

# Electric Transmission Line Inspection and Preventive Maintenance Program

## SUMMARY

This utility standard establishes the Electric Transmission Line Inspection and Preventive Maintenance (ETPM) program and describes the roles, responsibilities, and requirements of the preventive maintenance program. The key elements of this program include detailed inspections, infrared inspections, patrols, and condition assessments of overhead and underground electric transmission facilities. This program ensures that electric transmission system inspection and preventive maintenance activities are conducted in accordance with the applicable Pacific Gas and Electric Company (Company), manufacturer, engineering, and regulatory requirements.

## TARGET AUDIENCE

All electric transmission line personnel.

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## REQUIREMENTS

### 1 Maintenance Requirements

#### 1.1 Maintenance Plans

1. Electric transmission line maintenance organizations will follow baseline requirements, but can establish additional inspection, patrol, testing, and/or preventive maintenance requirements that exceed the requirements in this manual, based on local area experience and local conditions, and as needed for special equipment unique to the area. For example, soil movement, environmental changes, infrared measurements, and other factors that can affect the performance of transmission line components. These requirements comply with PG&E standards and current industry practices.
2. Asset Management organization may require electric transmission line maintenance organizations to undertake unique, non-routine patrols and inspections as dictated by asset performance or other external factors (e.g., new information or field conditions similar to examples above.)

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### 1.2 Utility Practices

Transmission Line maintenance requirements are based on effective utility practices, manufacturers recommendation, and experience of PG&E employees. Compliance with this standard and its attachments ensures uniformity in implementing work procedures that support system reliability.

### 1.3 Compliance

1. For preventative work, determine the out-of-compliance date using the finish date in the maintenance plan or preventative life cycle work.
  - a. IF the cycle is 1 year or more, THEN the out-of-compliance date is the 1<sup>st</sup> day of the following year in which the finish date occurs.
  - b. IF the cycle is less than 1 year, THEN the out-of-compliance date is the 1<sup>st</sup> day of the following month in which the finish date occurs.
  - c. [Table 1, “Examples of Out-of-Compliance Dates for Preventive Work”](#) shows out of compliance dates versus finish dates for different preventative life cycle.

**Table 1 Examples of Out-of-Compliance Dates for Preventative Work**

Maintenance Plan Cycle	Finish Date	Out-Of-Compliance Date
5 Years	07/14/2019	01/01/2020
1 Year (12 months)	07/14/2019	01/01/2020
6 Months	07/14/2019	08/01/2019
3 Months	07/14/2019	08/01/2019

2. For corrective work, determine the past-due date using the finish date.
  - a. For **Priority Level 1** Immediate response and continued action until the condition no longer presents a potential hazard (“make safe”) – either by fully repairing or by temporarily repairing and reclassifying to a lower priority.
  - b. For **Priority Level 2** Corrective action is required within 12 months from the date the condition is identified (or within 6 months, if tag is within HFTD Tier 3).  
  
Take corrective action within specified time period (either by fully repairing or by temporarily repairing and reclassifying to Level 3 priority).

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Time period for corrective action may be determined at the time of identification by a qualified company representative. Data driven, risk informed processes and analyses shall be established to ultimately classify Level 2 work and associated due dates based on field nominations and other available asset information.

- c. For **Priority Level 3** Address corrective actions for facilities within 60 months from the date the condition is identified.

**EXCEPTION** – Potential violations specified in GO 95 Appendix J or subsequently approved through Commission processes, including, but not limited to, a Tier 2 Advice Letter under G.O. 96B, that can be completed at a future time as opportunity-based maintenance.

Where an exception has been granted, repair of a potential violation must be completed the next time the company's crew is at the structure to perform tasks at the same or higher work level, i.e., the public, communications, or electric level. The condition's record in the auditable maintenance program must indicate the relevant exception and the date of the corrective action.

- d. [Table 2](#) on Page 3 shows past-past due dates examples for corrective work.

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1.3 (continued)

**Table 2 Examples of Out-of-Compliance Dates for Corrective Work**

Priority	Finish Date	Out-Of-Compliance Date
Level 1 ("Make Safe")	07/14/2019	07/15/2019
Level 2 (within 365 days)	07/14/2019	07/15/2019
Level 3 (within 1826 days)	07/14/2019	07/15/2019

### 3. Past-Due Date Exemption

It is the company's intent to correct identified abnormal conditions by the established due date. However, factors can drive notifications to extend beyond due date. Refer to [TD-1001M-JA03 "Transmission LC Past Due Exemption Process."](#)

## 2 Inspections of Overhead Transmission Lines

- 2.1 Follow the procedures in the Electric Transmission Preventive Maintenance (ETPM) Manual (TD-1001M), which establishes uniform and consistent methods for detailed and infrared inspections, patrols, and condition assessments of electric transmission facilities.
- 2.2 Deviation from the manual is allowed with approval of the standard document owner. Refer to [TD-3310P-01 Request for Waiver from Substation and Transmission Line Standards](#) for the waiver process.

## 3 Record Keeping

- 3.1 Records must be created and retained to meet the minimum requirements specified in [GOV-7101S, "Enterprise Records and Information Management Standard"](#) and any additional requirements of applicable regulations.
- 3.2 Overhead and underground transmission line inspection and maintenance records must be maintained in accordance with [CPUC General Order \(G.O.\) 165](#).
- 3.3 All records must be kept for 10 years from maintenance activity.
- 3.4 All climbing inspections on the 500kV system must be kept for 14 years from maintenance activity.

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3.5 The following information MUST be included in each record at a minimum:

1. Individual responsible for performing the maintenance
2. Date of maintenance
3. Electric Transmission Line (ETL) number from SAP
4. Facility maintained
5. Description of maintenance performed
6. Date of completion

### END of Requirements

### DEFINITIONS

See ETPM manual Appendix A

### IMPLEMENTATION RESPONSIBILITIES

Transmission Line Asset Strategy identifies the frequencies of electric asset inspections.

Transmission Line Asset Strategy determines maintenance priority.

Inspections and patrols will be conducted by qualified personal (Journeyman, linemen, towermen, etc.)

Centralized inspection review team (CIRT) reviews inspection results and sets priorities for the notifications risk based on guidance from TLAS.

Inspection results are stored and managed by the Asset Knowledge Group. Data will be stored in SAP.

### GOVERNING DOCUMENT

[GOV-1038S, "Inspection and Corrective Maintenance Governance"](#)

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### COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

This utility standard is consistent with the pertinent requirements of the following regulatory orders and codes:

- California Public Utilities Commission (CPUC) General Orders (G.O.s)
  - [G.O. 95, "Rules for Overhead Electric Line Construction"](#)
  - [G.O. 128, "Rules for Construction of Underground Electric Supply and Communication Systems."](#)
- [California Public Resources Codes 4292 and 4293.](#)

This utility standard contains provisions that ensure compliance with the inspection and maintenance agreements between the Company and the following organizations:

- [California Independent System Operator \(CAISO\)](#)
- [Western Electricity Coordinating Council \(WECC\)](#)

### REFERENCE DOCUMENTS

#### Developmental References:

[California Independent System Operator \(CAISO\) Transmission Control Agreement](#)

[California Public Resources Codes 4292 and 4293](#)

[Code of Safe Practices](#)

[Corporation Standard GOV-7101S, "Records Management Standard"](#)

[CPUC G.O. 95, "Rules for Overhead Electric Line Construction"](#)

[CPUC G.O. 128, "Rules for Construction of Underground Electric Supply and Communication Systems"](#)

[Federal Endangered Species Act](#)

PG&E Transmission Maintenance Practices Filed with CAISO

[Utility Standard SAFE-1001S, "Safety and Health Program Standard"](#)

[Western Electricity Coordinating Council Agreement](#)

#### Supplemental References:

NA

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### APPENDICES

NA

### ATTACHMENTS

NA

### DOCUMENT REVISION

This utility standard cancels and supersedes Utility Standard TD-1001S, “Electric Transmission Line Inspection and Preventive Maintenance Program,” Rev. 1, issued 12/17/2017.

### DOCUMENT APPROVER

Roozbeh Movafagh, Director Standards and Work Methods

### DOCUMENT OWNER

Roozbeh Movafagh, Director Standards and Work Methods

### DOCUMENT CONTACT

Marvic Verzano, Senior Electric Standards Engineer

### REVISION NOTES

Where?	What Changed?
<b>December 2014:</b>	
Entire document	This utility standard is written and formatted to comply with the Company Guidance Document Management (GDM) requirements.
<b>December 2017</b>	
Entire document	Updated Section 1 to change title from “Implementation Responsibilities” to “Roles and Responsibilities”
	Deleted Requirement 1.1 Renumbered Requirement 1.2 to 1.1
	Renumbered Requirement 1.3 to 1.2 and changed to “senior director or delegate of transmission personnel” from Director of Transmission Line Maintenance and Construction”
	Renumbered Requirement 1.4 to 1.3 Eliminated Requirement 1.5
	Eliminated Requirement 1.6

## Electric Transmission Line Inspection and Preventive Maintenance Program

	Created new Requirement 1.4 for transmission line asset strategy manager to provide guidance for the maintenance of assets within the transmission system.
	Created new Requirement 1.5 for transmission line work management manager to establish measures and schedules for reporting progress of maintenance and inspection programs.
	Renumbered Requirement 1.7 to 1.6 Renumbered Requirement 1.8 to 1.7
	Renumbered Requirement 1.9 to 1.8
<b>January 2020</b>	
	Created new section 1 Maintenance Requirement Created new section 2 Electric Transmission Preventative Maintenance Manual Created new Section 3 Record Keeping Moved "Roles and Responsibilities" information into the Implementation Responsibilities section Added Governing Document <a href="#">GOV-1038S</a>