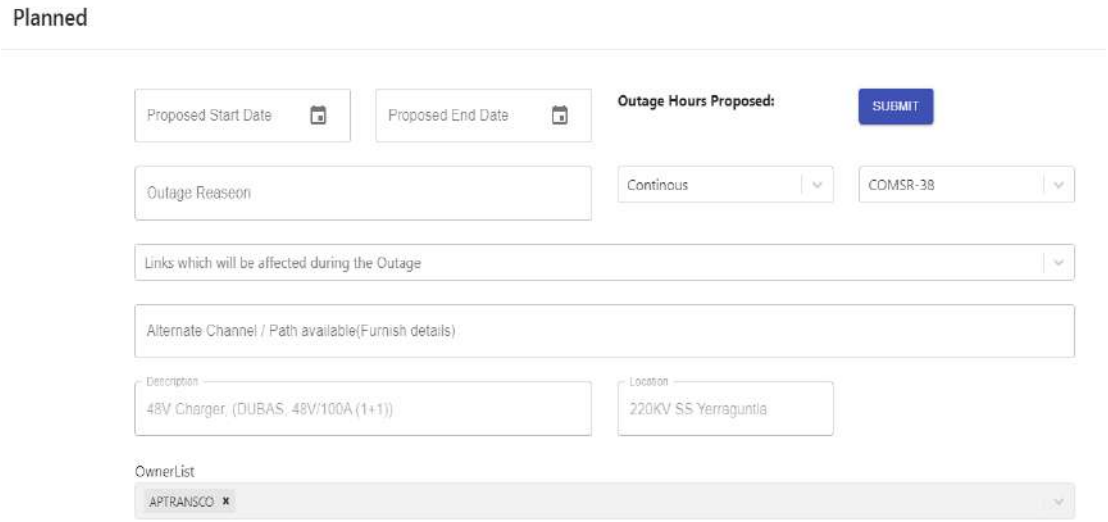


Figure 17 Planned Outage Application Screen for Equipment

2.8.2. Emergency Outage Application for Equipment:

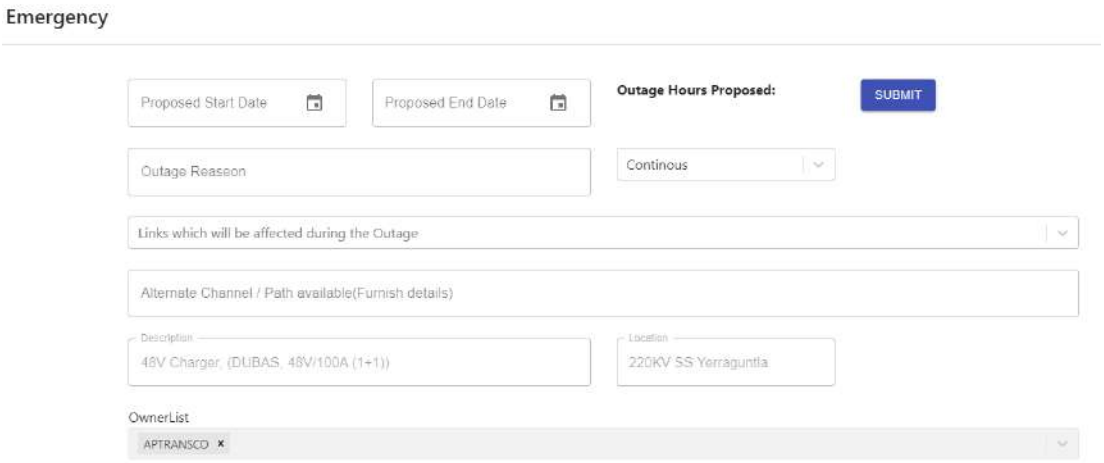


Figure 18 Emergency Outage Application Screen for Equipment

2.8.3. Forced Outage Reporting for Equipment:

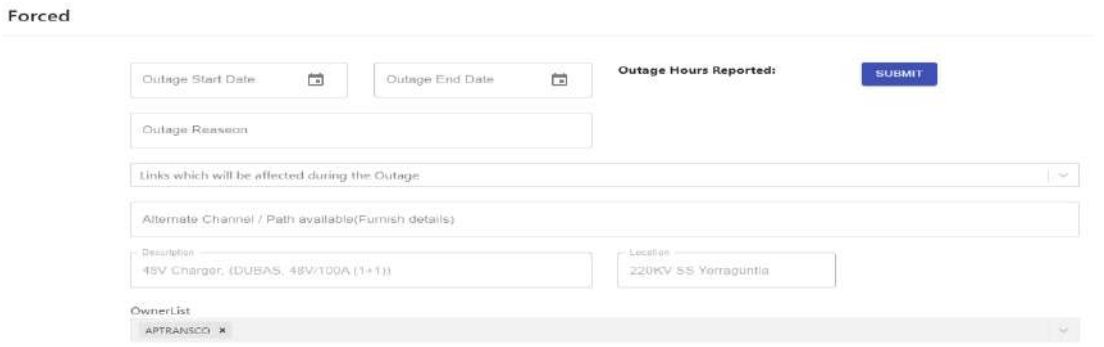


Figure 19 Forced Outage Reporting screen for Equipment

2.9. COA1(Link) - Communication Outage Approval Links

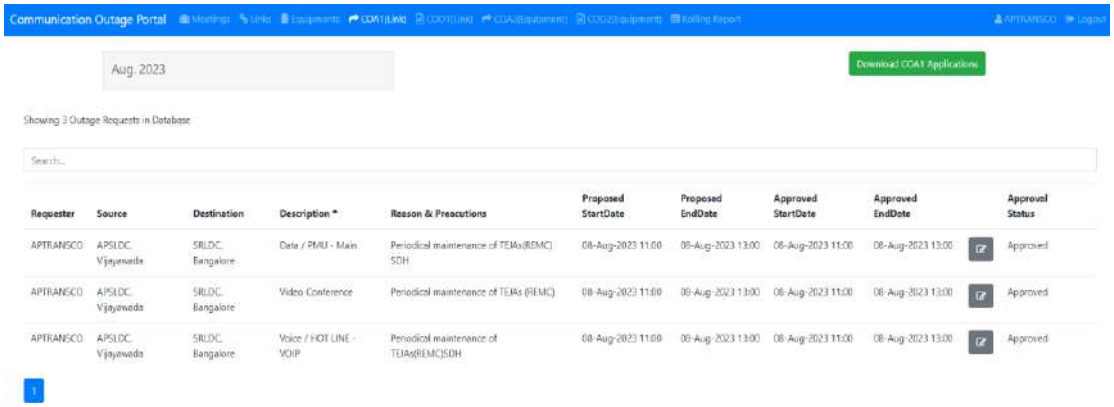


Figure 20 Communication Outage Application links (COA1) details for selected month

Through COA1 tab (Figure 20 above), Users can view the consolidated list of outage requests (for communication channels) submitted by them along with the current status of each outage request i.e., whether approved/rejected/revised (along with approved

timelines). Through this tab, users can edit their outage requests within the scheduled timeline window for submission of proposed outages.

Under Admin/Supervisor logins (RPC/RLDC) COA1 tab provides a consolidated list of all outage requests (for communication channels) from all users with proposed start and end date / time along with approved start and end date/ time for each outage.

2.10. COD1(Link) - Communication Outage Deviation - Links

Once communication link outage is approved in COMSR meeting, the final approved list for outage of communication links is communicated by RPC to all stakeholders and also updated on COMSR web portal. After availing the approved outage, concerned users have to enter the actual outage times (including start and end date, time) through COD1(Links) Tab (Figure 21 below) for communication channels

Note: In case of Emergency outage, approved start and end date times shall be null.

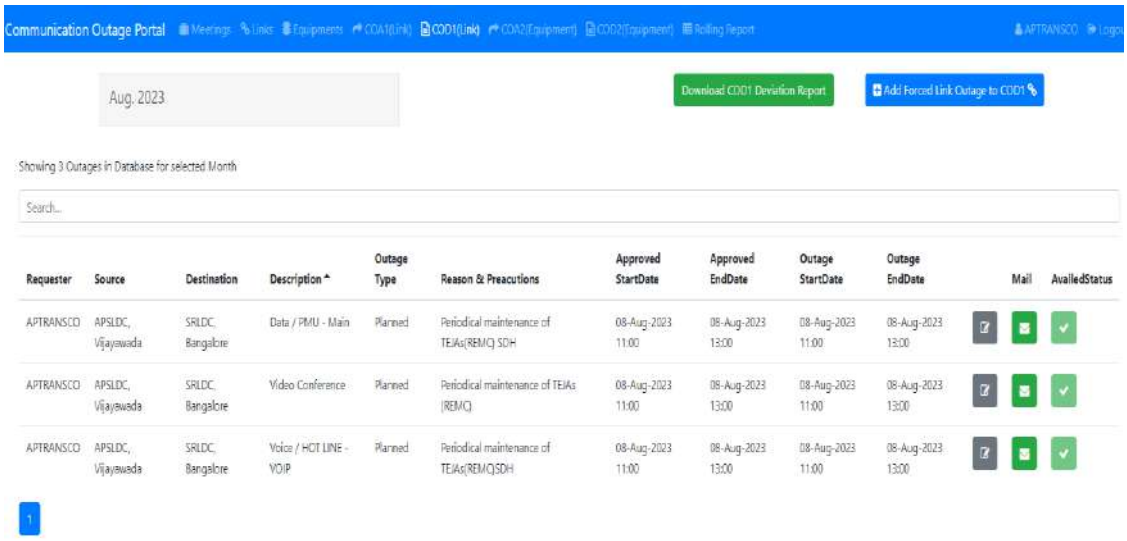


Figure 21 Communication Outage Deviation entry page for communication links (COD1)

Once the User enters the timings for actual outage duration for each approved outage, any deviation between the actual outage timing from the approved outage timing is computed and displayed in the COD1 tab. Sample screen for entry options available for Users against each approved outage under COD1 tab is shown in Figure 22 below. In case the user didn't avail the approved outage, user can select the "*Not availed*" option and submit the same in Communication Outage web portal. Similar Procedure is to be followed by Users for entering details of Emergency Category outages also.

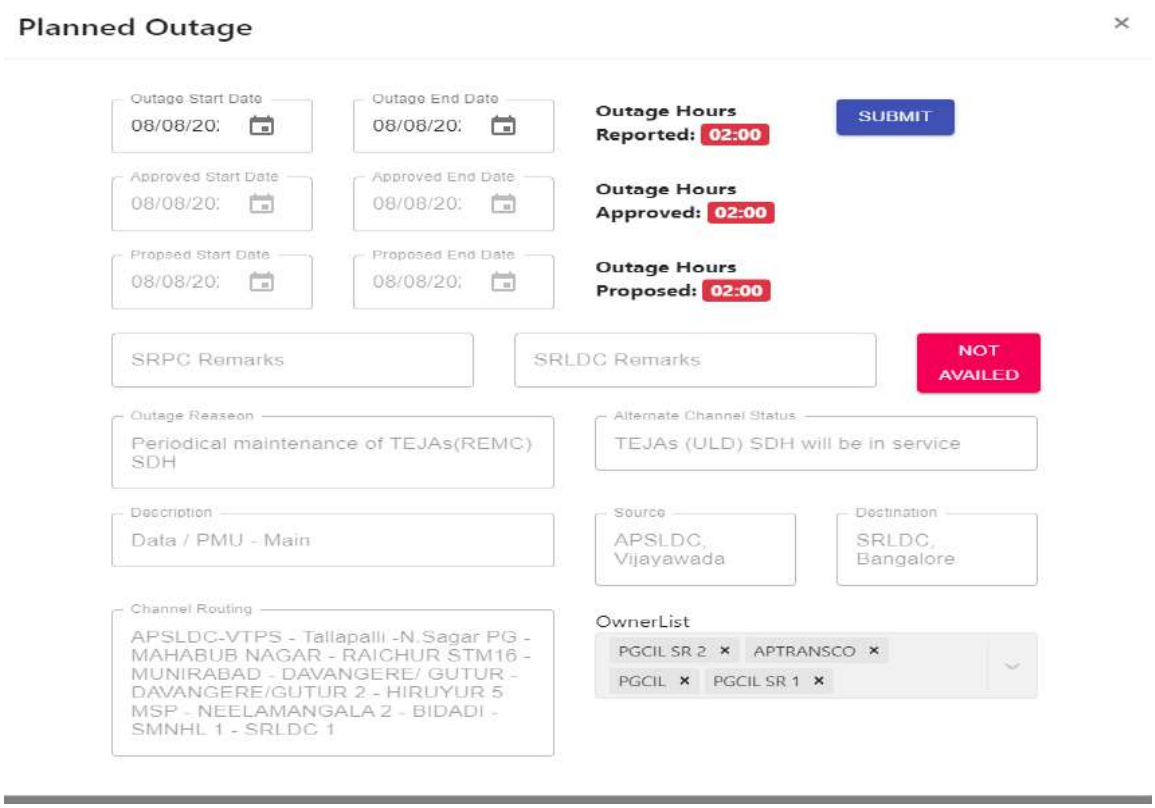


Figure 22 Planned Outage - actual time reporting entry screen

For reporting forced outages of communication links, user can use the "Add Forced Link Outage to COD1" Button which is located in the right corner of COD1(Links) Page (Fig. 22 above). On clicking this button, it shall navigate to Links Page where user can submit the details for the outage by selecting the respective links Sample screen for Forced Outage reporting widget is shown in Figure 23.

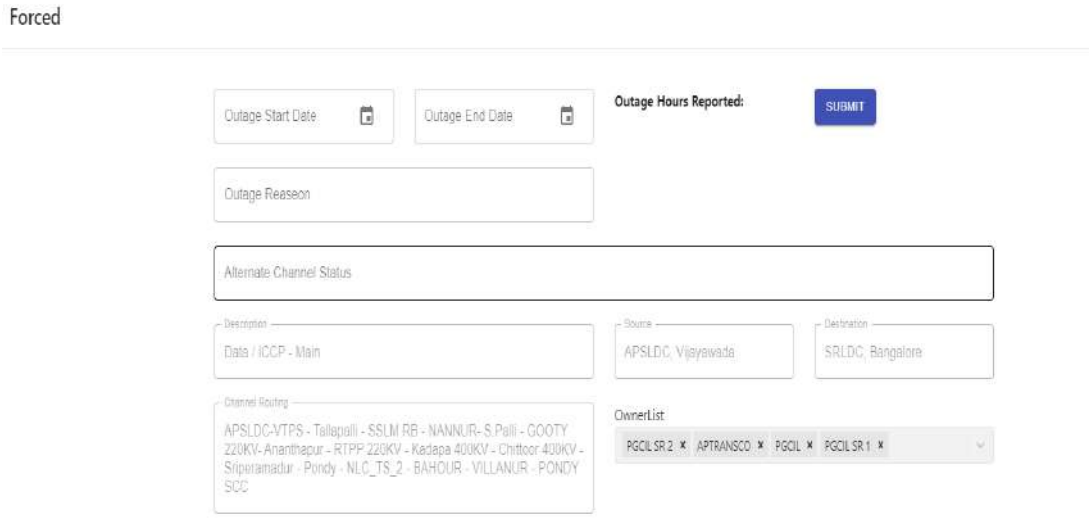


Figure 23 Forced Outage Reporting with actual outage times screen

2.11. COA2 (Equipment)- Communication Outage Approval for Equipment

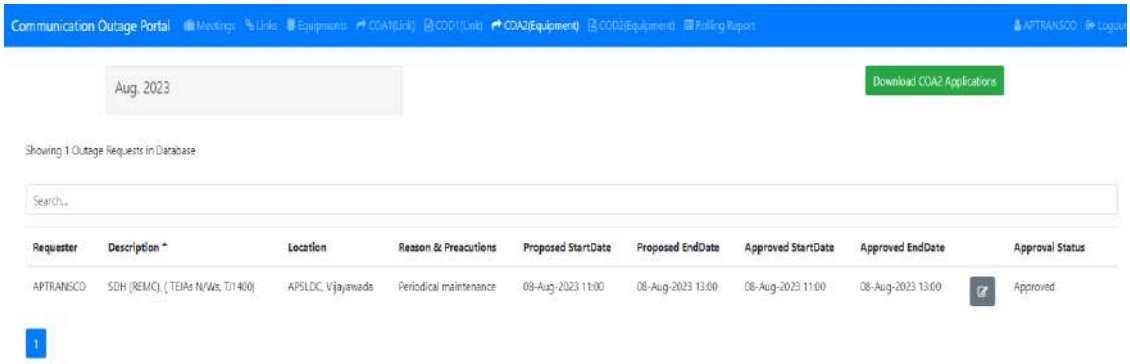


Figure 24 Communication Outage Application links (COA2) details for selected month

Through COA2 tab (Figure 24 above), Users can view the consolidated list of outage requests (for communication equipment) submitted by them along with the current status of each outage request i.e., whether approved/rejected/revised (along with approved durations). Through this tab, users can edit their outage requests within the scheduled timeline window for submission of proposed outages.

Through COA2 tab, RPC/RLDC can view consolidated list of all outage requests (for communication equipment) from all users with proposed start and end date / time along with approved start and end date/ time for each outage.

2.12. COD2(Equipment) - Communication Outage Deviation for Equipment

Once communication equipment outage is approved in COMSR meeting, the final approved list for outage of communication equipment is communicated by RPC to all stakeholders and also updated on COMSR web portal. After availing the approved outage, concerned users have to enter the actual outage times (including start and end date, time) through COD2(Equipment) Tab (Figure 25 below) for communication equipment.

Note: In case of Emergency outage, approved start and end date times shall be null.

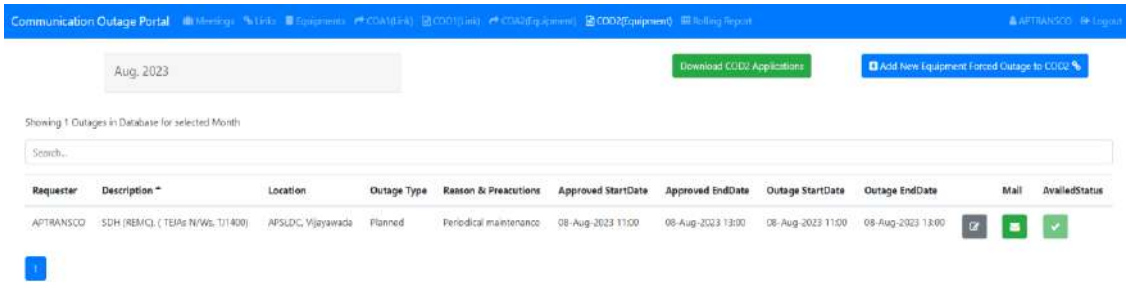


Figure 25 Communication Outage Deviation entry page for communication Equipment (COD2)

Once the User enters the timings for actual outage duration for each approved outage, any deviation between the actual outage timing from the approved outage timing is computed and displayed in the COD2 tab. The sample screen for entry options available for Users against each approved outage under COD2 tab is shown in Figure 26 below.

In case the user didn't avail the approved outage, the user can select the "Not Availed option" and submit the same in COMSR web portal. Similar Procedure is to be followed by Users for entering details of Emergency Category outages also.

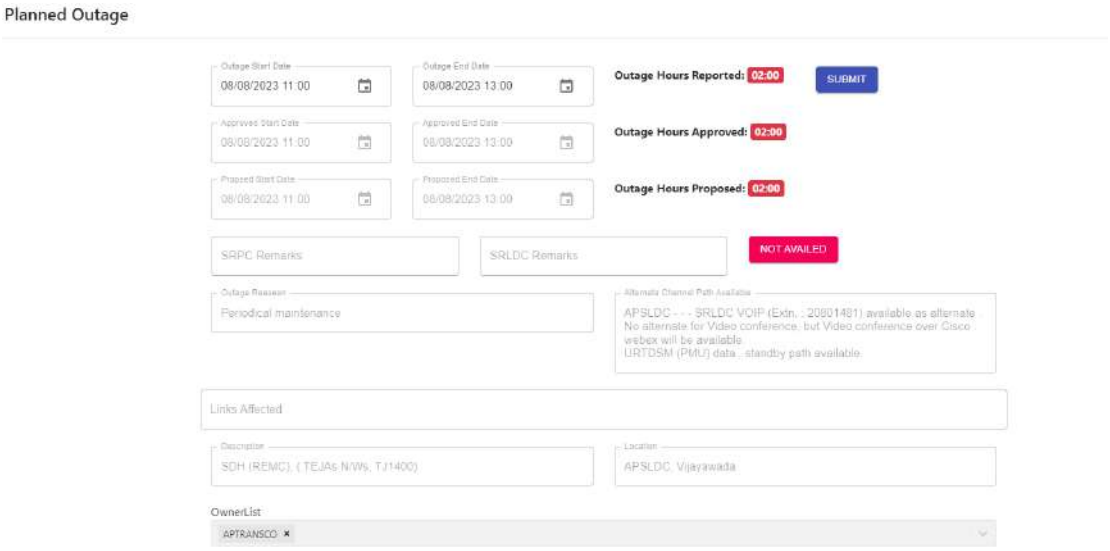


Figure 26 Planned Outage (Equipment) - actual time reporting entry screen

For reporting forced outages of communication equipment, user can use the "Add Forced Link Outage to COD2" Button located in the right corner of COD2(Equipment's) Page (Fig. 27 below). On clicking this button, it shall navigate to Equipment Page where user can submit the details for the respective Forced Outage.

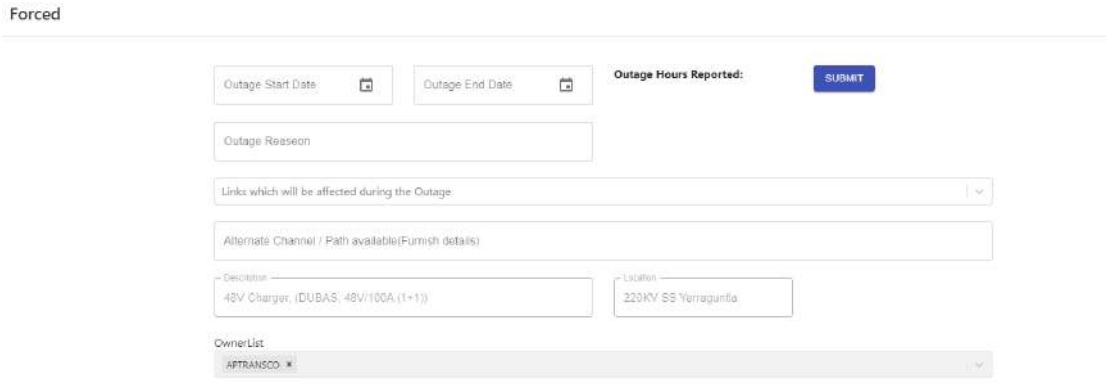


Figure 27 Forced Outage (Equipment's) Reporting with actual outage times screen

As per the approved Outage Procedure, all users/owners of communication equipment's/links need to submit the deviation report for outages availed by them in the M-1 month (considering M as current month) by 10th of the Mth Month. This requirement has been facilitated through the COD1(Links) & COD2(Equipment) tabs in the Communication Outage web portal.

Once this COD1 (links) & COD2 (equipment) is filled by respective Users/owners, RPC freezes the COD1& COD 2-page entry option after 10th of Mth month for outages availed in M-1 Month using "Freeze COD Application button" (Figure 28 and 29 below), available under Admin role login. In cases wherein the user has not entered the actual outage

timelines of approved outages, the portal automatically takes the approved outage timelines as actual outage timelines for planned outages. In case of emergency outages, if the user doesn't enter the actual outage timelines for the outage availed, the portal automatically takes proposed outage timings as actual outage timings. In all such cases, wherein User doesn't enter the actual outage timelines, the outage is deemed to be availed by respective entity.

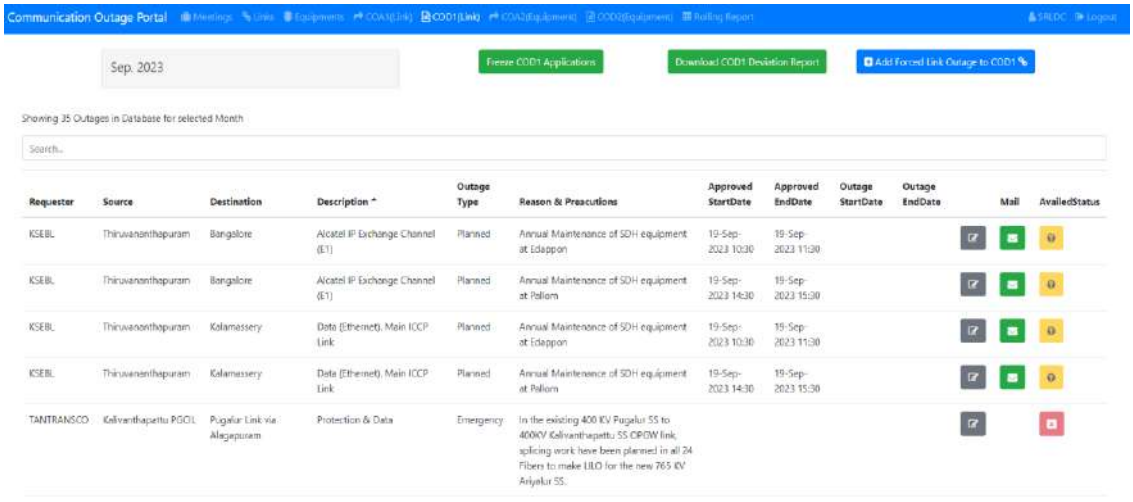


Figure 28 RPC view for Freezing COD1 Application.

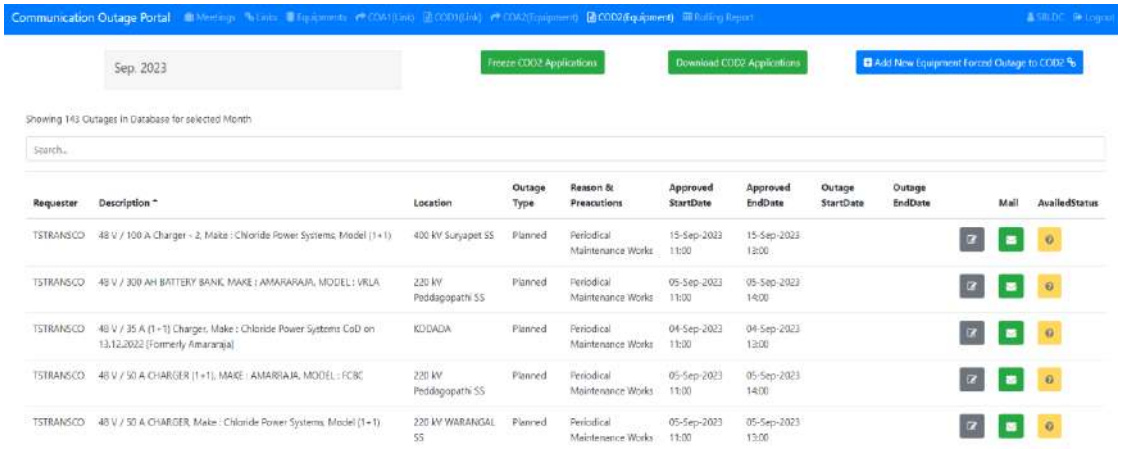


Figure 29 RPC view for Freezing COD2 Application

2.13. Rolling Report-- 12 Months Outage Time > 48hours

In order to monitor and highlight excessive outages of any of the communication link/equipment registered in the COMSR Db, Rolling Outage Reports for last twelve (12) months are provided which cumulatively adds the outage duration of communication links/equipment as per COD1/COD2 reports of last 12 months and summarizes the same in COD3 report (for communication links) and COD4 report (for Equipment). COD3 and COD4 reports are available for downloading in excel from the web portal. Sample screen showing download option is shown in Figure 30 and sample report format for COD3 (links) and COD4 (equipment) are shown in Figure 31 and Figure 32 below.

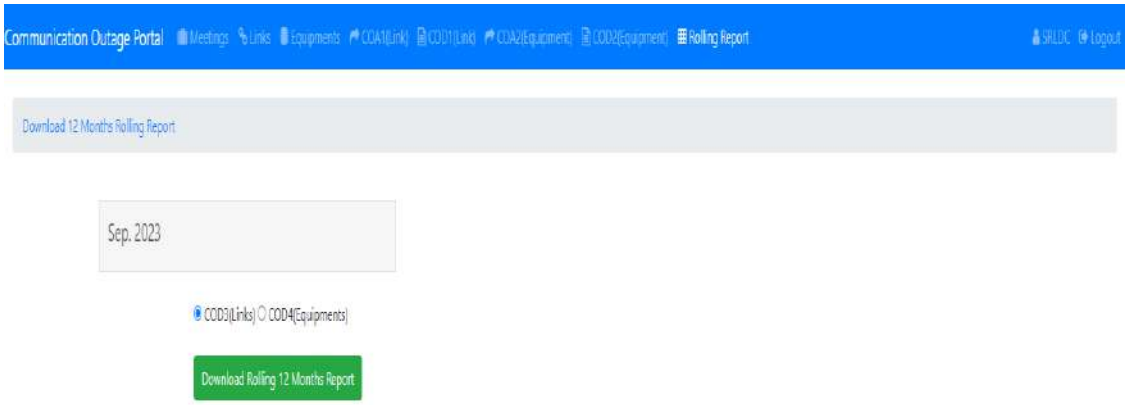
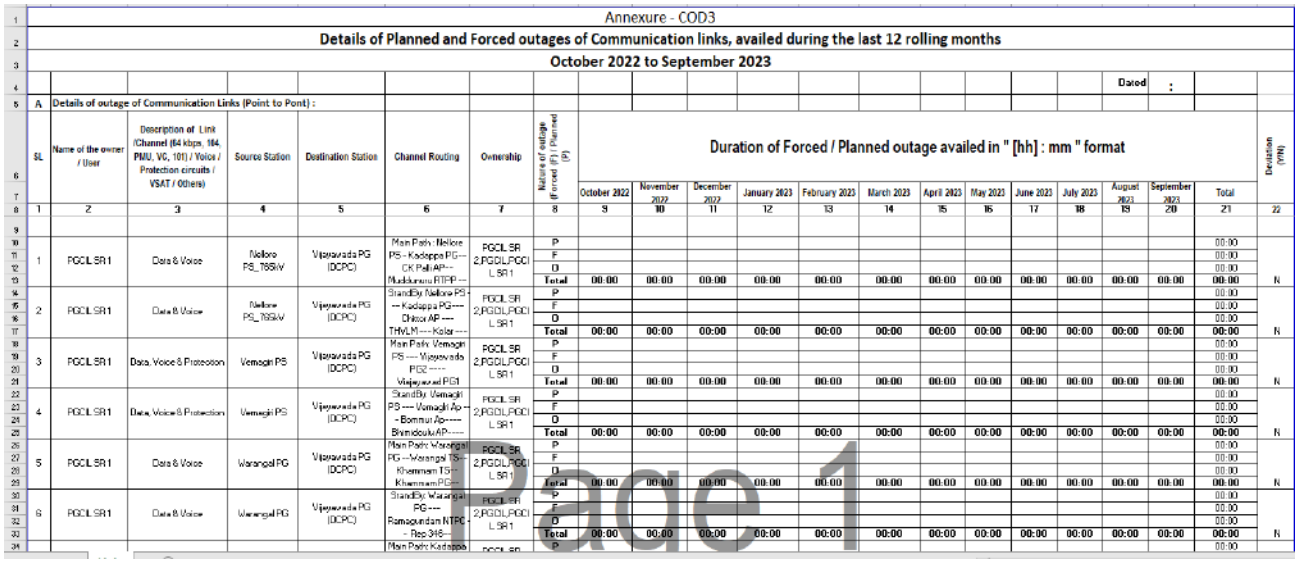


Figure 30 Rolling Report - 12 Months Outage Time download option



Annexure - COD3

Details of Planned and Forced outages of Communication links, availed during the last 12 rolling months

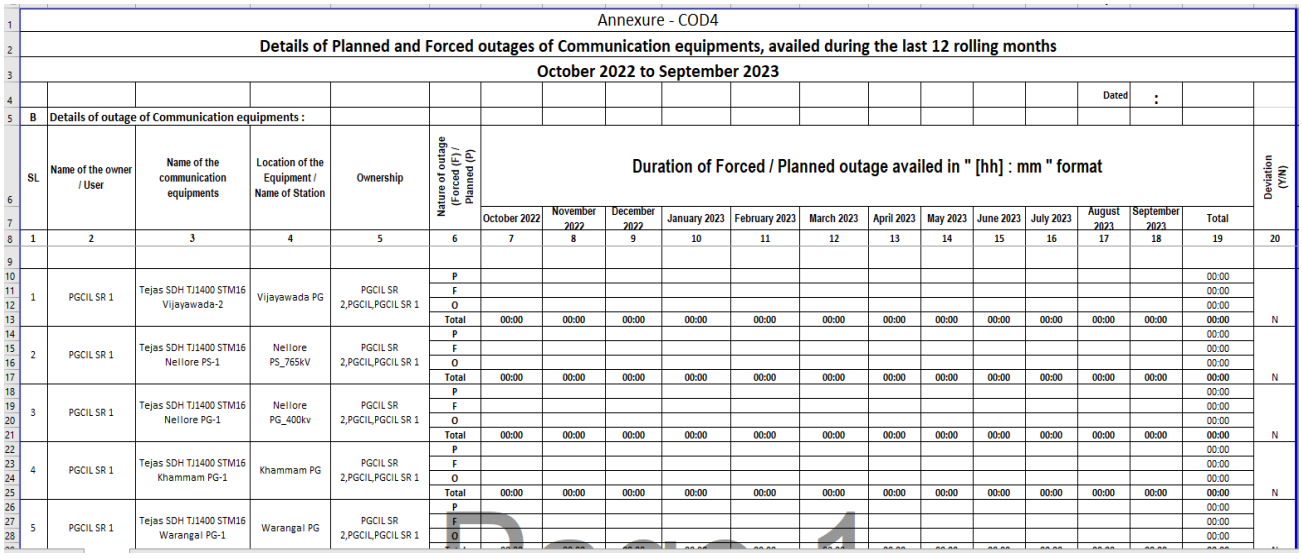
October 2022 to September 2023

Dated :

A Details of outage of Communication Links (Point to Pont) :

SL	Name of the owner / User	Description of Link /Channel (64 kbps, 164, PMU, VC, 101) / Voice / Protection circuits / VSAT / Others)	Source Station	Destination Station	Channel Routing	Ownership	Nature of outage (Forced (F) / Planned (P))	Duration of Forced / Planned outage availed in " [hh] : mm " format												Deviation (Y/N)
								October 2022	November 2022	December 2022	January 2023	February 2023	March 2023	April 2023	May 2023	June 2023	July 2023	August 2023	September 2023	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	PGCIL SR1	Data & Voice	Nellore PS_765kV	Vijayawada PG (DCPC)	Main Path: Nellore PS - Kadappa PG--- CK Pall AP--- Muddunuru PGR ---	PGCIL SR 2,PGCIL,PGCIL SR1	P													00:00	
							F													00:00	
							O													00:00	
							Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
2	PGCIL SR1	Data & Voice	Nellore PS_765kV	Vijayawada PG (DCPC)	StandBy: Nellore PS --- Kadappa PG---- Chittor AP ---- THVLM ---- Kolar ----	PGCIL SR 2,PGCIL,PGCIL SR1	P													00:00	
							F													00:00	
							O													00:00	
							Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
3	PGCIL SR1	Data, Voice & Protection	Vemagiri PS	Vijayawada PG (DCPC)	Main Path: Vemagiri PS ---- Vijayawada PG2 ----- Vijayawada PG1	PGCIL SR 2,PGCIL,PGCIL SR1	P													00:00	
							F													00:00	
							O													00:00	
							Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
4	PGCIL SR1	Data, Voice & Protection	Vemagiri PS	Vijayawada PG (DCPC)	StandBy: Vemagiri PS --- Vemagiri Ap --- Bommur Ap----- Bhimavaram AP ----	PGCIL SR 2,PGCIL,PGCIL SR1	P													00:00	
							F													00:00	
							O													00:00	
							Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
5	PGCIL SR1	Data & Voice	Warangal PG	Vijayawada PG (DCPC)	Main Path: Warangal PG --Warangal TS--- Khammam TS--- Khammam PG---	PGCIL SR 2,PGCIL,PGCIL SR1	P													00:00	
							F													00:00	
							O													00:00	
							Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
6	PGCIL SR1	Data & Voice	Warangal PG	Vijayawada PG (DCPC)	StandBy: Warangal PG --- Ramagundam NTPC - Rec 346---	PGCIL SR 2,PGCIL,PGCIL SR1	P													00:00	
							F													00:00	
							O													00:00	
							Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
					Main Path: Kadappa	PGCIL SR	P													00:00	

Figure 31 Sample COD3 Links Generated Report



Annexure - COD4

Details of Planned and Forced outages of Communication equipments, availed during the last 12 rolling months

October 2022 to September 2023

Dated :

B Details of outage of Communication equipments :

SL	Name of the owner / User	Name of the communication equipments	Location of the Equipment / Name of Station	Ownership	Nature of outage (Forced (F) / Planned (P))	Duration of Forced / Planned outage availed in " [hh] : mm " format												Deviation (Y/N)
						October 2022	November 2022	December 2022	January 2023	February 2023	March 2023	April 2023	May 2023	June 2023	July 2023	August 2023	September 2023	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	PGCIL SR 1	Tejas SDH TJ1400 STM16 Vijayawada-2	Vijayawada PG	PGCIL SR 2,PGCIL,PGCIL SR 1	P													00:00	
					F													00:00	
					O													00:00	
					Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
2	PGCIL SR 1	Tejas SDH TJ1400 STM16 Nellore PS-1	Nellore PS_765kV	PGCIL SR 2,PGCIL,PGCIL SR 1	P													00:00	
					F													00:00	
					O													00:00	
					Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
3	PGCIL SR 1	Tejas SDH TJ1400 STM16 Nellore PG-1	Nellore PG_400kv	PGCIL SR 2,PGCIL,PGCIL SR 1	P													00:00	
					F													00:00	
					O													00:00	
					Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
4	PGCIL SR 1	Tejas SDH TJ1400 STM16 Khammam PG-1	Khammam PG	PGCIL SR 2,PGCIL,PGCIL SR 1	P													00:00	
					F													00:00	
					O													00:00	
					Total	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	N
5	PGCIL SR 1	Tejas SDH TJ1400 STM16 Warangal PG-1	Warangal PG	PGCIL SR 2,PGCIL,PGCIL SR 1	P													00:00	
					F													00:00	
					O													00:00	

Figure 32 Sample COD4 Links Generated Report