

Management of Idle Electric Transmission Line Facilities

SUMMARY

This utility procedure details the requirements and assigns the responsibilities for actively managing PG&E idle electric transmission line facilities. Management of such facilities includes identifying, investigating, de-energizing, documenting, and categorizing.

This procedure supports [TD-1003S, "Management of Idle Electric Transmission Line Facilities,"](#) [UO Policy 3-7, "Gas and Electric Operation, Maintenance, and Construction,"](#) and [Utility Standard GOV-1038S, "Inspection and Corrective Maintenance Governance."](#)

Level of Use: Informational Use

TARGET AUDIENCE

- Regulatory compliance personnel
- Land management personnel
- Asset knowledge management (mapping) personnel
- Transmission maintenance and construction (M&C) personnel
- Centralized Inspection Review Team (CIRT)
- System inspections (SI) personnel
- Transmission planning personnel
- Transmission line asset implementation personnel
- Transmission line asset strategy personnel
- Transmission line project management personnel
- Transmission line engineering
- Strategic Governance
- Distribution planning personnel
- Distribution asset strategy personnel

Management of Idle Electric Transmission Line Facilities

SAFETY

This document describes administrative tasks that do not expose personnel or the public to any specific hazards.

BEFORE YOU START

REVIEW the [Code of Safe Practices](#) and [Utility Standard SAFE-1001S, "PG&E Injury & Illness Prevention Plan \(IIPP\)."](#)

TABLE OF CONTENTS

SECTION	TITLE	PAGE
1	General Information	2
2	Overview of Transmission Idle Facilities.....	3
3	Roles and Responsibilities.....	4
4	Idle Line Facilities Identification	6
5	Idle Line Investigation	7
6	Documentation of Idle Facility De-Energization.....	13
7	Re-Energization of Idle Facilities	13
8	Categorization of Idle Facility as TOS or PA	14
9	Temporarily Out of Service Facilities	15
10	Permanently Abandoned Transmission Facilities.....	16
11	Reassessment of Idle Facilities	22
	Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction	28

PROCEDURE STEPS

1 General Information

- 1.1 This procedure provides guidance on the overall management of all transmission idle facilities in the system. It also highlights the roles and responsibilities of all identified stakeholders in the management of idle facilities.
- 1.2 The proper management of all idle facilities in the system is essential to PG&E’s goals of improving public safety and minimizing risks associated with wildfires.
- 1.3 Idle facilities in the system can be found in three conditions: de-energized, transmission lines energized to distribution voltages, or transmission lines energized to transmission voltages.

Management of Idle Electric Transmission Line Facilities

- 1.4 Transmission line maintenance personnel must PATROL, INSPECT, AND MAINTAIN idle transmission line facilities in compliance with PG&E utility standards and [California Public Utilities Commission \(CPUC\) General Order \(G.O.\) 95, "Rules for Overhead Electric Line Construction," Rule 31.2, "Inspection of Lines" and Rule 31.6, "Abandoned Lines."](#)
- 1.5 [Utility Standard TD-1003S, "Management of Idle Electric Transmission Line Facilities,"](#) outlines the process of managing all idle facilities in the system including identification, investigation, de-energization, documentation, and categorization of idle facilities.
- 1.6 Transmission Line Asset Strategy (TLAS) personnel DRIVE the process AND INFORM stakeholders along the way. The process, from identification to de-energization (if needed), is outlined in [Attachment 1, "Management of Idle Transmission Line Facilities Flow Chart."](#)

2 Overview of Transmission Idle Facilities

- 2.1 Idle facilities are circuits that are not currently being used to serve transmission load or generation facilities.
- 2.2 Idle facilities are categorized by their status, energization level, portion of line idle, and use by distribution, as follows:
 1. Status: Lines are either "temporarily out of service" (TOS) or "permanently abandoned" (PA). SEE [Section 8](#) on Page 14 for details.
 2. T-line energization: Idle lines are de-energized or energized at distribution voltages.

IF the idle line is energized at transmission voltages,

THEN SEE [Subsection 5.2.4](#) on Page 8 for the de-energization process.
 3. Portion of line idle:
 - a. Partial Idle Line – This description identifies certain spans and/or structures in a circuit that are TOS or PA.
 - b. Whole Idle Line – This description identifies **entire** circuits that are TOS or PA.
 4. Idle line in use by distribution: This description identifies the following types of lines:
 - a. Transmission idle lines energized at distribution level voltages.
 - b. Transmission idle lines with distribution underbuilds.

Management of Idle Electric Transmission Line Facilities

3 Roles and Responsibilities

3.1 SEE [Table 1](#) below for roles and responsibilities involved in management of transmission idle facilities.

Table 1. Roles and Responsibilities

Stakeholder	De-Energization	Identification/ Investigation	TOS	PA – Remove	PA – Distribution
TLAS	Coordinate communication, initiate de-energization notification.	Lead documentation, communication, and initiate idle investigation notification.	Determine TOS status. Communicate to relevant stakeholders.	Determine permanently abandoned transmission (PAT) status and need for removal.	Determine PAT status and coordinate with distribution planning (DP) for transfer.
CIRT	Process de-energization notification.	Process idle line investigation notification.		Process idle line removal notification.	
Mapping (Electric Transmission Geographical Information System [ETGIS])		Process request for work (RW) notification to map unmapped lines and/or flag line as idle.		Remove line from ETGIS after removal is confirmed.	If applicable, remove line from ETGIS after transfer and EDGIS reflection are confirmed (poles).
T-Line Maintenance & Construction	Work with Grid Control Center (GCC) to determine if/how line can be de-energized. Perform de-energization and grounding work. Create de-energization notifications.	Flag potential idle candidates to TLAS personnel or by investigation notification.	Continue to maintain line.	Perform work to ground and remove PAT lines. Maintain line until removal.	Maintain poles until transfer. Maintain towers.
Engineering (GCC/OE)	Determine if/how line can be de-energized.	Confirm line status (is or is not in use).	Update operating diagrams.	Update operating diagrams.	Update operating diagrams.
Transmission Planning			Confirm line has future use. Update Electric Management System (EMS).	Confirm line has no future use. Update EMS.	Confirm that line has no future use. Updates EMS.
System Inspection		Flag potential idle candidates to TLAS personnel.	Continue to coordinate line inspection/ maintenance.	Coordinate line inspections/ maintenance until removal.	Confirm that line has no future use. Coordinate line maintenance/ inspection until transfer (poles). Maintain towers.
Distribution Planning and Distribution Asset Strategy		Confirm line status (is or is not in use).		Confirm no current or future use needed for DP.	Coordinate transfer, EDGIS mapping, and any required reframing work.

Management of Idle Electric Transmission Line Facilities

3.1 (continued)

Table 1. Roles and Responsibilities (continued)

Stakeholder	De-Energization	Identification/ Investigation	TOS	PA – Remove	PA – Distribution
T-Line Asset Implementation (TLAI)		Confirm line status (is or is not in use).		Confirm that no current or future use needed for TLAJ.	
T-Line Project Management				Coordinate the removal of PATs	Coordinate the transfer of idle assets to distribution.
Electric Generation Interconnection (EGI) and Corporate Real Estate (CRE)		Confirm that line is not under contract with customer.			

- 3.2 Field personnel or qualified Company representative (QCR) IDENTIFY potentially idle facilities AND INITIATE a notification for investigation of the idle facilities.
- 3.3 CIRT must PROCESS the idle facility notifications.
- 3.4 For idle facilities identified by means other than notifications generated in the field, TLAS personnel must INITIATE the idle facility investigation AND de-energization process.
- 3.5 TLAS personnel must COMPLETE the following tasks:
1. INITIATE the process for de-energizing the lines found to be energized through the investigation.
 2. CONDUCT the investigation of idle facilities to determine extent and energization status.
 3. REQUEST the review.
 - a. COORDINATE inputs related to the categorization of the idle facilities (decision to keep, remove, or transfer) to ensure that all affected departments jointly complete the investigation.
 - b. DETERMINE whether there is the potential for future use of the facilities.
 4. NOTIFY all stakeholders of the categorization.
- 3.6 For de-energization notifications, T-Line M&C personnel AND the Grid Control Center (GCC) must FOLLOW existing processes related to execution of work.
- 3.7 Transmission planning (TP) personnel must REVIEW the facilities in question to determine whether the facilities may be needed for future transmission capacity or reliability.

Management of Idle Electric Transmission Line Facilities

- 3.8 Operations engineering (OE) OR GCC may PROVIDE input regarding potential use of the facilities (optional).
- 3.9 Transmission Asset Implementation personnel may PROVIDE input regarding potential use of the facilities (optional).
- 3.10 Distribution planning (DP) personnel must REVIEW the facilities in question to determine whether they are currently in use for distribution service OR may be needed for future distribution capacity OR reliability work.
- 3.11 Corporate real estate (CRE), electric generation interconnection (EGI), account services, and rates and tariffs personnel must REVIEW the facilities in question.
- 3.12 EGI, account services, and rates and tariffs personnel must ENSURE that the rates and tariffs are properly applied and in compliance, AND that any agreements (special facilities, special service agreements, power purchase/interconnection agreements, etc.) are reviewed accordingly.
- 3.13 Electric Transmission Geographical Information System (ETGIS) MAINTAINS idle line designations, including the categorization of the line, based on input from TLAS personnel provided via Request for Work (RW) notification. RW notification is a map correction notification submitted to Geographical Information System (GIS) mapping.

4 Idle Line Facilities Identification

- 4.1 Multiple levels of review and confirmation must take place before a transmission line is classified as "idle." Some confirmations include, but are not limited to, the following:
 - 1. Transmission grid operations personnel provide idle line confirmation.
 - 2. Asset strategy personnel provide idle line confirmation based on existing documentation, desktop review, and validation.
 - 3. Customer notification and Local Customer Experience (LCE) team's notification indicate that facilities are idle line candidates.
 - 4. EGI team provides confirmation that transmission customer no longer has an active contract with PG&E.
 - 5. During routine or non-routine inspection or patrol of assets, the QCR may create an idle facility investigation notification for CIRT to process.
- 4.2 Listed below are some of the indicators that a facility may be idle (not an exhaustive list). REFER to [Job Aid TD-1001M-JA23, "Idle Line Investigation."](#)
 - 1. Jumpers have been cut on all phases.
 - 2. Conductors have been removed.

Management of Idle Electric Transmission Line Facilities

4.2 (continued)

3. Insulators are undersized for the line.
4. Pole tops have been removed.
5. First-line supervisor knows the facility is idle.
6. Documentation or field observations indicate that a suspected idle line is energized at distribution voltages.
7. Documentation or field observations indicate that a suspected idle line is energized at transmission voltages.

5 Idle Line Investigation

5.1 Overview

1. The idle line investigation consists of the following two parallel and independent activities:
 - a. Determination of the energization status of the suspected idle line.
 - b. Determination of any future use of the idle facility (idle status and categorization).
2. TLAS personnel must INITIATE both investigation activities as soon as a suspected idle facility has been identified.
 - a. The line is designated as “Idle Facility – Under Review” (IF-UR).
3. Following investigation activities, TLAS personnel OR project management personnel INITIATE the RW mapping notification on the confirmed idle line.

5.2 Suspected Idle Line De-Energization Status

NOTE

De-energization status investigation must be concluded **within 1 month** of identification.

1. TLAS personnel INITIATE the investigation to determine if the suspected idle facility fits any of the following descriptions:
 - a. Energized and currently in use
 - b. Energized and not currently
 - c. De-energized

Management of Idle Electric Transmission Line Facilities

5.2 (continued)

2. TLAS personnel CONTACT Transmission Grid Operations (Operations Engineering) and M&C supervisors as part of the desktop review, to help determine whether the facility is energized AND can be de-energized.
3. IF facility is energized AND currently in use to carry generation or customer load,
THEN DO NOT TAKE any actions.
4. IF suspected idle facility is energized AND determined to have no current use,
THEN PROCEED as follows:
 - a. QCR OR TLAS personnel INITIATE the creation of an S5 notification with a Priority B de-energization notification, as follows:
 - (1) SEND a request to M&C clerical staff via email.
 - (2) COPY TLAS and CIRT supervisors.
 - b. TLAS personnel COMPLETE form [TD-1003P-01-F01, "Electric Transmission Idle Line De-Energization Investigation Form."](#)
 - (1) ATTACH completed form [TD-1003P-01-F01](#) and associated email request to the created idle line de-energization notification in SAP.
 - c. IF initial de-energization status investigation is expected to take more than 10 business days,

THEN QCR OR clerical staff must CREATE a notification using the following Facility – Damage – Action (FDA) code: **Other – Idle – Investigation**.
(REFER to [Section 5.3](#) on Page 9 for additional information).
 - d. Once TLAS determines that de-energization is required, QCR OR clerical staff CREATE an S5 notification with the following FDA code: **Other – Idle – De-energize**.
 - e. M&C clerical staff must CONFIRM creation of notification via email to TLAS personnel, CIRT, and requestor.
 - f. CIRT ASSIGNS Priority B to the notification AND RELEASES it to Line Corrective (LC) with a 3-month deadline.
 - (1) The request is to complete line de-energization work **within 60 days**; however, other considerations (e.g., clearances and environmental permitting) may affect this timeline.

Management of Idle Electric Transmission Line Facilities

5.2 (continued)

- g. In addition to the notification to de-energize the suspected idle facility, QCR CREATES notification(s) to address any safety issue(s) identified during inspection.
 - h. M&C supervisor must SCHEDULE the de-energization notification.
 - (1) DE-ENERGIZE the line via a scheduled clearance or “Force-Out,” depending on the situation.
 - (2) M&C personnel must INITIATE the closing of the de-energization notification AND INFORM TLAS personnel upon completion of the work.
5. IF suspected idle facility is **already** de-energized,
- THEN TLAS personnel WORK with appropriate M&C supervisor or personnel to ensure that the facility is grounded AND all safety issues are resolved.
- a. REFER to [Appendix A, “Evaluation of Permanently De-Energized Transmission Lines from Induction,” Section 5, “Ground Mitigations,”](#) for guidance.
6. CONTACT mapping, strategic governance, transmission planning, and operations engineering personnel to accomplish the following tasks:
- a. NOTIFY them of a line to be de-energized.
 - b. TRIGGER updates to the following items:
 - ETGIS
 - Base Case and Independent System Operator (ISO) Transmission Register
 - Electric Management System (EMS)
 - Transmission operating diagrams
7. REFER to [Section 6, “Documentation of Idle Facility De-Energization,”](#) for additional guidance on required actions and documentation related to idle line de-energization.

5.3 Idle Line Status Investigation and Verification

NOTE

The goal of this investigation is to determine whether a suspected idle facility is indeed idle (TOS or PAT) or active. Multiple stakeholders contribute their input, review, and/or analysis to this process.

Management of Idle Electric Transmission Line Facilities

5.3 (continued)

1. WHEN lines appear idle or are suspected to be idle,
THEN PROCEED as follows:
 - a. Field and desktop inspectors INITIATE a notification using either of the following options:
 - (1) SEND a request to M&C clerical staff.
 - (2) USE Inspect App.
 - b. Any PG&E personnel can INITIATE a request for a notification to M&C clerical staff via email (copy to TLAS supervisor).
 - (1) Request must include an S5 notification with an E priority to initiate a status investigation and verification.
 - c. QCR OR clerical staff CREATE an S5 notification using the following FDA code: Other – Idle – Investigate.
 - d. In addition to the notification to initiate the investigation, QCR CREATES notification(s) to address any safety issue(s) identified during inspection.
2. CIRT TAKES the following actions:
 - a. Upon receipt of an S5 notification, CIRT PROCESSES the notification as a Line Replacement (LR) with an E priority.
 - b. Once informed of investigation completion, CIRT INITIATES closure of the idle status investigation notification.
3. TLAS personnel TAKE the following actions:
 - a. After the notification is generated, asset strategy personnel WORK with operations engineering, transmission planning, distribution planning and T-Line Asset Implementation (TLAI) personnel to VERIFY that the facility is either idle or active.
 - b. GATHER the information using a desktop review (e.g., ETGIS data, previous inspection records, structure data sheets) OR field review.
 - c. ENTER the collected information into form [TD-1003P-01-F01, "Electric Transmission Idle Line De-Energization Investigation Form."](#)
 - (1) The completed form provides important information that helps stakeholders make informed decision on the status of the facility.

Management of Idle Electric Transmission Line Facilities

5.3 (continued)

- d. SEND the completed [Form TD-1003P-01-F01](#) AND the blank [Form TD-1003P-01-F02, "Idle Transmission Facility Categorization,"](#) to operation engineering, transmission planning, distribution planning, and asset implementation supervisors.
 - (1) Qualified personnel from operation engineering, transmission planning, distribution planning, and asset implementation COMPLETE [Form TD-1003P-01-F02, "Idle Transmission Facility Categorization."](#)
 - e. ATTACH the two completed forms [TD-1003P-01-F01](#) and [TD-1003P-01-F02](#) to the idle line status investigation notification.
 - f. Transmission line asset strategy personnel ATTACH the results of the idle status investigation and verification to the investigation notification in SAP to close the notification.
 - g. INCLUDE the following information on the status of the suspected idle facility:
 - Extent of the idle facility (e.g., whole line OR a specified range of spans/structures for a partially idle facility)
 - Whether the line is energized or de-energized.

IF the line is energized,

THEN PROVIDE the source of energization (e.g., transmission or distribution structure).
 - h. COMPLETE the status investigation and verification within **6 months** of the investigation notification being created.
4. Project manager TAKES the following actions for projects that result in the creation of idle facilities:
- a. IF an idle facility is created through a configuration change,

THEN the project manager must ENSURE that the project scope includes de-energizing AND removing the facility.

5.4 Idle Facility Mapping

NOTE

The two processes for submitting GIS map/data corrections are the As-Built process and RW process.

Management of Idle Electric Transmission Line Facilities

5.4 (continued)

1. TLAS personnel SUBMIT an RW request to update ETGIS – to show that the facility is idle and de-energized, operating at distribution voltages, TOS, or PAT, where applicable.

2. IF the idle facility is not properly mapped in ETGIS,

THEN TLAS personnel TAKE the following steps:

a. SUBMIT a RW request to mapping **within 60 days** of completion of the idle line categorization form and investigations.

(1) INCLUDE additional information needed to properly map the facility, as follows:

- Transmission line name
- Pole/tower structure locations (latitude/longitude)
- Bus structure locations (latitude/longitude)
- Voltage
- Transmission line number
- Pole/tower structure numbers
- Types
- Materials
- Names
- Height
- Class
- Framing code
- Insulators
- Conductor size
- Conductor material
- Switch itemization form
- Contract number or link to contract (preferred)
- Electric transmission line (ETL) functional location

Management of Idle Electric Transmission Line Facilities

5.4 (continued)

- b. For unmapped lines with no line number, TLAS personnel must CONTACT the grid operations supervisor to assign a line number **before** creating an RW.

6 Documentation of Idle Facility De-Energization

6.1 Actions Related to Operations Engineering

1. Transmission operating diagram mapper USES Application for Work (AFW) information to perform the following steps:
 - a. UPDATE operating diagrams.
 - b. CONFIRM updates with the GCC.
2. EMS must SEND an email to asset strategy personnel acknowledging the operating diagrams update.

6.2 Distribution Control Center (DCC) Actions

1. FOLLOW the normal Circuit Map Change Sheet (CMCS) process, as outlined in [Utility Standard TD-9450S, "Circuit Map Change Sheet Standard."](#)

7 Re-Energization of Idle Facilities

7.1 TLAS personnel must WORK with grid operations personnel to assess re-energization needs.

7.2 Lines that have been de-energized may need to be re-energized later.

7.3 IF a line is approved for re-energization,

THEN PROCEED as follows:

1. M&C personnel must INSPECT the line before re-energizing it.
2. TLAS personnel must INFORM the following stakeholders:
 - Mapping (RW notification)
 - Operations engineering
 - Strategic governance
 - Transmission planning
 - Distribution planning

Management of Idle Electric Transmission Line Facilities

- 7.4 Before re-energizing, M&C personnel must REVIEW all open LC notifications AND RESOLVE them in accordance with [Utility Procedure TD-8123-P101 “Transmission Line Corrective \(LC\) Notification Maintenance Strategy.”](#)

8 Categorization of Idle Facility as TOS or PA

- 8.1 TLAS personnel ASSESS whether the input provides adequate justification for keeping the idle facility.
1. DOCUMENT the assessment using [Form TD-1003P-01-F02, “Electric Transmission Idle Line Categorization.”](#)
 2. The following are examples of justification for keeping the idle facility and designating it as TOS:
 - a. The line is already included in the 10-year future capacity or reliability service plan.
 - b. The facility is required for conformance with procedures.
 - c. Economic analysis supports designating the facility as TOS.
 - (1) The analysis must CONSIDER the risks AND benefits associated with keeping or removing the line.

NOTE

The potential of an idle transmission line facility to have future use, without additional justification (as described above) is not enough to designate the facility as TOS.

- 8.2 TLAS personnel CATEGORIZE the idle transmission line facility as either “temporarily out of service” (TOS) or “permanently abandoned” (PA).
1. IF idle transmission line facilities have potential future use for transmission capacity, reliability, or service AND have adequate justification for keeping the line,

THEN CATEGORIZE AND HANDLE them as follows:
 - a. DESIGNATE the facilities as TOS (SEE [Section 9](#) for details).
 - b. DO **NOT** REMOVE the facilities from service.
 2. IF idle overhead transmission facilities do not have adequate justification for TOS designation,

THEN CATEGORIZE AND HANDLE them as follows:
 - a. DESIGNATE the facilities as PA (SEE [Section 10](#) for details).

Management of Idle Electric Transmission Line Facilities

8.2 (continued)

- b. REMOVE OR TRANSFER the facilities.

9 Temporarily Out of Service Facilities

9.1 Once informed of an existing idle transmission line facility, TLAS personnel must CONTACT transmission planning (TP) AND distribution planning (DP) personnel to determine whether the asset has potential future use for transmission or distribution AND if adequate justification is provided for the potential future use (SEE [Attachment 1, "Management of Idle Transmission Line Facilities – Flow Chart"](#)).

1. IF TP personnel determine that a facility (including 500 kV or grid interconnection facilities) may be needed for capacity or reliability service within the next 10 years OR that it has the potential to provide future transmission service,

THEN DESIGNATE such facility as "temporarily out of service – idle" (TOS-I).

2. IF DP personnel determine that a TOS-I facility has existing temporary distribution needs,

THEN DESIGNATE such facility as "temporarily out of service – distribution voltage" (TOS-DV).

9.2 HANDLE AND DOCUMENT TOS facilities as follows:

1. MAKE TOS-DV facilities available to DP personnel to be energized at distribution-level voltages, until either of the following conditions develops:
 - a. The facilities are required for transmission use.
 - (1) TP personnel must COMMUNICATE information on future projects to DP personnel.
 - b. The idle facility is no longer required to serve distribution load.
 - (1) DP personnel must NOTIFY TLAS personnel.
2. TLAM, SI, and M&C personnel must CONTINUE patrolling, inspecting, and maintaining TOS facilities.
3. Capital accounting personnel must CONTINUE to classify TOS-I or TOS-DV facilities as transmission assets.
 - a. USE ETGIS to confirm the status as TOS.
4. Strategic governance personnel must REMOVE TOS facilities from California Independent System Operator (CAISO) transmission register (TR), if applicable.

Management of Idle Electric Transmission Line Facilities

10 Permanently Abandoned Transmission Facilities

10.1 Overview

1. IF transmission personnel determine that facilities meet both of the following criteria:
 - TP personnel's conclusion that there is no future transmission capacity, reliability, or service need for the facility,
 - TLAS personnel's conclusion that there is no current or future use for the asset,

THEN TLAS personnel DESIGNATE facilities as "permanently abandoned – transmission" (PAT).

2. IF there is adequate justification for existing or future distribution needs for a PAT facility,

THEN TLAS personnel DESIGNATE the facility as "permanently abandoned transmission – distribution voltage" (PAT-DV) AND HANDLE it as described in [Section 10.2](#) below.

3. IF DP personnel do not want the facility for distribution use,

THEN TLAS personnel CATEGORIZE the facility as PAT, designated as "facility identified for removal" AND HANDLE it as described in [Section 10.3](#) on Page 20.

10.2 Permanently Abandoned Transmission – Distribution Voltage (PAT-DV)

1. ENSURE that PAT-DV FACILITY is made available to the DP personnel for permanent takeover.
2. DOCUMENT the ownership transfer to distribution through a Memorandum of Understanding (MOU).
 - a. An MOU outline is provided in [Form TD-1003P-01-F03, "Memorandum of Understanding – Transfer of Transmission Asset to Distribution."](#)
 - b. ROUTE the MOU through Electronic Document Routing System (EDRS).
3. PROVIDE the following required information in [Form TD-1003P-01-F03](#):
 - a. Scope of assets to be transferred
 - b. Inspections of facilities
 - c. Existing and future maintenance of facilities
 - d. Mapping, accounting, and land department actions

Management of Idle Electric Transmission Line Facilities

10.2 (continued)

4. Once a facility has been identified as transmission idle and in use by distribution, project management personnel ASSIGN a project manager to complete transfer of such asset(s) to distribution.
5. The assigned project manager PERFORMS the following actions:
 - a. KICK OFF the asset transfer project by engaging the following personnel:
 - Engineering/estimating
 - Environmental
 - Land and construction management
 - TLAS
 - Distribution planning
 - b. ENGAGE the design engineering team AND REQUEST a Scope Document.
 - c. ENGAGE engineering/estimating personnel to determine if the idle line has wood or steel structures.
 - (1) IF the idle line has steel structures,
THEN the asset must remain in ETGIS for inspection purposes.
 - (2) OTHERWISE, IF the idle line has wood structures,
THEN the asset can be completely removed from ETGIS.
 - d. Once engineering/estimating personnel complete 30% of design AND engage construction management to start planning project, BEGIN permitting process (if required).
 - e. TRACK completion of final design AND environmental release to construction.
 - (1) DETERMINE when the construction can begin.
 - f. RE-ENGAGE construction stakeholders AND DEVISE an as-built plan.
 - (1) DETERMINE if there are multiple iterations of as-builts that need to be submitted (SEE [Utility Procedure TD-3330P-26, "Electric Transmission-Line \(T-Line\) Issue for Construction \(IFC\) to As-Built Records"](#)).
 - (2) DETERMINE if the idle line must be in both ETGIS and EDGIS. REFER to [Table 2, "Project Scope,"](#) on Page 18.

Management of Idle Electric Transmission Line Facilities

10.2 (continued)

Table 2. Project Scope

Scenario	Actions for Pole-Only Lines	Actions for Lines with Any Towers
Transfer underbuild.	<ul style="list-style-type: none"> Remove transmission level under MAT 93J: conductor and insulator removal, topping poles. Distribution M&C reviews assets to be transferred and identifies any additional required work. Transmission M&C repairs open notifications (whenever possible, address notifications on the transmission level by removing assets) Already in EDGIS but must require updates. Remove from ETGIS. Create distribution maintenance plan. Remove t-line maintenance plan from SAP. Ensure land and accounting updates. 	<ul style="list-style-type: none"> Remove transmission level under MAT 93J: conductor and insulator removal, topping poles (if line also contains poles). Distribution M&C reviews assets to be transferred and identifies any additional required work. Transmission M&C repairs open notifications (whenever possible, address notifications on the transmission level by removing assets) Already in EDGIS but must require updates. Retain in ETGIS with indication that asset is distribution-owned. Retain t-line maintenance plan in SAP. Ensure land and accounting updates.
Transfer transmission level operating at distribution voltage.	<ul style="list-style-type: none"> Distribution M&C reviews assets to be transferred and identifies any additional required work. Transmission M&C repairs open notifications. Update EDGIS. Remove from ETGIS. Create distribution maintenance plan. Remove t-line maintenance plan from SAP. Ensure land and accounting updates. 	<ul style="list-style-type: none"> Distribution M&C reviews assets to be transferred and identifies any additional required work. Transmission M&C repairs open notifications. Update EDGIS. Retain in ETGIS with indication that asset is distribution-owned. Retain t-line maintenance plan in SAP. Ensure land and accounting updates.
Only wish to transfer ROW.	<ul style="list-style-type: none"> Remove transmission structures under MAT 93J. Remove from ETGIS. Remove t-line maintenance plan from SAP. Install distribution poles. Update EDGIS with newly installed assets. Create distribution maintenance plan. Ensure land and accounting updates. 	

g. ENSURE submission of as-builts to engineering. ATTACH an MOU to document section of order in SAP.

(1) Engineering personnel REVIEW as-builts AND PASS them along to mapping.

Management of Idle Electric Transmission Line Facilities

10.2 (continued)

- h. VERIFY that the assets have been transferred according to the as-built plan.
 - i. ENSURE appropriate updates to the respective transmission and distribution asset registries, as well as GIS maps.
 - j. PROVIDE the job folder to the transmission and distribution mapping groups for all transfers, so that changes can be identified.
 - k. CREATE an ET RW map correction notification AND INCLUDE the following information:
 - Facilities being transferred
 - Authorization to transfer
 - Verification of current operating voltage (validated by operation engineering)
 - Idle facility designations as PAT or PAT-DV
6. Mapping personnel PERFORM the following steps:
- a. ET mapping personnel FOLLOW guidelines for ETGIS and EDGIS in the documentation provided with the ET RW map correction, to reflect ownership transfer, as follows:
 - (1) REMOVE lines with poles from ETGIS AND TRANSFER to EDGIS, in accordance with [Subsection 10.2.6.c](#) on Page 20.
 - TRANSFER installation job numbers and dates, as appropriate.
 - MAP idle facilities in accordance with guidance in [“Asset Data Quality & Process Management Communication” \(Topic: Idle Facilities\)](#).
 - (2) KEEP lines with towers in ETGIS, but IDENTIFY them as distribution voltage, in accordance with [Subsection 10.2.6.c](#) on Page 20.
 - (3) ADD lines with towers to EDGIS for ownership designation for transferred lines.

NOTE

Pole and tower lines have different requirements for mapping because of the continued involvement of transmission M&C personnel in maintenance and inspection activities on tower lines.

Management of Idle Electric Transmission Line Facilities

10.2 (continued)

- b. KEEP pole-only lines in ETGIS with the notation "PAT-DV" until the transfer is complete.
 - (1) After transfer, REMOVE from ETGIS AND ADD to EDGIS.
 - (2) UPDATE SAP to reflect the changes in GIS.
- c. KEEP tower lines in ETGIS AND IDENTIFY them as distribution-owned lines.
 - (1) NOTE the following additions.
 - This designation is analogous to the current treatment of non-PG&E-owned transmission lines, where PG&E has agreements in place for maintenance and/or inspection.
 - For these assets, ETGIS must show the distribution voltage, rather than the transmission voltage.
 - Tower lines may need to be added to EDGIS and to SAP as distribution assets, if not already tracked at the distribution level. However, the tower lines must also remain in SAP as transmission assets, so that they can be inspected under a transmission maintenance plan.
7. TLAS personnel must SEND a copy of the MOU to capital accounting personnel, to notify them of the asset transfer.
8. Using the MOU, capital accounting REMOVES the facilities from the transmission Federal Energy Regulatory Commission (FERC) rate base AND ASSIGNS the asset to the appropriate General Rate Case (GRC) as a distribution asset.
9. After the transfer to distribution is complete, ETGIS personnel SHOW line removed on FERC Form 1.

10.3 Permanently Abandoned Transmission – Remove (PAT)

1. IF the idle facility is created because of an existing project,

THEN the sponsor of the project must GAIN funding approval to remove the facility as part of the proposed capital project.

OTHERWISE CREATE a project AND SCHEDULE the line for removal.

Management of Idle Electric Transmission Line Facilities

10.3 (continued)

- a. Possible Exceptions:
 - IF distribution is currently using the facilities, but does not have a future need for the facilities,
THEN COORDINATE removal schedule with DP personnel.
 - IF cellular attachments are present on any idle structures,
THEN, in the project, CONSIDER whether they can or cannot be removed.
2. PATROL, INSPECT, AND MAINTAIN the facility until removed.
3. The project manager must PROVIDE the job folder to the transmission AND distribution mapping groups (if applicable, for lines energized to distribution level voltages), so that changes can be identified.
4. KEEP facilities to be removed in ETGIS with the notation "PAT" until the removal is complete.
5. TLAS personnel must ENSURE that the funding is available each year to remove facilities identified as PA and scheduled for removal.
6. TLAS personnel WORKS with CRE personnel to determine the owner(s) of the property underlying the PA facilities.
 - a. USE tax assessor maps for a title search.
7. CRE personnel must ISSUE a certified letter to the property owner(s) stating that the facilities on their property are identified for removal.
8. Strategic Governance personnel REMOVE PA facilities from CAISO TR.
9. TLAS must NOTIFY capital accounting to remove the facilities from the transmission FERC rate base and assign the asset to the appropriate General Rate Case (GRC) as a distribution asset.
10. After removal, ETGIS personnel SHOW line removed on FERC form 1.

NOTE

Some idle facilities in the field may already be in a permanently abandoned condition. For example, a line may not exist in SAP or ETGIS, but has been found in the field. In this case, TLAS personnel may immediately classify the idle facility as PAT, without further input. All other requirements in this procedure still apply, to ensure proper removal of these facilities.

Management of Idle Electric Transmission Line Facilities

11 Reassessment of Idle Facilities

- 11.1 At the end of each year, TLAS personnel must GENERATE a list of idle facilities using the status indicator in ETGIS.
1. Each idle facility on the list can be re-assessed using the idle facilities categorization process.
- 11.2 INCLUDE the following information in the list:
- De-energization notification number (if applicable)
 - ETL number
 - Circuit name and number
 - Line section that is idle
 - Status (IF-UR, TOS-I, TOS-DV, PAT, PAT-DV)
 - Order number for removal project (if applicable)
 - Completion date (if applicable)
- 11.3 PROVIDE the idle facilities list to transmission planning, transmission implementation, operations engineering, CIRT (transmission and distribution), and distribution planning for any new input.
- 11.4 IF an idle facility is re-assessed AND the re-assessment warrants a change in its categorization,
- THEN DOCUMENT the re-assessment on [Form TD-1003P-01-F02, "Electric Transmission Idle Line Categorization,"](#) AND FOLLOW all applicable requirements for the new categorization.
- 11.5 INCORPORATE the input from transmission planning, transmission implementation, operations engineering, and distribution planning into the finalized annual list.
1. ANNOTATE the newly identified idle facilities AND any changes in the assessments to existing idle facilities.
- 11.6 ROUTE the final list through EDRS.
- 11.7 PROVIDE an updated TOS list to transmission line maintenance superintendents AND CIRT as part of the annual updates.

END of Instructions

Management of Idle Electric Transmission Line Facilities

DEFINITIONS

Centralized Inspection Review Team (CIRT): A cross-discipline team made up of personnel with transmission and distribution system maintenance and engineering background and knowledge (experience) that review and process notifications in accordance with [Electric Transmission Preventive Maintenance Manual](#) (TD-1001M).

De-energized: Electric transmission facilities that no longer need to transmit electrical current and have no voltages.

Electric distribution asset: Land rights, fee property, fences, buildings, conductors, structures, and associated equipment that operates at voltages below 60,000 volts (V).

Electric transmission asset: Conductors, structures, and associated equipment that operates at voltages equal to or greater than 60,000 V.

Facilities identified for removal: Idle facilities that do not have foreseeable future use.

Idle facilities investigation: The process used to determine whether facilities are either “temporarily out of service” (TOS) or “permanently abandoned” (PA).

Idle transmission facilities: Facilities that are not currently being used to serve transmission load or generation facilities. Idle facilities can be either transmission line facilities that are de-energized or facilities that are energized at distribution voltages.

Idle Facility – Under Review (IF-UR): Idle facilities that are under review and have not been categorized as TOS or PA.

Inspection: A ground, aerial, or climbing observation of an existing asset (including the easement area), looking for abnormalities or circumstances that can negatively impact safety, reliability, or asset life. Individual elements and components are carefully examined through visual or routine component tests (e.g., wood pole hammer test); conditions are repaired at the time of the inspection, or a maintenance notification is generated.

Inspector: A qualified Company representative who, by reason of training and work experience, can perform an accurate and complete assessment of electric transmission line facilities.

Maintenance: Performance of preventive or corrective actions to ensure the safety and reliability, and to extend the asset life of electric transmission line facilities. Maintenance includes capital and expense expenditures for tasks associated with the inspection, repair, refurbishment, and possible replacement of existing electric transmission line facilities to ensure that they are safe and reliable.

Permanently Abandoned (PA): Transmission line facilities that have been determined by PG&E to have no foreseeable future use.

Permanently Abandoned Transmission (PAT): Same as above.

Management of Idle Electric Transmission Line Facilities

DEFINITIONS (continued)

Permanently Abandoned Transmission – Distribution Voltage (PAT-DV): Facilities that have no future strategic needs, as determined by transmission planning personnel – but are in use by distribution.

Property Owner: The owner of the underlying fee property where a transmission line facility is located.

Temporarily Out of Service (TOS): Idle facilities that have foreseeable future use. TOS facilities are either de-energized or energized at distribution voltage. They require patrols, inspections, and maintenance for future use.

Temporarily Out of Service – Idle (TOS-I): Idle facilities that have no foreseeable future use and are designated “idle.”

Temporarily Out of Service – Distribution Voltage (TOS-DV): Idle facilities that have existing distribution needs and are energized at distribution level voltages.

Title search: The process by which corporate real estate (CRE) personnel identify the customer or property owner, using local county property tax records.

Transmission line facilities: Conductors, structures, and/or associated equipment that are constructed for the purpose of transporting electric power of 60,000 V and above from one point to another.

IMPLEMENTATION RESPONSIBILITIES

- Electric transmission planning managers must notify personnel under their direction of this procedure.
- Transmission line superintendents must notify first-line supervisors of this procedure.
- Electric transmission asset strategy managers must notify other affected Company personnel of this procedure.
- TLAS, TP, OE, DP, CRE, EGI, account services, and rates and tariffs personnel are responsible for performing the roles assigned to them under this procedure.
- All personnel are responsible for complying with this procedure.

GOVERNING DOCUMENT

[TD-1003S, “Management of Idle Electric Transmission Line Facilities”](#)

Management of Idle Electric Transmission Line Facilities

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

[California Public Utility Commission \(CPUC\) General Order \(G.O.s\) 95, "Rules for Overhead Electric Line Construction"](#)

Records and Information Management:

Information or records generated by this procedure must be managed in accordance with the Enterprise Records and Information Management (ERIM) program policy, standards, and Enterprise Records Retention Schedule (ERRS). Refer to [GOV-7101S, "Enterprise Records and Information Management Standard,"](#) and related standards. Management of records includes, but is not limited to, the following:

- Integrity
- Storage
- Retention and Disposition
- Classification and Protection

REFERENCE DOCUMENTS

Developmental References:

Numbered Documents:

- [028854, "Wedge and U-Bolt Type Connectors for Transmission Conductors"](#)
- [068177, "Overhead Transmission Line Design Criteria"](#)

Utility Procedures:

- [TD-3310P-01, "Request for Waiver from Substation and Transmission Line Standards"](#)
- [TD-3330P-00, "Substation and Transmission Line Engineering Process Overview"](#)

Utility Standards:

- [TD-1001S, "Electric Transmission Line Inspection and Preventive Maintenance Program"](#)
- [TD-2459S, "Management of Idle Electric Distribution Lines"](#)

Supplemental References:

["Asset Data Quality & Process Management Communication" \(Topic: Idle Facilities\)](#)

Management of Idle Electric Transmission Line Facilities

DOCUMENT REFERENCES (continued)

[Code of Safe Practices](#)

[Electric Transmission Preventive Maintenance Manual \(TD-1001M\)](#)

[Job Aid TD-1001M-JA23, "Idle Line Investigation"](#)

[UO Policy 3-7, "Gas and Electric Operation, Maintenance, and Construction"](#)

[Utility Procedure TD-8123-P101, "Transmission Line Corrective \(LC\) Notification Maintenance Strategy"](#)

Utility Standards:

- [GOV-1038S, "Inspection and Corrective Maintenance Governance"](#)
- [SAFE-1001S, "PG&E Injury & Illness Prevention Plan \(IIPP\)"](#)
- [TD-9450S, "Circuit Map Change Sheet Standard"](#)

APPENDICES

[Appendix A, "Evaluation of Permanently De-energized Transmission Lines from Induction"](#)

ATTACHMENTS

[Attachment 1, "Management of Idle Transmission Line Facilities: Flow Chart"](#)

[Attachment 2, "Desktop Overview of Idle De-energized Circuit, Sectionalizing Example"](#)

[Utility Form TD-1003P-01-F01, "Electric Transmission Idle Line De-Energization Investigation"](#)

[Utility Form TD-1003P-01-F02, "Electric Transmission Idle Line Categorization"](#)

[Utility Form TD-1003P-01-F03, "Memorandum of Understanding – Transfer of Transmission Assets to Distribution"](#)

DOCUMENT REVISION

This utility procedure cancels and supersedes Utility Procedure TD-1003P-01, "Management of Idle Electric Transmission Line Facilities Procedure," Rev. 0, issued 02/26/2021.

DOCUMENT APPROVER

 Senior Manager, Electric Transmission Asset Strategy

Management of Idle Electric Transmission Line Facilities

DOCUMENT OWNER

██████████ Supervisor, Transmission Line Asset Strategy

DOCUMENT CONTACT

██████████ Senior Advising Engineer, Transmission Line Asset Strategy

REVISION NOTES

Where?	What Changed?
Target Audience	Updated list.
Section 1	Expanded general information.
Section 2	Added new section – overview of transmission idle facilities. Sections numbers for the rest of the sections in the procedure shifted as a result.
Section 3	Added Table 1. Removed step for Account Services.
Subsection 4.1	Updated levels of review and confirmations.
Section 5	New content.
Section 6	Added actions related to operations engineering. Removed TLAS and mapping actions.
Section 7	Updated content and added reference to Utility Procedure TD-8123P-101.
Section 8	Language update.
Section 9	Content update.
Section 10	Major content update and content reorganization.
Definitions	Added definitions for “CIRT” and “De-energized.” Removed “Deactivated.”
Compliance Requirement/Regulatory Commitment	Removed G.O. 128.
Reference Documents	Updated and reorganized documents/links.
Appendix A	Added Section 1.
Attachment 1	Content update.
Attached forms TD-1003P-01-F01, TD-1003P-01-F02, TD-1003P-01-F03	Content update.
Document Approver and Document Owner	Updated names and titles.

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 1 of 8

The purpose of this appendix is to mitigate the effects of induction on de-energized idle transmission lines.

1 Introduction

- 1.1 The effects of induction on an idle de-energized line depend on the strength of the electrical magnetic field (EMF) of the energized line. Induction on the idle de-energized transmission line is directly proportionate to the loading (current) of the energized line and indirectly proportionate to the distance (radius) between two lines.
- 1.2 The electric induction is proportional to the voltage of the neighboring line. The higher the current on the neighboring energized line, the higher the resulting magnetic field. The larger the distance from the neighboring energized line (i.e., the radius (r) in [Figure 1](#) below), the smaller the electric field impact on the de-energized line.

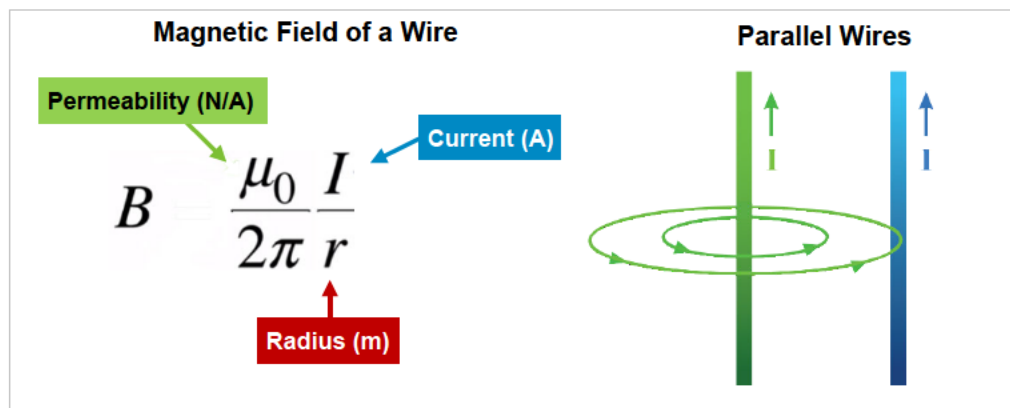


Figure 1. Magnetic Field of a Wire

- 1.3 Energized circuits that parallel a de-energized idle transmission line contribute to induction. The length of parallelism has an additive effect – it increases the induction experienced on a de-energized line. The longer an energized circuit runs parallel to a de-energized circuit, the more induced voltage the circuit experiences.
 - 1.4 Mitigation for Public Safety Power Shutoff (PSPS) induction issues is under evaluation and will be addressed in a separate document.
- #### 2 Idle De-energized Transmission Lines
- 2.1 OPEN all switches on the de-energized idle transmission lines (if applicable).

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 2 of 8

3 Information Gathering of Induction on Permanently De-Energized Transmission Lines

3.1 REVIEW each idle de-energized transmission line for the effects of induction.

1. De-energized idle transmission lines can have a variety of sources of induction, including, but not limited to, the following:
 - a. Energized transmission lines on the same structure (e.g., guest circuits)
 - b. Adjacent energized transmission lines not on the same structure (e.g., circuits in the same corridor/right of way [ROW]).
 - c. Third-party electrical lines

3.2 TLAS personnel COORDINATE with transmission line work methods and transmission line M&C to complete the following tasks:

1. IDENTIFY the induction sources to the de-energized idle transmission line.
2. Transmission line work methods and asset strategy personnel GATHER the following information:
 - a. De-energized Idle transmission line name:
 - IDENTIFY all open points along the idle line
 - b. Energized parallel transmission lines:
 - Name
 - Voltage
 - Length of line that is parallel to de-energized idle transmission line

NOTE

Distribution lines may be disregarded as an inducer circuit, because the induced current or induced voltage is negligible.

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 3 of 8

4 Circuit Assessment

4.1 Initial De-Energized Circuit Assessment (Desktop Review) by Asset Strategy

1. Sectionalizing the De-Energized Idle Transmission Line

- a. Using the information gathered in [Section 3](#) of this appendix, Applied Technology Services (ATS) PROVIDES general guidance on where sectionalizing can be done:
 - (1) Sectionalize de-energized idle transmission conductor at locations where it no longer parallels an energized circuit (SEE [Figure 2](#) on Page 31).
 - (2) Sectionalize de-energized idle conductor at locations where distribution underbuilt no longer shares the same structures (SEE [Figure 2](#) on Page 31).

NOTE

[Attachment 2, "Desktop Overview of Idle De-energized Circuit,"](#) provides an example of a desktop review of the FULTON-LAKEVILLE-IGNACIO 230 kV line.

- b. CONSTRUCT open points in accordance with [Numbered Document 068177, "Overhead Transmission Line Design Criteria."](#)
 - (1) USE flying bells where dead ends are not present.

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 4 of 8

4.1 (continued)

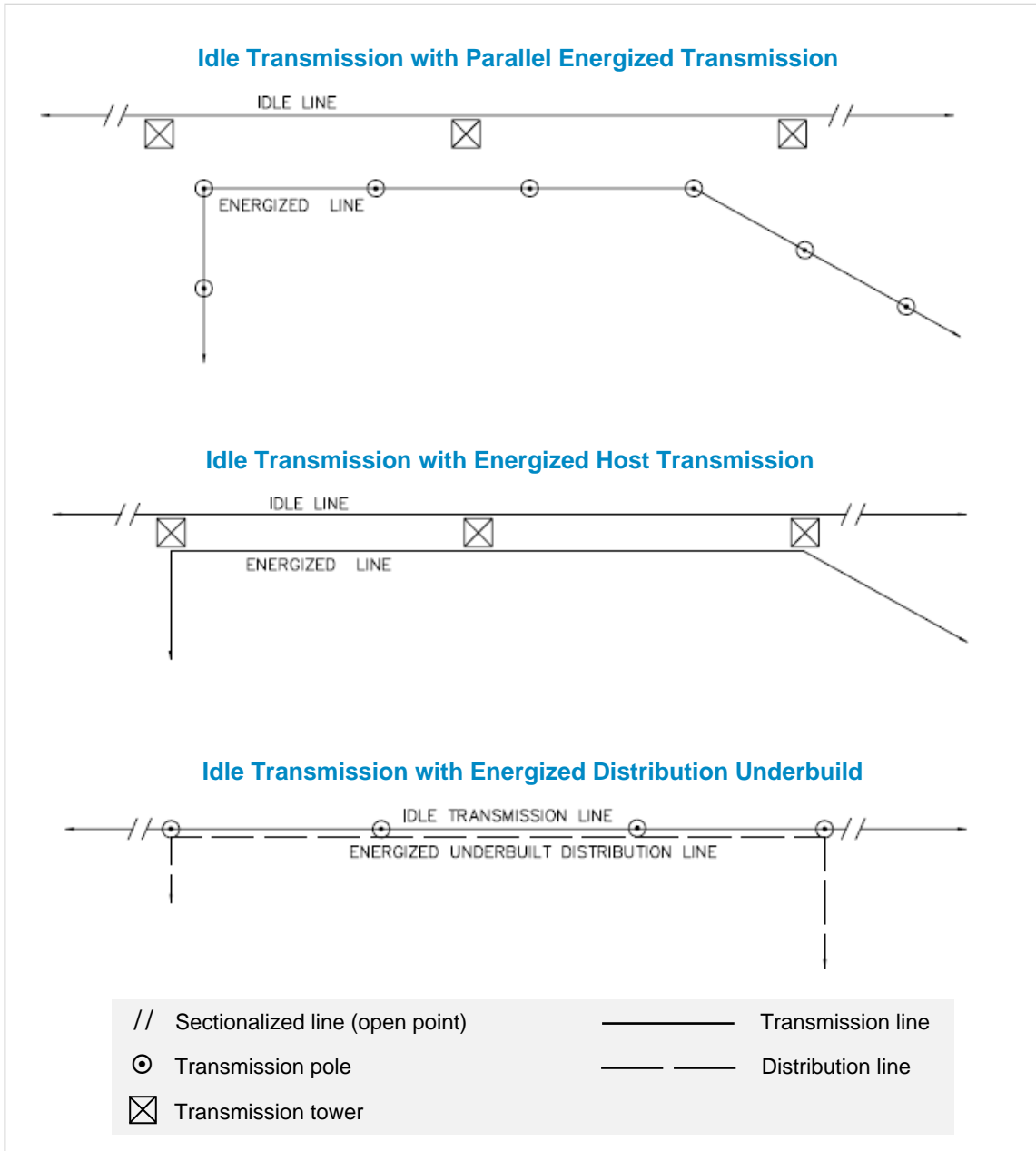


Figure 1. Parallel and Underbuilt Energized Circuit

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 5 of 8

4.1 (continued)

2. ATS must PROVIDE recommendations regarding the need for additional actions and/or detailed model evaluation.

NOTE

Sectionalizing of a de-energized circuit can mitigate the effects of induction. A uniform sectionalizing length cannot be determined because of site-specific factors (e.g., soil resistivity, switch locations, voltage, proximity and length of parallel energized circuits, length of de-energized idle transmission line, structure access).

- a. MEASURE the induced voltage of each phase of the de-energized idle transmission line.
 - (1) TAKE the measurement **before** the installation of any grounds on the de-energized idle transmission line.
- b. MEASURE voltage of each phase AND current (if grounding is installed).
 - (1) PROVIDE the voltage AND current measurement information to ATS, to evaluate the results of the initial assessment.
- c. ESTABLISH additional open points to sectionalize the de-energized idle transmission line into shorter sections.
- d. PROVIDE detailed modeling AND assessment, if needed.
- e. INSTALL permanent grounding per recommendation.

5 Ground Mitigations

When grounding is recommended, permanent grounding is the preferred design. However, temporary grounding is permitted for certain scenarios under a standards waiver request (SEE [TD-3310P-01, "Request for Waiver from Substation and Transmission Line Standards"](#)), with the guidance of transmission line work methods personnel and ATS.

5.1 Temporary Grounding

NOTE

Temporary grounds are not necessary if permanent grounding will be implemented OR the removal of de-energized idle transmission line is completed.

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 6 of 8

5.1 (continued)

1. Using Temporary Protective Grounds

- a. INCLUDE the following information in the waiver application form:
 - A plan to inspect and maintain the effective electrical continuity of the temporary grounds. The planned duration should not exceed 6 months.
 - An expected installation date of temporary grounding.
 - Potential structure locations to install temporary protective grounds.
 - Soil resistance estimates or measurements of those potential structures
- b. OBTAIN an approved waiver to install temporary grounding.
- c. CONTACT transmission line work methods personnel for optimum design.
- d. **Do NOT CONSIDER** any temporary protective ground that is installed to mitigate induction as part of a temporary protective grounding scheme that is required to perform work on a de-energized transmission line.
 - (1) FOLLOW the requirements in the [Protective Grounding Manual](#) (TD-2345M) **before** working on the de-energized transmission line.

5.2 Permanent Phase Conductor Grounding Design

1. IF the de-energized idle transmission line will remain de-energized for 31 days or longer,

THEN INSTALL permanent grounding.
2. FOLLOW [Utility Procedure TD-3330P-00, "Substation and Transmission Line Engineering Process Overview,"](#) and M&C project management procedures to initiate a project order to install permanent grounds.
3. PERFORM grounding to the steel structure or to grade (wood/composite poles), as follows:
 - a. FOLLOW all safety procedures AND protocol to install these connections.
 - b. CONNECT the phase conductors to the #4 strand ground wire with appropriate connectors for conductor size and type on all three phases.

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 7 of 8

5.2 (continued)

- (1) REFER to [Numbered Document 028854, "Connectors for Transmission Conductors."](#)
 - (2) IF conductor connectors for the necessary conductor size are not referenced in [Numbered Document 028854](#),
THEN REFER to engineering personnel.
- c. CONNECT the #4 strand copper ground wire to the steel structure.
- (1) For wood or non-steel poles, CONNECT the #4 strand copper to the GR2 assembly to ground.
- d. For lattice steel structures, CONNECT the ground wire directly to the structure.
- (1) USE connector ground terminal (Material Code M301546) for #4 solid wire.
 - (2) DRILL the hole on lattice steel to install ½-inch bolt.
 - (3) INSTALL ground terminal on lattice steel.
 - (4) CONNECT the ground wire to the ground terminal.

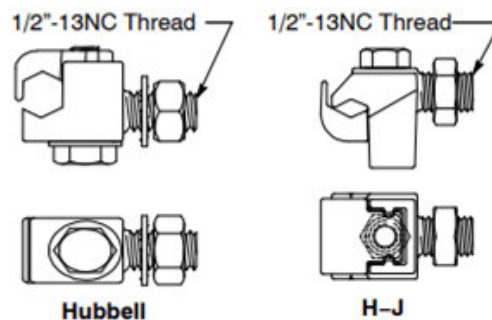


Figure 3. Connector Ground Terminal (Material Code M301546)

- e. For tubular steel poles, CONNECT the ground wire to the grounding tabs using the ground terminal (Material Code M301546) OR CONNECT GR2 assembly to the grounding tabs of tubular steel pole.
- (1) USE aluminum banding to attach GR2 assembly to the pole, every 15 feet.

Management of Idle Electric Transmission Line Facilities

Appendix A, Evaluation of Permanently De-Energized Transmission Lines from Induction

Page 8 of 8

5.2 (continued)

- f. For wood poles and other non-conductive poles, CONNECT the ground wire to a GR2 assembly.
- g. For light duty steel poles, CONNECT the ground wire to a GR2 assembly AND CONNECT GR2 assembly to the above-grade grounding tab at the base of the pole.
 - (1) USE aluminum banding to attach GR2 assembly to the pole, every 15 feet.
- 4. CREATE a grounding detailed engineered drawing of the grounded structure(s).
- 5. UPDATE structure data sheet(s) of the de-energized idle line to document the grounding detail.

6 Maintenance Condition and Performance of Grounding System

6.1 Temporary Protective Grounds (TPG):

- 1. VALIDATE the performance of the grounding system as stated in the approved waiver:
 - a. ENSURE that TPGs are still installed AND correctly connected.
 - b. REPLACE broken, damaged, or missing TPGs.

6.2 Permanent Grounds:

- 1. VALIDATE the performance of the grounding system, as follows:
 - a. Visually CHECK that grounds are installed AND connected.
 - b. REPLACE broken, damaged, or missing permanent grounds.