State of California – A Natural Resources Agency
Gavin Newsom, Governor

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Forest Kaser, Director

November 6, 2026

To: Interested Parties to the Wildfire Mitigation Plan Guidelines

Subject: Revised Draft Wildfire Mitigation Plan Guidelines

The Office of Energy Infrastructure Safety (Energy Safety) releases the following Revised Draft Wildfire Mitigation Plan (WMP) Guidelines for public comment pursuant to Government Code section 15475.6.

Revisions were made in response to public comments received on the draft published September 1, 2026.[1] Comments on the draft were received from:

- HeloPod[2]
- Liberty Utilities[3]
- Pacific Gas and Electric Company (PG&E)[4]
- PacifiCorp[5]
- Public Advocates Office (Cal Advocates)[6]
- San Diego Gas & Electric Company (SDG&E)[7]
- Southern California Edison Company (SCE)[8]
- Technosylva[9]

Questions and comments received during the September 24, 2026, public workshop on the Draft WMP Guidelines were also considered in the revisions.[10]

The attached revised draft is the full text of the WMP Guidelines with marked changes from the September 1, 2026 version. Deletions are shown in ~~red strikeout~~, and additions are shown in blue underline. Changes are also indicated with a revision bar in the left margin.

[1] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61231&docket=WMP-Guidelines&shareable=true
[2] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61416&docket=WMP-Guidelines&shareable=true
[3] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61415&docket=WMP-Guidelines&shareable=true
[4] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61406&docket=WMP-Guidelines&shareable=true
[5] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61418&docket=WMP-Guidelines&shareable=true
[6] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61421&docket=WMP-Guidelines&shareable=true
[7] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61414&docket=WMP-Guidelines&shareable=true
[8] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61407&docket=WMP-Guidelines&shareable=true
[9] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=61412&docket=WMP-Guidelines&shareable=true
[10] https://www.youtube.com/watch?v=CedPaRsB7vw

Public Comment

Comments on the revised draft will be accepted through November 16, 2026, 5 p.m. Only comments on the revisions (i.e., changes from the previous draft) will be considered.

Comments must be submitted to the Wildfire Mitigation Plan Guidelines docket (#WMP-Guidelines)[11] and titled "[Comment Name] Comments on the Revised Draft WMP Guidelines."

To receive notifications of the comments on these documents, subscribe to Energy Safety's WMPs service list by following the instructions at: https://energysafety.ca.gov/events-and-meetings/how-to-participate-in-public-events/.

Sincerely,

/s/ Tony Marino

Tony Marino
Deputy Director | Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

[11] https://efiling.energysafety.ca.gov/Lists/DocketLog.aspx?docketnumber=WMP-Guidelines



OFFICE OF ENERGY INFRASTRUCTURE SAFETY

WILDFIRE MITIGATION PLAN GUIDELINES

Version 0 - Revised DRAFT **November 2026**

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I INTRODUCTION

This document is the Office of Energy Infrastructure Safety (Energy Safety) guidelines establishing the requirements for electrical corporation Wildfire Mitigation Plans (WMPs). These Guidelines ("WMP Guidelines" or "Guidelines") are effective upon adoption and apply to WMPs and related documents submitted to Energy Safety pursuant to Public Utilities Code section 8386.

These Guidelines supersede the following guidelines:[1]

- Wildfire Mitigation Plan Guidelines (February 2025)[2]
- Energy Safety Policy Division Process Guidelines (February 2025)[3] as applicable to WMPs
- Electrical Corporation Wildfire Mitigation Maturity Model and Survey Guidelines (March 2025)[4, 5]

1 Authority

Energy Safety has authority under Government Code section 15475.6 to "adopt guidelines setting forth the requirements, format, timing, and any other matters required to exercise its powers, perform its duties, and meet its responsibilities described in Sections 326, 326.1, and 326.2 and Chapter 6 (commencing with Section 8385) of Division 4.1 of the Public Utilities Code…"

Pursuant to Public Utilities Code section 8386(b), each electrical corporation must submit a WMP to Energy Safety for review at least once every four years.

[1] For matters related to WMPs submitted prior to the adoption of these guidelines, the guidelines in effect at the time of the applicable WMP submission shall apply.

[2] URL: (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=58026&shareable=true).

[3] URL: (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=58025&shareable=true).

[4] URL: (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=58118&shareable=true).

[5] The Maturity Survey is no longer required as a part of the WMP. Energy Safety is redesigning the Maturity Survey and will add it to a future iteration of the WMP Guidelines.

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2 Purpose and Scope

Energy Safety's WMP Guidelines apply to all electrical corporations in the State of California and set forth requirements for each electrical corporation to submit its WMP.[6] The Guidelines address the process and evaluation of WMPs, WMP requirements, Independent Transmission Owner (ITO) requirements, and submission of revised WMPs pursuant to Public Utilities Code 8386.4(b)(3).

These Guidelines are divided into six chapters:

- Chapter I, Introduction
- Chapter II, Process and Evaluation
    - Sets the procedural requirements for all WMPs, including the submission and evaluation processes, public participation, and data requests.
- Chapter III, Wildfire Mitigation Plan Requirements
    - Sets the WMP content requirements for electrical corporations except Independent Transmission Owners.
- Chapter IV, Independent Transmission Owner Requirements
    - Sets the content requirements for WMPs of Independent Transmission Owners.
- Chapter V, Post General Rate Case Revisions
    - Sets the requirements for revisions to align a WMP with a general rate case decision.
- Chapter VI, Wildfire Mitigation Plan Updates
    - Sets the requirements for updating WMPs.

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[6] At the time of publication of these guidelines, there are nine electrical corporations in California: Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, PacifiCorp (doing business as Pacific Power), Liberty Utilities, Bear Valley Electric Service, Trans Bay Cable, Horizon West Transmission, and LS Power.

3 The WMP Period

A WMP is referred to by the period that it covers (e.g., 2028-2031 WMP).

Each electrical corporation must submit a preliminary WMP to Energy Safety one year before the electrical corporation files its general rate case (GRC) application or concurrent with the filing of its Risk Assessment Mitigation Phase (RAMP) application to the California Public Utilities Commission (CPUC).[7] A WMP must be submitted to Energy Safety at least once every four years,[8] and the WMP must cover the same period as the electrical corporation's GRC period.[9] Energy Safety will set the WMP period for electrical corporations without a GRC.

All electrical corporations except the ITOs will submit either a 2028-2030 or 2028-2031 WMP.[10] Following that submission, each electrical corporation will begin aligning its WMP and GRC periods. The WMP and GRC periods will be fully aligned for each electrical corporation beginning in the WMP periods listed below.

- San Diego Gas & Electric Company: 2028 – 2031
- PacifiCorp: 2030 – 2032
- Liberty Utilities: 2031 – 2033
- Pacific Gas and Electric Company: 2031 – 2034
- Bear Valley Electric Service: 2031 – 2034
- Southern California Edison: 2033-2036

ITOs are exempt from GRC alignment.[11]

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[7] Pub. Util. Code § 8386(c)(1).

[8] Pub. Util. Code § 8386(b).

[9] Pub. Util. Code § 8386(c).

[10] ~~PacifiCorp and Liberty Utilities file three-year GRCs and will therefore submit three-year WMPs.~~Electrical Corporations that file a three-year GRC must submit a 2028-2030 WMP and those that file a four-year GRC must submit a 2028-2031 WMP.

[11] Pub. Util. Code § 8386(c)(2).

For GRC applications filed after January 1, 2027, after the GRC decision is rendered, the electrical corporation must submit a Revised WMP conforming to the CPUC's revenue authorization.[12] New versions of a WMP (e.g., a Revised WMP) do not change the WMP period.

If a WMP period includes year(s) covered in a previous WMP, the overlapping year(s) of the newest submission supersedes those of the older WMP.

4 Changes to the Guidelines

Substantive changes to these Guidelines will be made in accordance with Government Code section 15475.6(b), including at least 30 days' written notice and an opportunity for stakeholder comment.

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[12] See Pub. Util. Code §§ 8386.4(a)(1) and (b); and Chapter V, Revisions for General Rate Case Alignment.

II PROCESS AND EVALUATION

This chapter sets forth the requirements for submitting WMPs, establishes procedures for data requests and public participation, and outlines other process requirements for WMPs and related documents, including setting the evaluation criteria for the WMPs.

1 General Instructions

Each electrical corporation must submit its WMP and all supporting documents to the appropriate WMP docket in accordance with the schedule established by Energy Safety.

1.1 Submission Due Dates

All submissions must be received by 5:00 p.m. Pacific Time on the due date. Any submissions received after 5:00 p.m. Pacific Time are deemed to have been submitted on the next business day.[13]

Unless otherwise stated, a timeframe providing the number of days to act (e.g., within 30 days), is calculated using calendar days excluding the first day (i.e., the day the designated time begins) and including the last day. Any due date that falls on a Saturday, Sunday, holiday, or any other day when the Energy Safety offices are closed, is extended to the next day.

1.2 Consistency with Data Submissions

Electrical corporations must follow all applicable Energy Safety guidelines, including the Data Guidelines which govern how electrical corporations submit data, including WMP data.

The electrical corporation must ensure that the data it submits pursuant to the Data Guidelines matches the narrative and data included in its WMP. Specifically, the data the electrical corporation provides in its WMP must match the Annual WMP Tabular Wildfire Mitigation Data it provides. For projected data, once the WMP is approved, the projected data from the approved WMP must be reflected in subsequent Quarterly Data Reports.

[13] All time references hereinafter are to Pacific Time unless otherwise stated.

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1.3 Collaboration

The electrical corporation must collaborate with its peers, stakeholders, industry experts, and others to learn and inform its wildfire mitigation programs and strategies.

Electrical corporations must attend and participate in workshops, working groups, scoping meetings, joint studies and other collaborations as directed by Energy Safety. As a part of these collaborations, Energy Safety may direct the electrical corporation to complete action items related to wildfire mitigation. Action items may include, but are not limited to:

- Host its own WMP workshop;
- Write reports, white papers or both;
- Attend or host additional meetings;
- Perform studies and report results; or
- Produce best practices documents.

2 Pre-Submission Communications

An electrical corporation must communicate with Energy Safety's Electrical Safety Policy Division (ESPD) prior to its WMP submission. This section discusses the requirements for an electrical corporation to report RAMP and GRC timelines and to schedule a WMP pre-submission meeting with ESPD.

2.1 RAMP and GRC Timelines

Electrical corporations typically have an established RAMP and GRC schedule. If an electrical corporation becomes aware of changes to its RAMP or GRC application submission date, it must email the ESPD Program Manager and, when applicable, the assigned ESPD staff lead notifying them of the change no less than 45 days prior to its scheduled WMP submission date. Energy Safety will then revise and re-publish the associated WMP submission schedule.

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2.2 WMP Pre-Submission Meeting

Each electrical corporation is required to hold a pre-submission meeting with ESPD. This meeting must occur at least 45 days prior to the electrical corporation's WMP submission. The objective of the meeting is for the electrical corporation to provide a preview of its key programs, lessons learned, changes, methods, and mitigation activities, which will be included in the forthcoming WMP. The electrical corporation should also provide a preview of how it addressed each outstanding area for continued improvement.

To schedule a meeting, electrical corporations must email the ESPD Program Manager and, when applicable, the assigned ESPD staff lead.

3 WMP Submission Requirements

The electrical corporation must submit its WMP according to the Energy Safety schedule posted on its WMP docket and in accordance with all requirements outlined below.

3.1 General Requirements

The electrical corporation must submit its WMP, inclusive of all associated files (appendices, data tables, cover letter, etc.) to its Energy Safety WMP docket. The electrical corporation must include in its cover letter a list of all files included in its WMP submission and a brief description of the content contained in each file.

The electrical corporation must post its WMP and subsequent versions of the WMP and documents on its WMP-specific website. The electrical corporation must include the website address of its WMP-specific website in the cover letter of its WMP submission.

3.1.1 Utility Mitigation Tracking IDs

The electrical corporation must assign and use consistent and unique "Utility Mitigation Activity Tracking IDs" ("Tracking ID" or UMATID), as defined in the Energy Safety Data Guidelines,[14] for each one of its mitigation activities. Each Tracking ID must remain consistent

[14] The current Data Guidelines can be found in the Data Guidelines docket, URL: (https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=Data%20Guidelines).

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throughout the WMP period, even if the WMP category, initiative name, or section number changes. Each mitigation activity, including those that Energy Safety defines, must have its own unique Tracking ID.

Tracking IDs must be consistent between an electrical corporation's WMP and its data submissions.

3.1.2 Relevant Regulations, Codes, and Standards

The electrical corporation must cite the relevant regulations, codes, and standards (both external and internal) it is adhering to throughout its WMP. Any reference to specific statutory or the WMP Guidelines included in the electrical corporation's WMP must be placed in the footnotes or endnotes.

3.1.3 Use of Internal Supporting Documentation

If an internal document (e.g., standard, plan, procedure, process, policy) satisfies a WMP Guidelines requirement, the electrical corporation must include the required information from that internal document in its WMP. Referring to, or including a citation to, the internal document containing this information will not suffice.

The electrical corporation must also provide all internal supporting documentation referred to in its WMP as an appendix (see *Chapter III, Wildfire Mitigation Plan Requirements, Section 14.3, Appendix C: Supporting Documentation for Mitigation Activities*).

3.2 Format

All documents submitted to Energy Safety must comply with the following formatting requirements:

- Font:
  - Black, unless showing redline (see Section 3.2.2, Required Redline Edits below)
  - At least an 11-point size.
- Organized and searchable (i.e., no scanned pages)
  - PDF page must numbers match labelled page numbers (e.g., using Adobe PDF "Page Labels")
  - PDF bookmarks must be enabled
- For WMPs, include the following information on the title page:

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- Title of the document;
- Version;
- Docket name;
- According to Energy Safety WMP Guidelines of [date];
- Date submitted~~.~~; and
- If a confidential version exists, include "Confidential" in red on the confidential version and "Redacted" in red font on the public version.

- Following the Table of Contents, list all required and additional tables and figures labeled as follows:
  - Tables or figures required by the WMP Guidelines:
    Table/Figure x-x. [Title of Table/Figure]
    (e.g., Figure 4-1. Territory Overview)
  - Additional tables and figures provided by the electrical corporation:
    Table [electrical corporation abbreviated name] x-x. [Title of Table]
    (e.g., Table SCE 4-2. HFTD Assets)
- Documents may use electronic signatures.
- Submissions through Energy Safety's e-filing system must be accessible.[15]

3.2.1 Volumizing

If an electrical corporation's WMP file exceeds 500 pages, the electrical corporation may volumize its files. The electrical corporation may separate appendices into a separate volume even if the combined file is less than 500 pages.

3.2.2 Required Redline Edits

When Energy Safety requires an electrical corporation to submit a "redline" version of a document, that redline version must display edits to text as a different colored font and strikeout for text removed. For example, when changes are made in a Microsoft Word document with the "Track Changes" feature on:

[15] For more information, please see the State of California's Accessibility Standards, URL: (https://webstandards.ca.gov/accessibility/) accessed August 28, 2026; and Web Content Accessibility Guidelines (WCAG) 2.2, Level AA, URL: (https://www.w3.org/TR/WCAG22/) accessed August 28, 2026.

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- Deleted text is shown in ~~strikeout~~ and may be a different color from the original text;
- New text is underlined and a different color from the original text;
- Lines with edits, either deleted text or new text, are shown with a vertical bar or other indication in the page margins; and
- The document is free of comments and tracked formatting changes.

When a redline submission is required, the redline text must reflect all changes from the previous submission (i.e., WMP v2 need only reflect changes from WMP v1).

When Energy Safety requires a "clean" version, the clean document must represent the document where all edits shown in the redline version are integrated. The electrical corporation must not make changes in the clean version that are not shown in the redline version.

3.2.3 Subsequent Submissions

WMP versions begin with v0 for the first submission. The version number increases by one with each subsequent version submitted through the WMP period.

When a new version of the WMP is submitted (e.g., WMP v1), all files required in the original WMP submission must be resubmitted even if only one portion has been changed. This complete submission helps all parties to review the new version with all components of a WMP together on the docket.

3.2.4 Cross-Referencing and Hyperlinking

WMP submissions must cross-reference and hyperlink to other relevant WMP sections to enable quick navigation. All figures and tables must be referenced in the text, ideally with a hyperlink to the associated figure or table.

Tables of Content must be built with hyperlinks to sections, figures, and tables.

3.2.5 WMP Tables

An electrical corporation's WMP table numbers must match the numbering scheme in these Guidelines. Any additional tables the electrical corporation would like to provide on its own must follow a different numbering scheme and be numbered separately from the required tables (an example is provided in *Section 3.2, Format,* above).

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Cells as populated in these Guidelines are examples provided by Energy Safety and should not be included in the electrical corporation's WMP tables.

Electrical corporations must format tables to ensure that the data in the tables are readable and easy to follow (e.g., reasonable column widths, header rows if table is broken across pages).

3.2.6 Mapping Requirements

The WMP Guidelines may require that certain maps must be included in the WMP. Electrical corporations may elect to include additional maps.

Where the electrical corporation produces a map or series of maps, the electrical corporation must provide a representative static map within the main body of its WMP. Where the electrical corporation needs to provide additional maps for clarity (e.g., the scale is insufficiently large to show useful detail), the electrical corporation must either include those maps in an appendix or host the applicable geospatial layers on a publicly accessible web application and refer to the specific web address in appropriate places throughout its WMP.

If the electrical corporation chooses to host the data, it must host the layers until at least the submission of its next WMP (i.e., the WMP covering the subsequent period) or until otherwise directed by Energy Safety. The electrical corporation may not modify these layers without first notifying Energy Safety.

3.3 WMP Submission Extension Requests

If an electrical corporation seeks an extension to its WMP submission date, it must email the ESPD Program Manager and, when applicable, the assigned ESPD staff lead. The extension request must include:

- Document or portions of the document requesting an extension for;
- Original deadline;
- Reason for the extension request;
- Proposed new date of submission; and

The electrical corporation must submit its WMP extension request to Energy Safety by 5:00 p.m. at least two business days prior to the scheduled submission date except for an extension request related to changes in RAMP or GRC filing dates, as discussed in S*ection 2.1, RAMP and GRC Timelines*.

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4 Electronic Filing

Energy Safety uses an electronic filing (e-filing) system to receive submissions and to publish documents on its website. The e-filing system consists of "cases" organized by Energy Safety workstream. Each case contains dockets. These dockets contain documents submitted by electrical corporations, stakeholders, and Energy Safety (e.g., WMPs, comments, Decisions etc.).

All submissions to Energy Safety's e-filing system must be accessible.[16]

To be notified of published documents, members of the public may subscribe to a case service list. Additional information on Energy Safety's service lists and detailed instructions for signing up can be found on Energy Safety's website.[17]

Contact Energy Safety at SafetyPolicy@energysafety.ca.gov and, if known, the assigned ESPD staff lead, for assistance submitting a WMP-related document.

4.1 WMP Dockets

All WMP related e-filings are contained within the "Electrical: Wildfire Mitigation Plans (WMPs)" case.[18] Documents related to Energy Safety's WMP Guidelines can be found in docket #WMP-Guidelines.[19]

Each electrical corporation will have its own docket for WMP submissions related to that electrical corporation. There are also historical WMP-related dockets organized by WMP period (e.g., past WMP submissions, data requests, and responses, etc.).

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[16] For more information, please see the State of California's Accessibility Standards, URL: (https://webstandards.ca.gov/accessibility/) accessed August 28, 2026; and Web Content Accessibility Guidelines (WCAG) 2.2, Level AA, URL: (https://www.w3.org/TR/WCAG22/) accessed August 28, 2026.

[17] URL:(https://energysafety.ca.gov/events-and-meetings/how-to-participate-in-public-events/).

[18] URL:(https://efiling.energysafety.ca.gov/Dockets.aspx?caseId=1242).

[19] URL:(https://efiling.energysafety.ca.gov/Lists/DocketLog.aspx?docketnumber=WMP-Guidelines).

4.2 Naming Convention for WMP Docket Submissions

Electronic file names for electrical corporation docket submissions must conform to the naming convention identified in the order below. The e-filing system will automatically include the submission date.

Each submission must include, in this order:

Electrical corporation abbreviated name;

Document year/period;

Document type; and

Version number.

For example:

- PG&E initial 2028-2031 WMP submission:
  PGE 2028-2031 WMP v0
- PacifiCorp Modification Notice Response and corresponding new WMP submission:
  PC 2028-2032 WMP Modification Notice Response v0
  PC 2028-2031 WMP Clean v1
  PC 2028-2031 WMP Redline v1
- LS Power WMP submission in response to a Reject and Order to Resubmit:
  LSP 2028-2031 WMP v1
- SCE errata submission to its WMP v0:
  SCE 2028-2031 WMP Errata v1

When an electrical corporation files a confidential submission, the electrical corporation must end the redacted version's file name with REDACTED.

4.3 Confidential Submissions

The submission process for confidential information is set forth in section 29200 of Title 14 of the California Code of Regulations.

A confidential docket submission includes three parts. Two parts are submitted to the confidential docket:

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1. A confidential designation ("Application for Confidential Designation"); and
2. The confidential document itself.

The third part is submitted to the public-facing docket:

A redacted version of the confidential document with all confidential information redacted.

The confidential file must indicate exactly what information is confidential (e.g., the page with the confidential information might be labeled CONFIDENTIAL, or there might be a red box around the confidential information). If the electrical corporation intends for the entire document to be confidential, the confidential portions within the document do not need to be delineated.

A redacted version of the confidential document must be submitted to the public facing docket with the confidential text redacted.

The submitted files must include the text "Confidential" in red on the confidential version and "Redacted" in red font on the public version. The file name of the redacted file must end with "REDACTED" (e.g., BVES 2028-2031 WMP v0 REDACTED).

5 Public Participation

Energy Safety offers comment periods for electrical corporation WMP submissions and Energy Safety draft Decisions, among other documents. Electrical corporations, stakeholders, and members of the public may submit comments to Energy Safety. All comments must be made according to the schedule established by Energy Safety. Schedules may include information such as the subject and type of comments being accepted (e.g., opening or reply comments), deadlines, and page limits.

Opening comments are typically due 20-30 days after the relevant document is published. Reply comments are typically due 10 calendar days after the deadline for opening comments. Energy Safety will publish comment periods and due dates in WMP schedules, cover letters, or notices soliciting comments.

Comments received by Energy Safety are part of the public record and will be available to the public on Energy Safety's docket. Energy Safety publishes comments as they are received without redaction of personal information. Energy Safety may reject comments that do not comply with the requirements of these Guidelines, including the applicable schedule.

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5.1 Submitting Comments

Whenever possible, comments must be submitted electronically to the appropriate WMP docket on Energy Safety's e-filing system.[20]

Comments submitted through e-filing must name the "submitter" (i.e., the person or entity's name), their role (e.g., utility, intervenor), and include relevant "File Details."

The file's "Title" must clearly identify what is contained in the file (e.g., "Opening Comments" or "Reply Comments") and include a concise "Document Description" so the public can easily identify what was filed when viewing the docket. For example, an organization submitting opening comments on the initial version of San Diego Gas and Electric Company's 2028-2031 WMP, would submit opening comments to the #WMP-SDGE docket with the title: [Organization Name][21] Opening Comments SDGE 2028-2031 WMP v0.

5.2 Structure of Comments

Energy Safety strongly encourages parties submitting comments to structure their comments in a format that clearly delineates the recommendations it is making from its supporting argument or analysis. There is no required format or level of detail for public comments; however, Energy Safety encourages the actionable recommendation[22] is made clear and distinguished from the supporting analysis or argument.

The following is a suggested structure and general guidance for comments.

- Overview of Comments:
    - Public or entity name and point of contact
    - Specific WMP or draft WMP Decision being commented on, including the WMP period/years
    - High level summary of top issues or topics being commented on

[20] Energy Safety will accept mailed or in-person submissions at 715 P Street, 15th Floor, Sacramento, California 95814.

[21] An organization may use an abbreviation of its name in the title. For comments submitted by an individual, the individual may use their last name in place of the organization name.

[22] Energy Safety is open to stakeholder input whether it is actionable or not, however general input can be better incorporated during Energy Safety's guidelines-making process. Comments provided during the WMP review period should be specific to content in an electrical corporation's WMP or an Energy Safety draft WMP Decision.

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- Comments & Recommendations:
    - Issue or topic description, including WMP or draft WMP Decision page numbers
    - Supporting analysis or research
    - Actionable recommendation (e.g., Energy Safety should consider [X] in its WMP review, or Energy Safety should consider adding [Y] to an area for continued improvement)
        - The recommendation should be formatted to clearly distinguish what the desired outcome is (e.g., used as the section title or bolded in the comment discussion).
- Specific to Reply Comments:
    - Include a citation and page number for the associated opening comment
    - Provide support, additional context, or a counter to the opening comment with analysis and research as necessary
    - If applicable, provide a clear actionable recommendation Energy Safety should consider when incorporating the opening comment

5.3 Data Requests

A person or entity who is designated as an Energy Safety Data Request Stakeholder for an electrical corporation may send data requests related to that electrical corporation's WMP.

An interested party may submit comments, as described in *Section 5.1, Submitting Comments*, without obtaining a Data Request Stakeholder designation.

5.3.1 Data Request Stakeholder Designation

If a person or entity seeks to send data requests to an electrical corporation, they must submit a request to Energy Safety to be designated as a Data Request Stakeholder.

The designation request may be submitted at any time. The request must be submitted to the WMP docket of each electrical corporation it wishes to submit data requests to.

The request must ~~include~~:

- Include ~~T~~the e-filing case (e.g., "Electrical: Wildfire Mitigation Plans")~~;~~.
- State the ~~D~~docket(s) the person or entity seeks to submit data requests in (e.g., #WMP-SCE)~~;~~.

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- Identify ~~T~~the position and interest of the person or entity in the docket matter~~;~~.
    - Disclosure of the entity representing the person or entity (e.g., law firm, community group, consultant) seeking the designation is required, if applicable.
- Identify ~~T~~the electrical corporation(s) for which the person or entity seeks the designation; this may include a request to obtain the designation for all electrical corporations~~; and~~.
- List ~~T~~the name, mailing address, email address, and telephone number of the person or entity and its primary representative.

The request will be considered approved five business days after submission without any further correspondence from Energy Safety unless the person or entity seeking the designation is otherwise notified by Energy Safety during that time.

Once granted designation for an electrical corporation, the person or entity shall retain that designation until withdrawn by Energy Safety. The designation is automatically withdrawn after four years of non-participation in that electrical corporation's WMP process. After the withdrawal of a designation, the person or entity must resubmit for designation as a Data Request Stakeholder to send future data requests to that electrical corporation.

5.3.2 Data Request Process for Data Request Stakeholders

Data requests must seek information relevant to the WMP and help the Data Request Stakeholder make an informed public comment on an electrical corporation's WMP. Data Request Stakeholders must consider the volume and nature of the request being made when negotiating response deadlines.

Data Request Stakeholders must avoid sending data requests in the six weeks before an electrical corporation must submit its WMP and to also refrain from making requests where such information is otherwise available (e.g., previously requested by Energy Safety or other Data Request Stakeholders).

5.3.3 Request Response Times

An electrical corporation must respond to all data requests from Data Request Stakeholders within ten business days of the request, unless a different response period is agreed upon by

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both parties. A Data Request Stakeholder may specify a three-business day response period for its WMP-related data requests during the WMP review period.[23]

5.3.4 Request Extensions

If the electrical corporation finds an extension is needed, the electrical corporation must first ask the Data Request Stakeholder to agree to an extension. The electrical corporation must submit the extension request to the Data Request Stakeholder by 5:00 p.m. at least one business day prior to the original deadline.

The electrical corporation's extension request for a response must include the:

- Document requesting an extension for;
- Original deadline;
- A proposed date of response in lieu of the original deadline; and
- Good cause for the extension request.

5.3.5 Disputes

Data Request Stakeholders and electrical corporations must endeavor to resolve all data request disputes amongst themselves. If they cannot, the parties must follow the process below to ask Energy Safety to limit a data request or compel a response.

The parties must have previously met and conferred in good faith to informally resolve the dispute. The party seeking to limit a data request or compel a response bears the burden of proving the reason(s) why Energy Safety should limit the data request or compel a response.

Entities seeking to limit a data request or compel a response must email the ESPD Program Manager and, when applicable, the assigned ESPD staff lead and include all parties in the dispute. A request seeking to limit a data request or compel a response must include:

- Basis to limit the data request or compel a response;
- Facts showing a good faith attempt at an informal resolution of the dispute;
- The data request or portion of the data request at issue; and
- A proposed determination that indicates the relief requested.

[23] The WMP review period for an electrical corporation begins on the date of the WMP, Revised WMP, or WMP Update submission and lasts until Energy Safety issues its Decision on the submission.

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A response from the other party (i.e., either the Data Request Stakeholder or electrical corporation) must be emailed to Energy Safety within three business days of the request to compel a response or limit a data request being submitted. If no response is submitted, then the request to compel a response or limit data request to Energy Safety will be granted.

Energy Safety will consider a request to limit a data request or compel a response and the associated response and will issue a determination. Energy Safety may first ask for clarification or additional information from the parties. Responses to Energy Safey's inquiries must be provided to Energy Safety within three business days of the request.

5.4 Public Workshops

All notices for Energy Safety facilitated workshops and corresponding agendas will be posted to the applicable docket and distributed to the service list.

5.4.1 Electrical Corporation-Hosted WMP Workshops

Following a WMP submission to Energy Safety, each electrical corporation must hold at least one public workshop to inform the public of at minimum, the objectives and mitigations in its WMP, and to respond to questions.

The electrical corporation is responsible for the following:

- The workshop must be publicly noticed no later than three business days after the filing of its WMP, including publishing a notice on the electrical corporation's WMP docket and posting a notice to the electrical corporation's website.
- The workshop must be held at least ~~10 and no more than 20 calendar days~~ 14 days after ~~its WMP submission date~~such public notice and no later than 14 days prior to the due date of opening comments.[24]
- ~~The workshop must be publicly noticed, including publishing a notice on the applicable Energy Safety docket, posting a notice to the electrical corporation's website.~~

[24] Energy Safety sets the comment due dates in schedules published on the electrical corporation's WMP docket. The published schedule will include the date range for the workshop.

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- The workshop must allow the public to submit questions and topics to the electrical corporation, ahead of and during the workshop, for the electrical corporation to respond to.
- The electrical corporation must answer questions related to its WMP for at least one hour.[25]

Energy Safety may provide additional guidance, prompts, and questions for an electrical corporation to address in its WMP workshop.

6 Energy Safety Data Requests

Energy Safety may obtain any information that is relevant to a matter within the scope of its authority from an electrical corporation via a data request.[26] All responses to Energy Safety data requests must be submitted to the electrical corporation's WMP docket.

Designated Requestors may also submit data requests to electrical corporations (see *Section 5.3, Data Requests* above).

6.1 Data Requests During the WMP Review Period

During the WMP review period, an electrical corporation must respond to all Energy Safety requested WMP-related data requests within three business days. The response must be provided by 5:00 p.m. on the third day, unless a different response period is provided by Energy Safety.

The three-business-day response requirement for WMP data requests is only in effect during the WMP review period. The WMP review period begins on the date of the electrical corporation's WMP, Revised WMP, or WMP Update submission and ends when Energy Safety issues its Decision on the submission.

[25] If there are no questions remaining before one hour has passed, the electrical corporation may end the question and answer session early.

[26] Gov. Code § 15475(a)(7).

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6.1.1 Weekly Data Request Log

An electrical corporation must keep a WMP Data Request Log that is cumulative of all WMP data requests it receives and data request responses it provides during the WMP period.

The electrical corporation must submit and post its Data Request Log to its WMP docket no more than weekly beginning with the first data request it receives after the submission of its WMP, Revised WMP, or WMP Update submission and until Energy Safety issues its Decision on that submission.

The electrical corporation must submit the Data Request Log on Thursdays by 5:00 p.m. if it provides a data request response to any party during the preceding week. It must post the same log on its WMP website in a clearly delineated section for data requests received and responded to for the current WMP review period. If the electrical corporation did not provide a data request response during the preceding week, it does not need to submit a Data Request Log for that week.

The WMP Data Request Log must be in the form of a searchable digital table that contains all data requests, responses for each data request received, and links to relevant documents.

Table 6-1 is a template for the WMP Data Request Log, which includes columns for the (1) WMP Section, (2) Category, and (3) Subcategory for each data request question. It is the responsibility of the organization or person sending the data request to indicate the WMP Section, Category, and Subcategory, or WMP page number for each question. If the WMP Section, Category, and Subcategory, or WMP page number are not provided, the electrical corporation may leave these columns blank for the question in its Data Request Log.

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Table 6-1: Data Request Log Template for Electrical Corporations

Data Request Log Template for [electrical corporation] as of [date]													
Count	**Org Name**	**DR Set#**	**DR Q#**	**Question ID**	**Question**	**Response**	**Requestor**	**Date Rcvd**	**Due Date**	**# of Attach**	**NDA Reqd**	**WMP Section**	**Category**	**Subcategory**
1	*OIES*	*1*	*1*	*OEIS-P-WMP_2025-EC-01*	*On page 100 of its 2028-2031 WMP, Electrical Corporation states that "specific work orders …*	*Electrical corporation response to DR1.1*	*Joe Smith*	*04/15/27*	*04/18/27*	*0*	*n/a*	*8.2*	*Assets*	*Inspections*

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6.2 Data Requests Outside the WMP Review Period

Unless a different response period is provided by Energy Safety, an electrical corporation must respond to all WMP-related data requests outside of the WMP review period by 5:00 p.m. on the tenth business day.

6.3 Confidential Data Request Responses

If a data request response includes confidential information, the confidential component must be submitted via the e-filing confidential submission process as set forth in *Section 4.3, Confidential Submissions* above, and section 29200 of Title 14 of the California Code of Regulations.

Confidential responses must not be emailed to Energy Safety.

6.4 Data Request Response Extension Requests

If an electrical corporation seeks a longer response period than provided by Energy Safety, the electrical corporation must request an extension by sending an email to the assigned Energy Safety staff lead.

An extension request must include:

- Document requesting an extension for;
- Original deadline;
- Good cause for the extension request; and
- A proposed response date in lieu of the original deadline.

Any extension request must be received by Energy Safety no later than 5:00 p.m. one business day prior to the original data request response due date.

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7 Evaluation of WMPs

Energy Safety may reject an incomplete WMP submission and require the electrical corporation to provide a subsequent WMP.[27] The statutory evaluation period commences upon the submission or resubmission of a complete WMP, whichever is later.

7.1 Evaluation Inputs

To evaluate a WMP, Energy Safety may rely upon content from the following:

- The electrical corporation's WMP submissions, including attachments, errata and required modifications
- The electrical corporation's prior WMPs
- Energy Safety Vegetation Management Audit Reports[28]
- Energy Safety Annual Performance Reports[29]
- Input from consultation with the Office of the State Fire Marshall (OSFM), a program of the California Department of Forestry and Fire Protection (CAL FIRE)[30]
- Public comments
- The electrical corporation's data submissions
- The electrical corporation's responses to data requests
- Any other information Energy Safety may require for the evaluation of the electrical corporation's WMP submissions

7.2 Evaluation Criteria

Energy Safety evaluates WMPs according to the following criteria:

- **Commitments:** Commitments, including quantitative and qualitative targets, are actions that the electrical corporation states it will accomplish during the WMP period.

[27] Pub. Util. Code, § 8386.3(a).

[28] Previously "Substantial Vegetation Management Audit."

[29] Previously "Annual Report on Compliance."

[30] Pub. Util. Code § 8386.3(a)(2).

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All planned mitigation activities must be supported by commitments. The commitments must support the reduction of utility-related ignitions and other outage and risk events.

- **Continued Improvement:** The electrical corporation demonstrates continued improvement by meeting requirements in Energy Safety-issued areas for continued improvement in prior WMP Decisions.
- **Effective at Reducing Risk:** The electrical corporation's proposed activities are effective in addressing the risks that exist in its service territory. In evaluating the effectiveness of a proposed activity, Energy Safety will look at the extent to which the electrical corporation considered, at minimum, cost, time and complexity of implementation, risk drivers mitigated, and risk remaining.
- **Long-Term Goals and Strategies:** The electrical corporation has long-term goals and strategies to build its wildfire mitigation capabilities, while reducing reliance on shorter-term strategies.
- **Progress from Previous WMPs:** The electrical corporation demonstrates progress and maturation from its previous WMPs and its previously established programs and mitigations.
- **Feasibility:** The proposed activities are feasible for the electrical corporation given its wildfire mitigation maturity and progress to date. The electrical corporation pilots activities, utilizes historical data, and employs other measures to support the feasibility of its activities.
- **Responsiveness:** The electrical corporation responds to the statutory requirements contained in Public Utilities Code section 8386(d) and the WMP Guidelines.
- **Resource Use Efficiency:** The proposed mitigation activities focus on achieving the greatest risk reduction while utilizing the most efficient allocation of resources (e.g., expenditures, time, staff, material).
- **Risk Reduction:** The electrical corporation demonstrates that it uses its risk analysis to select and prioritize mitigation activities that maximize risk reduction.

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7.3 Types of Changes to a WMP

Before proceeding with its evaluation, Energy Safety may require that the electrical corporation change and resubmit its WMP under one of the following processes: a Reject and Order to Resubmit, a Modification Notice,[31] or errata request.

Every new version of the WMP in the WMP period requires a sequential increase in the version number (see *Section 3.2.3, Subsequent Submissions* above).

7.3.1 Reject and Order to Resubmit

Energy Safety may reject an electrical corporation's WMP submission in its entirety for not conforming to the requirements of these Guidelines. The electrical corporation will be required to resubmit its WMP, and possibly its annual WMP data submission.

7.3.2 Modification Notice

Energy Safety may require the electrical corporation to modify portions of its WMP by issuing a Modification Notice.[32] The electrical corporation must address all identified critical issues, and required remedies set forth in the Modification Notice by the designated deadline.

Modification Notice Process

The Modification Notice will describe the critical issues and outline the required remedies the electrical corporation must address in both its Modification Notice Response and in a modified, resubmitted WMP.

In its Modification Notice Response, the electrical corporation must provide responses for each critical issue identified in the Modification Notice. Energy Safety may reject any unauthorized changes or errata the electrical corporation provides within its Modification Notice Response or resubmitted WMP.

[31] In prior WMP Guidelines, the Modification Notice was referred to as a "Revision Notice". Under these guidelines, a Revised WMP is submitted only to align a WMP with a GRC decision in accordance with Pub. Util. Code, § 8386.4(b)(3) (see *Chapter V, Revisions for General Rate Case Alignment*).

[32] Pub. Util. Code § 8386.3(a).

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The electrical corporation must also resubmit its entire WMP (both a clean version and redline version) in accordance with the applicable schedule and as directed in the Modification Notice.

Critical Issues

Critical issues are areas of significant concern that may lead to the denial of a WMP and must be resolved by the electrical corporation before Energy Safety can complete its WMP evaluation. An unresolved critical issue may lead Energy Safety to deny a WMP. For each critical issue, the Modification Notice will set forth a corresponding remedy that the electrical corporation must address and resolve. Examples of critical issues include, but are not limited to:

- The electrical corporation failed to address an area for continued improvement from a previous Energy Safety WMP decision.
- The electrical corporation did not provide sufficient information for evaluation or information is present but lacks sufficient detail or information necessary for Energy Safety to conduct its evaluation.
- The electrical corporation provides a significant shift in its wildfire mitigation strategy without sufficient substantiation.
- The electrical corporation's submission does not meet Energy Safety's evaluation criteria as set forth in Section 7.2, Evaluation Criteria.

7.3.3 Errata

An erratum is the electrical corporation's correction of its published text. The electrical corporation may submit errata to its published WMP up to 30 days after its WMP is submitted. The errata must include:

- A cover letter with a summary of the corrections, including the following for each:
    - The page number, section number, and table or figure number (if applicable) of the correction;
    - A description of the correction; and
    - Reason for the correction.
- A redline version of its WMP showing the correction(s).

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If the electrical corporation finds it necessary to submit errata after 30 days, it must request permission, in writing, from the ESPD Program Manager. The request must be submitted to the relevant WMP docket and emailed to the Program Manager and, if known, the assigned ESPD staff lead. The Program Manager will respond approving or denying the errata request.

Separately, Energy Safety may issue a request for errata to the electrical corporation to make specific corrections to its WMP. In these cases, the electrical corporations must respond in the manner designated by Energy Safety in the request.

7.4 Decision

Energy Safety will approve or deny a WMP within nine months, unless that timeframe is extended by Energy Safety.[33]

Energy Safety's decision on an electrical corporation's WMP does not determine whether the costs for wildfire risk mitigation programs and activities are "just and reasonable."[34]

For additional information on Decisions related to a Revised WMP, see *Chapter V, Revisions for General Rate Case Alignment, Section 2, Evaluation*. For additional information on Decisions related to a WMP Update, see *Chapter VI, Wildfire Mitigation Plan Updates, Section 4, Evaluation*.

7.4.1 Draft Decision and Public Comments

Before issuing a Decision, Energy Safety will publish a draft Decision summarizing the analysis, identifying where the electrical corporation is effectively reducing risk, and highlighting areas the electrical corporation still needs to improve upon.

The draft Decision will state whether Energy Safety is intending to approve or deny the WMP.

Energy Safety will accept public comments on a draft Decision, typically 20 days for opening comments and 10 days for reply comments. The cover letter to the draft Decision will state the dates of the comment period for the draft Decision. Energy Safety will consider in its decision-making all comments that are timely received.

[33] Pub. Util. Code §§ 8386.3(a)(1)(A) and (a)(3).

[34] See Pub. Util. Code §§ 8386.4(a)(1) and (b).

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7.4.2 Decision Approving or Denying a WMP

Following the comment period, Energy Safety will issue a Decision that either approves or denies the electrical corporation's WMP.

- **Approval:** Energy Safety will issue a Decision approving a WMP if the WMP meets statutory and WMP Guidelines requirements. The Decision may require the electrical corporation to demonstrate continued growth in its subsequent WMP (i.e., areas for continued improvement). Areas for continued improvement must be addressed according to the timeline directed by Energy Safety in its Decision.
- **Denial:** Energy Safety will issue a Decision denying a WMP if the WMP does not meet the statutory and WMP Guidelines requirements. When a WMP is denied, the electrical corporation does not have an approved WMP for the purpose of Public Utilities Code section 8386 et seq., Government Code section 15475.2, and any other applicable statute or regulation.

8 Terms and Definitions

Electrical corporations are required to adhere to WMP terms defined by Energy Safety within *Attachment 1: Definitions* to these Guidelines. If an electrical corporation needs to use the same term listed but with a different definition, it must provide the different definition and explain the reason for using a different definition.

Where terms are not defined in these Guidelines but are defined in statute, such terms must use the meanings ascribed to them under the law.

8.1 Glossary of Terms

The electrical corporation must append a glossary to its WMP that lists terms and definitions it uses in its WMP (see *Chapter III, Wildfire Mitigation Plan Requirements, Section 14.6, Appendix F: Glossary of Terms*). If a term is contained in Energy Safety's Definitions, the electrical corporation must adhere to the Energy Safety definition or explain the reason for using a different definition.

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III WILDFIRE MITIGATION PLAN REQUIREMENTS

This chapter sets the content requirements for WMPs of the electrical corporations except Independent Transmission Owners (ITO). The structure of the WMP must follow the structure of this chapter.

1 Executive Summary

In the opening section of the WMP, the electrical corporation must provide an executive summary that is no longer than ten pages. The executive summary must summarize the primary goal, plan objectives, and framework for the WMP.

2 Responsible Persons

The electrical corporation must list the individuals responsible for executing the WMP,[35] including:

- Executive-level owner with overall responsibility; and
- Program owners with responsibility for each section (i.e., top level heading) of the plan.

Electrical corporations may not redact titles, credentials, and components of responsible person(s). This information must be publicly available.

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[35] Pub. Util. Code § 8386(d)(1).

3 Overview of the WMP

3.1 Primary Goal

The electrical corporation must state the primary goal of its WMP. The primary goal must be consistent with California Public Utilities Code section 8386(a).

3.2 Plan Objectives

The electrical corporation must summarize its plan objectives over the WMP period.[36] The portfolio of activities proposed in the WMP must reflect the plan objectives. Plan objectives must address the electrical corporation's most highly prioritized wildfire risk drivers.

The electrical corporation must tie plan objectives to commitments (including both quantitative and qualitative targets) and performance metrics.

3.3 Performance Metrics

The electrical corporation must list the performance metrics, beyond those required by Energy Safety,[37] that the electrical corporation uses to evaluate the performance of its plan in reducing wildfire and outage program risk.[38]

For each of these self-identified performance metrics, the electrical corporation must provide the following information in tabular form:

- Associated WMP section (self-identified performance metrics can apply to the entire WMP, e.g. number of ignitions, number of acres burned, etc.)
- The assumptions that underlie the use of the metric
- The section(s) and subsection(s) of the WMP that are associated with the metric

Table 3-1 provides an example of the required format for self-identified metrics.

[36] Pub. Util. Code § 8386(d)(2).

[37] Performance metrics identified by Energy Safety are included in the Energy Safety Data Guidelines (Table 2).

[38] Pub. Util. Code § 8386(d)(4).

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Table 3-1: Example of Self-Identified Performance Metrics

Performance Metric	Underlying Assumptions	WMP Section(s)

3.4 Projected Expenditures

The electrical corporation must summarize its projected expenditures in thousands of U.S. dollars per year for the activities set forth in its WMP. The electrical corporation must follow the provided format in Table 3-2.

Energy Safety's WMP evaluation, resulting in either approval or denial, is not an approval of, or agreement with, costs listed in the WMP.

Table 3-2: Example of Summary of Project WMP Costs

Year of the WMP Period	Projected Cost (thousands USD)
[Year 1]	[$]
[Year 2]	[$]
[Year 3]	[$]
[Year 4, if applicable]	[$]

3.5 Climate Change

The electrical corporation must describe how it has considered dynamic climate change risks in developing its WMP.[39] This description must include reference to the electrical corporation's most recent climate vulnerability assessment addressing new or exacerbated risks related to wildfire. This section is limited to five pages.

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[39] Pub. Util. Code § 8386(d)(3).

4 Overview of the Service Territory

The electrical corporation must provide an overview of its service territory and key characteristics of its electrical infrastructure.[40]

4.1 Service Territory

The electrical corporation must provide a description of its service territory, including the following characteristics:[41]

- Area served (in square miles)
- Number of customer accounts
- Overview of electrical infrastructure

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[40] Pub. Util. Code §§ 8386(d)(3), (8).

[41] Annual information included in this section must align with the applicable data submissions.

Table 4-1 provides the required format for presenting the service territory components.

Table 4-1: Example of Service Territory Characteristics

Characteristic	HFTD Tier 2	HFTD Tier 3	Non-HFTD	Total
Area served (sq. mi.)				
Number of customer accounts				
Overhead transmission lines -(circuit miles)				
Permanently abandoned overhead transmission lines (circuit miles)				
Overhead distribution lines (circuit miles)				
Underground transmission lines (circuit miles)				
Underground distribution lines -(circuit miles)				

4.2 Catastrophic Wildfire History

The electrical corporation must provide a brief narrative summarizing its wildfire history for the past 20 years as recorded by the electrical corporation, California Department of Forestry and Fire Protection (CAL FIRE), or other authoritative government sources.

For this section, wildfire history must be limited to electrical corporation ignited catastrophic fires (i.e., fires that caused at least one death, damaged over 500 structures, or burned over 5,000 acres). This includes catastrophic wildfire ignitions reported to the California Public Utilities Commission (CPUC) that may be attributable to facilities or equipment owned by the electrical corporation and where the cause of the ignition is still under investigation by the CPUC, CAL FIRE, or other government authorities. The electrical corporation must clearly denote those ignitions as still under investigation.

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In addition, the electrical corporation must provide catastrophic wildfire statistics in the tabular form provided below, including the following key metrics:

- Ignition date
- Fire name
- Official cause (if known)
- Size (acres)
- Number of fatalities
- Number of structures damaged
- Estimated financial loss (USD)

Table 4-2 provides the required format and the content for the tabulated historical catastrophic utility-related wildfire statistics. The electrical corporation must cite to an authoritative government source (e.g., CPUC, CAL FIRE, U.S. Forest Service, or local fire authority) for all data provided to the extent this information is available.

Table 4-2: Example of Catastrophic Electrical Corporation Wildfires

Ignition Date	Fire Name	Official Cause	Fire Size (acres)	No. of Fatalities	No. of Structures Damaged	Financial Loss ($)

4.3 Frequently Deenergized Circuits

Frequently deenergized circuits are circuits which have had three or more Public Safety Power Shutoff (PSPS) events per calendar year. The electrical corporation must populate Table 4-3 and provide a map showing its frequently deenergized circuits.[42] The table and map must include frequently deenergized circuits from the previous four full calendar years (i.e., circuits that have had three or more PSPS events in at least one of the four previous calendar years).

[42] Pub. Util. Code § 8386(d)(8).

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The table must contain at least the following; however, additional relevant information for an entry may also be included:

- Circuit ID Number and Name
- Dates of Outages
- Number of Customers Hours of PSPS per Outage
- Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit

The map must show the following:

- All circuits listed in Table 4-3, colored or weighted by frequency of PSPS
- HFTD Tiers 2 and 3 contour overlay

An example of the minimum acceptable level of information for the table is provided below.

Table 4-3: Example of Frequently Deenergized Circuits

Circuit ID and Name	**Dates of Outages**	**Customer Hours of PSPS / Outage**	**Measures to Reduce the Need for and Impact of Future PSPS**
157 Panama	*Dec 2–4, 2022 Dec 7–9, 2022 Dec 23–24, 2022*	*12,400 3,600 2,000*	*34.26 miles of overhead hardening completed in 2024; 33 miles in scope for 2026 Eight SCADA (supervisory control and data acquisition) sectionalizing devices added or replaced by 2027*
. . .			

4.4 High Fire Threat District and High Fire Risk Areas

The electrical corporation must discuss the differences between its self-identified top-risk areas and the High Fire Threat District (HFTD). The HFTD map is created and adopted by the CPUC.[43] The electrical corporation may identify high risk areas beyond the HFTD in its High

[43] URL: (https://www.cpuc.ca.gov/industries-and-topics/wildfires/fire-threat-maps-and-fire-safety-rulemaking).

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Fire Risk Area (HFRA). The HFRA must be comprised of areas identified by the electrical corporation as higher risk than indicated in the current HFTD map.

The discussion must include:

- The analysis and criteria used for determining areas included in the HFRA.
- The electrical corporation's plan for submitting proposed changes to the HFTD to the CPUC, if such changes are desired.[44]
- How the HFRA boundaries are modified by the impact of climate change
- How changes to the HFRA are accounted for in the targets set in this plan

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[44] Pub. Util. Code § 8386(d)(17).

5 Lessons Learned

An electrical corporation must learn from its own and others' lessons to grow and drive continual improvement in its wildfire mitigation programs.[45] In this section, the electrical corporation must describe the lessons it has learned relative to wildfire mitigation, even if that lesson learned did not, or has not yet, resulted in actionable changes to the WMP.

5.1 Catastrophic Wildfires

The electrical corporation must describe the lessons it has learned from catastrophic wildfires ignited by electrical infrastructure. The electrical corporation must include lessons learned from all catastrophic wildfires within 20 years found to have been caused by its facilities or equipment. If the electrical corporation has learned lessons from catastrophic wildfires caused by electrical infrastructure owned by a different entity, or from wildfires with cause still under investigation by government authorities, it must also include those lessons learned.

For each lesson learned from past catastrophic wildfires, the electrical corporation must identify the following in Table 5-1:

- The fire name and ignition date
- The subject(s) or mitigation activity(ies) of the lesson learned
- A description of the lesson(s) learned
- If applicable, the proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s)
- If applicable, the timeline for implementing the proposed improvement

Table 5-1 provides the required format and an example of the minimum acceptable level of information.

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[45] Pub. Util. Code §§ 8386(d)(5), (22).

Table 5-1: Example of Lessons Learned from Catastrophic Wildfires

Fire Name and Date	Subject	Lesson(s) Learned	Improvement(s) to the WMP	Implementation Timeline
Example Fire Sept 1, 2022	*Detailed asset inspections*	*C-hooks require greater scrutiny during inspections.*	*Increased inspector training and added inspection checklist items related to C-hooks. (Section 10.2.2, pp. X)*	*Improvements completed Q1 2024.*
. . .				

5.2 Incident Investigations

The electrical corporation must describe the lessons it has learned from investigations of incidents that did not lead to a catastrophic wildfire, but did, in the electrical corporation's judgement, inform the management of its risk drivers. These lessons must include those learned from its own internal incident investigations and investigations conducted by the CPUC and may also include investigations from other organizations. To the extent that an electrical corporation has learned lessons from CPUC investigations of incidents caused by another entity's electrical infrastructure, those must also be included. At minimum, the electrical corporation must describe lessons learned from investigations closed within the previous four years. The electrical corporation must also include lessons learned from open investigations if the information from those investigations has informed the electrical corporation's management of risk drivers.

For each lesson learned from the investigation of incidents that did not lead to a catastrophic wildfire, the electrical corporation must include the following in Table 5-2:

- The incident name and date
- The source of the investigation (e.g. internal, CPUC, etc.) and, for investigations conducted by governmental agencies, the investigation number
- The subject(s) or mitigation activity(ies) of the lesson learned
- A description of the lesson(s) learned
- If applicable, the proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s)
- If applicable, the timeline for implementing the proposed improvement

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Table 5-2 provides the required format and an example of the minimum acceptable level of information.

Table 5-2: Example of Lessons Learned from Incident Investigations

Incident Name and Date	**Source and Inv. #**	**Subject**	**Lesson(s) Learned**	**Improvement(s) to the WMP**	**Implementation Timeline**
Example Incident Jan 8, 2025	*Internal Inv. 12345*	*Pole clearing*	*Increased customer outreach is needed to reduce number of customer refusals related to pole clearing.*	*Increased customer outreach and education on pole clearing. (Section 11.5.3, pp. X)*	*Planned to implement Q2 2027*
. . .					

5.3 Performance Assessment

The electrical corporation must describe the lessons it has learned from Energy Safety's assessment of its implementation of past WMPs. At minimum, the electrical corporation must address lessons learned from Energy Safety Annual Performance Reports (APRs) (formerly Energy Safety Annual Reports on Compliance), independent evaluator Annual Implementation Reports (AIRs) (formerly independent evaluator Annual Reports on Compliance), electrical corporation Annual Implementation Reports (AIRs) (formerly electrical corporation Annual Reports on Compliance), and Energy Safety Vegetation Management Audit Reports issued since the submission of its previous WMP.

For each lesson learned from the performance assessment process, the electrical corporation must identify the following in Table 5-3:

- The report where the lesson learned was identified (e.g., 2024 APR)
- The subject(s) or mitigation activity(ies) of the lesson learned
- A description of the lesson(s) learned
- If applicable, the proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s)
- If applicable, the timeline for implementing the proposed improvement

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Table 5-3 provides the required format and an example of the minimum acceptable level of information.

Table 5-3: Example of Lessons Learned from Performance Assessment

Report	Subject	Lesson(s) Learned	Improvement(s) to the WMP	Implementation Timeline
2023 ARC	*Enterprise Systems, Data Management*	*Failures in data QC resulted in inconsistencies between the amount of work reported as complete versus work that was actually completed.*	*N/A*	*June 2026*
. . .				

5.4 Performance Metrics

The electrical corporation must describe the lessons it has learned from the metrics it uses, or previously used, to measure and track the implementation of its WMP.[46] At minimum, the electrical corporation must include lessons learned from at least one performance metric, identified either by Energy Safety or the electrical corporation, from a previous WMP.

For each lesson learned from performance metrics, the electrical corporation must identify the following in Table 5-4.

- The name of the performance metric and the WMP where the metric was first tracked
- The subject(s) or mitigation activity(ies) of the lesson learned
- A description of the lesson(s) learned
- If applicable, the proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s)
- If applicable, the timeline for implementing the proposed improvement

[46] Pub. Util Code § 8386(d)(5).

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Table 5-4 provides the required format and an example of the minimum acceptable level of information.

Table 5-4: Example of Lessons Learned from Performance Metrics

Metric and First WMP	Subject	Lesson(s) Learned	Improvement(s) to the WMP	Implementation Timeline
Hours of customer PEDS outage	Equipment settings	PEDS sensitivity on circuits that have large downstream impacts will be re-evaluated.	N/A	Study completed April 2026
. . .				

5.5 Additional Lessons Learned

The electrical corporation may use this section to highlight additional lessons learned beyond those covered in the previous sections. These may include lessons learned from stakeholder engagement, investigation or audits from other government entities, coordination with other electrical corporations beyond Energy Safety required working groups, or findings from new research.

Example sources of lessons learned include but are not limited to:

- Internal operations:
  - Following PSPS or outage events
  - Inspection, QA/QC findings
  - Employee reporting systems, e.g., safety culture survey results
- Collaboration with other electrical corporations and industry experts:
  - Collaboration with California electrical corporations beyond Energy Safety required working groups
  - Collaboration with other electrical corporations from around the country or world
  - Input received via stakeholder and public engagement
- Research findings:

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    - Internal and contracted studies
    - Academic papers
- Discontinued programs:
    - Cause of unsuccessful or inefficient programs
    - Cancelled pilots

For each lesson learned, the electrical corporation must identify the following in Table 5-5:

- The source of the lesson learned
- The subject(s) or mitigation activity(ies) of the lesson learned
- A description of the lesson(s) learned
- If applicable, the proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s)
- If applicable, the timeline for implementing the proposed improvement

Table 5-5 provides the required format and an example of the minimum acceptable level of information.

Table 5-5: Example of Additional Lessons Learned

Source	**Subject**	**Lesson(s) Learned**	**Improvement(s) to the WMP**	**Implementation Timeline**
Discontinued pilot on remote sensing device X	*Grid Monitoring Systems*	*Device X-type sensors have an unacceptable failure rate during hot and windy conditions.*	*N/A*	*N/A*
. . .				

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6 Situational Awareness Regarding Fire Conditions and Forecasting

The electrical corporation must describe its situational awareness regarding fire conditions and related forecasting systems, technologies, procedures, and processes used to monitor environmental conditions, detect ignitions, forecast weather, and calculate its fire potential index (FPI) to reduce wildfire risk. The electrical corporation must describe how it evaluates and selects new systems and technologies, implements planned improvements, and continually evaluates the efficacy of its existing systems. The data and outputs from situational awareness and forecasting must inform the electrical corporation's operational mitigations and its risk methodology and assessment (see *Section 7, Risk Methodology and Assessment*).

6.1 Targets

The electrical corporation must fill out Table 6-1 and provide targets for each activity for each year of the WMP period.[47] The electrical corporation must provide targets for the following initiatives:

- Environmental Monitoring Systems
- Ignition Detection Systems
- Weather Forecasting
- Weather Station Maintenance and Calibration

Table 6-1 within the WMP must include the following information:

- **Initiative:** The initiative in the WMP that the electrical corporation implements to achieve the target.
- **Quantitative or Qualitative:** Whether the target is quantitative or qualitative.

[47] Pub. Util. Code §§ 8386(d)(3) and (14).

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- **Activity (Tracking ID):** A description of the mitigation activity (and its Tracking ID in parentheses).
- **Previous Tracking ID, if applicable:** The tracking ID(s) used in past WMPs.
- **Unit:** The unit of the annual target. This field is optional for qualitative targets.
- **Target / Outcome:** The target for a given year. More specifically:
    - For a qualitative target, the specific, measurable, achievable, relevant, and timely outcome for a given year.
    - For a quantitative target, the number of units the electrical corporation is committed to completing in a given year.
- **Section; Page Number:** Reference(s) to the WMP section(s), including page numbers, where the electrical corporation provides details supporting the target.

Table 6-1 provides an example of the minimum acceptable level of information and required template.

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Table 6-1: Example of Situational Awareness and Forecasting Targets by Year

Initiative	**Activity**	**Tracking ID**	**Previous Tracking ID (if applicable)**	**Target Type**	**Unit**	**[Year 1] Target**	**[Year 2] Target**	**[Year 3] Target**	**[Year 4] Target**	**Target Total**	**Section; Page Number**
Ignition Detection Systems	*Automate ignition detection using third-party software*	*SA-03*									

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6.2 Environmental Monitoring Systems

The electrical corporation must describe its systems and procedures for monitoring environmental conditions within its service territory. These observations should inform the electrical corporation's near-real-time risk assessment and weather forecast validation. In its WMP, the electrical corporation must document the following:

- Existing systems, technologies, and procedures
- How the need for additional systems is evaluated
- Implementation schedule for any planned additional systems
- How the efficacy of systems for reducing risk are monitored

6.2.1 Existing Systems, Technologies, and Procedures

The electrical corporation must report on the environmental monitoring systems and related technologies and procedures currently in use, highlighting any improvements made since the last WMP submission. The electrical corporation must discuss systems, technologies, and procedures related to the reporting of the following:

- Current weather conditions
    - Air temperature
    - Relative humidity
    - Wind velocity (speed and direction)
- Fuel characteristics
    - Seasonal trends in fuel moisture, number and collection schedule of live fuel moisture sampling locations

Each system must be summarized in Table 6-2. It must provide the following additional information for each system in an accompanying narrative:

- Generalized location of the system / locations measured by the system (e.g., HTFD, entire service territory)
- Integration with the broader electrical corporation's system
- How measurements from the system are verified
- Frequency of maintenance

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- For intermittent systems (e.g., aerial imagery, line patrols), what triggers collection. This should include flow charts and equations as appropriate
- For calculated quantities, how raw measurements are converted into calculated quantities. This should include flow charts and equations as appropriate

Table 6-2: Example of Environmental Monitoring systems

System	Measurement/ Observation	Frequency	Purpose and Integration
Weather stations	*Steady wind velocity* *Gust wind velocity* *Air temperature* *Relative humidity*	*3,600 observations / hour*	*Improve weather forecasts through data assimilation* *Validate model*
Remote sensing fuel moistures	*Percentiles*	*Once a day*	*Calculate fuel moisture content*

6.2.2 Evaluation and Selection of New Systems

The electrical corporation must describe how it evaluates the need for additional environmental monitoring systems. This description must include:

- How the electrical corporation evaluates the impact of new systems on reducing risk (e.g., expected quantitative improvement in weather forecasting); and
- How the electrical corporation evaluates the efficacy of new technologies.

6.2.3 Planned Improvements

The electrical corporation must describe its planned improvements for its environmental monitoring systems. This must include any plans for the following:

- Expansion of existing systems
- Establishment of new systems

6.2.4 Evaluating Activities

The electrical corporation must describe its procedures for the ongoing evaluation of the efficacy of its environmental monitoring activity (program).

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6.3 Ignition Detection Systems

The electrical corporation must describe its systems, technologies, and procedures used to detect ignitions within its service territory and to gauge ignition size and growth rates.[48]

In its WMP, the electrical corporation must document the following:

- Existing ignition detection sensors and systems
- Evaluation and selection of new ignition detection systems
- Planned integration of new ignition detection technologies
- Any systems, technologies, and procedures for routine sharing of the following:
    - Evaluation of strengths and limitations of new technology
    - Case studies/ lessons learned regarding new ignition detection systems and new ignition detection technologies
    - Lessons learned
- Monitoring of initiative improvements

6.3.1 Existing Ignition Detection Sensors and Systems

The electrical corporation must report on the sensors and systems, technologies, and procedures for ignition detection that it currently uses, highlighting any improvements made since the last WMP submission. At a minimum, the electrical corporation must document the deployment of each of the following:

- Early fire detection including, for example:
    - Satellite infrared imagery
    - High-definition video
    - Infrared cameras
- Fire growth potential software

The electrical corporation must summarize each system in Table 6-3 below. It must provide the following additional information for each system in an accompanying narrative:

- General location of detection sensors (e.g., HFTD or entire service territory)

[48] Pub. Util. Code § 8386(d)(3).

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- Resiliency of sensor communication pathways
- Integration of sensor data into machine learning or AI software
- Role of sensor data in risk response
- False positives filtering
- Time between detection and confirmation
- Security measures for network-based sensors

Table 6-3: Example of Fire Detection Systems Currently Deployed

Detection System	Capabilities	Companion Technologies	Contribution to Fire Detection and Confirmation
Video cameras	*Real-time viewing of remote area to detect smoke and wildfires*	*Used with satellite imagery to verify fire detection*	*Video cameras allow fast and accurate detection or confirmation of wildfires and can help operators assess the scope of resource response needed.*

6.3.2 Evaluation and Selection of New Detection Systems

The electrical corporation must describe how it evaluates the need for additional ignition detection technologies. This description must include:

- How the electrical corporation evaluates the impact on new detection technologies on reducing and improving detection and response times;
- How the electrical corporation evaluates the efficacy of new technologies; and
- The electrical corporation's budgeting process for new detection system purchases.

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6.3.3 Planned Integration of New Ignition Detection Technologies

The electrical corporation must provide an implementation schedule for new ignition detection and alarm system technologies. This must include any plans for the following:

- Integration of new systems into existing physical infrastructure
- Integration of new systems into existing data analysis
- Increases in budgets and staffing to support new systems

6.3.4 Evaluating Activities

The electrical corporation must describe its procedures for the ongoing evaluation of the efficacy of its fire detection systems.

6.4 Weather Forecasting

The electrical corporation must describe its systems and procedures used to forecast weather throughout its service territory.[49] These forecasts must inform the electrical corporation's near-real-time-risk assessment and PSPS decision-making processes. In its WMP, the electrical corporation must document the following:

- Its existing weather modeling approach;
- The known limitations of its existing approach;
- Implementation schedule for any planned changes to the model or approach; and
- How the efficacy of its systems for reducing risk are monitored.

6.4.1 Existing Weather Modeling Approach

At a minimum, the electrical corporation must discuss the following components of its weather forecasting:

- Data assimilation from environmental monitoring systems within the electrical corporation service territory
- Ensemble forecasting with control forecast and perturbations

[49] Pub. Util. Code § 8386(d)(3).

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- Model inputs, including, for example:
    - Land cover / land use type;
    - Local topography
- Model outputs, including, for example:
    - Air temperature
    - Barometric pressure
    - Relative humidity
    - Wind velocity (speed and direction)
    - Solar radiation
    - Rainfall duration and amount
- Separate modules (e.g., local weather analysis and local vegetation analysis)
- Subject matter expert (SME) assessment of forecasts
- Spatial granularity of forecasts, including:
    - Horizontal resolution
    - Vertical resolution
- Time horizon of the weather forecast throughout the service territory

The electrical corporation must highlight improvements made to its weather forecasting since the last WMP submission.

The electrical corporation must also provide documentation of its modeling approach pertaining to its weather forecasting system in accordance with the requirements set forth in *Section 14.2, Appendix B: Risk Modeling Documentation*.

6.4.2 Known Limitations of Existing Approach

The electrical corporation must describe any known limitations of its existing weather modeling approach resulting from assumptions, data availability, and computational resources. It must discuss the impact of these limitations on the model outputs.

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6.4.3 Planned Improvements

The electrical corporation must describe its planned improvements in its weather forecasting systems. This must include any plans for the following:

- Increase in model validation
- Increase in spatial granularity
- Decrease in limitations by removal of assumptions
- Increase in input data quality
- Increase in related frequency

6.4.4 Evaluating Activities

The electrical corporation must describe its procedures for the ongoing evaluation of the efficacy of its weather forecasting activity (program).

6.4.5 Weather Station ~~maintenance~~ Maintenance and Calibration

The electrical corporation must provide a narrative describing its weather station maintenance and calibration systems, and any risk impacts due to weather station inoperability. The narrative should be no more than one page and include the following:

- Acceptable percentage of weather station outages as defined by the electric corporation that allows for consistent weather data collection and processing into its various situational awareness models and products (e.g. FPI, weather forecasting, PSPS initiation, daily operations).
- Justification for how reduced coverage does/does not impact risk to PSPS decision making and any methods to reduce those impacts.
- Any limitations to conducting annual maintenance and calibrations (such as staffing, training, terrain, access, etc.).
    - This must include the number of incomplete maintenance or calibration events for weather stations in the last calendar year; and
    - Plans to overcome each limitation.
- A description of what efforts are in place to ensure acceptable levels of weather station coverage throughout the electric corporation's service territory

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6.5 Fire Potential Index

The electrical corporation must describe its process for calculating its fire potential index (FPI) or a similar landscape-scale index used as a proxy for assessing real-time risk of a wildfire under current and forecasted weather conditions.[50] The electrical corporation's description must include the following:

- Its existing calculation approach and how its FPI is used in its operations
- The known limitations of its existing approach
- Implementation schedule for any planned changes to the system

6.5.1 Existing ~~calculation~~ Calculation Approach and Use

The electrical corporation must describe the methodology used to calculate its FPI and how the resulting FPI values are incorporated into daily operations and PSPS decision-making. The electrical corporation must describe:

- How it calculates its own FPI or if uses an external source, such as the United States Geological Survey;[51]
- Assumptions in calculations and justification for each assumption;
- How it uses its FPI in its daily operations and for PSPS initiation; and
- Provide a matrix, or list, of the actions taken (both in daily operations and for PSPS initiation) at each value of the FPI.

Additionally, if the electrical corporation calculates its own FPI, it must provide tabular information regarding the features of its FPI. Table 6-4 provides a template for the required information.

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[50] Pub. Util. Code § 8386(d)(3).

[51] United States Geological Survey Fire Danger Map and Data Products Web Page, URL: (https://firedanger.cr.usgs.gov/viewer/index.html) accessed August 26, 2026.

Table 6-4: Example of Fire Potential Features

Feature Group	Feature	Altitude	Description	Source	Update Cadence	Spatial Granularity	Temporal Granularity
Weather	*Temperature*	*Surface*	*Temperature at the surface in Fahrenheit*	*Weather model*	*6x per day*	*1 km*	*Hourly*
Fuel Moisture	*Dead Fuel Moisture*	*Surface*	*Fuel moisture content*	*Weather model & third-party dataset*	*Daily*	*2 km*	*Daily*

6.5.2 Known Limitations of Existing Approach

The electrical corporation must describe any known limitations of its current FPI calculation. Specifically, list of any changes implemented since its last WMP submission.

6.5.3 Planned Improvements

The electrical corporation must describe its planned improvements for its FPI, including a description of the improvement, reason for the improvement, and the planned schedule for implementation.

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7 Risk Methodology and Assessment

The electrical corporation must provide a description of its methodology for how it assesses its risk, including key data inputs, assumptions, risk analysis, and risk presentation (i.e., the results of its assessment).[52] The electrical corporation must also present the uncertainty in its risk calculations, and its risk assessment improvement plan. This section must provide the information necessary to understand the foundation of the electrical corporation's wildfire mitigation strategy.

The electrical corporation is not required to perform each calculation and analysis specified in this section. However, if the electrical corporation does not perform a particular calculation or analysis, it must explain why it does not do so, describe its current alternative to that calculation or analysis (if applicable), and outline any plans to incorporate those calculations or analyses into its risk methodology and assessment in the future.

This section provides an overview of an electrical corporation's risk methodology. More detailed documentation and requirements for risk methodology, assessment, and modeling are outlined in *Section 14.2, Appendix B: Risk Modeling Documentation*.

7.1 Description of Risk Models

The electrical corporation must present an overview of its approach and methodology used to assess its risk. This must include a concise narrative explaining key elements of the approach, one or more graphics showing the calculation process, and definitions of different risks and risk components.

The electrical corporation must provide a brief narrative describing its methodology for assessing and quantifying its overall utility risk, wildfire risk, and outage program risk (as described in *Section 7.2.1, Risk and Risk Component Identification*). The electrical corporation must describe the methodology of this risk assessment, including all narratives, lists, and graphics. The electrical corporation must indicate and describe any industry-recognized standards, best practices, or research used in its methodology.

[52] Pub. Util. Code §§ 8386(d)(3), (12)-(13), and (17)-(18).

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This description must be no more than five pages.

7.2 Risk Analysis Framework Summary

The electrical corporation must provide a high-level overview of its risk analysis framework. This includes a summary of key modeling assumptions, input data, and modeling tools used.

At a minimum, the electrical corporation must evaluate the impact of the following factors on its risk quantification. The electrical corporation must provide a description of how and where each of the factors below is integrated into its risk assessment and risk model:

- **Equipment / Assets** (e.g., type, age, inspection, maintenance procedures);
- **Topography** (elevation, slope, aspect, etc.);
- **Weather** (at a minimum, this must include statistically extreme conditions, such as 1 in 100 year conditions, based on weather history, including how those extremes were derived, and seasonal weather);
- **Vegetation** (type, class, species, or fuel model; canopy height, base height, cover, growth rates, moisture content, inspection, clearance procedures, etc.);
- **Non-vegetative fuels** (conflagration risks, building assets such as spacing, roofing, vents, eaves, etc.);
- **Climate change** (long-term changes in seasonal weather; statistical extremes in weather; impacts of change on vegetation species, growth, moisture, etc.); at a minimum, this must include adaptation of historical weather data to current conditions and forecasting future climate;
- **Social vulnerability** (access and functional needs [AFN] populations, socioeconomic factors, etc.);
- **Physical vulnerability** (people, structures, critical facilities, and infrastructure, etc.); and
- **Access capacities** (limited access or egress, etc.).

7.2.1 Risk and Risk Component Identification

The electrical corporation must provide a brief narrative and at least one simple graphic describing the framework of its overall utility risk calculation. At a minimum, the electrical corporation must calculate its overall utility risk as the comprehensive risk from both wildfire

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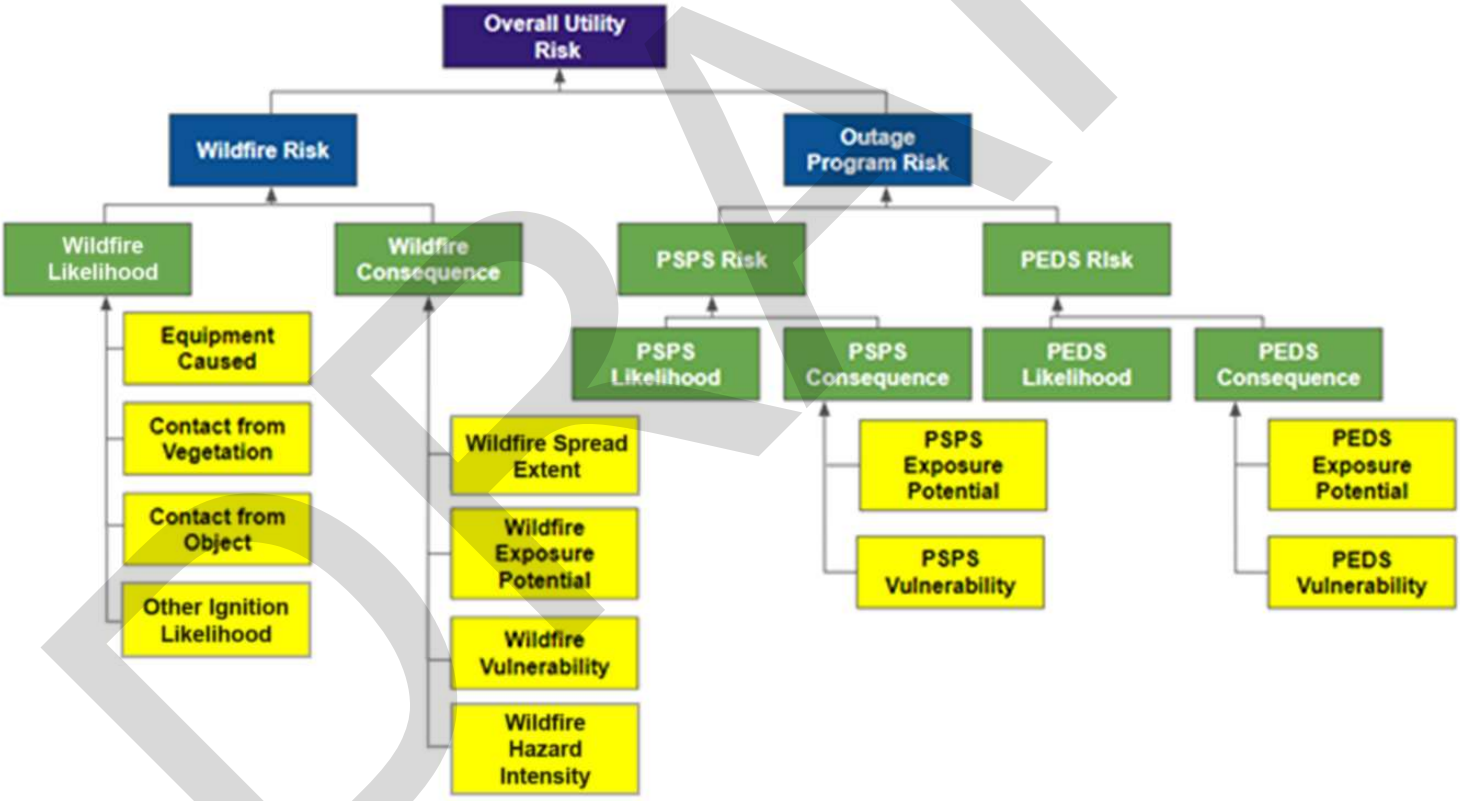
risk and outage program risk across its service territory. This includes several likelihood and consequence risk components that are aggregated under the framework shown in Figure 7-1.

While the overall utility risk framework and associated risk components identified in this section are the minimum components required for determining overall utility risk, the electrical corporation may elect to include additional risk components as needed to better assess risk in its service territory. If the electrical corporation identifies additional components as part of its risk framework, it must define those components and explain why they are necessary. The electrical corporation must include a schematic demonstrating its adopted risk framework (similar to Figure 7-1), including any components beyond the minimum requirements.

Figure 7-1: Composition of Overall Utility Risk



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Overall utility risk is broken down into the following individual hazard risks:

- **Wildfire risk:** The total expected annualized monetized measure of wildfire impacts at a given location. This considers the likelihood that a wildfire will occur (that is, the likelihood that an ignition will transition into a wildfire) and the potential consequences—considering spread extent, hazard intensity, exposure potential, and vulnerability—the wildfire will have for each community it reaches.
- **Outage program risk:** The annualized monetized measure of reliability impacts from wildfire mitigation-related outages (e.g., PSPS, PEDS) at a given location. This considers the likelihood that an outage from a wildfire mitigation-related program will occur at a given location based on conditions, and the potential consequences of that outage occurring for each community impacted. At a minimum, the electrical corporation must consider risk of PSPS and PEDS outages.

The following are the minimum required intermediate risk components that make up the hazard risks:

- **Wildfire likelihood:** The total anticipated annualized likelihood of a wildfire occurring at a given location within the electrical corporation's service territory, resulting from utility-related ignitions at that location.
    - This should account for ignition frequency based on the total anticipated annualized number of ignitions[53] from electrical corporation-owned assets at each location in the electrical corporation's service territory. The ignition frequency should consider probabilistic weather conditions, equipment type and age, and potential contact between vegetation and other objects with electrical corporation assets.
- **Wildfire consequence:** The total anticipated monetized adverse effects of a wildfire on each community it reaches. This considers the wildfire's spread extent, hazard intensity, exposure potential, and inherent vulnerabilities, including those affecting communities at risk.
- **PSPS risk:** The total expected annualized monetized impacts from PSPS at a given location. This considers two factors: (1) the likelihood that a PSPS will be required due to environmental conditions exceeding design conditions, and (2) the potential

[53] In this instance, "ignition" is meant to capture the expected number of events that could propagate to a wildfire, and is not dependent on CPUC-reportable ignitions. Electrical corporations must be clear on the data and definitions they are using to define "ignition" in this instance.

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consequences of the PSPS for each affected community, considering exposure potential and vulnerability.

- **PSPS likelihood:** The annualized likelihood that an electrical corporation requires a PSPS at a given location given a probabilistic set of environmental conditions.
- **PSPS consequence:** The total anticipated adverse effects of a PSPS on each community impacted. This considers the PSPS exposure potential and the inherent PSPS vulnerabilities of communities at risk.
- **PEDS outage risk:** The total expected annualized impact of PEDS enablement at a given location.
- **PEDS outage likelihood:** The annualized likelihood of an outage occurring at a given location when increased sensitivity settings on a protective device are enabled, given a probabilistic set of environmental conditions and the thresholds used to implement the enabled settings.
- **PEDS outage consequence:** The total anticipated adverse effects on a community if an outage occurring while increased sensitivity settings on a protective device are enabled at a given location. This considers the PEDS outage exposure potential and the inherent vulnerabilities of communities at risk.

The following are the minimum required fundamental risk components that feed up into the intermediate risk components:

- **Equipment caused ignition likelihood:** The likelihood that electrical corporation-owned equipment will cause an ignition either through normal operation (such as arcing) or through failure.
- **Contact from vegetation ignition likelihood:** The likelihood that vegetation will contact electrical corporation-owned equipment, resulting in an ignition.
- **Contact from object ignition likelihood:** The likelihood that a non-vegetative object (such as a balloon or a vehicle) will contact electrical corporation-owned equipment, resulting in an ignition.
- **Other ignition likelihood:** The likelihood that a risk driver not captured by the other likelihood risk components results in an ignition.
- **Wildfire spread extent:** The spatial region expected to be reached by a wildfire resulting from an electrical corporation-related ignition at each asset location based on a probabilistic set of weather profiles, vegetation, and topography.

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- **Wildfire hazard intensity:** The potential intensity of a wildfire at a given location within the service territory given a probabilistic set of weather profiles, fuels (vegetation, buildings), and topography.
- **Wildfire exposure potential:** The potential physical, social, or economic impact of wildfire on people, property, critical infrastructure, livelihoods, health, environmental services, local economies, cultural/historical resources, and other high-value assets. These may include direct or indirect impacts, as well as short- and long-term impacts.
- **Wildfire vulnerability:** The susceptibility of people or a community to the adverse effects of a wildfire, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from those effects (e.g., AFN customers, Social Vulnerability Index, age of structures, firefighting capacities, ingress and egress).
- **PSPS exposure potential:** The potential physical, social, or economic impact of a PSPS event on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets.
- **PSPS vulnerability:** The susceptibility of people or a community to the adverse effects of a PSPS event, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from those effects (e.g., high AFN population, poor energy resiliency, low socioeconomic status).
- **PEDS outage exposure potential:** The potential physical, social, or economic impact on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets from an outage occurring when PEDS are enabled.
- **PEDS outage vulnerability:** The susceptibility of people or a community to adverse effects of an outage when PEDS are enabled, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from those effects (e.g., high AFN population, poor energy resiliency, low socioeconomic status).

The electrical corporation must adopt these definitions for this section of the WMP and explain if and how it considers each component. If an electrical corporation does not include a particular component within its risk framework, it must explain why not, and if it intends to incorporate that component in the future. If the electrical corporation considers additional intermediate and fundamental risk components, it must define those components in this section as well.

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7.3 Risk Model Methodology

The electrical corporation must provide additional details on how it calculates the risk components outlined in *Section 7.2.1, Risk and Risk Component Identification*. This includes a description of its risk model(s) and submodels used to determine the components, the data inputs for the submodels, and the hierarchy of interactions among the models, submodels, and data inputs that together calculate the overall utility risk.

In addition, the electrical corporation must provide a list of all models and submodels it has developed as part of its overarching risk model for determining the overall utility risk.

7.3.1 Data Inputs

The electrical corporation must provide a list of the inputs and data that it uses for its risk models. This must include, at a minimum, the data in Table 7-1. The table within the WMP must not exceed one page, with a full extended table containing all represented rows provided in an appendix (see *Section 14.4, Appendix D: Additional Tabular Data*). The table in the WMP must include:

- **Data Identification (ID):** Unique shorthand identifier for the dataset
- **Dataset name:** Unique full identifier for the dataset
- **Dataset Description:** A brief description of the dataset
- **Model usage:** A list of the models and submodels that use the dataset
- **Units:** List of the unit(s) associated with the data~~set~~ used as inputs to the risk models

The extended table provided in the appendix must include the following additional information as new columns added to the required columns of Table 7-1:

- **Subset used:** The portion of data used for a particular model. If the same dataset is used for different models, but a different subset of that dataset is used, differentiate which model uses which subset by including separate rows. For example, weather data might be used, with one model using the worst weather days while another uses fire weather days.
- **Data timeframe:** The span of time covered by the dataset, represented by the year of the oldest data to the year of the newest data.
- **Spatial granularity:** The spatial granularity of the dataset.

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- **Original source of data:** Provider or originator of the data. Indicate whether the dataset was generated internally by the electrical corporation or externally by another third-party.
- **Update frequency:** The frequency with which the dataset is updated and maintained.
- **Validation process:** A short description of how the data is processed, validated, and maintained to uphold accuracy.

Table 7-1: Example of Data Inputs for Risk Methodology and Assessment

Data ID	Dataset Name	Dataset Description	Model Usage	Unit(s)
W-1	*Historical Wind Weather Data*	*Historical wind speed and wind gusts*	*EFF likelihood* *CFO likelihood* *Vegetation likelihood* *Wildfire consequence*	*mph*
W-2	*Historical Temperature Data*	*Historical temperature*	*EFF likelihood* *CFO likelihood* *Vegetation likelihood* *Wildfire consequence*	*Fahrenheit*
V-1	*Tree Inventory Records*	*Vegetation data*	*Vegetation likelihood* *Wildfire consequence*	*N/A*
E-1	*Conductor health*	*Primary overhead conductor spans records*	*EFF likelihood* *Other ignition likelihood* *Wildfire consequence*	*N/A*

For each dataset represented in Table 7-1, in addition to the information provided within the table, the electrical corporation must include a narrative description of the following:

- An extended description of the dataset
- How the dataset was chosen as a source
- Other datasets that were considered as alternatives, and why they were not chosen
- How the dataset was augmented, translated, or transformed by the electrical corporation and why, as applicable
- How a subset of data was defined and determined, such as how “worst weather day” or “fire weather day” is defined

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- Whether each risk or risk component is assessed using probability distributions, expected values, or percentiles. The electrical corporation must describe how probability distributions are stored and how coherence is maintained
- For each uncertain component not assessed with probability distributions, the electrical corporation must explain why probability distributions are not used and justify its chosen assessment method
- For each dataset that has a change in methodology, describe how those changes may impact trends observed in data or modeling, including any potential biases that could be introduced. Examples of changes in methodology include changes in practices or standards for data collection and changes in definitions or thresholds used to constitute data.

7.3.2 Risk Component Identification and Calculations

The electrical corporation must describe how it identifies and calculates the risk components defined in *Section 7.2.1, Risk and Risk Component Identification*, including the following:

- A summary of the risk calculations, including various inputs and outputs
- A depiction of the interaction of various risk components and calculations performed to determine overall utility risk
- A description of the identification and individual calculation of risk components

Summary of Calculations

The electrical corporation must summarize its calculation approach for each risk and risk component identified in *Section 7.2.1, Risk and Risk Component Identification*, including an overview of the models used to produce the calculations. The electrical corporation must provide the following information in Table 7-2:

- **Model or submodel identification (ID):** Unique shorthand identifier for the model or submodel.
- **Model or submodel name:** Unique name for the model or submodel, which should be representative of what the model or submodel is calculating.
- **Model or submodel description:** A brief description of the model or submodel.
- **Risk component output:** The risk or risk component being calculated by the model or submodel.

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- **Risk component inputs:** The risks or risk components used as inputs by the model or submodel as part of its calculations.
- **Submodel inputs:** List of submodel(s) used to calculate the inputs for the risk component. These must include which specific modeling results (such as wind predictions) are relevant to the calculation of the risk or risk component.
- **Data inputs:** List of data inputs used for each input parameter. Data inputs must use the data ID and match the data descriptions provided in Table 7-1.
- **Key outputs:** A description of the outputs calculated for the risk or risk component output.
- **Units:** List of the units associated with the key outputs.

Table 7-2 provides a template for the required information.

Table 7-2: Example of Summary of Risk Models and Submodels

Model or Submodel ID	Model or Submodel Name	Risk Component Output	Risk Component Inputs	Submodel Inputs	Data Inputs	Key Outputs	Units
R1	*Overall Utility Risk Model (OURM)*	*Overall utility risk*	*Wildfire risk* *Outage program risk*	*N/A*	*N/A*	*Risk at a given location, as granular as possible (i.e., circuit segment, pole)*	*(-)/year*
R2	*Wildfire Risk Reduction Model (WRRM)*	*Wildfire risk*	*Wildfire likelihood* *Wildfire consequence*	*CFO model* *EFF model* *Vegetation model*	*W-1* *W-2* *V-1* *E-1*	*Wildfire risk at a given location*	*(-)/year*
R3	*Outage Risk Model*	*Outage program risk*	*PSPS risk* *PEDS outage risk*	*EFF model* *Vegetation model*	*W-1* *V-1* *E-1*	*Outage program risk at a given location*	*(-)/year*

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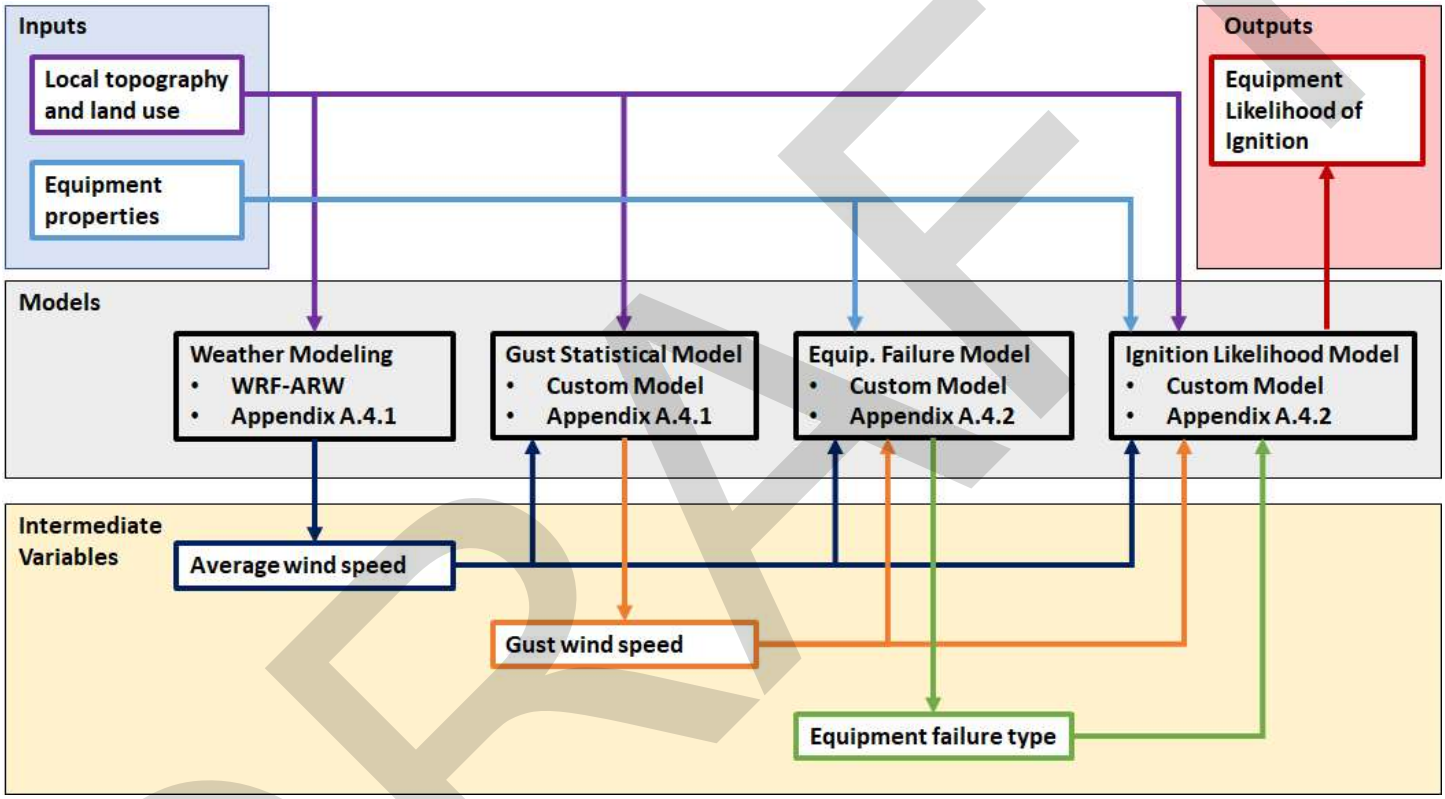
Interaction of Calculations

The electrical corporation must provide schematics that illustrate the calculation of each risk and its components, as necessary, to demonstrate the logical flow from input data to outputs, including separate items for any intermediate calculations. Figure 7-2 provides an example of a calculation schematic for the equipment likelihood of ignition.

Figure 7-2: Example of a Calculation Schematic



Risk Components Calculations

The electrical corporation must calculate each risk and risk component defined in *Section 7.2.1, Risk and Risk Component Identification*. Additional requirements for these calculations are provided *Section 14.2, Appendix B: Risk Modeling Documentation*. These are the minimum requirements and are intended to establish the baseline for risk model reporting for all electrical corporations. If the electrical corporation includes additional risk components in its calculation, it must report and define each of those components in its WMP using a similar format.

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In *Appendix B: Risk Modeling Documentation* of its WMP, each electrical corporation must provide a step-by-step example of how its overall utility risk is calculated, considering individual risk component calculations for the top-ranking circuit segment.

The electrical corporation must summarize any differences between its calculation of its risk components and the requirements of these Guidelines. Differences may include the following:

- Additional input parameters beyond the minimum requirements for a specific risk component
- Calculations of additional outputs beyond the minimum requirements for a specific risk component
- Calculations of additional risk components defined by the electrical corporation in Section 7.2.1, Risk and Risk Component Identification

The process used to combine risk components must be summarized for each relevant risk component. This process must align with the requirements in the most recent CPUC decision governing Risk Assessment and Mitigation Phase (RAMP) filings.[54] The electrical corporation must organize this discussion into the following subsections, focusing on likelihood and consequence.

Likelihood of Wildfire Risk Event Model Components

The electrical corporation must discuss how it calculates the likelihood that its equipment (through normal operations or failure) will result in an ignition and the likelihood that an ignition will transition into a wildfire. The electrical corporation must specify whether or not it uses the same methodology for both distribution- and transmission-level assets and describe any differences between the two. The risk components discussed in this section must include at least the following:

- Equipment caused likelihood of ignition
- Contact from vegetation likelihood of ignition
- Contact from object likelihood of ignition
- Other risk driver likelihood of ignition

[54] Pub. Util. Code § 8386(d)(13).

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Likelihood of Outage Program Risk Event Model Components

The electrical corporation must discuss how it calculates the likelihood that its equipment (through normal operations or failure) will result in an outage event. The risk components discussed in this section must include at least the following:

- PSPS likelihood
- PEDS outage likelihood

Consequence of Wildfire Risk Event Model Components

The electrical corporation must discuss how it calculates the consequences of a fire originating from its equipment, including any calculations of probability distributions, if applicable. The risk components discussed in this section must include at least the following:

- Wildfire hazard intensity
- Wildfire exposure potential
- Wildfire vulnerability
- Wildfire spread extent

Consequence of Outage Program Risk Event Model Components

The electrical corporation must discuss how it calculates the consequences of implementing or triggering an outage event. The risk components discussed in this section must include at least the following:

- PSPS consequence
- PSPS exposure potential
- PSPS vulnerability
- PEDS outage consequence
- PEDS outage exposure potential
- PEDS outage vulnerability

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7.3.3 Risk Model Components Integration

The electrical corporation must discuss how it calculates each of the following risks and the resulting overall utility risk as defined in *Section 7.2.1, Risk and Risk Component Identification*. The discussion in this section must include at least the following:

- Overall utility risk
- Wildfire risk
- Outage program risk
- PSPS risk
- PEDS outage risk

Monetization

The electrical corporation must describe how it monetizes the outputs from its risk models. This must include a description of:

- When monetization of risk results occurs;
- How risk results are converted to monetary values; and
- What input~~values~~s are used ~~to convert~~for converting to monetary values (e.g., ~~statistical~~ value of statistical life, value of structure).

Scaling Factors

If the electrical corporation uses scaling factors (such as multi-attribute value functions [MAVFs] or representative costs), it must provide the following information in a table, as applicable:

- Each scaling factor used
- At what point in the risk calculation is the scaling factor applied
- The value of the scaling factor
- The impact of the scaling factor on risk model output
- How the scaling factor is utilized
- An explanation of the scaling factor's purpose
- A justification for the value chosen

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7.4 Risk Analysis Results and Presentation

The electrical corporation must present a high-level overview of the results of the risk calculations performed using the approaches discussed in *Section 7.3.2, Risk Component Identification and Calculations*.

The risk presentation must include the following:

- Tabular summary of risk-contributing circuit segments across the service territory based on risk model output[55]
- A geospatial representation of the risk model output depicting the top risk-contributing circuits across the service territory
- A prioritized list of ignition drivers
- Identification of additional risk trends, including those not captured by risk model outputs

7.4.1 Risk Model Output

The electrical corporation must discuss its risk model output, including both quantitative information and geospatial representation.

Highest-Risk Circuit Segment List

The electrical corporation must provide a table in its WMP showing the risk-contributing circuit segments within its service territory, based on the output of its latest functional risk model. The risk components described must match those as defined in *Section 7.2.1, Risk and Risk Component Identification*. The table within the WMP must include the following information for each circuit:

- **Overall utility risk ranking:** The rank of the circuit segment based on the total overall utility risk.
- **Circuit segment ID:** Unique identifier for the circuit segment. The circuit segment ID must not change, as the same ID must be used for all submissions to Energy Safety (WMP submissions, Quarterly Data Reports, etc.). If circuit segment IDs changed from

[55] "Risk-contributing circuit segment" means any circuit segment with a non-zero risk.

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prior submissions, a crosswalk and geospatial overlay must correlate the current IDs to the previous IDs.

- **Length:** The total length of the circuit segment, in miles.
- **Overall utility risk:** Numerical monetary value for the total risk for each circuit segment after any scaling factors have been applied.
- **Wildfire risk:** Numerical monetary value for the wildfire risk component for each circuit segment.
- **Outage program risk:** Numerical monetary value for the outage program risk component for each circuit segment.
- **Percent of overall utility risk:** The percentage of risk each circuit segment contributes to the total risk post-scaling across an electrical corporation's system. This must be calculated as follows:

$$\% = \frac{Overall\ utility\ risk\ of\ circuit\ segment}{\sum Overall\ utility\ risk\ of\ all\ circuit\ segments}$$

- **Top risk drivers:** The top three risk drivers that lead to the high risk on the circuit. This must align with the risk drivers shown in Table 7-5 in *Section 7.4.2, Wildfire Risk Drivers and Trends*.

The electrical corporation must also provide an extended table in *Appendix D: Additional Tabular Data* that includes the following additional information:

- **Circuit or circuit segment voltage level:** Whether the circuit segment is at the distribution or transmission level.
- **% HFTD & HFRA:** The percentage (using circuit mile length) of the circuit segment that is within Tier 2 or 3 of the HFTD and the electrical corporation-designated HFRA.
- **% hardened:** The percentage (via circuit mile length) of the circuit segment that has already undergone hardening, broken out by traditional hardening, covered conductor, and undergrounding.
- **Overall utility risk – pre-scaling:** Numerical monetary value for total risk for a given circuit segment before any scaling factors, as described in S*ection7.3.3, Risk Model Components Integration, Scaling Factors*, are applied. If a scaling factor is applied to a different component than the overall utility risk, denote the pre-scaling and post-scaling risk amounts and identify which component has been impacted instead of the overall utility risk.

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- **Scaling factors:** Numerical value for any scaling factors applied to the overall utility risk. If more than one scaling factor is used, add additional columns for each one. If scaling factors are applied to a component other than the overall utility risk, identify which component each scaling factor is applied to. The scaling factors applied must match those discussed in S*ection7.3.3, Risk Model Components Integration, Scaling Factors*.
- **Wildfire risk from equipment/facility failure:** Numerical monetary value for the amount of wildfire risk contributed from equipment or facility failure for each circuit segment.
- **Wildfire risk from contact from vegetation:** Numerical monetary value for the amount of wildfire risk contributed from vegetation contact for each circuit segment.
- **Wildfire risk contact from objects:** Numerical monetary value for the amount of wildfire risk contributed from contact from objects that are not vegetation for each circuit segment.
- **Wildfire consequence ~~risk~~:** Numerical monetary value for the amount of wildfire risk contributed from consequence for each circuit segment.
- **PSPS risk:** Numerical monetary value for the amount of outage program risk contributed from the PSPS risk component for each circuit segment.
- **PEDS outage risk:** Numerical monetary value for the amount of outage program risk contributed from the PEDS risk component for each circuit segment.

The electrical corporation must provide all values to the correct amount of significant figures. The electrical corporation must rank its circuit segments by the overall utility risk.

The electrical corporation must include Table 7-3, example below, within the WMP.[56] This table must include the top ten circuit segments that have the highest overall utility risk. An extended version of the table with all circuit segments that contribute to overall utility risk must be provided in *Appendix D: Additional Tabular Data* as a spreadsheet.

If the electrical corporation performs separate risk analyses for distribution- and transmission-level assets, then two versions of Table 7-3 must be provided, delineating the outputs of the distribution and transmission models.

[56] This table is a summary of information provided in the applicable data submission. As such, information included in this table must align with the data submission.

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Table 7-3: Example of Summary of Top-Risk Circuit Segments

Risk ranking	Circuit segment ID	Length (circuit miles)	Overall utility risk (Million $)	Wildfire risk (Million $)	Outage program risk (Million $)	% of overall utility risk	Top risk drivers
1	*ID001*	*3.52*	*1.024*	*0.987*	*0.037*	*1.8%*	*Conductor failure* *Vegetation contact*
2	*ID002*	*10.34*	*0.878*	*0.767*	*0.111*	*1.6%*	*Transformer failure* *Conductor failure*

As it relates to Table 7-3, provide the following additional table as a key:

Table 7-4: Example of Additional Information Regarding Risk Model Output

Circuit segment granularity	*The granularity for the identifier if the circuit segment is not used (i.e., circuit, span ID)*
Total overall utility risk pre-scaling	*The summation of total overall utility risk for all circuit segments across the electrical system, before any scaling factors have been applied, provided in monetary value*
Total overall utility risk post-scaling	*The summation of total overall utility risk for all circuit segments across the electrical system, after any scaling factors have been applied, provided in monetary value*
Total wildfire risk	*The summation of total wildfire risk for all circuit segments across the electrical system, provided in monetary value. Specify if pre- or post-scaling*
Total outage program risk	*The summation of total outage program risk pre-scaling for all circuit segments across the electrical system, provided in monetary value. Specify if pre- or post-scaling*

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Geospatial Risk Model Output

The electrical corporation must evaluate the outputs from its risk model to identify locations and circuit segments representing the high risk within its HFTD and HFRA. The electrical corporation must provide geospatial maps of these locations in accordance with the mapping requirements in *Chapter II, Process and Evaluation, Section 3.2.6, Mapping Requirements* and *Section 14.5, Appendix E: Additional Maps*.

The maps must fulfill the following requirements:

- **Risk percentages:** Percentage ranges must be selected to show five distinct levels, with the values based on the following:
    - Top five percent of overall utility risk values in the HFTD and HFRA
    - Top five to ten percent of overall utility risk values in the HFTD and HFRA
    - Top ten to 15 percent of overall utility risk values in the HFTD and HFRA
    - Top 15 to 20 percent of overall utility risk values in the HFTD and HFRA
    - Bottom 80 percent of overall utility risk values in the HFTD and HFRA
- **Colormap:** The colormap of the risk levels must meet accessibility requirements (recommended colormap is Viridis).
- **County lines:** The map must include county lines as a geospatial reference.
- **HFTD tiers:** The map must show a comparison with existing HFTD Tiers 2 and 3 regions.
- **HFRA:** The map must show any areas added to ~~the HFTD as part of~~ the HFRA based on risk analysis.

7.4.2 Wildfire Risk Drivers and Trends

The electrical corporation must discuss how it identifies wildfire risk drivers and additional ignition risk drivers, trends, and factors.

Prioritized List of Wildfire Risk Drivers

The electrical corporation must provide a list that identifies and prioritizes all wildfire risks, and drivers for those risks, throughout its service territory.[57] The electrical corporation must

[57] Pub. Util. Code § 8386(d)(12).

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use the format outlined in Table 7-5. Additionally, the list must include, at a minimum, the specific risks and risk drivers provided in Table 7-5 and all relevant wildfire risk and risk mitigation information required by the commission's risk-based decision-making framework established in CPUC Application 15-05-002 or Rulemaking 20-07-013, or subsequent safety model assessment proceedings, and the Risk Assessment Mitigation Phase filings.[58] Prioritization within Table 7-5 must be listed from highest priority to lowest priority.

The table within the WMP should include the following information about each risk driver:

- **Priority:** The priority of the risk driver as determined by the electrical corporation. Prioritization must indicate how the electrical corporation views a particular risk driver as a wildfire risk across its system.
- **Risk:** The overarching risk category. The list of risks in this table must match the risks provided the Quarterly Data Reports (e.g., contact from object, vegetation contact, equipment/facility failure or damage).
- **Risk Driver:** The specific risk driver. The list of risk drivers in this table must match the ignition drivers provided in the Quarterly Data Reports.
- **Percent of ignitions in HFTD:** The percentage of total ignitions within the HFTD caused by the specific risk driver. The electrical corporation must identify the time frame for ignition data it is using for this determination.
- **Topographical and climatological risk factors:** These factors may include, but are not limited to: elevation; slope; aspect; heat; aridity; humidity; wind; airborne salinity; precipitation (snow, rain, hail, etc.); and lightning.
- **Wind dependency:** Whether the risk driver is "wind-driven" (i.e., impacted by wind), or "wind independent."

The table in the WMP must only include the top ten prioritized risk drivers, and an expanded version with all risk drivers provided in *Appendix D: Additional Tabular Data* as a spreadsheet.

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[58] Pub. Util. Code, § 8386(d)(12).

Table 7-5: Example of List of Risks and Risk Drivers to Prioritize

Priority	Risk	Risk Driver	% of ignitions in HFTD	Topographical and Climatological Risk Factors	Wind Dependency
1	*Vegetation contact*	*Fall-in (branch failure)*	*2.6%*	*Slope, heat, aridity, wind*	*Wind-driven*
2	*Equipment / Facility Failure*	*Conductor failure*	*2.2%*	*Elevation, wind, precipitation*	*Wind-driven*
3	*Equipment / Facility Failure*	*Transformer failure*	*1.6%*	*Heat, precipitation*	*Wind independent*
4	*Vegetation contact*	*Fall-in (trunk failure)*	*1.2%*	*Slope, heat, aridity*	*Wind independent*
5	*Contact from object*	*Third-party contact*	*1.1%*	*N/A*	*Wind independent*
7	*Contact from object*	*Unknown*	*0.8%*	*N/A*	*N/A*
8	*Contact from object*	*Animal contact*	*0.7%*	*N/A*	*Wind independent*
9	*Vegetation contact*	*Encroachment*	*0.6%*	*Slope, wind*	*Wind-driven*
10	*Equipment / Facility Failure*	*Protection device failure*	*0.6%*	*Heat, humidity, precipitation, wind*	*Wind-driven*

Additionally, the electrical corporation must provide a narrative that explains the basis for prioritizing these risks and risk drivers (e.g., “priority is assigned based on frequency, location with regard to the HFTD, and the expected consequence pertaining to the location”).

This narrative must also include a description of the timeframes used to evaluate the risks and risk drivers and an explanation of how it determined topographical and climatological risk factors.

Identification of Risk Trends

The electrical corporation must discuss how it and its subject matter experts identify risk trends across its service territory that are either currently not captured by the risk model or

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not explicitly identified by the risk model. This must include lessons learned from previous faults, outages, and ignitions, with discussion of the following as examples:

- Evaluation of ignition trends over time, such as any increases due to particular risk drivers in recent years, including charts or supporting material demonstrating such trends.
- Evaluation of previous significant and/or catastrophic ignitions to determine the circumstances that led to that significance (e.g., voltage level, infrastructure configuration, topographical impacts, etc.).
- Root cause analyses of equipment failures to identify any prevailing factors that lead to higher ignition risk (e.g., equipment age, manufacturer, type, etc.).
- Tracking and identification of vegetation failure trends (e.g., evaluation of topographical impacts, specific vegetation species failure types, etc.).
- Evaluation of potential future ignition risks based on the evaluation of past events (including any completed CPUC wildfire investigations), available data, and quality control or quality assurance of existing programs. This includes any risks that may not have historically led to catastrophic ignitions, but have potential to be failure points and lead to issues in the future.
- A list of any ignitions that had a significant impact and served as a threshold for the need to perform additional risk trend analysis, including:
    - How that ignition was determined to be of significant impact (including any thresholds and values used, such as acreage burned, number of structures destroyed, etc.)
    - The date the ignition occurred
    - The cause of the ignition

The electrical corporation must discuss how it integrates the identification and analysis of these additional risk trends into its existing risk analysis framework. The electrical corporation must also discuss why these risk trends are not currently captured by the risk model or the risk model outputs; how these trends were identified given they are not currently within the risk model; and whether it has any plans to update its risk model to account for or better identify these trends.

This section can reference any distinct lessons learned already identified within *Section 5, Lessons Learned*, with any additional content provided as needed.

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7.5 Risk Assessment Improvement Plan

The electrical corporation must describe how it plans to improve its risk assessment over time. This includes:

- Evaluating the current risk model to maintain performance and identifying any areas of improvement.
- Identifying any current limitations of the risk assessment and risk model, including why those limitations exist.
- Describing the planned improvements the electrical corporation plans to make in the future as it further develops its risk assessment.

7.5.1 Quality Management

The electrical corporation must document the procedures it uses to confirm that the data collected and processed for its risk assessment are accurate and comprehensive, including quality assurance and quality control of outputs, and that its risk analysis results are a realistic representation of the risk to its system.[59] This includes but is not limited to model, sensor, inspection, and risk event data used as part of the electrical corporation's WMP programs. In this section of the WMP, the electrical corporation must describe the following:

- Model controls, design, and review: Overview of the quality controls (QCs) in place for electrical corporation risk models and submodels.
- Verification, validation, and sensitivity analysis: Overview of the methodology the electrical corporation uses to test the accuracy of its risk model output and identify areas for improvement.
- Independent review: Role of independent third-party review in the data and model quality assurance (QA).

Model Controls, Design, and Review

An electrical corporation's risk modeling approaches are complex, with several layers of interaction between models and submodels. If these models are designed as a single unit, it can be difficult to evaluate how small changes in assumptions or inputs propagate through the models.

[59] Pub Util. Code § 8386(d)(22).

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The electrical corporations must report on its risk modeling software's model controls, design, and review in the following areas:

- **Modularization:** The electrical corporation must report on the degree to which its software architecture is sufficiently modular to track and control changes and enhancements over time. At a minimum, the electrical corporation must report whether it has separate modules to evaluate each of the following:
    - Weather analysis
    - Fire behavior analysis
    - Seasonal vegetation analysis
    - Equipment failure
    - Exposure and vulnerability analysis
- **Reanalysis:** The electrical corporation must describe its capability to provide the results of its risk model for a specific historic day, using the operational version of the software (including code and data). This includes evaluation of the accuracy of fire spread modeling outputs compared to the actual wildfire perimeter.
- **Version control:** The electrical corporation must report on how it conforms to industry standard practices for version controlling its risk model and submodels. At a minimum, the electrical corporation must report on:
    - How it ensures version control of model input data, including geospatial data layers;
    - How models and software version controls are aligned with industry standard programs, procedures, and protocols; and
    - Its procedures for updating technical, verification, and validation documentation.
- **Model Version Comparison:** The electrical corporation must compare the risk modeling results presented in its WMP with those from its previous risk model. At a minimum, the electrical corporation must report on:
    - The similarities and differences of outputs, including analysis of the reason behind any differences;
    - The amount that the top riskiest circuits changed, including any analysis of how risk shifted and the main causes for the shift;

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- Determination of the accuracy between model versions, including a comparison of the accuracy of outputs between the two versions; and
- Evaluation of the impacts and sensitivities of any components removed from previous versions or added within the new version.

Verification, Validation, and Sensitivity Analysis

The electrical corporation must summarize how it verifies and validates its risk assessment and risk models, including monitoring the performance, accuracy, and impact of its various components on outputs. Additional requirements for reporting on verification and validation are outlined in *Section 14.2, Appendix B: Risk Modeling Documentation*.

For each risk component identified in *Section 7.2.1, Risk and Risk Component Identification*, the electrical corporation must:

- Explain how it validates the calculations and results, including what data and sources are used to perform the validation;
- Discuss steps taken to consult with fire departments or other local government or community groups to verify model results in their communities;
- Identify any source of uncertainty;
- Discuss how uncertainty is handled, including any adjustments made to account for uncertainty;
- Identify the needs for sensitivity analysis, including which components are included in the analysis; and
- Provide the results of any sensitivity analysis completed.

Independent Review

The electrical corporation must report on its procedures for conducting independent review of its risk assessment and risk models. The review must include an evaluation of collected data (e.g., through sensors or inspections), risk model performance, and the methodologies used within the risk model. In this section of the WMP, the electrical corporation must provide the following:

- **Independent reviews:** The electrical corporation's procedures for conducting independent reviews of data collection and risk models.
- **Additional review triggers:** The electrical corporation's internal procedures to identify when a third-party review is required beyond the routinely scheduled reviews.

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- **Results, recommendations, and disposition:** Results and recommendations from the electrical corporation's most recent independent review of its data collection and risk models, including the electrical corporation's disposition of each recommendation.
- **Routine review schedule:** The electrical corporation's routine risk model review schedule.

7.5.2 Planned Improvements

The electrical corporation must provide a high-level overview of its plan to improve the programmatic and technical aspects of its risk assessment in at least three key areas:

- **Risk assessment methodology:** Wildfire and PSPS risk assessment methodology and its documentation, including both quantitative and qualitative approaches.
- **Risk presentation:** Presentation of risk to stakeholders, including dashboards and statistical assessments.
- **Risk event tracking:** Tracking and reconstruction of risk events and integration of lessons learned.

The overview must include a table with the following:

- **Key area:** Which of the key areas identified above that the proposed improvement falls under. If the improvement does not fall under one of the key areas, provide "Other" and explain what area is relevant for the improvement.
- **Title of proposed improvement:** Brief heading or subject of the improvement.
- **Type of improvement:** Technical or process oriented.
- **Anticipated benefit:** Summary of anticipated benefit and any other impacts of the proposed improvement.
- **Timeframe and key milestones:** Total timeframe for undertaking the proposed improvement and key milestones.

Table 7-6 provides an example of the minimum acceptable level of information to include in the table in this section.

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Table 7-6: Example of Overall Utility Risk Assessment Improvement Plan

Key Risk Assessment Area	Proposed Improvement	Type of Improvement	Expected Value Add	Timeframe and Key Milestones
RA-1, risk assessment methodology	*RA-1-A. Increase validation of local wind gusts in statistical weather modeling in the HFTD.*		*Improved likelihood-of-ignition calculations.*	*Pilot system, 2026–2027* *Integrate system throughout HFTD, 2026–2028*
RA-1, risk assessment methodology	*RA-1-B. Develop verification and validation documentation for ignition models.*		*Improved quantitative understanding of the accuracy of the submodels. This will help identify where our model has the highest areas of uncertainty that need to be addressed in future activities.*	*Conduct initial development, 2026* *Expand validation basis, 2026–2028*

In addition, the electrical corporation must provide a concise narrative of its proposed improvement plan (maximum of five pages per improvement) summarizing:

- **Problem statement:** Description of the current state of the problem to be addressed.
- **Planned improvement:** Discussion of the planned improvement, including any new or novel strategies to be developed and the timeline for their completion.
- **Anticipated benefit:** Detailed description of the anticipated benefit and any other impacts of the proposed improvement.
- **Region prioritization:** Reference to risk-informed analysis (e.g., local validation of weather forecasts in the HFTD) demonstrating that high-risk areas are being prioritized for continued improvement, as relevant.
- **Supporting documentation** as necessary.

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8 Mitigation Strategy

The electrical corporation must provide a high-level overview of: (1) the risk evaluation approach that informs its selection of a portfolio of mitigation activities, (2) the selected mitigations, and (3) additional mitigation strategy considerations.[60] The electrical corporation's processes and strategy must be designed to achieve maximum feasible risk reduction.[61]

8.1 Risk Evaluation Approach

The electrical corporation must provide a brief overview narrative of its risk evaluation approach and decision-making framework, based on the risk analysis outcomes presented in *Section 7, Risk Methodology and Assessment*. The electrical corporation must describe its risk evaluation approach and decision-making framework in a maximum of three pages, inclusive of all narratives, lists, and graphics.

The overview must describe how the electrical corporation's wildfire mitigation strategy meets the goal(s) and plan objectives stated in *Section 3.2 Plan Objectives*. The electrical corporation must indicate and describe whether its risk evaluation approach meets or uses any industry-recognized standards (e.g., ISO 31000: Risk Management – Guidelines), best practices, or research. The electrical corporation must provide the appropriate citations for these references.

The electrical corporation must also provide a flowchart of its decision-making process for prioritizing, selecting, and scheduling mitigation activities. This flowchart must clearly identify:

- Each step of the decision-making process;
- Thresholds in the decision-making process that trigger a shift in the mitigation selection (e.g., a BCR threshold, or strike tree potential threshold);

[60] Pub. Util. Code §§ 8386(d)(3), and (12)-(14).

[61] "Maximum feasible" means, in accordance with Pub. Util. Code, § 326(a)(2), "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

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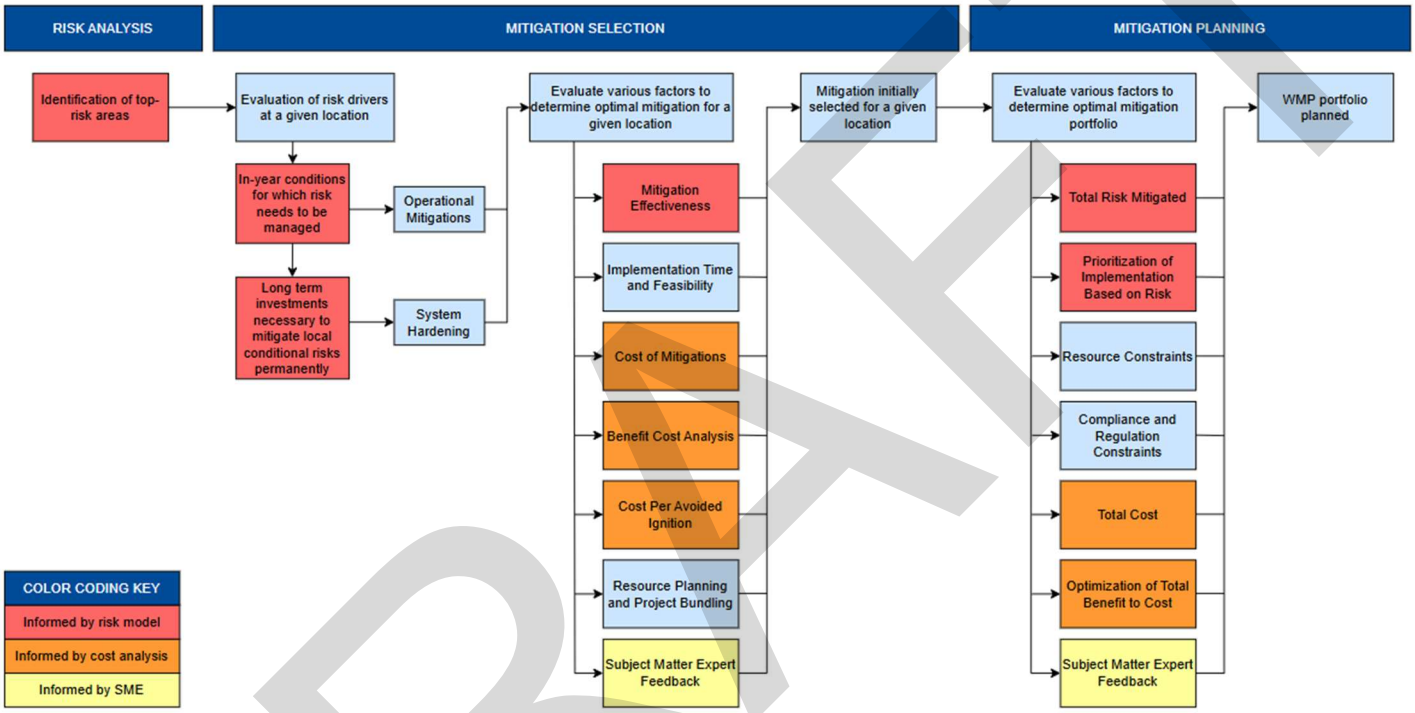
- When a decision is based on risk model output, subject matter expertise, or some other additional threshold; and
- A color key delineating various steps throughout the process.

Figure 8-1 provides an example of a flowchart.

Figure 8-1: Example of Decision-Making Flowchart



8.1.1 Risk Model Output Integration

The electrical corporation must describe how it uses its risk model output to inform mitigation prioritization, selection, and scheduling. This must include, at a minimum:

- A description of how it selects circuit segments for mitigation activities, including, at a minimum, the following:
  - Geographic scale used in prioritization (e.g., region, circuit, circuit segment, span, asset)
  - Statistical approach used to select prioritized areas (e.g., circuit segments in top 20 percent of ignition risk, circuit segments in top 20 percent of consequence risk)

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- Feasibility constraints (e.g., limitations on data resolution, jurisdictional considerations, accessibility)

- A narrative on how the electrical corporation identifies and prioritizes mitigation activities for circuit segments and/or areas of its service territory at risk from outages;
- The identification of associated risk drivers for particular circuit segments or areas and how that influences the prioritization, selection, and scheduling of mitigation activities;
- An explanation of the timing between risk model output and actual implementation of mitigation activities, including a discussion about the impact of risk model output delay on prioritization; and
- An explanation of how the electrical corporation adjusts the risk model output when prioritizing circuit segments for mitigation activities, if applicable. This must include discussion of how the electrical corporation accounts for risk model uncertainty when prioritizing circuit segments for mitigation activities.

8.1.2 Mitigation Effectiveness

The electrical corporation must provide the expected risk reduction effectiveness for each of its mitigation activities. In addition to explaining the methodology for calculating the overall activity effectiveness for each mitigation activity, the electrical corporation must provide an explanation on the calculation of mitigation effectiveness against individual risk drivers, project-specific mitigation effectiveness, and joint activity mitigation effectiveness.

Effectiveness Methodology

The electrical corporation must explain its methodology for calculating mitigation effectiveness estimates. The effectiveness of a mitigation against a particular risk (e.g., wildfire risk, outage program risk) is the percent of that risk that can be reduced by implementing the mitigation. Effectiveness should always be between zero percent (no risk reduction) to 100 percent (risk eliminated). Effectiveness can be calculated as the percentage of total risk events that are avoided by a mitigation.

The electrical corporation must provide the following information about its effectiveness estimates:

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- The general formula(s) and calculation(s) used to calculate effectiveness of mitigation activities for overall risk, wildfire risk, and outage program risk for every mitigation activity implemented during the WMP period.
- The methodology and data used to determine total risk events:
    - Define what risk events (i.e., ignitions, outages) are included, and explain how those risk events were selected and calculated.
    - Provide the timeframe in which the total risk events were derived. If historical, the electrical corporation must evaluate for a minimum of five years. If projected, the electrical corporation must explain how it calculated the projection, and what data was used to base the projection.
- Explain how the electrical corporation determines the number of risk events avoided, including how the determination differs based on mitigation activity, if applicable.
- Identify all inputs to the effectiveness calculations that are outputs and results from the electrical corporation's risk analysis results and presentation, as detailed in *Section 7.4, Risk Analysis Results and Presentation*. Identify adjustment factors that are applied to the results from the risk analysis prior to integration into the effectiveness calculation.
- Identify all inputs to the effectiveness calculations relying fully or partially on subject matter expert (SME) expertise. Explain how SME expertise-informed inputs are assessed for accuracy.
- Identify all inputs that are determined from independent data (i.e., data not generated by the electrical corporation). Explain how the electrical corporation determines accuracy and applicability of independent data.
- Identify how the electrical corporation considers decreasing effectiveness over the span of the useful lifetime of a mitigation activity based on degradation over time.
- Identify any limitations in its effectiveness calculation methodology and how it is working to overcome those limitations.
- Describe the uncertainties in its effectiveness calculations and how those uncertainties impact the final value.

The electrical corporation must provide the overall activity effectiveness for all mitigation activities included in this WMP period in Table 8-5.

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Effectiveness Against Individual Risk Drivers

The electrical corporation must describe the mitigation activity effectiveness against individual risk drivers. The electrical corporation must evaluate the effectiveness of each mitigation activity at reducing risk against individual specific risk drivers.

The electrical corporation must explain how it determines:

- The mitigation activity effectiveness for all risk drivers (i.e., the overall mitigation activity effectiveness), accounting for the various risk driver effectiveness values for that activity;
- The effectiveness of a mitigation activity against an individual risk driver; and
    - Identify all outputs and results from the electrical corporation's risk analysis results and presentation, as detailed in Section 7.4 Risk Analysis Results and Presentation, that inform the mitigation effectiveness value. Identify any adjustment factors that are applied to the results from the risk analysis prior to integration into the effectiveness calculation.
    - Identify all components of the effectiveness calculation that are determined fully or partially on SME expertise. Explain how SME expertise-informed inputs are assessed and verified for accuracy. Cite any sources and studies that inform estimates.
    - Identify any weighting, scaling, or adjustment factors applied to different risk drivers when calculating the effectiveness for all risk drivers. Explain how any such factors were calculated. If no such factors were used, explain why not.
- The precision of the effectiveness of a mitigation activity against an individual risk driver. Identify the uncertainty of this evaluation.

The electrical corporation must provide the following information in Table 8-1 about the effectiveness of each mitigation activity against individual risk drivers:

- **Tracking ID:** Tracking ID for the mitigation activity being described.
- **Mitigation activity**: The mitigation activity being described.
- **Effectiveness for all risk drivers:** Overall mitigation effectiveness from all risk drivers. This should match the effectiveness presented in Table 8-5.
- **Effectiveness for risk driver categories:** The effectiveness of each mitigation activity against categories of risk drivers, as defined in *Section 7.2.1, Risk and Risk Component*

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Identification. List each risk driver category as a column header. At a minimum, include the following risk drivers; additional risk drivers can be added as additional columns:

- Equipment Failure
- Vegetation Contact
- Contact from Object
- Other Ignition Risk
- Wind dependent risk drivers (as discussed in Section 5.3.1)

In an extended version of Table 8-1, provided in *Appendix D: Additional Tabular Data* in a spreadsheet, the electrical corporation must provide additional columns for the following:

- **Effectiveness for individual risk drivers:** The effectiveness of each mitigation activity against individual risk drivers, as represented in *Section 7.4.2, Wildfire Risk Drivers and Trends*. List each individual risk driver (e.g., protection device failure, transformer failure, conductor failure, vegetation failure (fall-in), animal contact) as a column header.
- **Total risk events [individual risk driver]:** The number of risk events caused by each individual risk driver that have been evaluated and used to determine effectiveness for a mitigation activity against that individual risk driver.
- **Total risk events reduced [individual risk driver]:** The number of risk events that each individual risk driver has been estimated to reduce in order to determine the effectiveness for a mitigation activity against that individual risk driver.
- **Weighting factor [individual risk driver]:** The factor used to weigh the importance of an individual risk driver in order to determine the overall effectiveness for a mitigation activity.

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Table 8-1: Example of Mitigation Activity Effectiveness Against Individual Risk Drivers

Activity Tracking ID	Activity	Activity Section #	Effectiveness for All Risk Drivers	Equipment Failure	Vegetation Contact	Contact from Object	Other Ignition Risk	Wind-dependent Risks
GDSH-1	*Covered Conductor Installation*	*8.2*	*70%*	*50%*	*80%*	*80%*	*70%*	*75%*
GDSH-2	*Undergrounding*	*8.2*	*95%*	*80%*	*99%*	*98%*	*99%*	*99%*

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Project-Specific Activity Effectiveness

The electrical corporation must provide a narrative explanation of how an effectiveness estimate is calculated for an activity at the project-specific level. In this narrative, the electrical corporation must:

- Identify the components of the effectiveness calculation that vary by location;
- Identify the components of the effectiveness calculation that do not vary by location.;
- Describe how the components of the effectiveness calculation vary by location;
- Describe how project-specific effectiveness for different mitigations is calculated at the same location; and
- Identify if project-specific components of the effectiveness calculation change depending on the type of mitigation.

The electrical corporation must describe how location-specific ignition risk drivers are considered in the project-specific activity effectiveness calculations.

The electrical corporation must identify any limitations to its project-specific effectiveness calculation methodology and how it is working to overcome those limitations. In addition, the electrical corporation must describe the uncertainties in its project-specific effectiveness calculations and how those uncertainties impact the final value.

In *Appendix B: Risk Modeling Documentation*, the electrical corporation must provide two sample calculations showing each step of the calculation of activity effectiveness for covered conductor and undergrounding for a specific project location if these activities are in this WMP. If there are not activities for covered conductor or undergrounding in this WMP, the electrical corporation must select a replacement mitigation activity in this WMP and provide a sample calculation showing each step of the calculation of activity effectiveness for a specific project location. The electrical corporation must list the section number where the mitigation activity is discussed in the WMP, as well as provide the tracking ID for the mitigation activity.

Joint Activity Effectiveness

The electrical corporation must provide a narrative explanation on how joint activity effectiveness is calculated. In this narrative, the electrical corporation must:

- Explain how it evaluates and determines which mitigation activities are compatible for determining joint effectiveness. Explain if this varies by project location, and if so how decision-making at the project level is impacted.

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- Explain how the effectiveness values of individual mitigation activities scores are combined to calculate joint activity effectiveness.
- Identify any additional inputs for the calculation of joint activity effectiveness.
- Describe if there is a difference in how overall joint activity effectiveness and project-specific joint activity effectiveness are calculated. If there is a difference, explain the difference and explain why there is a difference. If there is no difference, explain why there is no difference.
- Identify any limitations to its joint activity effectiveness calculation methodology and how it is working to overcome those limitations. In addition, the electrical corporation must describe the uncertainties in its joint activity effectiveness calculations and how those uncertainties impact the final value.

The electrical corporation must provide a mitigation compatibility analysis for all joint mitigations it implements (e.g., if it installs PEDS equipment on lines with covered conductor). Include the following information in Table 8-2:

- **Tracking IDs:** Tracking ID for the mitigation activities being described.
- **Mitigation Activities:** The mitigation activities being described.
- **Joint Activity Effectiveness:** The calculated joint activity effectiveness for the stated mitigation activities.

Table 8-2: Example of Overall Joint Mitigation Activity Effectiveness

Tracking IDs	Mitigation Activities	Joint Activity Effectiveness
GDSH-1, GOP-1	*Covered Conductor + PEDS*	*75%*
GDSH-1, GOP-1, PSPS	*Covered Conductor + PEDS + PSPS*	*92%*
. . .		

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8.1.3 Cost Impact Analysis

The electrical corporation must provide a narrative description on how it considers cost through its wildfire mitigation activity selection process.[62]

The electrical corporation must describe how it calculates the cost of a mitigation activity, including the following information:

- An overarching narrative describing how the electrical corporation determines the cost of a mitigation activity, for the purposes of its mitigation activity selection process. At a minimum, ~~T~~this must include a discussion of ~~direct costs and overhead costs~~installation, implementation, and ongoing operational costs ~~-~~for its mitigation activities, and if and how those costs are incorporated into its mitigation activity selection process.
- Identify the inputs to determining mitigation activity cost including:
    - Inputs determined by SME expertise. Explain how SME expertise-informed inputs are assessed and verified for accuracy. Cite any sources and studies that inform estimates;
    - Inputs based on historical data. Describe the historical data and the time range; and
    - Equation(s) used to determine the cost of a mitigation activity.
- Identify how the electrical corporation determines the mitigation activity cost for a project-specific location.
    - Identify additional inputs to determination of mitigation cost that are project specific.
    - Discuss the variation in cost across projects.
- Identify how the electrical corporation adjusts the mitigation activity cost to account for the time for mitigation activity implementation. Identify any limitations to the electrical corporation's mitigation activity cost calculation methodology and how it is working to overcome those limitations. In addition, the electrical corporation must describe the uncertainties in its mitigation activity cost calculations and how those uncertainties impact the final value.

[62] Pub. Util. Code §§ 8386(d)(14).

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The electrical corporation must provide a mitigation cost for all mitigation activities, including the following information in Table 8-3:

- **Tracking ID:** Tracking ID for the mitigation activity being described.
- **Activity:** The mitigation activity being described.
- **Activity Section #:** Section in the WMP where the activity is discussed.
- **Activity Cost:** Estimated Overall Mitigation Activity Cost. The units must be dollars per target unit, or another cost-per-unit metric appropriate for that activity. If a different unit is used, provide an explanation on why the different unit is more appropriate for that mitigation activity.

Table 8-3: Example of Mitigation Activity Cost

Activity Tracking ID	Activity	Activity Section #	Activity Cost ($/target unit)
GDSH-1	*Covered Conductor Installation*	*8.2*	*$2,450,000/mile*
GDSH-2	*Undergrounding*	*8.2*	*$5,130,000/mile*

Benefit Cost Analysis

The electrical corporation must perform a benefit cost analysis during its wildfire mitigation selection process. The electrical corporation must provide a narrative describing how it performs this benefit cost analysis.

The electrical corporation must describe how it calculates the monetized benefit of a mitigation activity, including the following information:

- An overarching narrative describing how the electrical corporation determines the monetized benefit of a mitigation activity.
- The inputs to determining mitigation activity monetized benefit including:
    - Results from the electrical corporation's risk analysis results and presentation, as detailed in Section 7.4, Risk Analysis Results and Presentation. Identify any

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scaling or adjustment factors that are applied to the results from the risk analysis prior to integration into the mitigation benefit calculation; and

- Inputs that are determined fully or partially on SME expertise. Explain how SME expertise-informed inputs are assessed and verified for accuracy. Cite any sources and studies that inform estimates.

- Any limitations to the electrical corporation's mitigation activity benefit calculation methodology and how it is working to overcome those limitations. In addition, the electrical corporation must describe the uncertainties in its mitigation activity benefit calculations and how those uncertainties impact the final value. This includes providing a confidence interval (e.g., 98 percent).

The electrical corporation must provide a narrative of how it calculates the benefit cost ratio (BCR) of its mitigation activities, and it must describe how a project-specific BCR is calculated. The BCR is defined as the monetized mitigation benefit, divided by the mitigation cost.

For electrical corporations that are required to submit a Risk Assessment and Mitigation Phase (RAMP) filing to the CPUC, the electrical corporation must use the same benefit cost approach defined by the Risk-Based Decision-Making Framework (RDF)[63] that it submits as part of its RAMP and GRC filings.

For electrical corporations that are not required to submit a RAMP filing to the CPUC, if the electrical corporation uses a different benefit cost approach than identified by the CPUC in the RDF, the electrical corporation must describe that methodology and provide a detailed narrative description on why the methodology was chosen.

In addition, the electrical corporation must provide a step-by-step example calculation in *Appendix B: Risk Modeling Documentation* showing any equations and calculations performed to determine the BCR for a mitigation activity.

Cost Per Avoided Ignition

Electrical corporations must calculate an estimate of the cost per avoided ignition for each mitigation activity planned for the WMP period or an explanation on why such a value could

[63] CPUC R.20-07-013 Order Instituting Rulemaking to Further Develop a Risk-Based Decision-Making Framework for Electric and Gas Utilities, or any subsequent proceeding further refining the Risk-Based Decision-Making Framework.

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not be assigned,[64] as listed in Table 8-4~~Table 6-4~~. When calculating an estimate of the cost per avoided ignition, electrical corporations must account for each potential ignition risk driver. The cost per avoided ignition provided must be the sum of all costs procured over the useful life of the mitigation activity divided by the sum of all ignitions avoided by that mitigation, based on the targets for that activity in the WMP period. The electrical corporation must calculate an estimate of the cost per avoided ignition using the following equation:

$$\textit{Cost-per-avoided Ignition} = \frac{CapEx + OpEx}{Baseline\ Ignitions \times (POI_{pre} - POI_{post})}$$

$CapEx =$ Capital expenditures for a mitigation
$OpEx =$ Operational expenditures for a mitigation
$Baseline\ Ignitions =$ Number of ignitions without any wildfire mitigations
$POI_{pre} =$ Probability of Ignition for the asset before mitigations
$POI_{post} =$ Probability of Ignition for the asset after mitigations

The electrical corporation must follow the guidance provided in the following subsections for each of these components. In addition, the electrical corporation must provide a step-by-step example calculation in *Appendix B: Risk Modeling Documentation* showing how each component was calculated. The electrical corporation must clearly identify the limitations, assumptions, and uncertainties associated with its cost per avoided ignition calculations.

If an estimate of the cost-per-avoided ignition cannot be provided for a particular mitigation activity, the electrical corporation must provide an explanation why a value could not be provided.

Expenditures

Electrical corporations must calculate expenditures over the projected useful life of a mitigation activity (including upfront capital expenditures and ongoing maintenance expenditures), and provide what assumptions were used, including projected useful life for each mitigation activity and any assumptions for capital expenditures and operational expenditures, as represented in Table 8-4~~Table 6-4~~.

Electrical corporations must account for discount rates, following a weighted average cost of capital (WACC) discount rate.[65] The discount rates should only be applied to the expenditures

[64] Pub. Util. Code §§ 8386(d)(12)(D).

[65] CPUC D.24-05-064 p. 99.

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portion when calculating an estimate of the cost per avoided ignition. Electrical corporations must apply the discount rate consistently to the expenditures portion for all mitigation activities, and explain why that particular discount rate was selected and how it was applied.

Table 8-4: Example of Expenditure Assumptions

Activity Tracking ID	**Mitigation Activity**	**Expected Lifetime of Activity**	**Target Over WMP ~~period~~Period**	**CapEx**	**OpEx**	**WACC Discount Rate (%)**
GDSH-1	*Covered Conductor*	*50 years*				
GDSH-2	*Undergrounding*					

Baseline Ignitions

Electrical corporations must determine the baseline ignitions that would have occurred between implementation of the mitigation to the end of its useful life if no additional mitigation activities were implemented. The electrical corporation must explain how it has determined the number of baseline ignitions used for determining an estimate of the cost per avoided ignition. This includes providing:

- How pre-program baseline is determined, including a list of the mitigations that are included as part of routine activities. This should include all activities performed outside of those included as part of the WMP mitigation strategy (e.g., patrol and routine inspections, General Order required activities).
- A list of relevant operational mitigations that are excluded from the pre-program baseline, and how the impacts of those operations are excluded for the purposes of this calculation.
- The historical timeframe used for determining the annual average number of ignitions, including a description of why that timeframe was used. The timeframe must not be any shorter than five years.
- The assumptions used for projecting baseline ignitions, including the methodology used, such as modeling or a set rate of increase (e.g., linear, exponential).[66] Projections

[66] For example, using an assumption of 50 percent by the year 2050, as used in Adapting to Wildfire Risk in the California Electric Power Sector, p. 90, URL: (https://escholarship.org/content/qt0zp0n2ng/qt0zp0n2ng.pdf) accessed May 13, 2026.

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should be based on the useful life of the given mitigation. This must also include any reasoning for why those assumptions were chosen, including references to any relevant studies.

- What dataset(s) were used for determining baseline ignitions (CPUC reportable ignitions, outages evaluated for potential ignitions, etc.).

Probability of Ignition

Electrical corporations must determine the difference in the probability of ignition prior to and after a mitigation activity has been implemented. This must account for only the impact of the given mitigation activity, and must not include the impact of any additional mitigation activities, including operational ones such as PSPS and PEDs. The probability of ignition must span the useful life of a mitigation activity.

The electrical corporation must explain how it has determined the probability of ignition for both pre- and post-mitigation activity implementation. This includes providing:

- How the electrical corporation used its ignition risk model to measure the probability of ignition. If the risk model output was not used to determine the probability of ignition, explain what methodology was used instead.
- How the impact from PSPS and PEDs are excluded from the probability of ignition calculation.
- How the electrical corporation accounted for the probability of ignition at specific locations given the specific risk drivers impacted by the mitigation activity over the WMP period.
- The assumed effectiveness of the mitigation activity used to determine the probability of ignition once the mitigation is implemented. This must follow the same logic as the calculation described in *Section 8.1.2, Mitigation Effectiveness* for determining mitigation effectiveness. It must also account for decreasing effectiveness over the span of the useful lifetime based on degradation over time.

When determining the probability of ignition, the electrical corporation must consider all potential risk drivers. For any risk driver that the electrical corporation is unable to include as part of determining the probability of ignition, the electrical corporation must provide an explanation as to why it is not able to include it at this time.

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8.1.4 Activity Selection Process

The electrical corporation must describe its process for selecting mitigation activities. At a minimum, the electrical corporation must:

- Describe how the following are considered during the activity selection process:
  - Risk modeling output and risk ranking, including whether ranking is based on total risk scores, wildfire risk scores, or normalized risk scores (risk-per-mile, worst weather days, etc.)
  - Mitigation activity effectiveness, as described in Section 8.1.2, Mitigation Effectiveness
  - Results of the cost impact analysis, as described in Section 8.1.3, Cost Impact Analysis
  - Compatibility of activities and joint activity implementation
  - Speed with which mitigation activities can and will be deployed by an electrical corporation within its service territory[67]
  - All additional metrics, factors, local conditions, or risk components
- Identify the qualitative components (including SME input) that the electrical corporation uses to select activities;
- Identify how the electrical corporation considers spatial scale (e.g. circuit, circuit segment, system-wide, etc.) when selecting activities;
- Explain how the electrical corporation considers cost efficiencies when evaluating activities, including overlap with planned or projected upgrades due to future grid needs (e.g., load capacity, peak demand, system flexibility);[68]
- Explain how the electrical corporation considers the time it takes to implement a mitigation when selecting activities. Include if the electrical corporation uses different processes for mitigation activity selection for different timeframes (e.g. a different

[67] Pub. Util. Code § 8386(d)(12)(C).

[68] These considerations must be in alignment with the CPUC's Decision Adopting Improvements to Distribution Planning and Project Execution Process, Distribution Resource Planning Data Portals, and Integration Capacity Analysis Maps (D.24-10-030) and with the CPUC's Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future (R.21-06-017), and Order Instituting Rulemaking to Refine the Risk-Based Decision-Making Framework for Electric and Gas Utilities (R.26-04-016).

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selection process consideration for mitigation activities that would be implemented in one year versus five years);

- Identify any limitations to the electrical corporation's activity selection process and how it is working to overcome those limitations;
- Describe the uncertainties in the electrical corporation's activity selection process and how those uncertainties impact the final selection;
- Identity how the electrical corporation accounts for uncertainty in quantitative values that are considered during the decision-making process (e.g., risk model outputs, effectiveness estimates); and
- Explain how the electrical corporation considers at least two reasonable mitigation activity alternatives for a given identified wildfire risk in its activity selection process.[69] The electrical corporation must provide a narrative description of how the mitigation alternatives are considered, and what metrics are used to compare them (e.g., BCR, effectiveness).

The electrical corporation must provide a high-level schematic showing the procedures and evaluation criteria used to evaluate potential activities for selection. At a minimum, the schematic must:

- Identify the roles of quantitative risk assessment, resource allocation, evaluation of other plan objectives (e.g., cost, timing) identified by the electrical corporation, and SME judgment;
- Indicate where any specific local factors, which vary across the service territory, are considered in the decision-making process (e.g., the primary risk driver in a region is legacy equipment); and
- Explain how local conditions are part of the decision process (i.e., there should not be simply one box in the schematic that is labeled "local conditions," which is then connected to the rest of the process).

Risk Impact of Activities

The electrical corporation must provide the quantitative metrics used for mitigation selection analysis as follows and as shown in Table 8-5:

[69] Pub. Util. Code § 8386(d)(14).

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- **Activity tracking ID:** The ID used to track a mitigation activity.
- **Activity:** The mitigation activity being described. All mitigation activities with a quantitative target must be included. For any activity that a metric cannot be calculated for (e.g., inspection activity effectiveness), write "N/A" in the corresponding cell and provide an explanation why the metric cannot be calculated.
- **Activity Section #:** The section number in the current WMP that describes the activity.
- **Activity effectiveness – overall utility risk:** The overall expected effectiveness of the mitigation activity provided as a percentage of the average amount of risk reduced by the activity when deployed on an average HFTD circuit, based on overall utility risk.
- **Activity effectiveness – wildfire risk:** The overall expected effectiveness of the mitigation activity provided as a percentage of the average amount of risk reduced by the activity when deployed on an average HFTD circuit, based on wildfire risk.
- **Activity effectiveness – outage program risk:** The overall expected effectiveness of the mitigation activity provided as a percentage of the average amount of risk reduced by the activity when deployed on an average HFTD circuit, based on outage program risk.
- **Benefit-cost ratio:** The overall benefit-cost ratio for a~~n~~ mitigation activity across the service territory over the WMP period. The ratio should be calculated based on overall average activity effectiveness and average unit costs. See *Section 8.1.3, Cost Impact Analysis, Benefit Cost Analysis* for more details.
- **Cost per avoided ignition:** The overall expected cost per avoided ignition based on implementation of the activity across the service territory over the ~~current~~ WMP period. See *Section 8.1.3, Cost Impact Analysis,* Cost Per Avoided Ignition for more details.
- **Expected Risk Reduction:** The reduction in modeled overall utility risk (in monetized "present value" [PV] terms) attributable only to the mitigation activity, based on the planned projects for the WMP period. Modeled overall utility risk must use the risk model outputs presented in *Section 7.4.1, Risk Model Output*. This must be calculated using the following:

  Risk Reduction = PV Baseline Risk − PV Post Mitigation Risk

  PV Baseline Risk: The modeled risk across the service territory without any mitigation activities being applied (i.e., "business-as-usual" conditions), summed across the analysis horizon and discounted to a common base year. For example,

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if calculating the Risk Reduction of a PEDS mitigation, the Baseline Risk is the risk prior to applying PEDS; but if calculating the Risk Reduction of a system hardening mitigation on a circuit with PEDS mitigations already implemented, the Baseline Risk includes the risk reduction of the already implemented PEDS mitigations.

PV Post Mitigation Risk: The modeled risk for that same circuit segment with the mitigation activity applied.

- **Model(s) used to calculate risk impact:** The name of the risk model or risk model components used to determine the risk component. The model(s) must align a with model or submodel provided in Table 7-2.

In addition to Table 8-5, the electrical corporation must provide a narrative description of how it calculates expected risk reduction including the baseline risk, post mitigation risk, and any adjustments to present value. This description must include how the electrical corporation incorporates the following in its calculation of "PV Post Mitigation Risk":

- Risk model outputs
- Mitigation effectiveness values
- Subject matter expertise
- Historically observed ignition reductions

The expected effectiveness and percent risk reduction numbers must be reported for each planned activity that has quantitative targets.

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Table 8-5: Example of Risk Impact of Activities

Activity Tracking ID	Activity	Activity Section	Activity Eff – Overall Risk (%)	Activity Eff – Wildfire Risk (%)	Activity Eff – Outage Program Risk (%)	Benefit-Cost Ratio	Cost Per Avoided Ignition (Mil $)	Expected Risk Reduction (Mil $)	Model(s) Used to Calculate Risk Impact
GDSH-1	*Covered Conductor*	*8.2*	*70%*	*75%*	*65%*	*6.238*	*6.8*	*47.552*	*WRRM*
GDSH-2	*Undergrounding*	*8.2*	*95%*	*92%*	*98%*	*7.452*	*12.4*	*31.430*	*WRRM*

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Feasibility Analysis

As part of the mitigation selection process, the electrical corporation must describe how it assesses the feasibility of a mitigation activity for a specific project. Feasibility should consider the capability of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.[70] The electrical corporation must describe how the following information is considered in its feasibility analysis as part of its mitigation selection process:

- Location-specific details of a project. At a minimum, this must include:
  - Topography;
  - Weather conditions;
  - Construction limitations and impacts;
  - Regulatory and permitting limitations;
  - Environmental factors; and
  - Social factors.
- Equipment and resource availability
- Staff and technical expertise
- Funding
- Time required for implementation and to achieve the benefits of the mitigation activity[71]
- Operational and execution considerations

Activity Prioritization

The electrical corporation must seek to implement the most optimally integrated portfolio of activities using its project prioritization framework to meet its plan objectives, optimize its resources, and maximize risk reduction. The electrical corporation must aim to reduce risk on its system as quickly and cost-effectively as possible.

The electrical corporation must provide the following to explain its activity prioritization:

[70] Pub. Util. Code §§ 8386(a)(2).

[71] Pub. Util. Code §§ 8836(d)(14).

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- A narrative description of how it prioritizes mitigation activities. Identify how mitigation activities are prioritized and identify how specific projects are prioritized for mitigation implementation.
- An explanation of how the electrical corporation is optimizing its resources (e.g., funds, workforce) to maximize risk reduction. Demonstrate how its selection and prioritization of mitigation activities are an efficient use of the electrical corporation's resources, and how its prioritization strategy focuses on achieving the greatest risk reduction. The electrical corporation must also show how it is considering and optimizing for the time needed to implement mitigations.
- An explanation of how the electrical corporation considers additional values prioritized by the electrical corporation or broader stakeholder groups (e.g., Tribal interests, environmental protection, public perception, resilience, cost).
- A discussion on the interrelationships between different activities, in terms of how the electrical corporation conducts activities and the subsequence impact on risk reduction, and how the electrical corporation evaluates trade-offs between activities.
- A description of how grid needs, including future projected needs, (e.g., load capacity, peak demand, system flexibility)[72] influence activity prioritization.

Activity Scheduling

The electrical corporation must report on its schedule for implementing its portfolio of mitigation activities. Once the electrical corporation has evaluated potential mitigation activities, assessed the mitigation activity feasibility, and created a prioritized list of mitigation activities, the electrical corporation must schedule its mitigation activity implementation. The electrical corporation must describe its preliminary schedules for each activity and its iterative processes for modifying schedules.

The electrical corporation must describe its preliminary schedules, including:

- How it schedules activities.
- How it evaluates risk exposure while a mitigation is being implemented, as well as interim activities.

[72] These considerations should be in alignment with the CPUC's Decision Adopting Improvements to Distribution Planning and Project Execution Process, Distribution Resource Planning Data Portals, and Integration Capacity Analysis Maps (D.24-10-030) and Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future (R.21-06-017).

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- How the electrical corporation evaluates whether an interim activity is needed to reduce risk and, if so, how an interim activity is selected. If a mitigation activity will require more than one year to implement,[73] the electrical corporation must evaluate the need for interim activities.
- How the electrical corporation monitors its progress toward its targets considering known limitations and constraints. This should include descriptions of mechanisms for detecting when an activity is off track and for bringing it back on track.
- How the electrical corporation modifies and updates schedules before and during mitigation activity implementation.

8.2 Selected Mitigations

The electrical corporation must provide an overview of its proposed mitigation selection based on the evaluation process identified in *Section 8.1, Risk Evaluation Approach*.[74] The subsequent sections provide additional requirements on how to describe its planned mitigation selection.

8.2.1 Projected Overall Risk Reduction

The electrical corporation must provide a figure showing the projected overall utility risk reduction (monetized value) from capital mitigations in its service territory per year over the WMP period, assuming the electrical corporation meets its planned timeline for implementing its mitigation activities.

The electrical corporation must show how its overall utility risk (as defined in *Section 7.2.1, Risk and Risk Component Identification*) reduces and changes over the course of the WMP period as a result of implementing its selected mitigation activities. The reduction must be based on the baseline risk from the first day of the WMP period to the last day of the WMP period, represented at least annually.

The subsequent reduction in risk must be based on the baseline risk established. Baseline risk must align with the risk model outputs presented in *Section 7.4.1, Risk Model Output*. If the

[73] Meaning that it will take the electrical corporation more than one year to electrify or implement a given activity from the time it determines it will utilize that activity at a given location.

[74] Pub. Util. Code § 8386(d)(3).

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electrical corporation has additional factors impacting its risk reduction apart from implementation of WMP activities (e.g., climate change initiatives), it must explain what additional factors have been included, the impact of those additional factors, and how the additional factors have been implemented.

Figure 8-2 is an example of a graph showing the ~~long term~~ projected overall risk reduction per year in the WMP period.

The electrical corporation must depict its overall utility risk reduction values in both Figure 8-2 and Table 8-6.

Table 8-6: Example of Projected Overall Service Territory Risk Reduction form Capital Mitigations

Year	**Projected Overall Service Territory Risk Reduction (Mil $)**
2028	*42.71*
2029	*39.16*
2030	*40.98*
2031	*29.46*

The electrical corporation must also provide a figure showing the overall WMP period mitigated risk. Figure 8-2 is an example showing the baseline overall service territory risk and the associated impacts of wildfire mitigation risk reduction from outage programs (PEDS and

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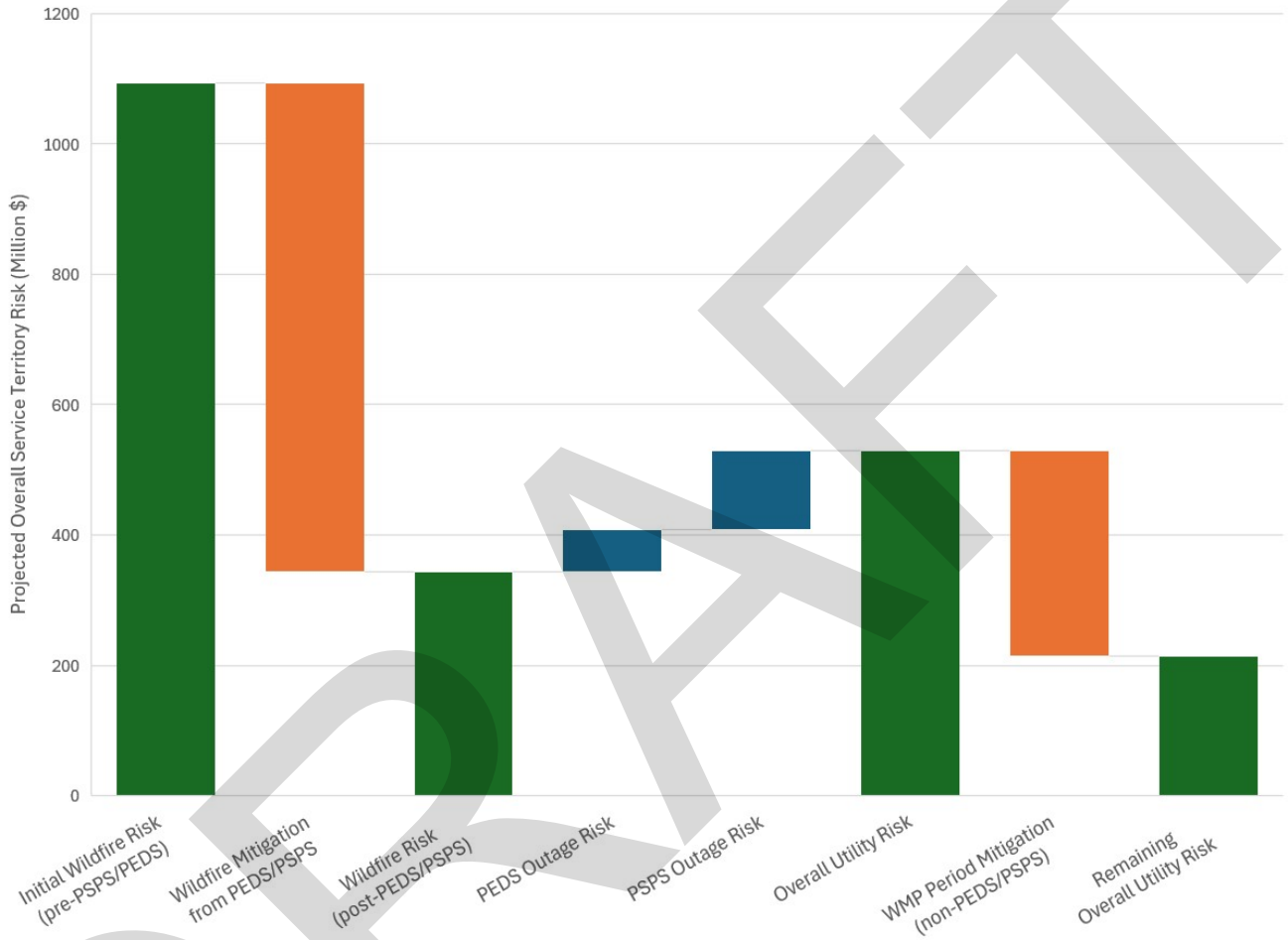
PSPS), the risk from outage programs, and the wildfire mitigation risk reduction from the mitigation plan completed through this WMP period.

Figure 8-2: Example of Overall WMP Period Mitigated Risk



8.2.2 Planned Mitigations and Risk Reduction

The electrical corporation must provide a summary of planned mitigations and risk reduction for the WMP period. Table 8-7 within the WMP must include the following information about each circuit segment:

- **Prioritization number:** Ranking of the prioritization of the circuit segment. Prioritization represented here must align with how an electrical corporation is informing when and where it is performing mitigations during the current WMP period. The circuit segment prioritization number is separate from the overall utility risk

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ranking and must consider additional factors beyond the risk model outputs (see *Section 8.1.4, Activity Selection Process, Activity Prioritization*).

- **Circuit segment ID:** Unique identifier for the circuit segment.
- **Overall utility risk ranking:** The risk ranking based on the overall utility risk score output from the current risk model. This must align with the methodology and values provided in Table 7-5.
- **Initial overall utility risk:** The monetized value for the overall utility risk score prior to any WMP activities being implemented. This risk score must be based on the current risk model.
- **[Year #] overall utility risk:** The monetized value for the overall utility risk score after all activities that are planned to be implemented and operationalized in that applicable year of the WMP period. This risk score must be based on the current risk model.
- **[Year #] activities:** A list of the mitigation activities performed for that given year on that circuit segment to reduce risk.

The extended table provided in *Appendix D: Additional Tabular Data* must include the following additional information:

- **Length:** The length of the circuit segment in circuit miles.
- **% HFTD & HFRA:** The percentage of the circuit segment that is within the HFTD and HFRA.
- **Normalized overall utility risk:** The normalized overall utility risk that informed prioritization. The way in which this is normalized (e.g., circuit mileage, overhead circuit mileage) must be described but is based on electrical corporation preference to inform prioritization.
- **Risk model version informing prioritization:** The version of the risk model used to inform the prioritization of the current circuit segment.
- **Risk model version informing prioritization – risk score:** The total overall utility risk score output based on the version of the risk model used to inform the prioritization of the current circuit segment.
- **Risk model version informing prioritization – risk ranking:** The total overall utility risk ranking based on the risk score output based on the version of the risk model used to inform the prioritization of the current circuit segment.

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- **Initial overall utility risk – post-operational mitigations:** The monetized value for the total overall utility risk score after any existing operational activities are operationalized (i.e. PSPS and PEDS). This risk score must be based on the current risk model.
- **[Year #] [Activity]:** The activity applicable to reducing overall utility risk for a given year. Each activity listed for a particular year must be represented with these additional activity-specific columns.
- **[Year #] [Activity] coverage:** The circuit mile coverage of a given activity that has been installed and operationalized in that applicable year of the WMP.
- **[Year #] [Activity] % HFTD & HFRA coverage:** The percentage of the circuit mile coverage that falls within the HFTD or electrical corporation defined HFRA for a given activity that has been installed and operationalized in that applicable year of the WMP.
- **[Year #] [Activity] overall utility risk reduction:** The amount of monetized risk value reduced applicable to a given activity for a given year of the WMP.

Table 8-7 provides an example and required format of a summary of risk reduction for top-risk circuits. Only the top ten prioritized circuit segments must be provided within the WMP. All additional circuit segments that include planned mitigation activities must be provided in the extended table in *Appendix D: Additional Tabular Data*.

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Table 8-7: Example of Summary of Planned Mitigations and Risk Reduction

Prioritization #	**Circuit, Segment, or Span ID**	**Overall Utility Risk Ranking**	**Initial Overall Utility Risk (Million $)**	**[Year 1] Activities**	**[Year 1] Overall Utility Risk (Million $)**	**[Year 2] Activities**	**[Year 2] Overall Utility Risk (Million $)**	**[Year 3] Activities**	**[Year 3] Overall Utility Risk (Million $)**	**[Year 4] Activities**	**[Year 4] Overall Utility Risk (Million $)**
1	*ID001*	*3*	*1.359*	*Undergrounding*	*0.027*	*-*	*0.027*	*-*	*0.027*	*-*	*0.027*
2	*ID002*	*1*	*1.024*	*Undergrounding*	*0.081*	*-*	*0.081*	*-*	*0.081*	*-*	*0.081*
3	*ID003*	*2*	*0.878*	*Protective devices and sensitivity settings*	*0.662*	*Protective devices and sensitivity settings*	*0.662*	*Undergrounding*	*0.105*	*Undergrounding*	*0.003*
4	*ID004*	*7*	*1.130*	*Protective devices and sensitivity settings*	*0.896*	*Protective devices and sensitivity settings*	*0.896*	*Undergrounding*	*0.364*	*Undergrounding*	*0.017*
5	*ID005*	*5*	*0.832*	*Protective devices and sensitivity settings*	*0.797*	*Covered conductor installation* *Protective devices and sensitivity settings*	*0.203*	*-*	*0.203*	*-*	*0.203*
6	*ID006*	*9*	*0.560*	*Vegetation management*	*0.451*	*Vegetation management*	*0.451*	*Vegetation management*	*0.451*	*Vegetation management*	*0.451*

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In addition to Table 8-7, the electrical corporation must provide a narrative describing how it has determined the prioritization of work and mitigation activity implementation, why its selected mitigation activities represent a reasonable deployment of resources in comparison to the feasible alternatives considered, and ~~including~~ the various factors that impacted prioritization. This must, as applicable, include evaluation and description of the impact of the following:

- Delay in risk model output version integration
- Normalization of overall utility risk (i.e., per circuit mile, overhead circuit mile)
- Scaling factors, including risk tolerance
- Cost impact, including benefit cost ratio and available funding
- Feasibility and timing
- Impact of wildfire risk versus outage program risk
- Impact of certain ignition risk drivers (e.g., equipment failures)
- Impact of location-specific risks (e.g., wind-driven risk, terrain-driven risk)

8.2.3 Residual Risk

Following the completion of the WMP period, some amount of overall utility risk will remain on the electrical corporation's system. The electrical corporation must discuss this residual risk. The electrical corporation must provide the following information:

- Narrative description of the expected residual risk remaining on the electrical corporation's system following the completion of the planned WMP activities. Include in this description:
    - Known wildfire risk that cannot be eliminated through mitigation initiatives;
    - Wildfire risk that is managed on a cycle (e.g., vegetation management);
    - Known wildfire risk identified for a future WMP period; and
    - Known wildfire risk not currently planned for any future mitigation work, and the limitations to mitigating that risk.
- Narrative description of unknown residual risk remaining on the electrical corporation's system following the completion of the planned WMP activities. Identify potential sources of unknown risk and discuss the uncertainty in the residual risk.

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Risk Tolerance

Risk tolerance is defined by the CPUC as the "Maximum amount of Residual Risk that an entity or its stakeholders are willing to accept after application of risk Control or Mitigation. Risk Tolerance can be influenced by legal or regulatory requirements."[75] ~~The electrical corporation must provide a narrative description of its consideration of risk tolerance for this WMP period.~~ While the electrical corporation is required to minimize the risk of catastrophic wildfire posed by its electrical lines and equipment, it must also consider the cost of achieving the expected risk reduction.[76] The electrical corporation must provide a narrative description of its consideration of risk tolerance for this WMP period.

The electrical corporation must provide a narrative description of the following:

- Whether or not it factors in risk tolerance as part of its decision-making,
- If risk tolerance is considered, explain:
    - How it considers risk tolerance as it relates to wildfire mitigation strategy for this WMP period
    - How it considers risk tolerance as it relates to potential future mitigation initiatives
    - The effect of risk model uncertainty on its consideration of risk tolerance

Interim Activities

Energy Safety recognizes that mitigation activities may require several years to implement. For example, relocating transmission or distribution capabilities from overhead to underground may require substantial multi-year planning and resources. When activities are undertaken in high-risk regions, the electrical corporation may need interim activities to mitigate risk while working to implement long-term strategies. Some examples of interim activities include more frequent inspections, fire detection and monitoring activities, and PSPS usage.

[75] CPUC R.20-07-013, p. B-7.

[76] Pub. Util. Code § 8386(a).

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For each capital mitigation activity that will require more than one year to implement,[77, 78] the electrical corporation must evaluate the need for interim activities that will reduce risk until the primary or permanent activity is in place. In this section of its WMP, the electrical corporation must describe the following:

- Its decision-making framework for evaluating the need for interim risk reduction. If an electrical corporation determines that interim activities are not necessary for a given activity, it must explain why and how it is monitoring wildfire and PSPS risk while working to implement the activity.
- How it identifies potential interim activities and determines interim activity effectiveness
- ~~The Cost Impact Analysis of~~How costs are analyzed for the interim activities
- Its interim activity selection process, including feasibility analysis, activity prioritization, and activity scheduling

Each interim activity planned by the electrical corporation for implementation on high-risk circuits must be listed as an activity in the section of the relevant mitigation category. In addition, the electrical corporation must discuss interim activities in the relevant mitigation initiative sections of the WMP and include the activities in the related target tables.

8.3 Additional Mitigation Strategy Considerations

8.3.1 Mitigation Activities for Risk Trends

The electrical corporation must describe any additional mitigation activities or programs that are outside of the workplan derived from the mitigation strategy described in *Section 8.2, Selected Mitigations*. This would include mitigations developed based on addressing specific ignition risk drivers or based on particular risk trends, as identified in *Section 7.4.2, Wildfire Risk Drivers and Trends*.

[77] See Section 8.1.4, Activity Selection Process, Activity Scheduling. A length of one year was selected given the need to reduce wildfire risk in areas identified as high risk during active fire seasons that would otherwise be unaddressed while the primary activity is being implemented.

[78] The electrical corporation does not need to include operational mitigation activities and mitigation activities that happen on a cycle (e.g., inspections, vegetation management).

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All risk trends identified in *Section 8.2, Selected Mitigations* must correspond with a narrative within this section and a mitigation activity description, if applicable. The electrical corporation must provide a narrative description of the following for any identified risk trends that led to modification of or inclusion of additional mitigation activities or programs:

- The risk trend that informed the need for or refinement of the mitigation activity (e.g., particular fuse manufacturer leading to higher number of failures and needing replacements, specific type of conductor in a given geographic area leading to higher corrosion and need for replacement)
- The mitigation activity, including relevant tracking ID and WMP section number as applicable, impacted by the risk trend
- The impact that the risk trend had on the mitigation activity (e.g., increased inspections in particular geographic areas based on prioritization of ignition risk drivers, faster maintenance cycles for equipment types with higher ignition frequency)
- The risks identified outside of the overall utility risk (as defined in Section 7.2.1, Risk and Risk Component Identification) that the activity would mitigate
- An explanation as to why the existing mitigation strategy framework does not capture the identified risk

8.3.2 Current Limitations of Mitigation Strategies

The electrical corporation must discuss the current limitations of its wildfire mitigation strategy. The electrical corporation must provide a narrative description of the following:

- The current limitations to wildfire mitigation strategy faced by the electrical corporation
- The current limitations to wildfire mitigation strategy across the industry and peer electrical corporations
- The results of a self-evaluation of all subsections within *Section 8, Mitigation Strategy* to identify specific limitations to the electrical corporation's current approach or methodology

8.3.3 Planned Improvements

The electrical corporation must provide a high-level overview of its plans to improve in both process oriented and technical key areas of its wildfire mitigation strategy:

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- **Decision-Making Framework:** The electrical corporation's framework for evaluating and selecting mitigation activities
- **Risk model output integration**: The synthesis of risk model outputs into actionable decision drivers for wildfire mitigation activity selection
- **Effectiveness:** Methodology for calculation of effectiveness for mitigation activities
- **Cost impact analysis:** Calculation and methodology for cost impact analysis of mitigation activities
- **Activity Selection Process:** Methodology for activity selection, including feasibility analysis, activity prioritization, and activity scheduling
- **Risk Trends:** Lessons learned from risk trends identified outside of the mitigation strategy described in Sections 8.1, Risk Evaluation Approach and 8.2, Selected Mitigations

The overview must consist of the following information, in tabulated format:

- **Key area:** One of the key areas identified above
- **Title of proposed improvement:** Brief heading or subject of the improvement
- **Type of improvement:** Technical or process oriented
- **Current limitation:** The limitation that drives the need for the proposed improvement, as described in Section 8.3.2, Current Limitations of Mitigation Strategies
- **Anticipated benefit:** Summary of anticipated benefit and any other impacts of the proposed improvement
- **Timeframe and key milestones:** Total timeframe for undertaking the proposed improvement and any key milestones. This must also include the overall completion date, with a minimum granularity of year of expected completion

Table 8-8 provides an example of the minimum acceptable level of information.

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Table 8-8: Example of Wildfire Mitigation Strategy Improvement Plan

Key Mitigation Strategy Area	Proposed Improvement	Type of Improvement	Current Limitation	Expected Value Add	Timeframe and Key Milestones
MS-2, Risk model output integration	*MS-2-A. As our new risk model is developed as part of RAMP, update risk model output integration for mitigation selection.*	*Technical*		*Improved quantitative inputs to mitigation selection process.*	*RAMP filed, 2028* *Updated risk model output integration, 2029*
MS-3, Effectiveness	*MS-3-A. Create an annual review process of SME effectiveness inputs.*	*Process oriented*		*Improved and consistent updating of effectiveness of mitigation activities based on SME experience.*	*Conduct initial development and process, 2028* *Begin annual reviews, 2029-*

In addition, the electrical corporation must provide a concise narrative of its proposed improvement plan (maximum of five pages per improvement):

- **Problem statement:** Description of the limitation that drives the need for the proposed improvement
- **Planned improvement:** Discussion of the planned improvement, including any new/novel strategies to be developed and the timeline for their completion
- **Anticipated benefit:** Detailed description of the anticipated benefit and any other impacts of the proposed improvement.
- **Region prioritization (where relevant):** Reference to risk-informed analysis (e.g., project-specific adjustments for effectiveness of PEDS in the HFTD) demonstrating that high-risk areas are being prioritized for continued improvement
- Supporting documentation (as necessary)

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9 Grid Design and Operations

The electrical corporation must describe its preventive strategies and programs for minimizing catastrophic wildfire risks caused by its lines and equipment, factoring in dynamic climate change risks.[79] The electrical corporation must detail the actions it takes to maximize system safety, reliability, and resiliency—balancing cost and timeline—and ensure major event readiness by hardening and modernizing infrastructure through improved engineering, design, standards, and equipment.[80]

9.1 Targets

The electrical corporation must fill out Table 9-1 and provide targets for each activity for each year of the WMP period.[81] The table within the WMP must include the following information:

- **Activity:** The mitigation activity (as defined in Attachment A) being described.
- **Tracking ID:** Tracking ID for the activity being described
- **Previous Tracking ID, if applicable:** The tracking ID(s) used in past WMPs; if multiple, specify which ID was used in which WMP
- **Target Type:** Whether the target is quantitative or qualitative
- **Unit:** The unit of measurement for a quantitative target (not appliable for qualitative targets), which must be one of the following: Percentage of Coverage, Circuit Miles, or Count. More specifically:
    - Percentage of Coverage units must be a percentage of circuit mile coverage within the HFTD and HFRA.
    - Circuit Miles must be the unit used for length. Targets must be based on pre-mitigation[82] miles.

[79] Pub. Util. Code § 8386(d)(3).

[80] Pub. Util. Code § 8386(d)(14).

[81] All end of year targets in all sections of the WMP must follow the calendar year.

[82] Pre-mitigation miles are the circuit miles of the existing line, circuit segment, or span before the mitigation activity is implemented, including before any mileage changes resulting from reconfiguration, line removal, undergrounding, or conductor replacement.

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  - Count must be used for a discrete sum of individual equipment, structures, devices, or items for a specific activity.

- **Target:** The target for a given year. More specifically:
  - A quantitative target is the number of completed units the electrical corporation is committed to completing in a given year.
  - A qualitative target must be a specific, measurable, achievable, relevant, and timely milestone or deadline the electrical corporation is committed to achieving in a given year.
  - Sections 9.1.1 and 9.1.2 list which activities must have quantitative and which activities must have qualitative targets. For additional activities not listed in those sections, the electrical corporation may choose whether to provide a quantitative or qualitative target.
- **% Planned in HFTD and HFRA:** The percentage of the activity planned within the HFTD and HFRA (i.e., percent of the total segment that traverses HFTD and HFRA)
- **Expected Risk Reduction:** As defined in Section 8.1.4, Activity Selection Process, Risk Impact of Activities
- **Target Total:** The cumulative quantitative target over the WMP period
- **Section; Page Number:** Reference(s) to the WMP section(s), including page numbers, where the electrical corporation provides details supporting the target

9.1.1 Quantitative Targets

The electrical corporation must list all quantitative targets it will use to track progress on its grid design and operations in its WMP, broken out by each year of the WMP period. Electrical corporations will report progress toward completing quantitative targets in subsequent reports and data submissions to Energy Safety.

The electrical corporation must use its quantitative targets and provide detail in its targets to inform how the electrical corporation will monitor and improve the performance of its grid design and operations initiatives. Each mitigation activity must have distinct, trackable targets, even if the electrical corporation internally tracks targets of combined activities. Quantitative targets for covered conductor and undergrounding activities may change to

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conform with the revenue authorized in the GRC.[83] The electrical corporation's WMP performance will be assessed against the approved targets in the Revised WMP.

If the electrical corporation has any of the following activities as part of its WMP, it~~The electrical corporation~~ must provide quantitative targets for ~~the following~~these activities:

- Grid Design and System Hardening:
  - Covered Conductor
  - Undergrounding

    If the electrical corporation has an approved Electric Undergrounding Plan (EUP), it must disaggregate its undergrounding activities in its WMP under the following categories:[84]
    - Non-EUP Undergrounding
    - EUP Undergrounding;
  - Distribution Pole ~~Replacements and~~Material Conversion and Reinforcements[85]
  - Transmission Pole/Tower ~~Replacements and~~ Material Conversion and Reinforcements[86]
  - Permanently Abandoned Distribution Line Removal[87]

[83] See Pub. Util. Code § 8386.4(b)(3) and Chapter V, Revisions for General Rate Case Alignment.

[84] The electrical corporation must provide separate quantitative targets for undergrounding activities planned under its approved EUP and for undergrounding activities planned outside of its EUP. The targets reported in the WMP must be consistent with those submitted to Energy Safety's Electrical Undergrounding and Culture Division as part of the approved EUP.

[85] Distribution Pole Material Conversion and Reinforcements refers to structural reinforcement or retrofitting of existing distribution poles. This activity excludes like-for-like pole replacements from maintenance activities, and excludes pole replacements that are part of Covered Conductor or Distribution Conductor Replacement activities. Such poles must not be counted toward this activity's quantitative targets.

[86] Transmission Pole/Tower Material Conversion and Reinforcements refers to structural reinforcement or retrofitting of existing transmission poles/towers. This activity excludes like-for-like pole/tower replacements from maintenance activities, and excludes pole/tower replacements that are part of Covered Conductor or Tranmission Conductor Replacement activities. Such poles must not be counted toward this activity's quantitative targets.

[87] "Permanently abandoned distribution line removal" is the removal of a distribution line that has been taken out of service and that the electrical corporation does not intend to return to service.

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- Permanently Abandoned Transmission Line Removal[88]
- Distribution Conductor Replacement[89]
- Transmission Conductor Replacement
- Substation Hardening
- Microgrids
- Equipment Removal and/or Addition:[90]
  - Arrestors
  - Clamps/Connectors
  - Cross Arms
  - Connectors
  - Disconnects
  - Fuses
  - Long Spans
  - Reclosers
  - Shunt/Splices
  - Switches
  - Tree Attachment Removal
  - Vibration Dampers
  - Breakaway Connectors

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[88] "Permanently abandoned transmission line removal" is the removal of a transmission line ~~that is out of service, as determined by the CPUC, and the electrical corporation cannot demonstrate, with appropriate documentation, an intent to place the line, or portions of the line, into service within a time determined by the CPUC~~ that meets the definition of a permanently abandoned transmission facility set forth in Pub. Util. Code § 8386 (23)(B).

[89] "Conductor replacement" activity is the replacement of existing bare overhead conductor with new bare conductor.

[90] Equipment targets must be limited to: (a) removal of existing equipment without replacement; (b) replacement of existing equipment with new equipment of a fundamentally different design; and (c) installation of new equipment that does not replace existing equipment. Equipment replacement targets must be provided in *Section 10, Asset Management*.

- System Automation Equipment:
    - Automatic Reclosers
    - Sectionalizers
- Animal Protection

If the electrical corporation implements activities not included in the list above, it must designate which initiative and subsection the activity is under and include a quantitative target for it in Table 9-1.

9.1.2 Qualitative Targets

The electrical corporation must provide qualitative targets to track process and improve its grid design and operations.[91]

The electrical corporation must provide qualitative targets for the following activities:

- Grid Design and System Hardening:
    - Other grid topology improvements to minimize risk of ignitions, to reduce PSPS events, or technologies not listed above
    - Technologies Being Piloted
    - Emerging Technology Studies
    - Feasibility Studies[92]
    - Reliability Studies[93]
- Grid Operations and Procedures:
    - Protective Equipment and Device Settings
    - Settings of Emerging Technologies
    - Grid Monitoring Technologies Being Piloted

[91] Information included in this section must align with the applicable data submission.

[92] Feasibility Studies conducted to evaluate whether a proposed mitigation, technology, or project is technically, operationally, and economically viable for the electrical corporation's service territory and whether it should advance to testing, piloting, implementation, or further design.

[93] Reliability Studies conducted to evaluate the reliability impacts of a mitigation, setting, or program, including outage frequency, outage duration, customers affected, response time, and other relevant service impacts, to assess reliability tradeoffs and inform improvements.

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If the electrical corporation implements activities not included in the list above, it must designate which initiative and subsection the activity is under and include a qualitative target for it in Table 9-1.

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Table 9-1: Example of Grid Design and Operation Quantitative and Qualitative Targets by Year

Activity	Tracking ID	Previous Tracking ID (if applicable)	Target Type	Unit	[Year 1] Target	% Planned in HFTD & HFRA for [Year 1]	Expected Risk Reduction for [Year 1] (k$)	[Year 2] Target	% Planned in HFTD & HFRA for [Year 2]	Expected Risk Reduction for [Year 2] (k$)	[Year 3] Target	% Planned in HFTD & HFRA for [Year 3]	Expected Risk Reduction for [Year 3] (k$)	[Year 4] Target	% Planned in HFTD & HFRA for [Year 4]	Expected Risk Reduction for [Year 4] (k$)	Target Total	Section; Page Number
Covered Conductor	*GDSH-1*		*Quantitative*	*Circuit Miles*	*175*	*87%*	*29,000*	*150*	*92%*	*26,000*	*200*	*95%*	*35,000*	*200*	*95%*	*35,000*	*725*	*9.2; p. x*
Non-EUP Undergrounding	*GDSH-2*		*Quantitative*	*Circuit Miles*	*35*	*92%*	*60,000*	*45*	*90%*	*77,000*	*50*	*89%*	*85,000*	*50*	*89%*	*85,000*	*180*	*9.2; p. x*
EUP Undergrounding	*GDSH-3*		*Quantitative*	*Circuit Miles*														
Distribution Pole Replacements and Reinforcements	*GDSH-4*		*Quantitative*	*Count*														
Transmission Tower Replacements and Reinforcements	*GDSH-5*		*Quantitative*	*Count*														
Permanently Abandoned Distribution Line Removal	*GDSH-6*		*Quantitative*	*Circuit Miles*														
Permanently Abandoned Transmission Line Removal	*GDSH-7*		*Quantitative*	*Circuit Miles*														
Transmission Conductor Replacement	*GDSH-8*		*Quantitative*	*Circuit Miles*														
Substation Hardening	*GDSH-9*		*Quantitative*	*Count*														
Microgrids	*GDSH-10*		*Quantitative*	*Count*														
Equipment Removal and/or Installation	*GDSH-11*		*Quantitative*	*Count*														
Microgrids Feasibility Studies	*GDSH-12*		*Qualitative*	*N/A*	*Start; March*	*N/A*	*N/A*	*In Progress*	*N/A*	*N/A*	*In Progress*	*N/A*	*N/A*	*Complete; December*	*N/A*	*N/A*	*N/A*	*8.2; p. x*

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9.2 Grid Design and System Hardening

The electrical corporation must discuss how it is designing its system to reduce overall utility risk, and what it is doing to strengthen its distribution, transmission, and substation infrastructure to reduce the risk of utility-related ignitions resulting in catastrophic wildfires.[94]

The electrical corporation must discuss the following individual grid design and system hardening activities:

- Covered Conductor
- Undergrounding

  If the electrical corporation has an approved EUP, the electrical corporation must provide separate discussions in its WMP for the following undergrounding programs:

  - Non-EUP Undergrounding
  - EUP Undergrounding
- Distribution Pole Material Conversion and ~~Replacements and~~ Reinforcements
- Transmission Pole/Tower Material Conversion and ~~Replacements and~~ Reinforcements
- Permanently Abandoned Distribution Line Removal
- Permanently Abandoned Transmission Line Removal
- Distribution Conductor Replacement
- Transmission Conductor Replacement
- Substation Hardening
- Microgrids
- Equipment Removal and/or Installation
- System Automation Equipment
- Animal Protection
- Other grid topology improvements to minimize risk of ignitions, to reduce PSPS events, or technologies not listed above
- Technologies Being Piloted

[94] Pub. Util. Code §§ 8386(d)(3), (6), and (14)-(15).

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- Emerging Technology Studies
- Feasibility Studies
- Reliability Studies

In Sections 9.2.1–9.2.18 of its WMP, the electrical corporation must provide a narrative of each of the above activities. If the electrical corporation does not undertake one or more of the activities listed above, the electrical corporation must provide a brief narrative for each activity, explaining why it does not undertake that activity.

Each activity must have and cross-reference its associated target from *Section 9.1, Targets*. The narrative must include the following:

- **Tracking ID**
- **Overview of the activity:** A brief description of the activity including reference to related targets. Additionally, the overview must identify whether the activity is a program, project, pilot, or study.
- **Impact of the activity on overall utility risk:**
    - A discussion and demonstration of expected overall risk reduction for the WMP period, with level of granularity including a list of circuits the activity will be implemented on, and scope of work for the activity.
    - A trend analysis showing how implementation of the activity has reduced overall utility risk over time (broken out by wildfire risk and outage program risk), including a description of how that analysis is performed. This analysis must be based on observed historical changes since implementing the activity.
- **Impact of the activity on wildfire risk:**
    - A discussion of how the activity reduces wildfire risk based on individual risk drivers (e.g., covered conductor addresses a risk driver related to vegetation contact), including how location specific risk drivers impacted the activity selection.
    - ~~As applicable~~For activities related to line removal, provide a discussion identifying how many circuit miles of permanently abandoned transmission facilities are within ~~the HFTD~~the electrical corporation's service territory, a

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plan for how and when each facility will be removed, and the wildfire mitigation measures being implemented to prevent hazards (e.g., induction).[95]

- **Impact of the activity on outage program risk:**
  - A discussion of how the electrical corporation considers and evaluates the impacts of completed hardening on upstream circuits/segments/spans to determine the activity's impact on outage risk.
  - A discussion of how completion of the activity is expected to affect PSPS thresholds for the applicable circuit segment(s).
  - As applicable, a discussion of how the activity impacts overall reliability, including what trends are being observed. This must include evaluation of number of outages occurring, the duration of those outages, and the number of customers affected during those outages.
- **Updates to the activity:**
  - A list of the changes the electrical corporation made to the activity since its last WMP submission, including an explanation for why each change was implemented, and, if applicable, references to lessons learned.
  - A circuit segment-specific discussion of the expected limitations and delays such as planning, design, permitting, funding, scheduling, and construction.
  - A list of planned future improvements and changes to the activity over the WMP period, including a timeline for implementing the changes.
  - As applicable, a discussion of the status of its EUP undergrounding work plans and progress, as required by Public Utilities Code section 8388.5(f)(2).
  - As applicable, a discussion of any evaluations related to scoping grid hardening projects to account for future grid needs (e.g., load capacity, peak demand, system flexibility).[96]
- **Compatible Activities:**

[95] Senate Bill 742 (2025-2026) amendment to Pub. Util. Code § 8386(d)(23) effective January 1, 2027.

[96] These considerations must be in alignment with the CPUC's Decision Adopting Improvements to Distribution Planning and Project Execution Process, Distribution Resource Planning Data Portals, and Integration Capacity Analysis Maps (D.24-10-030), and with the CPUC's Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future (R.21-06-017).

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- For each activity, as applicable, the electrical corporation must provide a list of other compatible activities[97] that the electrical corporation will deploy in combination to increase risk reduction.
- The electrical corporation must provide the Tracking ID(s) for the compatible activities.
- For each compatible activity, the electrical corporation must identify the wildfire risk driver(s) and outage program risk driver(s), as applicable, that the compatible activity can mitigate, consistent with the risk driver categories and individual risk drivers identified in *Section 8.1.2, Mitigation Effectiveness, Effectiveness Against Individual Risk Drivers*.
- If work the electrical corporation completes contributes to target attainment of both the activity and the compatible activities, (e.g., covered conductor activity satisfies both covered conductor and long-span remediation targets), provide:
  - A narrative explanation of how or why both compatible activities targets can be achieved (e.g., if the activities reduce risk from the same risk driver); and
  - The percentage of the activity that will satisfy the target of the compatible activity (e.g. Covered Conductor [GDSH-1] will satisfy 30 of the 50 Animal Protection [GDSH-13] devices).

Additional data pertaining to its current service territory electrical hardened status must be provided in *Appendix D: Additional Tabular Data*. The electrical corporation must provide the required data as a spreadsheet file (e.g. Excel). In addition to the spreadsheet, the electrical corporation may provide the required data through an interactive dashboard (e.g., Power BI), provided the selected format includes all information required by S*ection 14.4, Appendix D: Additional Tabular Data*. If a dashboard is used, the electrical corporation must provide Energy Safety access with its WMP submission and maintain access for the duration of Energy Safety's review.

The table requirements are included in S*ection 14.4, Appendix D: Additional Tabular Data* and include current risk model scores; existing hardening conditions; current PEDS coverage; and

[97] "Compatible activities" are activities for which the same completed work contributes to the quantitative targets of more than one grid design and system hardening activity.

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planned covered conductor, undergrounding, and, as applicable, transmission line removal activities over the WMP period.

9.3 Grid Operations and Procedures

9.3.1 Equipment Settings to Reduce Wildfire Risk

The electrical corporation must discuss the ways in which it operates its system to reduce wildfire risk.[98] The electrical corporation must include a discussion on equipment settings that includes the following:

- Protective Equipment and Device Settings (PEDS)
- Settings of other emerging technologies (e.g., rapid earth fault current limiters)

Protective equipment and device settings may include settings, modes, thresholds, curves, or device logic used on protective equipment to reduce ignition probability, reduce fault energy, or mitigate wildfire consequence. Examples include sensitive relay profiles, sensitive ground fault settings, fast-trip or fast-curve settings, disabling reclosing or modifying reclosing logic, recloser lockout settings, falling conductor protection, and similar technologies or settings.

For any of the above that the electrical corporation utilizes, it must provide a narrative that includes the following details and tables, as applicable:

- **Overview:** A brief description of the setting or technology, including its purpose, where it is used, the equipment or circuits to which it applies, related activity Tracking ID(s), and whether it is an existing setting, pilot, or planned deployment.
- **Settings Used to Reduce Wildfire Risk:** A description of the specific settings, modes, curves, thresholds, logic, or configurations used to reduce wildfire risk, including how those settings differ from standard operating settings, as applicable.
- **Enablement Criteria:** A description of the conditions, thresholds, and decision-making criteria used to activate, adjust, or deactivate the settings, including relevant weather, fire potential, asset condition, circuit characteristics, and operational considerations, as applicable.
- **Operational Procedures for Enablement & Monitoring for Re-Energization:** A description of the procedures used to implement, monitor, and, as applicable,

[98] Pub. Util. Code §§ 8386(d)(3), (6), and (14).

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deactivate the settings, including operator responsibilities, field verification, situational awareness, and criteria used before re-energization.

  - **Enablement History:** The total number of days and percentage of time for enablement in the past four years at the time of WMP submission (e.g., if the WMP is submitted in 2027, this would encompass 2022 through 2026). Include the associated number of circuit miles encompassed by activation at that time.

- **Operational Performance Analysis:** A retrospective analysis of how the settings performed during the four years prior to WMP submission, grounded in observed operational and field data. If applicable, the analysis must identify any statistical or modeling methods used to estimate outcomes (e.g., avoided faults or ignitions). Including the following:
  - At a minimum, the electrical corporation must fill out Table 9-2 in the WMP to include the following information:
    - **HFTD Tier and HFRA:** The HFTD Tier or HFRA where the faults occurred, including Non-HFTD, HFTD Tier 2, HFTD Tier 3, and HFRA, as applicable.
    - **FPI:** The Fire Potential Index rating, class, value, or other weather-risk condition used by the electrical corporation to categorize wildfire risk at the time the faults occurred. If the electrical corporation uses a metric other than FPI, it must define the metric and explain how it corresponds to wildfire-risk conditions.
    - **Faults per Year:** The number of faults that occurred in each of the four years prior to the WMP submission, disaggregated by HFTD Tier and HFRA and FPI or weather-risk condition.
    - **Fault Four-Year Average:** The average annual number of faults over the four-year period for each HFTD Tier or HFRA and FPI or weather-risk condition. The electrical corporation must explain its calculation method, data sources, and any exclusions or assumptions used.

      The accompanying narrative must explain how PEDS enablement changed over the same four-year period and, to the extent known, whether those changes contributed to increases, decreases, or avoided faults.

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Table 9-2: Example of Faults by HFTD Tier, HFRA, and Weather Condition in the Past Four Years

HFTD Tier/HFRA	**FPI**	**Faults (Count)**				
		[Year – 4]	**[Year – 3]**	**[Year – 2]**	**[Year – 1]**	**4-Year Average**
Non-HFTD	Extreme	*39*	*38*	*47*	*27*	*38*
HFTD Tier 2	Normal					
HFTD Tier 3	Elevated					
HFRA	Extreme					

- At a minimum, the electrical corporation must fill out Table 9-3 in the WMP to include the following information:
  - **HFTD Tier and HFRA:** The HFTD Tier or HFRA used to calculate the ignition rate, including HFTD Tier 2, HFTD Tier 3, and HFRA, as applicable.
  - **Fire Potential Index (FPI):** The FPI rating, class, value, or other weather-risk condition used by the electrical corporation to categorize wildfire risk at the time the ignitions or risk events occurred. If the electrical corporation uses a metric other than FPI, it must define the metric and explain how it corresponds to wildfire-risk conditions.
  - **Four-Year Average Ignition Rate:** The average ignition rate over the four-year period for each HFTD Tier or HFRA and FPI or weather-risk condition. The electrical corporation must identify the numerator and denominator used to calculate the ignition rate, such as ignitions divided by faults, and explain any assumptions, exclusions, or limitations.

Table 9-3: Example of Four-Year Average Ignition Rate per Weather Condition

HFTD Tier/HFRA	**Four-Year Average Ignition Rate (%)**		
	FPI Class [1]	**FPI [2]**	**FPI [3]**
HFTD Tier 2	*5%*	*7%*	*25%*
HFTD Tier 3			
HFRA			

- At a minimum, the electrical corporation must fill out Table 9-4 in the WMP to include the following information:

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- **Avoidance Type:** The type of avoided event being estimated, such as estimated faults avoided or estimated ignitions avoided.
- **HFTD Tier and HFRA:** The HFTD Tier or HFRA where the avoided faults and ignitions are estimated, including HFTD Tier 2, HFTD Tier 3, and HFRA, as applicable.
- **FPI:** The FPI rating, class, value, or other weather-risk conditions used by the electrical corporation to estimate avoided faults and ignitions. If the electrical corporation uses a metric other than FPI, it must define the metric and explain how it corresponds to wildfire-risk conditions.
- **Estimated Faults and Ignitions Avoided per Year:** The estimated number of faults and ignitions avoided in each of the four years prior to the WMP submission, disaggregated by avoidance type, HFTD Tier or HFRA, and FPI or weather-risk condition.
- **Four-Year Average:** The average annual number of estimated faults and ignitions avoided over the four-year period for each avoidance type, HFTD Tier or HFRA, and FPI or weather-risk condition. The electrical corporation must explain the calculation method, data source, assumptions, and any uncertainty associated with the estimate.

  The accompanying narrative must identify whether the estimates are based on field patrols or post-event inspections following a PEDS device operation, statistical or historical analysis, modeling, or another method, and must explain the assumptions, data sources, and limitations of the method used.

Table 9-4: Example of Estimated Faults and Ignitions Avoided in the Past Four Years

Avoidance Type	**HFTD Tier/HFRA**	**FPI**	**[Year – 4]**	**[Year – 3]**	**[Year – 2]**	**[Year – 1]**	**Four-Year Average**
Faults (Count)	Tier 2	Elevated	*86*	*62*	*90*	*48*	*72*
Ignitions (Count)	Tier 3	Extreme	*5*	*7*	*4*	*5*	*5*

- **Reliability Analysis:** A description and analysis of how the settings affected system reliability in the past four years including outages, outage durations, customers impacted, the circuits most affected, and actions taken or planned to reduce future reliability impacts, including:

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- At a minimum, the electrical corporation must fill out Table 9-5 in the WMP to include the following information:
  - **Circuit ID:** The unique identifier for the circuit or circuit segment impacted by the equipment settings used to reduce wildfire risk.
  - **Circuit Name:** The name of the circuit or circuit segment associated with the Circuit ID.
  - **Circuit Length:** The total length, in circuit miles, of the circuit or circuit segment. The electrical corporation must specify whether the mileage represents total circuit miles, overhead circuit miles, or another mileage basis.
  - **Number of Outages in the Past Four Years:** The total number of outages associated with the equipment settings used to reduce wildfire risk during the four years prior to the WMP submission.
  - **Cumulative Outage Duration:** The total duration of outages associated with the equipment settings used to reduce wildfire risk during the four years prior to the WMP submission. The electrical corporation must identify the unit of measurement used.
  - **Cumulative Number of Customers Impacted by Outages:** The total number of customer interruptions associated with the outages during the four years prior to the WMP submission.
- How the electrical corporation has worked to alleviate future reliability impacts along the most impacted circuits. De-energization protocols must consider impact on critical first responders, health and communication infrastructure, and medical baseline customers.[99]

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[99] Pub. Util. Code §§ 8386(d)(6)(A)-(C).

Table 9-5: Example of Top Ten Impacted Circuits in the Past Four Years

Circuit ID	Circuit Name	Circuit Length (circuit miles)	Number of Outages in Past Four Years	Cumulative Outage Duration (min.)	Cumulative Number of Customers Impacted by Outages
ID 001	*A123*	*50*	*3*	*1,000*	*5,000*
ID 002					

9.3.2 Grid Monitoring Systems

The electrical corporation must discuss the ways it monitors its grid to reduce wildfire risk.[100] The grid monitoring discussion must include, at a minimum, the following:

- Early Fault Detection
- Distribution Fault Anticipation
- Continuous Monitoring Technologies (e.g., Pole Mounted Sensor)
- Grid Monitoring Technologies Being Piloted

The electrical corporation must describe its systems and procedures used to monitor the operational conditions of its equipment.[101] These observations should inform the electrical corporation's near-real-time risk assessment. In its WMP, the electrical corporation must document:

- **Existing Systems, Technologies and Procedures:** The electrical corporation must report on its grid monitoring systems and related technologies and procedures currently in use, highlighting any improvements made since the last WMP submission.

  At a minimum, the electrical corporation must discuss systems, technologies, and procedures related to the detection of:

  - Faults;
  - Failures;
  - Recloser operations; and

[100] Pub. Util. Code §§ 8386(d)(3), (6), and (14).

[101] Pub. Util. Code §§ 8386(d)(3), (6), and (22).

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- Impending defects.

Each system must be summarized in Table 9-6 below. Additionally, the electrical corporation must provide an accompanying narrative with the following information about each system:

- An overview of the device or system, where it is installed on the pole or structure, and what it monitors.
- How the system integrates with the electrical corporation's grid operations systems (e.g., protective equipment, relay settings) and enterprise data systems (e.g., asset management, work management).
- How the electrical corporation verifies measurements from the system.
- How the electrical corporation monitors and determines efficacy (e.g., tracking "false positives," ability to detect defects otherwise not captured in existing programs, number of corrections the activity identified).
- How the system supplements and informs system hardening, asset inspections, work orders, and equipment maintenance and repair activities. If applicable, whether monitoring data are used to select, prioritize, or delay asset replacement, inspection and maintenance work.
- For intermittent systems (e.g., aerial imagery, LiDAR), a description of what triggers intermittent data collection.

Table 9-6: Example of Grid Operation Monitoring Systems

System	Measurement/ Observation	Frequency	Purpose and Integration
Line sensors	*Electrical current* *Electrical voltage* *Waveform harmonics*	*3,600 observations / hour*	*Early fault detection* *Distribution fault anticipator (DFA)*

- **Evaluation of Additional Systems Needed:** The electrical corporation must describe how it evaluates the need for additional grid operation monitoring systems. This description must include how the electrical corporation evaluates the impact of new systems on reducing risk (e.g., expected reduction of ignitions from failures, expected reduction of failures).

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- **Planned Improvements:** The electrical corporation must describe its planned improvements to its grid operation monitoring systems. This must include plans and timelines for the following:
    - Expanding existing systems
    - Piloting new systems
    - Implementing new systems

9.3.3 Grid Response Procedures and notifications

The electrical corporation must provide a narrative on its operational procedures to respond to faults, ignitions, or other issues detected on its grid that may result in a wildfire, including how the electrical corporation:

- Locates the issues;
- Prioritizes the issues, including how operational models inform potential prioritization based on risk;
- Notifies relevant personnel and suppression resources to respond to issues; and
- Minimizes/optimizes response times to issues.

9.4 Quality Management System

The electrical corporation must describe how it controls and ensures the quality of its grid design and operations work so that it meets or exceeds quality requirements. To do so, the electrical corporation must describe its quality assurance (QA) audit and quality control (QA) inspection activities.

For WMPs, Energy Safety defines QA audits and QC inspections as follows:

- A **QC inspection** reviews outputs of a process by comparing the output's attributes to attributes specified in procedures. QC inspections of sampling units typically estimate the quality level of a population of work. After QC inspections, applying corrections remediates nonconformities. If the sample-estimated quality level is below a predetermined threshold, a decision is made to accept the population of work or rework all or a portion of the population of work.
- A **QA audit** uncovers improvement opportunities by determining if processes achieve quality objectives. A non-exhaustive list of audit activities includes: reviewing procedures, work documentation, and QC inspection findings; performing interviews;

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testing training effectiveness; creating new processes; and observing procedure use. A QA audit results in a report that recommends corrective actions to deliver continued improvements.

9.4.1 Overview

The electrical corporation must provide an overview of its grid design and operations QA and QC activities.[102] The overview must include the following information in Table 9-7 of its WMP for each quality management activity:

- **Activity Subject to an Audit or Inspection:** The name of the activity subject to a QA audit or QC inspection (each activity name should match an activity described in *Section 9.2, Grid Operations and Procedures* or *Section 9.3, Grid Operations and Procedures*).
- **Tracking ID:** A unique Tracking ID that is an extension of the activity Tracking ID in Table 9-1 (e.g., if the activity Tracking ID is GDSH-2, then the QA tracking ID for the same activity must be GDSH-2.1 or another extension, and the QC tracking ID for the same activity must be GDSH-2.2 or another extension).
- **Quality Management Activity Type:** The quality management activity type (QA audit or QC inspection).
- **Objective of the Quality Management Activity:** A statement identifying why the QA audit or QC inspection will help the electrical corporation achieve and maintain quality for its grid design and operations activity.

Table 9-7 provides an example of the appropriate level of detail and required format.

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[102] Pub. Util. Code §§ 8386(d)(10) and (22).

Table 9-7: Example of Grid Design and Operations QA and QC Program Objectives

Activity Subject to an Audit or Inspection	**Tracking ID**	**Quality Program Type**	**Objective of the Quality Program**
Covered Conductor	*GDSH-1.1*	*QA Audit*	*To ensure inspectors are following electrical corporation procedures for inspections and identify areas for improvement.*
Covered Conductor	*GDSH-1.2*	*QC Inspection*	*Verify that installed or completed work conforms to approved project documents, standards, specifications, manufacturer requirements, and applicable codes.*
Undergrounding	*GDSH-2.1*	*QA Audit*	
Undergrounding	*GDSH-2.2*	*QC Inspection*	
Substation Hardening	*GDSH-10.1*	*QA Audit*	
Substation Hardening	*GDSH-10.2*	*QC Inspection*	

For each QC inspection, the electrical corporation must provide the following tabular information related to calculating a risk-based sample size. This information documents quantitative values the electrical corporation uses to determine the number of units it will inspect.

- **Activity Subject to QC Inspection:** An activity the electrical corporation subjects to a QC inspection. The activity must match an activity in *Section 9.2, Grid Operations and Procedures* or *Section 9.3, Grid Operations and Procedures*.
- **Method of QC inspection:** How the QC inspection was performed (e.g., desktop or field).
- **Population/Sampling Unit:** An entity of the activity QC inspection to assess quality.
- **Annual Mean Population Size:** The mean population size subject to the QC inspection across all years within the WMP period. In this section, a population may be the number of total circuit miles inspected, poles or towers inspected, devices inspected, etc. within a specific area of the service territory, or across the entire service territory.

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- **Annual Mean Sample Size:** The mean sample size across all years within the WMP period of the activity subject to the QC inspection.
- **Annual Mean % of Sample in the HFTD and HFRA:** The annual mean percentage of the sampling units within the HFTD and HFRA for the activity subject to the QC inspection (i.e., the mean of the percentage of the sample in the HFTD and HFRA across all years within the WMP period).
- **Confidence Level:** A probability across repeated samples that the range defined by the margin of error will contain the true population parameter.
- **Margin of Error:** A value the electrical corporation subtracts or adds to the quality statistic to create a range that, at a stated confidence level, likely contains the population parameter.
- **Expected Proportion Meeting Quality Specifications:** An informed estimate of the proportion of the sampled work that the electrical corporation expects to meet quality standards during QC inspections.

Table 9-8 provides an example of the appropriate level of detail and required format.

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Table 9-8: Example of Grid Design and Operations QC Inspection Activity Targets

Activity Subject to QC Inspection	**Type of Audit**	**Population/ Sampling Unit**	**Annual Mean Population Size**	**Annual Mean Sample Size**	**Annual Mean Percent of Sample in the HFTD and HFRA**	**Confidence Level**	**Margin of Error**	**Expected Proportion Meeting Quality Specifications**
Covered Conductor	*Field*	*Circuit Miles*	*90%*	*90%*	*100%*	*95%*	*3%*	*97%*
Undergrounding	*Field*	*Circuit Miles*	*90%*	*90%*	*100%*	*95%*	*3%*	*97%*
Substation Hardening	*Field*	*Count*	*100%*	*100%*	*100%*	*95%*	*2%*	*97%*

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9.4.2 Sample Size

The electrical corporation must describe how it determines the sample size for each QC inspection listed in Table 9-8. This must include how the HFTD Tier, HFRA, the electrical corporation's risk model, or other risk designations affect the sampling plan, and how the electrical corporation ensures samples are representative of the population (e.g., sample size relative to population size, randomization, stratification, weighting, etc.).

9.4.3 Quality Metrics

The electrical corporation must list and describe the QC inspection metrics it uses to evaluate the effectiveness of its grid design and operations activities and procedures. For example, the electrical corporation could consider the following: conformity rates, rework rates, outage rates within X months of equipment installation, maintenance rework rate, etc.) The electrical corporation must also describe:

- The criteria for each QC inspection it lists in Table 9-8, a description of each criterion, and any weighted contributions of each criterion to the quality metric.
- The sub-populations for which it calculates QC inspection metrics. Sub-populations are portions of the Annual Mean Sample Size quantities in Table 9-8. Calculating metrics at the sub-population level allows the electrical corporation to identify work quality across space and time (e.g., the work quality of different contractors from one month to the next).
- Thresholds it uses to indicate the need for corrective actions across populations of work in Table 9-8 and any sub-populations within these populations (e.g., an electrical corporation may establish conformity rate thresholds above which it will accept a population or sub-population of work, and below which it will implement corrective actions to increase the conformity rate).
- How its QC inspection metrics demonstrate activities have met performance goals.

9.4.4 Documentation and Resolution of Findings

The electrical corporation must describe how it documents its QA and QC findings, resolves nonconformities, and uses lessons learned from those findings to inform corrective actions. This description must include:

- How nonconformities identified by QC inspections are corrected;

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- How the electrical corporation uses the proportion of samples meeting quality specifications to inform corrective actions (e.g., procedural changes, training, etc.);
- Data the electrical corporation leverages in addition to QC inspections to inform corrections and corrective actions; and
- How the electrical corporation implements corrections and corrective actions in response to the proportion of samples meeting quality specifications and leveraged data.

9.4.5 QA and QC Exclusions

If applicable, the electrical corporation must describe why it does not perform QA or QC for each activity in *Section 9.2, Grid Operations and Procedures* and *Section 9.3, Grid Operations and Procedures* for which it does not perform QA or QC.

9.4.6 Procedures

The electrical corporation must list the applicable procedure(s), including the version(s) and effective date(s), used for each grid design and operation QA and QC program listed in Table 9-7. The electrical corporation must include the most recent procedures in *Appendix C: Supporting Documentation for Mitigation Activities*.

9.4.7 Scheduling

The electrical corporation must describe how it schedules quality management activities. The description must include the frequency of the quality management activity (e.g. monthly, quarterly, project base, etc.) and the length of time between when it completes the grid design and operations activities and when it performs the quality management activity for:

- Each QA activity in Table 9-7; and
- Each QC inspection in Table 9-8.

9.4.8 Updates

The electrical corporation must provide:

- A list of changes it made to its QA and QC procedure(s) or activities since its last WMP submission;

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- An explanation for why each change was implemented, including references to lessons learned as applicable; and
- A list of planned improvements or updates, or both improvements and updates, to QA and QC procedure(s) including a timeline for implementation.

9.5 Workforce Planning

The electrical corporation must provide an overview of its grid design and operations workforce planning.[103] The electrical corporation must provide the following tabular information:

- **Worker Title:** All worker titles relevant to grid design and operations, including, but not limited to titles related to construction and quality management.
- **Minimum Qualifications for Target Role:** A description of the minimum employee candidate qualifications for each worker title, with an emphasis on qualifications relevant to grid design and operations.
- **Applicable Certifications:** A list of certifications applicable to the worker title, such as California-Nevada Joint Apprenticeship Training Committee (JACT) Journeyman Lineman or American Society for Quality (ASQ) Certified Quality Engineer.
- **Electrical Corporation ~~FTEs~~ staff with Minimum Qualifications:** For the worker title, the electrical corporation's number of internal ~~full-time equivalents (FTEs)~~staff with minimum qualifications at the time of WMP submission. Internal electrical corporation employees are those the electrical corporation directly employs (i.e., internal employees are not contractors).
- **Electrical Corporation ~~FTEs~~ staff with Applicable Certifications:** For the worker title, the electrical corporation's number of ~~FTEs~~ staff with applicable certifications at the time of WMP submission.
- **Contracted ~~FTEs~~ staff with Minimum Qualifications:** For the worker title, the number of contracted ~~FTEs~~ staff with minimum qualifications at the time of WMP submission.

[103] Pub. Util. Code §§ 8386(d)(16), and (19)(A).

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- **Contracted ~~FTEs~~ staff with Applicable Certifications:** For the worker title, the number of contracted ~~FTEs~~ staff with applicable certifications at the time of WMP submission.
- ~~**Current FTEs:** For the worker title, the number of internal and contracted electrical corporation FTEs with minimum qualifications at the time of WMP submission.~~
- ~~**Fully-Staffed FTEs:** For the worker title, the fully-staffed number of internal and contracted electrical corporation FTEs with minimum qualifications.~~
- **Reference to Electrical Corporation Training / Qualification Programs:** A list of training and qualification programs that the electrical corporation requires employees in each position to complete.

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Table 9-9: Example of Grid Design and Operations Qualifications and Training

Worker Title	**Minimum Qualifications for Target Role**	**Applicable Certifications**	**Electrical Corporation ~~FTEs~~ staff with Min Quals**	**Electrical Corporation ~~FTEs~~ staff with Applicable Certifications**	**Contracted ~~FTEs~~ staff with Minimum Qualifications**	**Contracted ~~FTEs~~ staff with Applicable Certifications**	**~~Current FTEs~~**	**~~Fully Staffed FTEs~~**	**Reference to Electrical Corporation Training / Qualification Programs**
Distribution Construction Supervisor	• *5-plus years of construction and maintenance experience*	• *QEW* • *Overhead Inspection Training* • *Underground Inspection Training*	*100*	*QEW – 100*	*10*	*QEW – 10*	~~*110*~~	~~*110*~~	*Line Assistant and Apprenticeship Program* *Essentials of Supervision*
Transmission Construction Supervisor	• *7-plus years of construction and maintenance experience*	• *QEW* • *Overhead Inspection Training* • *Underground Inspection Training*	*100*	*QEW – 100*	*10*	*QEW – 10*	~~*110*~~	~~*110*~~	*Line Assistant and Apprenticeship Program* *Essentials of Supervision*
Substation Construction Supervisor	• *5-plus years of construction and maintenance experience*	• *QEW* • *Overhead Inspection Training* • *Underground Inspection Training*	*100*	*QEW – 100*	*10*	*QEW – 10*	~~*110*~~	~~*110*~~	*Line Assistant and Apprenticeship Program* *Essentials of Supervision*

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9.5.1 Staffing and Competency

The electrical corporation must describe how it reviews organizational objectives to ensure the size and skills of its workforce align with priorities. This description must include:

- The frequency in which the electrical corporation considers whether workforce size and skills are adequate to achieve organizational objectives;
- How the electrical corporation plans to address workforce demand and supply issues during the WMP period; and
- How findings from the electrical corporation's QC and QA audits, and performance metrics, inform its workforce planning.

9.5.2 Recruitment

The electrical corporation must describe how it recruits personnel for grid design and operations, including any relevant partnerships with apprenticeship programs, technical programs, trade unions, colleges and universities.

9.5.3 Training and Retention

The electrical corporation must describe how it trains its grid design and operations personnel, including any requirements for continuing education, refresher training, and worker qualification improvement programs.

The electrical corporation must also describe any grid design and operations-related training facilities it has established or plans to establish. Training facilities typically provide controlled environments that allow inspectors and troubleshooters to practice job duties.

9.6 Additional Benefits of Grid Design and Operations

Mitigation activities may provide benefits to the electrical corporation beyond reducing wildfire risk and outage program risk as defined for the WMP (see *Section 7.2.1, Risk and Risk Component Identification*). These benefits are outside of the risk components that the electrical corporation analyzed specifically for wildfire mitigation but may influence the electrical corporation's decision-making. The electrical corporation must use this section to describe these additional benefits of its grid design and operations activities.

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When describing additional benefits, the electrical corporation must tie a specific mitigation activity or activities to the benefits. This section is limited to no more than three pages.

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10 Asset Management

Each electrical corporation's WMP must include its plans for asset management, including inspections and maintenance.[104]

10.1 Targets

In Table 10-1, the electrical corporation must provide quantitative or qualitative targets for each activity for each year of the WMP period.[105] Table 10-1 must include the following information:

- **Initiative:** The mitigation initiative (as defined in Attachment A) proposed or in process
- **Activity:** The mitigation activity (as defined in Attachment A) described
- **Tracking ID:** Tracking ID for the activity being described
- **Previous Tracking ID:** The Tracking ID(s) used in past WMPs
- **Target Type:** Whether the target is quantitative or qualitative
- **Unit:** The unit of measurement for a quantitative target (not applicable to qualitative targets)
- **Target:** The target for a given year. More specifically:
    - A quantitative target is the number of completed units the electrical corporation is committed to completing in a given year.
    - A qualitative target must be a specific, measurable, achievable, relevant, and timely milestone or deadline the electrical corporation is committed to achieving in a given year.
- **% Planned in HFTD:** The percentage of the activity planned within the HFTD and HFRA (e.g., the percent of total inspections that will take place in the HFTD)
- **Target Total:** The cumulative quantitative target over the WMP period (not applicable to qualitative targets)

[104] Pub. Util. Code §§ 8386(d)(3), (10), and (14).

[105] All end of year targets in all sections of the WMP must follow the calendar year.

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- **Section; Page Number:** Reference(s) to the WMP section(s), including page numbers, where the electrical corporation provides details supporting the target

10.1.1 Quantitative Targets

The electrical corporation must list all quantitative targets it will use to track progress in its asset management activities, broken out by each year of the WMP period. Electrical corporations will report progress toward completing quantitative targets in subsequent reports and data submissions to Energy Safety.

Each activity must have distinct, trackable targets associated with the activity, even if the electrical corporation tracks targets internally with combined activities.

The electrical corporation must establish quantitative targets for Asset Inspections (Section 10.2), Work Orders (Section 10.3), and Equipment Maintenance and Repair (Section 10.4), for each applicable activity or program it uses to track progress. The electrical corporation must provide quantitative targets for at least the following activities:

- Asset Inspections (e.g., transmission patrols, distribution detailed inspections, routine substation inspections, transmission drone inspections)
- Work Order Backlog Reduction (e.g., activities that reduce the backlog of overdue and constrained work orders)
- Proactive Equipment Replacements[106] (e.g., nonexempt equipment replacements, proactive transformer replacements)

10.1.2 Qualitative Targets

For instances where quantitative targets cannot be established, the electrical corporation may provide qualitative targets for the following activities:

- Any or all studies, pilots, investigations, experiments, and reports pertaining to:
    - Asset Inspections
    - Equipment Maintenance
    - Quality Management Systems

[106] In this context, proactive equipment replacements refer to equipment replacements independent from breakdown/outage response, installation of grid hardening activities such as covered conductor or undergrounding, or inspection activity finding remediations.

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The electrical corporation must provide qualitative targets for its plan for implementing and improving its asset management activities. In Table 10-1, the electrical corporation must provide the following:

- Identification of which initiative(s) and activity/activities in the WMP the electrical corporation is implementing to achieve the stated target, including Tracking IDs and the Tracking ID(s) used in past WMPs ("Previous Tracking ID"), if applicable
- Target milestones for each year of the WMP period
- Reference(s) to the WMP section(s) or appendix, including page numbers, where the details of the target(s) are documented and substantiated

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Table 10-1: Example of Asset Management Targets by Year

Activity	Target	Tracking ID	Previous Tracking ID (if applicable)	Unit	[Year 1] Target	% Planned in HFTD [Year 1]	[Year 2] Target	% Planned in HFTD [Year 2]	[Year 3] Target	% Planned in HFTD [Year 3]	[Year 4] Target	% Planned in HFTD for [Year 4]	Target Total	Section; Page Number
Detailed Distribution inspections	*Quantitative*	*AI-01*		*Pole Inspected*	*6,700*	*90%*	*6,800*	*91%*	*6,750*	*90%*	*6,750*	*90%*	*27,000*	*9.2; p. x*
Detailed Transmission Inspections	*Quantitative*	*AI-02*		*Poles and Towers Inspected*	*1,100*	*85%*	*1,200*	*80%*	*1,100*	*75%*	*1,100*	*85%*	*4,500*	*9.2; p. x*
Distribution Drone Inspections	*Quantitative*	*AI-03*		*Poles Inspected*	*4,050*	*100%*	*4,050*	*100%*	*4,050*	*100%*	*4,050*	*100%*	*16,200*	*9.2; p. x*
Transmission IR Inspections	*Quantitative*	*AI-04*		*Miles Inspected*	*500*	*70%*	*500*	*70%*	*500*	*70%*	*500*	*70%*	*2,000*	*9.2; p. x*
Overdue Work Order Backlog Reduction	*Quantitative*	*RM-01*		*Net Overdue Work Orders Removed from Backlog*	*100*	*80%*	*100*	*80%*	*100*	*80%*	*100*	*80%*	*400*	*9.3; p. x*
Non-Exempt Expulsion Fuse Replacements	*Quantitative*	*PM-01*		*Fuses Replaced*	*50*	*100%*	*50*	*100%*	*50*	*100%*	*50*	*100%*	*200*	*9.4; p. x*
Study: Effectiveness of Various Inspection Techniques at Identifying Connection Device Deterioration	*Qualitative*	*IS-01*		*N/A*	*Define Scope, Conduct Literature Review*	*N/A*	*Collect Data, Analyze Data*	*N/A*	*Analyze Data, Compile Report*	*N/A*	*Complete Study and Report*	*N/A*	*N/A*	*9.2; p. x*

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10.2 Asset Inspections

The electrical corporation must provide an overview of all its asset inspection activities.[107]

The electrical corporation must provide a table of information pertaining to its asset inspections. Table 10-2 provides an example of the appropriate level of detail and required format. The table must include the following:

- **Type of Inspection:** Type of asset that is inspected (i.e., distribution, transmission, or substation).
- **Inspection Activity:** Name of the inspection activity.
- **Inspection Activity Tracking ID:** Inspection activity Tracking ID.
- **Frequency or Trigger:** The inspection frequency and~~or~~ trigger(s) for an inspection, such as inputs from the risk model. Indicate differences in frequency or trigger by HTFD Tier or other risk designation, if applicable.
- **Method of Inspection:** Method(s) used to perform the inspection (e.g., on foot, vehicle, drone, infrared, helicopter, climbing, intrusive, and LiDAR).
- **Performed By:** The name(s) of the internal team(s) or contractor(s) that schedule and execute the inspections.
- **Governing Standards:** Regulatory, construction, and internal electrical corporation standards pertaining to the inspection activity.
- **Operating Procedures:** Internal procedures for ensuring adherence to the governing standards pertaining to the inspection activity.
- **Percent of HFTD and HFRA Covered Annually by Inspection Type:** The percentage of either circuit mileage or number of assets within the HFTD and HFRA inspected annually by the inspection type.
- **Find Rate:** Identify the find rate of Level 1, 2, and 3 conditions[108] over the four years prior to the WMP submission. If the electrical corporation utilizes a priority designation system that differs from GO 95, Rule 18, the electrical corporation must identify the find rate for each of its internal priority designations and identify the

[107] Pub. Util. Code § 8386(d)(10).

[108] CPUC General Order 95, Rule 18.

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corresponding GO 95, rule 18 priority for each of its internal priority codes. The find rate must be expressed as the number of findings divided by the number of inspections performed and the inspection unit must align with Table 10-1.

- **Clarifying Information:** If multiple methods of inspection are used for a given inspection activity, the electrical corporation must clarify whether the methods of inspection are inclusive (e.g., all detailed inspections include both an on foot and drone component) or exclusive (e.g., detailed inspections may be performed on foot or via drone).

  For exclusive methods of inspection, the electrical corporation must provide the relative percentage of each method. Where historical inspection counts are estimated, incomplete, or derived from multiple record systems, the electrical corporation must identify the limitation and describe the estimation methodology used to calculate the find rate.

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Table 10-2: Example of Asset Inspection Information

Type	**Inspection Activity**	**Tracking ID**	**Frequency and~~or~~ Triggers ~~(Note 1)~~**	**Method of Inspection ~~(Note 2)~~**	**Performed by**	**Governing Standards**	**Operating Procedures**	**% of HFTD and HFRA Covered Annually by Inspection Type**	**Condition Find Rate Priority A (Level 1)**	**Condition Find Rate Priority B (Level 2)**	**Condition Find Rate Priority C (Level 2)**	**Condition Find Rate Priority D (Level 3)**	**Clarifying Information**
Transmission	*Patrol Inspection*		*1 year*	*Foot Patrol, Helicopter Patrol*	*Contractor (Specify contractor name)*	*GO 165*	*Title of Electrical Corporation Patrol Inspection Procedure(s)*	*100%*	*0.1% (Mile)*	*1% (Mile)*	*1% (Mile)*	*3% (Mile)*	*Exclusive; 75% foot patrol, 25% Helicopter patrol*
Distribution	*Detailed Ground Inspection*		*3 years*	*On foot*	*Internal Team (Specify internal team name)*	*GO 165*	*Title of Electrical Corporation Detailed Ground Inspection Procedure(s)*	*33%*	*3% (Asset)*	*6% (Asset)*	*10% (Asset)*	*12% (Asset)*	*N/A*
Distribution	*Drone Inspection*		*5 years*	*Drone*	*Contractor (Specify Name), Internal Team (Specify Name)*	*Title of Relevant Electrical Corporation Construction Standards*	*Title of Electrical Corporation Drone Inspection Procedure(s)*	*20%*	*3% (Asset)*	*9% (Asset)*	*15% (Asset)*	*10% (Asset)*	*N/A*
Distribution	*PSPS Restoration Inspection*		*PSPS Event*	*Drone*	*Internal Team (Specify internal team name)*	*Title of Relevant Electrical Corporation Construction Standards*	*Title of Electrical Corporation PSPS Inspection Procedure(s)*	*N/A*	*1% (Asset)*	*3% (Asset)*	*2% (Asset)*	*2% (Asset)*	*N/A*

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The electrical corporation must provide a narrative description of each asset inspection activity identified in Table 10-2; *Section 10.2.1, [Asset Inspection Activity Name]* provides instructions for the descriptions. The sections should be numbered Section 10.2.1 to Section 10.2.n (i.e., each asset inspection activity is detailed in its own section).

The electrical corporation must include inspection activities it is discontinuing or has discontinued since the last WMP submission; in these cases, the electrical corporation must explain why the activity is being discontinued or has been discontinued.

The electrical corporation must also include inspection activities being piloted. For pilot inspection activities, the electrical corporations must include a discussion of how it measures the effectiveness of the pilot and how it determines next steps for the pilot (e.g., to expand, discontinue, or move to permanent activity).

Each section detailing an inspection activity must be structured according to the sections below.

10.2.1 [Asset Inspection Activity Name]

Overview

The electrical corporation must provide an overview of the individual asset inspection activity, including:

- The scope and process of the inspection;
- A list of documents used during the execution of the inspection. All documents must be included in Appendix C: Supporting Documentation for Mitigation Activities;
- Its process for documenting inspection findings;
- The various inspection methods used for each inspection activity; and
- All possible outcomes from the inspection activity, including potential remediation activities.

For each inspection method, the electrical corporation must identify:

- The types of conditions the inspection method is intended to detect; and
- The material limitations of the method and any complementary inspection or monitoring activities used to address those limitations.

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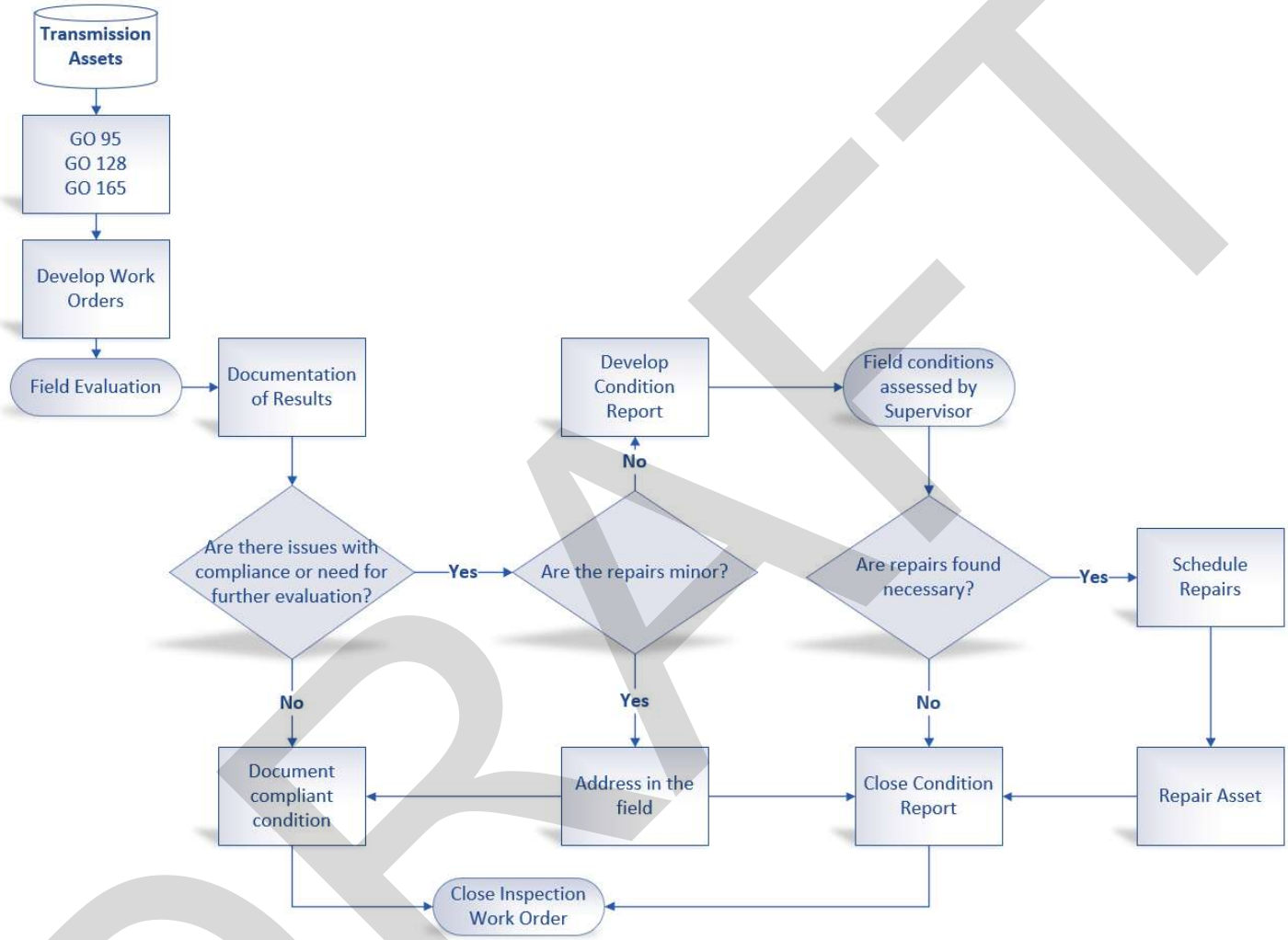
Include relevant visuals and graphics depicting the workflow and decision-making process the electrical corporation uses for the inspection activity (see the example in Figure 10-1).

Figure 10-1: Example of Asset Management and Inspections Workflow



Frequency or Trigger

The electrical corporation must identify the inspection frequency (including how frequency may differ by HFTD Tier or other risk designation[s]) and triggers that initiate the inspection activity, such as outputs from the risk model.

The electrical corporation must also identify any seasonal or event-driven triggers used to accelerate, expand, defer, or repeat inspections, such as pre-fire-season readiness, Red Flag Warnings, PSPS events, outages, faults, ignitions, or post-fire assessments.

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The electrical corporation must explain how it uses risk prioritization to inform scheduling of the inspection activity to target high-risk areas. If the electrical corporation does not use risk prioritization in the scheduling of the inspection activity, it must explain why.

Accomplishments, Challenges, and Updates

The electrical corporation must discuss:

- How it measures success of the inspection activity;
- Challenges it has encountered while implementing the inspection activity and how it has addressed the challenges; and
- Changes and updates to the inspection activity since the last WMP submission, including implementation status and timeline, known plans (beyond the current year), and new or novel strategies the electrical corporation may implement in the next five years, including references to and strategies from pilot projects and research.

10.3 Work Orders

The electrical corporation must provide an overview of its procedures for managing its open asset management work orders.[109] This overview must include a brief narrative that includes the following:

- A reference to procedures documenting the work order process, including the most recent procedures documents as of this WMP submission in *Appendix C: Supporting Documentation for Mitigation Activities*.
- A list of activities that may result in creating a work order (e.g., planned inspections, outage response, continuous monitoring technologies).
- A narrative description of open work orders in its service territory. This must include the number of currently open work orders, trends in the number of work orders being opened over time, the number of work orders being closed over time, trends in the number of work orders being closed over time, the location of currently open work orders, and the severity of currently open work orders.
- The electrical corporation's description of the plan for catching up on past due and constrained work orders, including the estimated date at which the overdue backlog

[109] Asset management work orders are defined as work orders created to undertake corrective actions.

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of work orders in the HFTD and HFRA will be less than 3 percent of the average[110] number of work orders opened per year in the HFTD and HFRA.

- A description of how the electrical corporation prioritizes work orders based on risk and how the prioritization of specific conditions is adjusted over time. This discussion must include the following:
    - A narrative of the electrical corporation's work order priority system, including an explanation for any differences between GO 95, Rule 18 and the system utilized by the electrical corporation.
    - How ~~unplanned~~ Level 1 conditions resulting from the worsening of open Level 2 or 3 (or the electrical corporation internal equivalent) work orders inform the priority level the electrical corporation assigns to conditions.
    - How ignitions associated with open work orders inform the priority level the electrical corporation assigns to conditions.[111]
- A description of procedures the electrical corporation uses for monitoring and reinspecting open work orders. If the electrical corporation reprioritizes conditions (e.g., changes a work order from a lower to higher priority level), that process must be described.
- A discussion of how past trends of open work orders have informed the electrical corporation's current procedures and prioritization for addressing work orders. This must include analysis of the following:
    - The types of findings within the backlog
    - The equipment types associated with findings within the backlog
    - The prioritization level within the backlog
    - The work order reinspection frequency for each finding type
    - The outcomes of reinspection, including changes to prioritization or expected due dates

In addition to the narrative, the electrical corporation must provide tabular information related to the open work orders in its service territory, including the number, priority, and

[110] The average number of work orders opened per year over the four years prior to the WMP submission.

[111] An ignition associated with an open work order is an ignition that occurs on or in the immediate proximity of equipment with an open work order. Association does not require a finding of cause from an investigation.

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HFTD Tier of past due work orders at the time of WMP submission.[112] A separate table must be provided for distribution and transmission (Table 10-3 and Table 10-4). Additional data pertaining to work orders must be provided in *Appendix C: Supporting Documentation for Mitigation Activities*.

Table 10-3: Example of Number of Past Due Distribution Work Orders

GO 95 Priority Level	Internal Priority Level (example)	Non HFTD	HFTD Tier 2	HFTD Tier 3	HFRA (Outside HFTD)
1	A				
2	B				
	C				
	D				
3	E				
	F				

Table 10-4: Example of Number of Past Due Transmission Work Orders

GO 95 Priority Level	Internal Priority Level (example)	Non HFTD	HFTD Tier 2	HFTD Tier 3	HFRA (Outside HFTD)
1	A				
2	B				
	C				
	D				
3	E				
	F				

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[112] A past due work order is any work order that remains open beyond the shorter of two timeframes: the one required by the electrical corporation, or the one required by GO 95.

10.4 Equipment Maintenance and Repair

The electrical corporation must provide a narrative overview of its equipment maintenance activities. The narrative must include how it maintains and repairs, at a minimum, the following equipment types

- Capacitors
- Circuit breakers
- Connectors
- Conductor, including covered conductor
- Crossarms
- Fuses, including expulsion fuses
- Distribution pole
- Lightning arrestors
- Reclosers
- Splices
- Clamps
- Cutouts
- Guy Systems
- Insulators
- Tie wires
- Jumpers
- Potheads
- Risers
- Switches
- Voltage Regulators
- Transmission poles/towers
- Transformers
- Pre-GO 95 legacy equipment
- Other equipment not listed

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For each equipment type above, the electrical corporation must separately provide the following information for distribution, transmission, and substation equipment, as applicable. If an equipment type is not used for a given asset category, the electrical corporation may state "N/A."

- **Maintenance Strategy:** identification and brief description of the maintenance strategy (e.g., reactive, preventative, predictive, reliability-centered, time based, condition based).
- **Condition Monitoring:** a description of how the electrical corporation monitors the condition of the equipment (e.g., human visual inspection, automated visual inspection, human sensor readings, automated sensor readings, function testing).
- **Replacement/Repair Condition Identification:** a description of how equipment is identified for repair or replacement (e.g., time interval, inspection finding, sensor reading, predictive maintenance, data analytics, machine learning).
- **Remediation Execution:** a description of the maintenance execution process, including documents utilized by maintenance personnel during such execution. If there are instances when electrical corporation personnel complete maintenance work in the absence of a work order, the electrical corporation must detail all circumstances that may result in such an instance.
- **Equipment Failure Data Collection Granularity:** a description of the granularity at which equipment failure data is recorded (e.g., equipment type level, manufacturer level, manufacturer part number level).
- **Equipment Failure and Ignition Trends:** a discussion of any equipment failure and ignition trends identified by the electrical corporation and corresponding changes to asset management practices. The electrical corporation must consider trends in rate, quantity, occurrences shortly after inspections, and occurrences shortly after repair work. Data pertaining to equipment failures must be provided in *Appendix C: Supporting Documentation for Mitigation Activities*.
- **Failure and Ignition Causes:** a narrative describing root cause analyses performed for failures and associated ignitions within the HFTD and HFRA, including any lessons learned and solutions implemented to decrease failure rates and ignition rates.

If the electrical corporation has technical standards, procedures, or documentation that describe the maintenance strategy, condition monitoring, replacement/repair condition identification, and remediation execution for an equipment type, it may refer to the

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standards, procedures, and documentation instead of restating the information. The referenced documents must be included Appendix C: Supporting Documentation for Mitigation Activities.

10.5 Quality Management System

The electrical corporation must describe how it controls and ensures the quality of its asset management work so that it meets or exceeds quality requirements. To do so, the electrical corporation must describe quality control (QC) inspection and quality assurance (QA) audit activities.

For WMPs, Energy Safety defines QC inspections and QA audits as follows:

- A **QC inspection** reviews outputs of a process by comparing the output's attributes to attributes specified in procedures. QC inspections of sampling units typically estimate the quality level of a population of work. Nonconforming sampling units are corrected after a QC inspection. If the sample-estimated quality level is below a predetermined quality threshold, a decision is made to accept the population of work or rework all or a portion of the population of work.
- A **QA audit** uncovers improvement opportunities by determining if processes achieve quality objectives. A non-exhaustive list of audit activities includes: reviewing procedures, work documentation, and QC inspection findings; performing interviews; testing training effectiveness; creating new processes; and observing procedure use. A QA audit results in a report that recommends corrective actions to deliver continued improvements.

10.5.1 Overview

The electrical corporation must provide an overview of its asset management QA and QC activities. The overview must include the following information in Table 10-5 of its WMP for each quality management activity:

- **Activity Subject to an Audit or Inspection:** The name of the activity subject to a QA audit or QC inspection (each activity name should match an activity described in Sections 10.2 through 0).
- **Tracking ID:** A unique Tracking ID that is an extension of the activity Tracking ID in Table 10-1 or Table 10-2 (e.g., if the activity Tracking ID is AI-2, then the QC Tracking ID

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for the same activity must be AI-2.1 or another extension, and the QA Tracking ID for the same activity must be AI-2.2 or another extension).

- **Quality Management Activity Type:** The quality management activity type (QA audit or QC inspection).
- **Objective of the Quality Management Activity:** A statement identifying why the QA audit or QC inspection will help the electrical corporation achieve and maintain quality for its asset management activity.

Table 10-5 provides an example of the appropriate level of detail and required format.

Table 10-5: Example of Asset Management QA and QC Activities and Objectives

Activity Subject to an Audit or Inspection	**Tracking ID**	**Quality Activity Type**	**Objective of the Quality Activity**
Detailed Distribution Inspections	*AI-0X.1*	*QA Audit*	*To ensure inspectors are following electrical corporation procedures for inspections and identify areas for improvement.*
Detailed Distribution Inspections	*AI-0X.2*	*QC Inspection*	*To ensure personnel are correctly identifying and classifying conditions per electrical corporation and GO requirements.*
Detailed Distribution Inspection Finding Remediation	*AM-0X.1*	*QA Audit*	*Ensure personnel are following electrical corporation procedures for maintenance and identify areas for improvement.*
Nonexempt Expulsion Fuse Replacement	*AM-0X.1*	*QC Inspection*	*To ensure linemen are following electrical corporation procedures for installation of exempt expulsion fuses*

The electrical corporation must also provide the following tabular information for each QC inspection. This information documents quantitative values the electrical corporation uses to determine the number of units it will inspect.

- **Activity Subject to QC Inspection:** An activity the electrical corporation subjects to a QC inspection. The activity must match an activity in Sections 10.2~~9.2~~ through 10.4~~9.4~~.

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- **Method of QC Inspection:** How the QC inspection was performed (e.g., desktop or field).
- **Population/Sampling Unit:** An entity of the activity QC inspects to assess quality.
- **Annual Mean Population Size:** The mean population size subject to the QC inspection across all years within the WMP period. In this section, a population may be the number of total circuit miles inspected, poles or towers inspected, work orders completed, etc. within a specific area of the service territory, or across the entire service territory.
- **Annual Mean Sample Size:** The mean sample size across all years within the WMP period of the activity subject to the QC inspection.
- **Annual Mean % of Sample in the HFTD:** The annual mean percentage of the sampling units within the HFTD for the activity subject to the QC inspection (i.e., the mean of the percentage of the sample in the HFTD across all years within the WMP period).
- **Confidence Level:** A probability across repeated samples that the range defined by the margin of error will contain the true population parameter.
- **Margin of Error:** A value the electrical corporation subtracts or adds to the quality statistic to create a range that, at a stated confidence level, likely contains the population parameter.
- **Expected Proportion Meeting Quality Specifications:** An informed estimate of the proportion of the sampled work that the electrical corporation expects to meet quality standards during QC inspections (e.g., a detailed inspection performed to the relevant regulatory and internal electrical corporation standards). The expected proportion is a necessary parameter for Cochran's sample size formula. Additional Cochran's formula parameters include the population size, confidence level, and margin of error.[113]

Table 10-6 provides an example of the appropriate level of detail and required format.

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[113] Cochran, Sampling Techniques (3rd Ed.), pages 75-76.

Table 10-6: Example of Asset Management QC Inspection Activity Commitments

Activity Subject to QC Inspection	**Type of Audit**	**Population/ Sampling Unit**	**Annual Mean Population Size**	**Annual Mean Sample Size**	**Annual Mean Percent of Sample in the HFTD**	**Confidence Level**	**Margin of Error**	**Expected Proportion Meeting Quality Specifications**
Detailed Distribution Inspections - Ground	*Field*	*Pole Inspected*	*5,000*	*1,347*	*75%*	*99%*	*3%*	*97%*
Detailed Distribution Inspections - Drone	*Desktop*	*Pole Inspected*	*500*	*135*	*90%*	*99%*	*3%*	*97%*
Distribution Maintenance – Nonexempt Fuse Replacements	*Field*	*Assets*	*1000*	*100*	*95%*	*95%*	*2%*	*97%*

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10.5.2 Sample Sizes

The electrical corporation must describe how it determines the sample size for each QC inspection listed in Table 10-6. This must include how the HFTD Tier, the electrical corporation's risk model, or other risk designations affect the sampling plan, and how the electrical corporation ensures samples are representative of the population (e.g., sample size relative to population size, randomization, stratification, weighting, etc.).

10.5.3 Quality Metrics

The electrical corporation must list and describe the metrics it uses to evaluate the effectiveness of its asset management activities and procedures. For example, the electrical corporation could consider the following: conformity rates, rework rates, outage rates within a specific number of months of inspection attributed to equipment condition or failure, maintenance rework rate, or other metrics. The electrical corporation must also describe:

- The criteria for each QC inspection it lists in Table 10-6, a description of each criterion, and any weighted contributions of each criterion to the quality metric.
- The sub-populations for which it calculates QC inspection metrics. Sub-populations are portions of the Annual Mean Sample Size quantities in Table 10-6. Calculating metrics at the sub-population level allows the electrical corporation to identify work quality across space and time (e.g., the work quality of different contractors from one month to the next).
- The thresholds it uses to indicate the need for corrective actions across populations of work in Table 10-6 and any sub-populations within these populations (e.g., an electrical corporation may establish conformity rate thresholds above which it will accept a population or sub-population of work, and below which it will implement corrective actions to increase the conformity rate).
- How its QC inspection metrics demonstrate activities have met performance goals.

10.5.4 Documentation and Resolution of Findings

The electrical corporation must describe how it documents its QA and QC findings, resolves nonconformities, and uses lessons learned from those findings to inform corrective actions. This description must include:

- How nonconformities identified by QC inspections are corrected;

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- How the electrical corporation uses the proportion of samples meeting quality specifications to inform corrective actions (e.g., procedural changes, training, etc.);
- Data the electrical corporation leverages in addition to QC inspections to inform corrections and corrective actions;
- How the electrical corporation implements corrections and corrective actions in response to the proportion of samples meeting quality specifications and leveraged data; and
- Further information pertaining to historical QA and QC results must be provided in *Appendix D: Additional Tabular Data*.

10.5.5 QA and QC Exclusions

The electrical corporation must describe why it does not perform QA or QC for each activity in Sections 10.2 through 0 for which it does not perform QA or QC

10.5.6 Procedures

The electrical corporation must list the applicable procedure(s), including the version(s) and effective date(s), used for each asset management QA and QC activity listed in Table 10-5. The electrical corporation must include the most recent procedures in *Appendix C: Supporting Documentation for Mitigation Activities*.

10.5.7 Scheduling

The electrical corporation must describe how it schedules quality management activities. The description must include the frequency of the quality management activity (e.g. monthly, quarterly, yearly, etc.) and the length of time between when it completes the asset management activity and when it performs the quality management activity for:

- Each QA activity in Table 10-5; and
- Each QC inspection in Table 10-6.

10.5.8 Updates and Planned Improvements

The electrical corporation must provide:

- A list of changes it made to its QA and QC procedure(s) or activities since its last WMP submission;

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- An explanation for why each change was implemented, including references to lessons learned as applicable;
- A list of planned improvements or updates, or both improvements and updates, to QA and QC procedure(s) including a timeline for implementation; and
- A summary of actual QA and QC results from the four years prior to submission, including any resulting updates to procedures, training, or sampling plans.

10.6 Workforce Planning

The electrical corporation must provide an overview of its asset management workforce planning.[114] The electrical corporation must provide the following tabular information:

- **Worker Title:** All worker titles relevant to asset management, including, but not limited to, titles related to inspections, maintenance, and quality management.
- **Minimum Qualifications for Target Role:** A description of the minimum employee candidate qualifications for each worker title, with an emphasis on qualifications relevant to asset management.
- **Applicable Certifications:** A list of certifications applicable to the worker title, such as California-Nevada Joint Apprenticeship Training Committee (JACT) Journeyman Lineman or ASQ Certified Quality Engineer.
- **Electrical Corporation ~~FTEs~~ staff with Minimum Qualifications:** For the worker title, the electrical corporation's number of internal ~~full-time equivalents (FTEs)~~staff with minimum qualifications at the time of WMP submission. Internal electrical corporation employees are those the electrical corporation directly employs (i.e., internal employees are not contractors).
- **Electrical Corporation ~~FTEs~~ staff with Applicable Certifications:** For the worker title, the electrical corporation's number of ~~FTEs~~ staff with applicable certifications at the time of WMP submission.
- **Contracted ~~FTEs~~ staff with Minimum Qualifications:** For the worker title, the number of contracted ~~FTEs~~ staff with minimum qualifications at the time of WMP submission.

[114] Pub. Util. Code §§ 8386(d)(16) and (19)(A).

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- **Contracted ~~FTEs~~ staff with Applicable Certifications:** For the worker title, the number of contracted ~~FTEs~~ staff with applicable certifications at the time of WMP submission.
- ~~**Current FTEs:** For the worker title, the number of internal and contracted electrical corporation FTEs with minimum qualifications at the time of WMP submission.~~
- ~~**Fully-Staffed FTEs:** For the worker title, the fully-staffed number of internal and contracted electrical corporation FTEs with minimum qualifications.~~
- **Reference to Electrical Corporation Training / Qualification Programs:** A list of training and qualification programs that the electrical corporation requires employees in each position to complete.

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Table 10-7: Example of Asset Management Qualifications and Training

Worker Title	**Minimum Qualifications for Target Role**	**Applicable Certifications**	**Electrical Corporation ~~FTEs~~ staff with Min Quals**	**Electrical Corporation ~~FTEs~~ staff with Applicable Certifications**	**Contracted ~~FTEs~~ staff with Min Quals**	**Contracted ~~FTEs~~ staff with Applicable Certifications**	**~~Current FTEs~~**	**~~Fully Staffed FTEs~~**	**Reference to Electrical Corporation Training / Qualification Programs**
Detailed Distribution Inspector	*IBEW Journeyman Lineman in good standing* *Completion of Overhead Inspection training program*	*QEW*	*100*	*QEW – 100*	*10*	*QEW – 10*	*~~110~~*	*~~110~~*	*Detailed Distribution Inspection training course (AI-001)*
Thermographer	*FAA Part 107 Remote Pilot Certificate*	*Level 1 Electrical Thermography Certification* *Level 2 Electrical Thermography Certification* *Level 3 Master Thermography Certification*	*10*	*Level 1 – 5* *Level 2 – 3* *Level 3 – 2*	*1*	*Level 1 – 0* *Level 2 – 0* *Level 3 – 1*	*~~11~~*	*~~12~~*	*Infrared Inspection training course (IRI-001)*
Quality Management Engineer	*B.S. in Engineering or Computer Science*	*ASQ CQE Quality Engineer Certification*	*10*	*ASQ CQE – 2*	*0*	*N/A*	*~~10~~*	*~~10~~*	*Quality Management Systems training course (QMS-001)*

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10.6.1 Staffing and Competency

The electrical corporation must describe how it reviews organizational objectives to ensure the size and skills of its workforce align with priorities. This description must include:

- The frequency in which the electrical corporation considers whether workforce size and skills are adequate to achieve organizational objectives;
- How the electrical corporation plans to address workforce demand and supply issues during the WMP period; and
- How findings from the electrical corporation's quality control inspections, quality assurance audits, and performance metrics inform its workforce planning process.

10.6.2 Recruitment

The electrical corporation must describe how it recruits personnel for asset management and inspections, including any relevant partnerships with trade and technical programs, unions, colleges and universities.

10.6.3 Training and Retention

The electrical corporation must describe how it trains its asset management and inspection personnel, including any requirements for continuing education, refresher training, and worker qualification improvement programs.

The electrical corporation must also describe any asset management-related training facilities it has established or plans to establish. Training facilities typically provide controlled environments that allow inspectors and troubleshooters to practice job duties.

10.6.4 Personnel Work Procedures and Training in Conditions of Elevated Fire Risk

The electrical corporation must provide a narrative on the following:

- The electrical corporation's procedures that designate what type of work the electrical corporation allows (or does not allow) personnel to perform during different levels of wildfire risk, including:
    - How the electrical corporation defines each level of wildfire risk (FPI, Red Flag Warning Days, etc.);

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- What the electrical corporation allows (or does not allow) during each level of risk;
- What the electrical corporation's related procedures are, and how the electrical corporation trains its personnel on those procedures related to what it allows and does not allow; and
- How it notifies personnel when conditions change, warranting implementation of those procedures.

- The electrical corporation's procedures for deploying firefighting staff and equipment (e.g., fire suppression engines, hoses, water tenders, etc.) to work sites for site-specific fire prevention and ignition mitigation.

10.7 Additional Benefits of Asset Management Activities

Mitigation activities may provide benefits to the electrical corporation beyond reducing wildfire risk and outage program risk as defined for the WMP (see *Section 7.2.1, Risk and Risk Component Identification*). These benefits are outside of the risk components that the electrical corporation analyzed specifically for wildfire mitigation but may influence the electrical corporation's decision-making. The electrical corporation must use this section to describe these additional benefits of its asset management activities.

When describing additional benefits, the electrical corporation must tie a specific mitigation activity or activities to the benefits. This section is limited to no more than three pages.

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11 Vegetation Management

Each electrical corporation's WMP must include plans for vegetation management.[115]

11.1 Targets

The electrical corporation must provide qualitative and quantitative targets for its vegetation management activities for each year of the WMP period.[116]

In Table 11-1, the electrical corporation must provide at least one qualitative or quantitative target for the following mitigation initiatives:

- Wood and Slash Management
- Defensible Space
- Integrated Vegetation Management
- Workforce Planning

In Table 11-2, the electrical corporation must provide quantitative targets for the following initiatives:

- Vegetation Management Inspections
- Pole and Tower Clearing

11.1.1 Qualitative and Non-Inspection Quantitative Targets

The electrical corporation must provide qualitative targets and non-inspection quantitative targets for its vegetation management initiatives. For each qualitative and non-inspection quantitative target, the electrical corporation must provide the following in Table 11-1:

- **Initiative:** The initiative in the WMP that the electrical corporation implements to achieve the target.
- **Quantitative or Qualitative:** Whether the target is quantitative or qualitative.
- **Activity (Tracking ID):** A description of the mitigation activity (and its Tracking ID in parentheses).

[115] Pub. Util. Code §§ 8386(d)(3) and (9).

[116] End of year targets must follow the calendar year.

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- **Previous Tracking ID, if applicable:** The tracking ID(s) used in past WMPs.
- **Unit:** The unit of the annual target. This field is optional for qualitative targets.
- **Target / Outcome:**
    - For a qualitative target, the specific, measurable, achievable, relevant, and timely outcome for a given year.
    - For a quantitative target, the number of units the electrical corporation is committed to completing in a given year.
- **Risk Reduction Value (k$):** The expected monetary risk reduction value for each year of the WMP period in thousands of dollars (k$).[117]
- **Section; Page Number:** Reference(s) to the WMP section(s) or appendix, including page numbers, where the details of the target(s) are documented and substantiated.

Table 11-1 provides examples of the minimum acceptable level of information and required template.

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[117] The expected risk reduction value (k$) is described in Section 8.1.4, Activity Selection Process, Risk Impact of Activities.

Table 11-1: Example of Vegetation Management Qualitative and Non-Inspection Quantitative Targets by Year

Initiative	Quantitative or Qualitative	Activity (Tracking ID)	Previous Tracking ID, if applicable	Unit	Target / Outcome [Year 1]	% Risk Reduction Value (k$) [Year 1]	Target / Outcome [Year 2]	% Risk Reduction Value (k$) [Year 2]	Target / Outcome [Year 3]	% Risk Reduction Value (k$) [Year 3]	Target / Outcome [Year 4]	% Risk Reduction Value (k$) [Year 4]	Section; Page Number
Wood and Slash Management	*Qualitative*	*Benchmark wood and slash management data collection and tracking practices with other utilities. (VM-08)*	*VM-02*	*N/A*	*Create wood and slash management database for benchmarking activities.*	*N/A*	*Complete a baseline assessment of current wood and slash management data collection systems by surveying at least 5 peer utilities, and documenting current metrics, tools, and processes in a standardized report.*	*N/A*	*Integrate and apply changes to internal procedures or data management based on benchmarking findings, if applicable.*	*N/A*	*…*	*…*	*11.x; p. x*
Integrated Vegetation Management	*Quantitative*	*Remove invasive species and flash fuels in high-risk transmission corridors (VM-12)*	*VM-12*	*Acres treated*	*400*	*14*	*400*	*14*	*400*	*14*	*…*	*…*	*11.7; p. x*

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11.1.2 Quantitative Inspection Targets

The electrical corporation must list all quantitative inspection targets it will use to track progress on its vegetation management activities for each year of the WMP period. Electrical corporations will report progress toward completing quantitative targets in subsequent reports and data submissions to Energy Safety.

Each activity must have distinct, trackable targets associated with the activity, even if the electrical corporation tracks targets internally with combined activities.

If a required target for a mitigation activity is zero, the row for the activity must be included, and the target reported as zero. Quantitative inspection targets must be reported in accordance with the requirements below.

Inspection and Prescription Targets for Overhead Assets

Every inspection activity described in *Section 11.2, Vegetation Management Inspections* must have at least one quantitative target. Targets for inspection activities for vegetation near overhead (OH) electrical assets must be the percentage of corridor miles in the service territory that the electrical corporation will inspect and prescribe appropriate mitigations (e.g., pruning and removal).

Corridor miles are the total linear distance in miles between the sequence of utility support structures that hold at least one continuous circuit. Where parallel sets of support structures exist in a single corridor, calculate corridor miles using the circuit that results in the largest measurement. Calculate corridor miles inspected once per corridor, regardless of the number of circuits or parallel sets of support structures present.

Inspection and Clearing Targets for Poles and Towers

Pole and tower clearing targets must be a percentage of the specified total that the electrical corporation will inspect and clear where clearing is required or necessary. Individual poles and towers must only be included in one target. The electrical corporation must provide separate pole and tower clearing targets for the following activities:

- Pole clearing performed in compliance with Public Resources Code section 4292. The unit for this activity is non-exempt poles in the State Responsibility Area.
- Tower clearing performed in compliance with Public Resources Code section 4292. The unit for this activity is non-exempt towers in the State Responsibility Area.

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- Pole and tower clearing in United States Forest Service (USFS) land performed in compliance with USFS Order Number 91-1.[118] The unit for this activity is poles and towers on USFS land subject to USFS Order Number 91-1.
- Additional pole and tower clearing activities performed beyond the minimum requirements of Public Resources Code section 4292 and USFS Order Number 91-1. The unit for this activity is all poles and towers in the service territory not included in other pole and tower clearing targets in Table 11-2 (Other Poles and Towers in Service Territory).

Requirements for Vegetation and Pole Clearing Inspection Targets

For each quantitative inspection target, the electrical corporation must provide the following in Table 11-2:

- **Activity:** Identification of which activity in the WMP the electrical corporation is implementing to achieve the stated target.
- **Tracking ID:** The activity Tracking ID.
- **Previous Tracking ID, if applicable:** The Tracking ID(s) used in past WMPs.
- **Unit:** The unit for the annual target. The required units for inspection of overhead electrical assets and pole and tower clearing are provided above in *Section 11.1.2, Quantitative Inspection Targets*.
- **Estimated Unit Total at Time of Submission**: An estimate of the total number of units at the time of WMP submission. These totals may shift throughout the WMP period.
- **Annual Target (% of Total):** The percent of the total units targeted for inspection and prescription of appropriate mitigations where required or necessary during a given year. The percentage must include two decimal places (e.g., 60.00%).
- **% of HFTD Covered:** The percent of the total overhead corridor miles or poles/towers in the HFTD covered by the annual target (e.g., 100 corridor miles of patrol inspections in the HFTD in [Year 1] divided by 300 total overhead corridor miles in the HFTD equals 33 percent covered). Note that this is a different calculation from the "% Planned in HFTD for [year]" target in Table 8-1.

[118] United States Forest Service, Order Number 91-1 Fire Restrictions Pacific Southwest Region, executed July 24, 1991.

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- **Risk Reduction Value (k$):** The expected monetary risk reduction value for each year of the WMP period, entered in thousands of dollars (k$).[119]
- **Section; Page Number:** Reference(s) to the WMP section(s) or appendix, including page numbers, where the electrical corporation provides details supporting the target.

Table 11-2 provides examples of the minimum acceptable level of information.

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[119] The expected risk reduction value (k$) is explained in Section 8.1.4, Activity Selection Process, Risk Impact of Activities.

Table 11-2: Example of Vegetation and Pole Clearing Inspection Targets by Year

Activity	Tracking ID	Previous Tracking ID, if applicable	Unit	Estimated Unit Total at Time of Submission	Annual Target (% of Total) [Year 1]	% of HFTD Covered in [Year 1]	Risk Reduction Value (k$) [Year 1]	Annual Target [Year 2]	% of HFTD Covered in [Year 2]	Risk Reduction Value (k$) [Year 2]	… [Year 3]	… [Year 4]	Section; Page Number
Distribution routine patrol inspections and necessary work prescriptions	*VM-04*	*VM-03*	*OH Corridor Miles in Territory*	*80,000*	*60.00%*	*100%*	*355*	*100%*	*100%*	*355*	*…*	*…*	*11.x; p. x*
Distribution second patrol inspections and necessary work prescriptions	*VM-05*	*VM-03*	*OH Corridor Miles in Territory*	*80,000*	*40.00%*	*40%*	*237*	*40%*	*40%*	*237*	*…*	*…*	*11.x; p. x*
Inspecting and clearing poles where required PRC 4292	*VM-08C*	*VM-10*	*Non-Exempt Poles in SRA*	*45,000*	*100.00%*	*100%*	*17*	*100%*	*100%*	*17*	*…*	*…*	*11.x; p. x*
Inspecting and clearing towers where required - PRC 4292	*VM-08T*	*N/A*	*Non-Exempt Towers in SRA*	*200*	*100.00%*	*40%*	*77*	*100%*	*40%*	*77*	*…*	*…*	*11.x; p. x*
Inspecting and clearing poles and towers where required - USFS	*VM-08F*	*VM-10*	*Subject Poles in USFS*	*5,000*	*66.00%*	*60%*	*3*	*66%*	*60%*	*3*	*…*	*…*	*11.x; p. x*
Inspecting and clearing poles and towers – Additional	*VM-08A*	*VM-10*	*Other Poles and Towers in Service Territory*	*1,200,000*	*0.95%*	*4%*	*13*	*0.95%*	*4%*	*13*	*…*	*…*	*11.4.4; p. x*

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11.2 Vegetation Management Inspections

The electrical corporation must provide an overview of all its vegetation management inspection activities for overhead electrical assets.[120] This section must exclude pole and tower clearing activities (discussed in *Section 11.5, Pole and Tower Clearing*) and defensible space activities around substations (discussed in *Section 11.6, Defensible Space*).

The electrical corporation must summarize details regarding its vegetation management inspections for overhead electrical assets in Table 11-3. The table must include the following for each inspection activity:

- **Type:** Whether the inspection is of distribution or transmission corridors (or both).
- **Inspection Activity Name:** Identify the name of the vegetation management inspection activity the electrical corporation performs (e.g., routine, enhanced vegetation management, off-cycle).
- **Area Inspected and Percentage Inspected:** Identify the area that the inspection activity covers (e.g., territory-wide, HFTD only, Areas of Concern). Indicate the percentage inspected during the WMP period (e.g., 100% indicates 100% of the area identified will be inspected during the WMP period).
- **Frequency:** Identify the frequency in which the inspection covers the entire area identified (e.g., annually, quarterly, three-year cycle).

Table 11-3: Example of Vegetation Management Inspection Frequency, Method, and Criteria

Type	Inspection Activity Name	Area Inspected/ % Inspected	Frequency
Distribution	*Routine Patrol*	*Territory / 100%*	*Annually in HFTD* *Three-year cycle in Non-HFTD*
Distribution	*Hazard Tree*	*HFTD / 100%*	*Three-year cycle*

The electrical corporation must also provide a narrative overview of each vegetation inspection activity identified in Table 11-3. Section 11.2.1 provides instructions for the

[120] Pub. Util. Code § 8386(d)(22).

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overviews. The sections must be numbered Section 11.2.1 to Section 11.2.n with the name of the inspection activity name as the section title.

The electrical corporation must include inspection activities it has discontinued or consolidated since the last WMP, as well as inspection activities it plans to discontinue or consolidate during the WMP period. It also must describe why it has discontinued or consolidated these inspection activities, or why it plans to discontinue or consolidate these activities.

11.2.1 [Vegetation Management Inspection Activity Name]

Overview and Area Identified

The electrical corporation must provide an overview of the vegetation management inspection activity. The electrical corporation must specify whether it performs the inspection as a discrete inspection or in conjunction with other operations and maintenance functions (e.g., during a single visit the inspector also conducts an asset inspection on the same span). This overview must describe where the electrical corporation performs the inspection activity (e.g., territory-wide, HFTD only, Areas of Concern).

Procedures

The electrical corporation must list the procedures, including the version(s) and effective date(s), that govern the inspection activity. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

Clearance

The electrical corporation must specify the technologies and techniques it uses to measure clearance distances in this inspection activity (e.g., visual inspection using laser rangefinder, UAV-mounted LiDAR). The electrical corporation must describe how it prescribes vegetation clearance distances through this inspection activity (e.g., GO 95 Table 1, GO 95 Appendix E, ANSI A300). The electrical corporation must describe how it incorporates dynamic climate change risks (e.g., drought, tree mortality trends, changes in tree growth rates) into decisions regarding establishing or modifying vegetation clearance distances.~~The electrical corporation must also describe how it incorporates dynamic climate change risks (e.g., drought, tree mortality trends, changes in tree growth rates) when establishing or modifying vegetation~~

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~~clearance distances.~~ As applicable, the electrical corporation must describe any differences in how it prescribes clearances for high-risk species of vegetation.

Fall-in Mitigation

The electrical corporation must describe how it identifies, categorizes, and prescribes mitigations for fall-in risks, such as hazard trees, during the inspection (e.g., Level 1, Level 2). As applicable, the electrical corporation must describe any differences in how it identifies, categorizes, and prescribes mitigations for fall-in risks for high-risk species of vegetation.

Scheduling

The electrical corporation must describe how it schedules the inspection activity, including:

- The frequency (e.g., annual, quarterly, three-year cycle, as-needed) of the inspection activity;
- How the frequency or triggers differ by HFTD Tier or other location-based risk designation. If the inspection activity is based on a fixed frequency (e.g., annual, three-year cycle), the electrical corporation must explain how it uses risk prioritization in the scheduling of the inspection activity to target high-risk areas. If the electrical corporation does not use risk prioritization in the scheduling of the inspection activity, it must explain why;
- The time of year the inspection activity takes place, including any seasonal constraints;
- How the electrical corporation initiates unscheduled inspections or changes the inspection frequency in response to triggering events (e.g., severe weather events, wildfires, risk model outputs);
- How the electrical corporation incorporates dynamic climate change risks (e.g., drought, tree mortality trends, changes in tree growth rates) when establishing or modifying inspection frequency and prioritization;
- The approximate month by which the electrical corporation intends to inspect 75 percent of vegetation contact risk managed by this inspection activity in the HFTD; and
- The approximate month by which the electrical corporation intends to complete 95 percent of inspections within this inspection activity scheduled to occur within the HFTD.

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Updates

The electrical corporation must discuss changes and updates to the inspection activity since its last WMP submission, including all future plans (beyond the current year) and novel strategies, technologies, or techniques the electrical corporation may implement in the next five years (e.g., based on pilot projects and research). The electrical corporation must include lessons learned as applicable.

11.3 Pruning and Removal

11.3.1 Overview

The electrical corporation must provide an overview of pruning, removal, and other vegetation management it performs that result from inspections. The electrical corporation must specify whether pruning and removal are discrete mitigation activities or occur in conjunction with other operations and maintenance functions (e.g., during a single visit, an inspector assesses clearances, prescribes pruning, and supervises a tree-crew as it completes the pruning work).

11.3.2 Procedures

The electrical corporation must list the procedures, including the version(s) and effective date(s), used for pruning, removal, and other vegetation management performed as a result of inspections. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

11.3.3 Scheduling

The electrical corporation must describe how it schedules pruning, removal, and other vegetation management activities resulting from inspections, including:

- The time of year during which the mitigation activity takes place, including any seasonal constraints; and
- the approximate month by which the electrical corporation intends to complete non-constrained work for this activity.

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11.3.4 Priority Assignment

The electrical corporation must describe how it assigns priority to pruning and removal work orders. It must also define the remediation timeframes and vegetation conditions associated with each priority level.[121] The electrical corporation must include the following information in Table 11-4:

- **Priority Level:** A number or word representing the urgency with which the electrical corporation remediates a vegetation condition (e.g., a priority 1 condition has a shorter remediation timeframe than a priority 2 condition).
- **Infrastructure Type:** Whether the priority level applies to transmission or distribution assets (or both).
- **Grow-in Vegetation Condition:** The spatial position of vegetation relative to electrical infrastructure that triggers pruning or removal.
- **Grow-in Remediation Timeframe:** The maximum number of calendar days in which the electrical corporation commits to remediating a grow-in vegetation condition after that condition is identified.
- **Fall-in Vegetation Condition:** A description of the state of vegetation (e.g., actively failing, likely to fail within 30 days) that may fall into electrical infrastructure due to its condition (e.g., dead, root failure, trunk failure, branch failure, branch/frond/bark detachment).
- **Fall-in Remediation Timeframe:** The maximum number of calendar days in which the electrical corporation commits to remediating a fall-in condition after that condition is identified.

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[121] A "vegetation condition" is the distance of vegetation from electrical infrastructure, or the health of vegetation that may fall into electrical infrastructure.

Table 11-4: Example of Priority Assignment Scheme Based on Infrastructure Type and Vegetation Condition

Priority Level	Infra. Type	Grow-in Vegetation Condition	Grow-in Remediation Timeframe	Fall-in Vegetation Condition	Fall-in Remediation Timeframe
Priority 1	*Transmission and Distribution*	*Contact or evidence of contact*	*1 day*	*Vegetation or vegetation part actively failing*	*0.5 days*
Priority 2	*Transmission and Distribution*	*Breached regulatory radial clearance distance but not in contact or showing signs of contact*	*30 days*	*Vegetation or vegetation part likely to fail within 90 days*	*14 days*
Priority 3	*Transmission and Distribution*	*Will breach regulatory radial clearance distance prior to the next inspection cycle*	*90 days*	*Vegetation or vegetation part likely to fail prior to the next inspection cycle*	*90 days*

11.3.5 Backlog Elimination and Constraints

The electrical corporation must describe its plan to eliminate past due pruning and removal work orders, if applicable. A past due work order is any work order that remains open beyond the priority-based remediation timeframes defined in *Section 11.3.4, Priority Assignment*.

Past due work orders include all constrained work orders regardless of the cause of the constraint (e.g., permitting, biological, customer refusal). The electrical corporation must describe all constraint types and identify whether each constraint has a cause that is internal (e.g., due to resource allocation) or external (e.g., due to permitting). It must also discuss the steps it takes to resolve past due constrained work orders and describe how it tracks constrained work orders.

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In Table 11-5, the electrical corporation must provide the timeframe from constraint identification to constraint resolution (i.e., the constraint no longer exists) by providing:

- **Constraint Type:** The constraint type (e.g., permitting, biological, customer refusal).
- **Infrastructure Type:** Whether the timeframes apply to transmission or distribution assets (or both).
- **Vegetation Condition:** Whether the timeframes apply to grow-in or fall-in conditions (or both) (see the column descriptions for Table 11-4).
- **Priority Level 1 Timeframe:** The maximum number of calendar days in which the electrical corporation commits to resolving a constraint for a priority 1 level vegetation condition after that constraint is identified.
- **Priority Level 2 Timeframe:** The maximum number of calendar days in which the electrical corporation commits to resolving a constraint for a priority 2 level vegetation condition after that constraint is identified.
- **Priority Level 3 Timeframe:** The maximum number of calendar days in which the electrical corporation commits to resolving a constraint for a priority 3 level vegetation condition after that constraint is identified.

Table 11-5: Example of Constraint Resolution Timeframes in Number of Days between Constraint Identification and Resolution

Constraint Type	Infrastructure Type	Condition Type	Priority Level 1 Timeframe	Priority Level 2 Timeframe	Priority Level 3 Timeframe
Permitting	*Distribution*	*Fall-in*	*1*	*15*	*45*
Biological	*Transmission*	*Grow-in*	*1*	*20*	*45*
Customer Refusal	*Transmission*	*Grow-in*	*1*	*20*	*45*

In Table 11-6, the electrical corporation must provide the timeframe within which it addresses a constrained work order after resolving the constraint by providing:

- **Constraint Type:** The constraint type (e.g., permitting, biological, customer refusal).
- **Infrastructure Type:** Whether the timeframes apply to transmission or distribution assets (or both).

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- **Vegetation Condition:** Whether the timeframes apply to grow-in or fall-in conditions (or both).
- **Priority Level 1 Timeframe:** The maximum number of calendar days in which the electrical corporation commits to remediating a level 1 condition after the constraint for that condition is resolved.
- **Priority Level 2 Timeframe:** The maximum number of calendar days in which the electrical corporation commits to remediating a level 2 condition after the constraint for that condition is resolved.
- **Priority Level 3 Timeframe:** The maximum number of calendar days in which the electrical corporation commits to remediating a level 3 condition after the constraint for that condition is resolved.

Table 11-6: Example of Remediation Timeframes in Number of Days after the Electrical Corporation Resolves a Constraint

Constraint Type	Infrastructure Type	Condition Type	Priority Level 1 Timeframe	Priority Level 2 Timeframe	Priority Level 3 Timeframe
Permitting	*Distribution*	*Fall-in*	*1*	*15*	*45*
Biological	*Transmission*	*Grow-in*	*1*	*30*	*40*
Customer Refusal	*Transmission*	*Grow-in*	*1*	*30*	*90*

11.3.6 Updates

The electrical corporation must discuss changes and updates to pruning and removal mitigation activities since its last WMP submission, including future plans (beyond the current year) and novel strategies, technologies, or techniques the electrical corporation may implement over the next five years (e.g., based on pilot projects and research). The electrical corporation must include lessons learned, as applicable.

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11.4 Wood and Slash Management

11.4.1 Overview

The electrical corporation must provide an overview of how it manages wood and slash generated by its vegetation management activities.

11.4.2 Procedures

The electrical corporation must list applicable electrical corporation procedure(s), including the version(s) and effective date(s), used to manage wood and slash. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

11.4.3 Scheduling

The electrical corporation must describe how it schedules wood and slash management, including:

- The maximum length of time within which the electrical corporation will complete wood and slash management after performing the vegetation management activities it describes in Sections:
    - *11.3, Pruning and Removal;*
    - *11.5, Pole and Tower Clearing;*
    - *11.6, Defensible Space;*
    - *11.7, Integrated Vegetation Management; and*
    - *11.9, Activities Based on Weather Conditions;*
- How it prioritizes wood and slash management activities (e.g., based on the quantity and size of vegetative fuels; local factors [e.g., proximity to buildings, roads]; constraints; HFTD Tier; other location-based risk designations).

11.4.4 Updates

The electrical corporation must describe changes and updates to wood and slash management since its last WMP submission and provide a brief explanation as to why those

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changes were made. It must also discuss any planned updates to wood and slash management and the timeline for implementation.

11.5 Pole and Tower Clearing

11.5.1 Overview

The electrical corporation must provide an overview of its pole and tower clearing activities. The overview must address:

- Pole and tower clearing for compliance with Public Resources Code section 4292 (PRC 4292) and USFS Order Number 91-1; and
- Additional pole and tower clearing performed beyond the requirements of Public Resources Code section 4292 and USFS Order Number 91-1. The electrical corporation must describe how pole- and tower-specific attributes affect its selection of additional poles and towers to clear. Attributes may include but are not limited to equipment type, voltage, equipment presence or absence, energized or unenergized infrastructure, and location. The electrical corporation must also discuss risks it addresses by performing additional pole and tower clearing based on these attributes.

11.5.2 Procedures

The electrical corporation must list the applicable electrical corporation procedure(s), including the version(s) and effective date(s), used to perform pole and tower clearing. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

11.5.3 Scheduling

The electrical corporation must describe how it schedules pole and tower clearing activities, including:

- The maximum length of time within which the electrical corporation will complete pole and tower clearing after identifying the work through inspection;
- How it prioritizes pole and tower clearing activities (e.g., vegetation condition, location, asset type, constraints, risk);
- The time of year during which the mitigation activity takes place, including any seasonal constraints; and

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- How the electrical corporation ensures clearance is maintained around poles and towers after the initial clearing activity.

11.5.4 Estimated Breakdown of Additional Pole and Tower Clearing

In Table 11-7, the electrical corporation must provide an estimated breakdown of the poles and towers it targets in Table 11-2 for additional pole and tower clearing performed beyond the requirements of Public Resources Code section 4292 and USFS Order Number 91-1. This breakdown must be in respect to Responsibility Areas (FRA/SRA/LRA), the High Fire Threat District (Non-HFTD, Tier 2, and Tier 3), and Exemption Type as defined by 14 CCR § 1255 (a, b, c, or d).[122]

The electrical corporation must provide the following in Table 11-7:

- **Poles and Towers to be Cleared in Non-HFTD:** The number of additional poles and towers the electrical corporation plans to clear in Non-HFTD with respect to the Responsibility Area in which it resides (i.e., FRA, SRA, or LRA), and Exemption Type as defined by 14 CCR § 1255 (a, b, c, or d).
- **Poles and Towers to be Cleared in HFTD Tier 2:** The number of additional poles and towers the electrical corporation plans to clear in HFTD Tier 2 with respect to the Responsibility Area in which it resides (i.e., FRA, SRA, or LRA), and Exemption Type as defined by 14 CCR § 1255 (a, b, c, or d).
- **Poles and Towers to be Cleared in HFTD Tier 3:** The number of additional poles and towers the electrical corporation plans to clear in HFTD Tier 3 with respect to the Responsibility Area in which it resides (i.e., FRA, SRA, or LRA), and Exemption Type as defined by 14 CCR § 1255 (a, b, c, or d).
- **Total Poles and Towers to be Cleared:** The total number of poles to be cleared (Non-HFTD, HFTD Tier 2, HFTD Tier 3).

Columns and rows in Table 11-7 for “Responsibility Area” and “Structure Equipment Exemption Type” must be included. Poles and towers subject to Public Resources Code section 4292 or USFS Order Number 91-1 must not be included.

[122] California ~~code~~ Code of Regulations Title 14 § 1255, Exemptions to Minimum Clearance Provisions – PRC 4292; URL: (https://govt.westlaw.com/calregs/Document/I459736B55B4D11EC976B000D3A7C4BC3?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)).

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Table 11-7: Example of Estimated Breakdown of Additional Pole and Tower Clearing Target

Responsibility Area	Structure Equipment Exemption Type	Poles and Towers to be Cleared in Non-HFTD	Poles and Towers to be Cleared in HFTD Tier 2	Poles and Towers to be Cleared in HFTD Tier 3	Total Poles and Towers to be Cleared
FRA	Non-Exempt	*63*	*2,000*	*3,325*	*5,388*
FRA	Exempt (a)	*0*	*700*	*900*	*1,600*
FRA	Exempt (b)	*0*	*350*	*450*	*800*
FRA	Exempt (c)	*0*	*525*	*675*	*1,200*
FRA	Exempt (d)	*0*	*175*	*225*	*400*
FRA Totals	**-**	***63***	***3750***	***5,575***	***9,388***
SRA	Exempt (a)	*0*	*6,100*	*10,520*	*16,620*
SRA	Exempt (b)	*0*	*3,050*	*5,260*	*8,310*
SRA	Exempt (c)	*0*	*4,575*	*7,890*	*12,465*
SRA	Exempt (d)	*0*	*1,525*	*2,630*	*4,155*
SRA Totals	**-**	***0***	***15,250***	***26,300***	***41,550***
LRA	Non-Exempt	*32*	*8,500*	*12,000*	*20,532*
LRA	Exempt (a)	*0*	*2,200*	*2,900*	*5,100*
LRA	Exempt (b)	*0*	*1,100*	*1,450*	*2,550*
LRA	Exempt (c)	*0*	*1,650*	*2,175*	*3,825*
LRA	Exempt (d)	*0*	*550*	*725*	*1,275*
LRA Totals	**-**	***32***	***14,000***	***19,250***	***33,282***

11.5.5 Updates

The electrical corporation must describe any changes and updates to pole and tower clearing since its last WMP submission and provide a brief explanation of why it made those changes. It must also discuss any planned updates to pole and tower clearing and the timeline for implementation.

11.6 Defensible Space

11.6.1 Overview

The electrical corporation must provide an overview of its actions taken to reduce wildfire risk to and from substations, generation facilities, and other electrical facilities in accordance with

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Public Resources Code section 4291, other defensible space codes and regulations, or in exceedance of these requirements.

11.6.2 Procedures

The electrical corporation must list the applicable procedure(s), including the version(s) and effective date(s), used to create and maintain defensible space. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

11.6.3 Scheduling

The electrical corporation must describe how it schedules the creation and maintenance of defensible space, including:

- The maximum length of time within which the electrical corporation will complete defensible space vegetation management after identifying the work;
- How it prioritizes defensible space activities (e.g., vegetation condition, location, asset type, constraints, risk); and
- The time of year during which the mitigation activity takes place, including any seasonal constraints.

11.6.4 Updates

The electrical corporation must describe changes to how it creates or maintains defensible space since its last WMP submission and provide a brief explanation as to why those changes were made. It must also discuss any planned updates to defensible space and the timeline for implementation.

11.7 Integrated Vegetation Management

11.7.1 Overview

The electrical corporation must provide an overview of vegetation management activities not covered in previous sections and performed in accordance with Integrated Vegetation Management principles. This may include, but is not limited to, the following activities: the strategic use of herbicides, growth regulators, or other chemical controls; tree-replacement; promotion of native shrubs; prescribed fire; or other fuel treatment activities.

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11.7.2 Procedures

The electrical corporation must list the applicable procedure(s), including the version(s) and effective date(s), used for integrated vegetation management activities. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

11.7.3 Scheduling

The electrical corporation must describe how it schedules integrated vegetation management activities, including:

- How it prioritizes integrated vegetation management activities (e.g., based on the HFTD Tier and other location-based risk designations, the infrastructure type); and
- The time of year during which the mitigation activity takes place, including any seasonal constraints.

11.7.4 Updates

The electrical corporation must describe changes to its integrated vegetation management activities since its last WMP submission and provide a brief explanation as to why those changes were made. It must also discuss any planned updates to integrated vegetation management and the timeline for implementation.

11.8 Vegetation Management Partnerships

The electrical corporation must provide information on its partnerships with other entities seeking to reduce wildfire risk through vegetation management. For this section, "partnership" is defined as the combination of resources, expertise, and efforts to accomplish wildfire risk-reduction objectives through vegetation management within, adjacent to, or beyond the electrical corporation's powerline corridors. This may include partnerships with government agencies, non-profit organizations, or regional groups, such as the Department of Conservation's Regional Forest and Fire Capacity Program grantees, funding partners, and

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local forest collaboratives.[123] In Table 11-8, the electrical corporation must provide the following summary information in table format for active partnerships and partnerships the electrical corporation plans to enter during the WMP period:

- **Partnering Agencies/ Organizations:** Names of all entities in each partnership.
- **Activities:** Vegetation management activity or activities performed pursuant to or under the partnership (e.g., thinning, prescribed fire, mastication, invasive plant removal, woody debris management).
- **Objectives:** The objective of the activities performed pursuant to or under the partnership.
- **Electrical Corporation Role:** The electrical corporation's role and the partners' roles in the partnership (e.g., funding, labor, coordination, landowner).
- **Anticipated Accomplishments:** Anticipated accomplishments of partnership projects during the WMP period, including work performed by the electrical corporation and the partnering agency/organization (e.g., number of circuit miles and acres treated, number of trees planted, number of personnel trained) and project benefits (e.g., reduced fuel loads beyond the utility right-of-way, reduced PSPS, cost savings per unit).

Table 11-8 provides an example of the appropriate level of detail and the required format.

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[123] California Department of Conservation, Regional Forest and Fire Capacity Program, URL: (https://www.conservation.ca.gov/dlrp/grant-programs/Pages/Regional-Forest-and-Fire-Capacity-Program.aspx) accessed May 8, 2026.

Table 11-8: Example of Partnerships in Vegetation Management

Partnering Agencies/ Organizations	Activities	Objectives	Electrical Corporation Role	Anticipated Accomplishments
North State Coalition	*Thinning and prescribed fire along critical egress corridors with high-risk electrical lines.*	*Reduce fuel loading, fire probability and intensity, and restore ecological conditions.*	*Funding and labor from electrical corporation teams with wildland firefighter training for broadcast burn.*	*2027: Thin and masticate 800 acres* *2028: Broadcast burn 200 acres in masticated area*

The electrical corporation must also provide a narrative overview, according to the structure and instructions below in Section 11.8.1, of the following:

- Each current and future vegetation management partnership identified in Table 11-8: Example of Partnerships in Vegetation Management
- Vegetation management partnerships that the electrical corporation is discontinuing or has discontinued since the last WMP submission, with an explanation of why it is discontinuing or has discontinued each partnership

The sections must be numbered from Section 11.8.1 to Section 11.8.n, with the names of the partnering agencies or organizations as the section titles.

11.8.1 [Vegetation Management Partnership Name (name of partnering agency/organization)]

Overview

The electrical corporation must provide an overview of the vegetation management partnership, including:

- Status of the partnership (current, future, inactive, or discontinued);
- A description of the desired outcome(s) of work accomplished through this partnership;
- A description of the type of work accomplished through this partnership;

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- A description of where the work accomplished through this partnership takes place, including whether it is in the HFTD. Include a map showing the location, unless the work is territory-wide;
- Partnership project funding structure (e.g., 20 percent electrical corporation grant, 50 percent private landowners, and 30 percent CAL FIRE grant);
- Length of partnership commitment;
- A description of how slash and woody debris created through partnership activities are managed;
- Any quantified or qualitative benefits the electrical corporation and community expects to receive from work accomplished by the partnership (e.g., risk reduced, increased community cooperation); and
- If available, a link to any website associated with the partner(s) and the partnership.

Partnership History

The electrical corporation must provide a history of the vegetation management partnership, including:

- How long the electrical corporation has been working with the partnering organization(s);
- The number of projects completed or in progress;
- The scope of completed and in-progress projects (e.g., acres treated, trees planted), including project maintenance plans with secured funding;
- The electrical corporation's cumulative quantitative contributions to the projects (e.g., dollars and percentage of total project cost, hours of the electrical corporation's employees' time, hours of consultation); and
- Total of any quantified or qualitative benefits from work performed by the partnership during the previous three years (e.g., risk reduced, increased community cooperation).

Future Projects

In this section, the electrical corporation must provide a description of projects pursuant to or under the partnership that are: currently planned for the WMP period, have not yet begun, and are fully funded.

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This description must include the scope of future projects (e.g., acres treated, trees planted), projected completion years, and the electrical corporation's expected quantitative contribution to the project (e.g., dollars, employee's time, hours of consultation).

11.9 Activities Based on Weather Conditions

11.9.1 Overview

The electrical corporation must provide an overview of the planning and execution of operational changes to address wildfire risk associated with weather conditions. The electrical corporation must describe how it assigns or restricts vegetation management activities in advance of ~~an~~ elevated ~~probability of ignition,~~ wildfire risk~~spread, or both~~ (e.g., a Red Flag Warning, elevated Fire Potential Index rating).

11.9.2 Procedures

The electrical corporation must list the applicable procedure(s), including the version(s) and effective date(s), used for activities based on weather conditions. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

11.9.3 Scheduling

The electrical corporation must describe how it schedules (or triggers) activities based on weather conditions. This must include how the HFTD Tier or other location-based risk designation affects the schedule.

11.9.4 Updates

The electrical corporation must describe changes to its activities based on weather conditions since its last WMP submission and provide a brief explanation as to why those changes were made. It must also discuss any planned updates to activities based on weather conditions and the timeline for implementation.

11.10 Quality Management System

The electrical corporation must describe how it controls and ensures the quality of its vegetation management work so that it meets or exceeds quality requirements. To do so, the

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electrical corporation must describe its quality assurance (QA) audit and quality control (QC) inspection activities.

For WMPs, Energy Safety defines QA audits and QC inspections as follows:

- A **QA audit** uncovers improvement opportunities by determining if processes achieve quality objectives. A non-exhaustive list of audit activities includes: reviewing procedures, work documentation, and QC inspection findings; performing interviews; testing training effectiveness; creating new processes; and observing procedure use. A QA audit results in a report that recommends corrective actions to deliver continued improvements.
- A **QC inspection** reviews outputs of a process by comparing the output's attributes to attributes specified in procedures. QC inspections of sampling units typically estimate the quality level of a population of work. After QC inspections, applying corrections remediates nonconformities. If the sample-estimated quality level is below a predetermined threshold, a decision is made to accept the population of work or rework all or a portion of the population of work.

11.10.1 Overview

The electrical corporation must provide an overview of its vegetation management QA and QC activities. The overview must include the following information in Table 11-9 for each quality management activity:

- **Activity Subject to an Audit or Inspection:** The name of the activity subject to a QA audit or QC inspection (each activity name should match an activity described in Sections 11.2 through 11.9).
- **Tracking ID:** A unique tracking ID that is an extension of the activity tracking ID in Table 11-1 or Table 11-2 (e.g., if the activity tracking ID is VM-02, then the QA tracking ID for the same activity must be VM-02.1 or another extension, and the QC tracking ID for the same activity must be VM-02.2 or another extension).
- **Quality Management Activity Type:** The quality management activity type (QA audit or QC inspection).
- **Purpose of the Quality Management Activity:** A statement identifying why the QA audit or QC inspection will help the electrical corporation achieve and maintain quality for the vegetation management activity.

Table 11-9 provides an example of the appropriate level of detail and the required format.

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Table 11-9: Example of Vegetation Management QA and QC Activities and Activity Purposes

Activity Subject to an Audit or Inspection	Tracking ID	Quality Management Activity Type	Purpose of the Quality Management Activity
Distribution Routine – Patrol Inspections	*VM-04.1*	*QA Audit*	*To review pre-inspection contractor roles and responsibilities, training records, certifications, procedure change control, and QC results and then identify areas for continued improvement and implement corrective actions.*
Pole and Tower Clearing	*VM-08.1*	*QA Audit*	*To review pole and tower clearing contractor roles and responsibilities, training records, certifications, procedure change control, and QC results and then identify areas for continued improvement and implement corrective actions.*
Pruning and Removal	*VM-02.2*	*QC Inspection*	*To estimate the quantity of vegetation that requires trimming or removal before the next scheduled inspection, identify contractor performance concerns, and correct nonconformities.*
Defensible Space	*VM-10.2*	*QC Inspection*	*To ensure contractors prescribe defensible space around facilities according to procedural specifications, identify contractor performance concerns, and correct nonconformities.*

For each QC inspection, the electrical corporation must provide the following tabular information related to calculating a risk-based sample size. This information documents quantitative values the electrical corporation uses to determine the number of units it will inspect.

- **Activity Subject to QC Inspection:** An activity the electrical corporation subjects to a QC inspection. The activity must match an activity in Sections 11.2 through 11.9.
- **Population/Sampling Unit:** An entity of the activity that QC inspects to assess quality.
- **Annual Mean Population Size:** The mean population size subject to the QC inspection across all years within the WMP period. In this section, a population may be the number of total corridor miles inspected, poles or towers cleared, trees prescribed

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work, etc. within a specific area of the service territory, or across the entire service territory.

- **Annual Mean Sample Size:** The mean sample size across all years within the WMP period of the activity subject to the QC inspection.
- **Annual Mean % of Sample in the HFTD:** The annual mean percentage of the sampling units within the HFTD for the activity subject to the QC inspection (i.e., the mean of the percentage of the sample in the HFTD across all years within the WMP period).
- **Confidence Level:** A probability across repeated samples that the range defined by the margin of error will contain the true population parameter.
- **Margin of Error:** A value the electrical corporation subtracts or adds to the quality statistic to create a range that, at the confidence level, likely contains the true population parameter.
- **Expected Proportion Meeting Quality Specifications:** An informed estimate of the proportion of the sampled work that the electrical corporation expects to meet quality standards during QC inspections (e.g., the proportion of trees trimmed to ANSI A300 Tree Care Standards). The expected proportion is a necessary parameter for Cochran's sample size formula. Additional Cochran's formula parameters include the population size, confidence level, and margin of error.[124]

Table 11-10 provides an example of the appropriate level of detail and the required format.

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[124] Cochran, Sampling Techniques (3rd Ed.), pages 75-76.

Table 11-10: Example of Vegetation Management QC Inspection Activity Commitments

Activity Subject to QC Inspection	**Population /Sampling Unit**	**Annual Mean Population Size**	**Annual Mean Sample Size**	**Annual Mean % of Sample in the HFTD**	**Confidence Level**	**Margin of Error**	**Expected Proportion Meeting Quality Specifications**
Distribution Routine – Patrol Inspection	*Span*	*40,000*	*2,922*	*25%*	*99%*	*1%*	*95%*
Pruning and Removal	*Corridor Mile*	*2,000*	*1,141*	*40%*	*99%*	*1.5%*	*90%*
Pole and Tower Clearing	*Pole*	*4,000*	*1,596*	*100%*	*99%*	*2%*	*80%*
Defensible Space	*Substation*	*12*	*12*	*100%*	*100%*	*0%*	*92%*

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11.10.2 Sample Size

The electrical corporation must describe how it determines the sample size for each QC inspection it lists in Table 11-10. This must include how the HFTD Tier or other location-based risk designation affects the sampling plan, and how the electrical corporation ensures the sample statistic is representative of the population (e.g., sample size relative to the population size; randomization; stratification).

11.10.3 Quality Metrics

The electrical corporation must list and describe the QC inspection metrics it uses to evaluate the effectiveness of its vegetation management and inspections activities. For example: conformity rate, conformity rate thresholds, rework rate, outage rate within six months of inspection attributed to vegetation contact, or another metric. The electrical corporation must also describe:

- The criteria for each QC inspection it lists in Table 11-10, a description of each criterion, and any weighted contributions of each criterion to the quality metric.
- The sub-populations for which it calculates QC inspection metrics. Sub-populations are portions of the Annual Mean Sample Size quantities in Table 11-10. Calculating metrics at the sub-population level allows the electrical corporation to identify work quality across space and time (e.g., the work quality of different contractors from one month to the next).
- Thresholds it uses to indicate the need for corrective actions across populations of work in Table 11-10 and any sub-populations within these populations. For instance, an electrical corporation may establish conformity rate thresholds above which it will accept a population or sub-population of work, and below which it will implement corrective actions to increase the conformity rate.
- How its QC inspection metrics demonstrate activities have met performance goals.

11.10.4 Response to Quality Performance Findings

The electrical corporation must describe how it responds to performance findings and resolves nonconformities. This description must include, if applicable:

- Corrections the electrical corporation makes to address poor performance that QC inspections identify;

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- Corrective actions QA implements during vegetation management activity cycles for populations and sub-populations of work based on QC quality metric trends, thresholds, and other indicators of performance;
- Corrective actions QA implements at the end of vegetation management activity cycles for populations and sub-populations of work based on QC quality metric trends, thresholds, and other indicators of performance; and
- How the electrical corporation ensures it has addressed poor performance after implementing corrections and corrective actions (i.e., how the electrical corporation ensures it will achieve its performance goals).

11.10.5 QA and QC Exclusions

In this section, if applicable, the electrical corporation must describe why it does not perform QA or QC for each activity in Sections 11.2 through 11.9 for which it does not perform QA or QC.

11.10.6 Procedures

The electrical corporation must list the applicable procedure(s), including the version(s) and effective date(s), used for each vegetation management QA and QC activity listed in Table 11-9. The electrical corporation must include the most recent procedural documents in *Appendix C: Supporting Documentation for Mitigation Activities*.

11.10.7 Scheduling

In this section, the electrical corporation must describe how it schedules quality management activities. The description must include the frequency of the quality management activity (e.g., monthly, quarterly, yearly) and the length of time between when it completes the vegetation management activity and when it performs the quality activity for:

- Each QA audit in Table 11-9; and
- Each QC inspection in Table 11-9.

11.10.8 Updates

The electrical corporation must describe:

- A list of changes the electrical corporation made to its QA and QC procedure(s) since its last WMP submission;

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- An explanation for why the electrical corporation modified its QA and QC procedure(s) including references to lessons learned, as applicable; and
- A list of future updates to QA and QC procedure(s), including a timeline for implementation.

11.11 Workforce Planning

The electrical corporation must provide an overview of vegetation management and inspection personnel.

The electrical corporation must provide the following tabular information:

- **Worker Title:** All worker titles relevant to vegetation management and inspections, including, but not limited to, titles related to inspections, pruning and removal, and quality management. For example:
    - Pre-Inspector;
    - Forester;
    - Vegetation Management Supervisor;
    - Crew Foreperson;
    - Tree Trimmer;
    - Quality Assurance Auditor;
    - Quality Control Inspector; or
    - Quality Management Planner/Statistician.
- **Minimum Qualifications for Target Role:** A description of the minimum employee candidate qualifications for each worker title, with an emphasis on qualifications relevant to vegetation management.
- **Applicable Certifications:** A list of certifications applicable to the worker title, such as International Society of Arboriculture Certified Arborist or California-licensed Registered Professional Forester.
- **Electrical Corporation ~~FTEs~~ staff with Minimum Qualifications:** For the worker title, the electrical corporation's number of internal ~~full-time equivalents (FTEs)~~staff with minimum qualifications at the time of WMP submission. Internal electrical corporation employees are those the electrical corporation directly employs (i.e., internal employees are not contractors).

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- **Electrical Corporation ~~FTEs~~ staff with Applicable Certifications:** For the worker title, the electrical corporation's number of internal ~~FTEs~~ staff with applicable certifications at the time of WMP submission.
- **Contracted ~~FTEs~~ staff with Minimum Qualifications:** For the worker title, the number of contracted ~~FTEs~~ staff with minimum qualifications at the time of WMP submission.
- **Contracted ~~FTEs~~ staff with Applicable Certifications:** For the worker title, the number of contracted ~~FTEs~~ staff with applicable certifications at the time of WMP submission.
- ~~**Total FTEs Below Minimum Qualifications:** For the worker title, the number of internal electrical corporation and contracted FTEs for staff that do not hold minimum qualifications at the time of WMP submission.~~
- ~~**Deficit in Fully-Staffed FTEs with Minimum Qualifications:** For the worker title, the number of FTEs below the fully-staffed workforce number of FTEs with minimum qualifications. The value must include the combined FTE deficit for both internal electrical corporation and contracted staff with minimum qualifications at the time of WMP submission.~~
- **Reference to Electrical Corporation Training / Qualification Programs:** A list of training and qualification programs that the electrical corporation requires employees with the worker title to complete.

Table 11-11 provides the required format and an example of the required information

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Table 11-11: Example of Vegetation Management Workforce Qualifications and Training

Worker Title	**Minimum Qualifications for Target Role**	**Applicable Certifications**	**Electrical Corporation ~~FTEs~~ staff with Minimum Qualifications**	**Electrical Corporation ~~FTEs~~ staff with Applicable Certifications**	**Contracted ~~FTEs~~ staff with Minimum Qualifications**	**Contracted ~~FTEs~~ staff with Applicable Certifications**	**~~Total FTEs Below Minimum Qualifications~~**	**~~Deficit in Fully Staffed FTEs with Minimum Qualifications~~**	**Reference to Electrical Corporation Training / Qualification Programs**
Vegetation Management Inspector	• *One year of arboriculture experience or degree in relevant field*	• *Certified Arborist* • *Registered Professional Forester*	*1,000*	*Certified Arborist – 500* *Registered Professional Forester – 100*	*600*	*Certified Arborist – 450* *Registered Professional Forester – 50*	*~~50~~*	*~~75~~*	*Pre-inspector training course (VMI-001)*
Tree Trimmer	• *Two years of experience in clearing vegetation near electrical infrastructure* • *Qualified line clearance tree trimmer pursuant to California Code of Regulations section 2700*	• *Certified Line Clearance Arborist* • *Electrical Hazards Training Certificate*	*600*	*Certified Line Clearance Arborist – 350* *Electrical Hazards Training Certificate – 600*	*300*	*Certified Line Clearance Arborist – 100* *Electrical Hazards Training Certificate – 300*	*~~30~~*	*~~45~~*	*Tree Trimmer training course (TT-001)*

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11.11.1 Staffing and Competency

The electrical corporation must describe how it reviews organizational objectives to ensure the size and skills of its workforce align with priorities. This description must include:

- The frequency in which the electrical corporation considers whether workforce size and skills are adequate to achieve organizational objectives;
- How the electrical corporation plans to address workforce demand and supply issues during the WMP period; and
- How findings from the electrical corporation's quality control inspections, quality assurance audits, and performance metrics inform its workforce planning process.

11.11.2 Recruitment

The electrical corporation must describe how it recruits personnel for vegetation management and inspections, including any relevant partnerships with colleges or universities.

11.11.3 Training and Retention

The electrical corporation must describe how it trains its vegetation management and inspection personnel, including any requirements for continuing education, refresher training, and worker qualification improvement programs. The electrical corporation must also describe any vegetation management-related training facilities it has established or plans to establish. Training facilities typically provide controlled environments that allow inspectors and tree trimmers to practice job duties.

11.12 Additional Benefits of Vegetation Management Activities

Mitigation activities may provide benefits to the electrical corporation beyond reducing wildfire risk and outage program risk as defined for the WMP (see *Section 7.2.1, Risk and Risk Component Identification*). These benefits are outside of the risk components that the electrical corporation analyzed specifically for wildfire mitigation but may influence the electrical corporation's decision-making. The electrical corporation must use this section to describe these additional benefits of its vegetation management activities.

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When describing additional benefits, the electrical corporation must tie a specific mitigation activity or activities to the benefits. This section is limited to no more than three pages.

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12 PSPS and Wildfire Preparedness

The electrical corporation must provide a narrative of its PSPS program and its plans to reduce the impacts of PSPS events. It must also describe how it has prepared for emergency events (i.e., PSPS and wildfire) including resource planning, service restoration, community outreach, and customer assistance.

12.1 PSPS Overview

The electrical corporation must describe the protocols it uses when de-energizing portions of its electrical system in a PSPS event and the associated impact on public safety, as well as the actions planned to reduce the impact of PSPS events.

12.1.1 PSPS Protocols

The electrical corporation must provide a high-level narrative overview of its protocols, policies, and procedures for: 1) initiating a PSPS event, and 2) disabling reclosers and de-energization in response to wildfire or PSPS events. The overview must include, at a minimum:

- The potential impact to critical first responders, health and communication infrastructure, and medical baseline customers;[125] and
- The potential impact to any other customers or entities that are dependent upon the electrical corporation's infrastructure.[126]

Where applicable, the electrical corporation must include operational flow diagrams or cross-references existing emergency response procedures describing decision-making, activation, response, and restoration processes.

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[125] Pub. Util. Code § 8386(d)(6).

[126] Pub. Util. Code, § 8386(d)(11).

12.1.2 PSPS Impact Reduction

The electrical corporation must provide a narrative of the measures it has taken, or plans to take, to reduce the impacts of PSPS events.[127] Impacts include the duration, frequency, and scope (number of customers) of the PSPS event.

The narrative must summarize how the electrical corporation will reduce the need for, and impact of, future PSPS implementation on circuits that have been frequently de-energized, as listed in Table 4-3 in *Section 4.3, Frequently Deenergized Circuits*, including, but not limited to, the estimated annual decline in circuit deenergization and deenergization impact on customers.

Furthermore, the narrative should describe any lessons learned from PSPS events occurring since the electrical corporation's last WMP submission and overall impacts to the mitigation methodology in terms of reducing PSPS events in the future.

12.2 Emergency Preparedness

The electrical corporation must, at a minimum, describe its operational protocols, response procedures, workforce readiness measures, and community and customer outreach efforts in preparation of and during emergency events (i.e., PSPS and wildfire events).

It must also demonstrate that its WMP is consistent with its disaster and emergency preparedness plan prepared pursuant to Public Utilities Code Section 768.6.[128]

12.2.1 Emergency Response Preparedness

The electrical corporation must provide its plans and procedures to prepare for PSPS and wildfire events, including its:[129]

- Workforce mobilization strategies;
- Prepositioning of personnel, equipment, and resources;
- Operational readiness measures to support emergency response; and

[127] Pub. Util. Code, § 8386(d)(8).

[128] Pub. Util. Code, § 8386(d)(19).

[129] Pub. Util. Code, § 8386(d)(19)(A).

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- Coordination with public safety partners, emergency management agencies, Tribal governments, local governments, and other relevant stakeholders.

Wildfire Suppression Partnerships

The electrical corporation must provide information on partnerships it has entered for wildfire suppression efforts. For this section, a "partnership" is an agreement to exchange or donate resources (e.g, suppression equipment, data, in-kind services) for wildfire suppression objectives. This may include partnerships with government agencies, non-profit organizations, or regional groups. Wildfire suppression partnerships include both partnerships that the electrical corporation entered to specifically reduce its own overall utility risk and partnerships that it entered to reduce wildfire risk on the wider landscape or community. Examples of wildfire suppression partnerships include equipment sharing with a local fire agency, funding of suppression infrastructure (e.g., dip-tanks), and mutual aid agreements with other organizations.

At minimum, the electrical corporation must provide the following information for each active partnership and partnership it plans to enter during the WMP period:

- Partnering agency(ies) or organization(s)
- Summary of activities performed pursuant to the partnership (e.g., equipment sharing, equipping fire crews)
- Role of the electrical corporation and role of the partner (e.g., funding, labor, landowner)
- Status of the partnership (current, future, inactive, or discontinued), including the length of the partnership
- Funding structure (e.g., 25 percent electrical corporation, 25 percent partner organization, and 50 percent public grant)
- Total quantified or qualitative benefits from work performed by the partnership during the previous three years (e.g., risk reduced, increased community cooperation)

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12.2.2 Resource Planning & Allocation

The electrical corporation must provide its methods for planning and allocating personnel, equipment, and other resources necessary to support public safety and timely service restoration during emergency events.[130]

The electrical corporation must demonstrate that it maintains an adequately sized and trained workforce to promptly restore service following a major event.[131] This must include:

- Internal workforce resources used for emergency response and restoration;
- Employees available through mutual aid agreements or contracted entities;
- Personnel planning processes used to meet emergency preparedness, response, recovery, and restoration needs;
- Plans for contingency resource needs during increased emergency activity; and
- Key personnel qualifications and training relevant to restoration operations.

12.2.3 Service Restoration

The electrical corporation must describe its strategy for restoring service following an emergency event,[132] including:

- Restoration decision-making processes;
- Damage assessment procedures;
- Workforce and contractor mobilization;
- Coordination with emergency response agencies and public safety partners;
- Public communications regarding restoration timelines and expectations; and
- Actions taken to safely restore electric service while minimizing ongoing wildfire risk.

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[130] Pub. Util. Code, § 8386(d)(20).

[131] Pub. Util. Code, § 8386(d)(16) and (20).

[132] Pub. Util. Code, § 8386(d)(19)(A).

12.2.4 Community Outreach & Public Awareness

The electrical corporation must describe its plans, policies, practices, and procedures for community outreach; public awareness; and coordination with external partners before, during, and after an emergency event.[133] This must include the electrical corporation's:

- Community outreach and public awareness education efforts;
- Notification processes for emergencies and operational events;
- Outreach strategies for customers with access and functional needs, vulnerable populations, and disadvantaged communities;
- Multilingual communication capabilities, including notifications in English, Spanish, and the top three primary languages used in California other than English and Spanish;[134]
- Coordination with public safety partners, governmental entities, Tribal governments, and other relevant stakeholders and communities within the electrical corporation's service territory; and
- General communication protocols used to support timely, accurate, and effective information sharing during emergency incidents.

12.2.5 Customer Assistance

The electrical corporation must describe its general communication protocols, practices, and procedures used to support timely, accurate, and complete communications before, during, and after emergency events, including through service restoration.

This must include its procedures for notifying customers and the public offices that may be impacted by the de-energization of electrical lines:[135]

- Notification procedures for customers receiving medical baseline allowances
- Procedures for notifying public safety offices
- Procedures for notifying critical first responders

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[133] Pub. Util. Code, § 8386(d)(19)(B).

[134] The top three primary languages used in California other than English or Spanish are Chinese (including Cantonese, and Mandarin), Tagalog, and Vietnamese as determined in CPUC Decision 19-08-025.

[135] Pub. Util. Code, § 8386(d)(7).

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- Procedures for notifying healthcare facilities
- Procedures for notifying operators of telecommunications infrastructure with premises within the footprint of a potential de-energization event

The electrical corporation must describe how its procedures comply with CPUC-adopted customer support requirements during and after an emergency event.[136]

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[136] Pub. Util. Code, § 8386(d)(21).

13 Enterprise Systems

Enterprise systems encompass structures and methods that allow the electrical corporation and its employees and contractors to accept, store, retrieve, and update data for the production, management, or scheduling of related work. In this section, the electrical corporation must provide an overview of inputs to, operation of, and support for the various enterprise systems it uses for risk methodology and assessment, asset management, grid monitoring systems, vegetation management, ignition detection systems, and weather forecasting.[137]

13.1 Targets

In this section, the electrical corporation must provide at least one target (qualitative, quantitative, or both) for each year of the WMP period for each initiative related to the implementation, integration, or improvement of its enterprise systems.

The electrical corporation must have at least one activity and associated target for every mitigation category or mitigation initiative listed in Table 13-1. If no activity is planned, the electrical corporation must use "N/A" under the Activity (Tracking ID #) column and provide a justification for the absence of activity within the summary narrative in Section 13.2.1. The electrical corporation may add rows to list multiple activities under a mitigation category or initiative.

Table 13-1 provides a table for the required information.

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[137] Pub. Util. Code, § 8386(d)(10), (14), and (18).

Table 13-1: Example of Enterprise System Targets

Mitigation Category or Initiative	**Activity and Tracking ID**	**Previous Tracking ID (if applicable)**	**Qualitative or Quantitative**	**Target Unit**	**[Year 1] Status or Total**	**[Year 2] Status or Total**	**[Year 3] Status or Total**	**[Year 4] Status or Total**	**WMP Section, Page #**
Risk Methodology and Assessment	*Improve Risk Model Data Ingestion Automation (RA-02)*	*RA-05*	*Qualitative*	*Milestone-based model improvement*	*Data mapping complete; December 2028*	*Pilot Complete; Dec 2029*	*Integration Operational; December 2030*	*Full Implementation; Dec 2031*	*x.x; p. xx*
Asset Management	*Improve Enterprise Asset Management System Interoperability and Data Quality Controls*	*N/A*	*Quantitative*	*Percent of asset records validated through updated system controls*	*75; December 2028*	*85; December 2029*	*95; December 2030*	*100; December 2031*	*x.x; p. xx*
Grid Monitoring Systems	*Integrate Distribution Sensor Data into Enterprise Monitoring System (GM-02)*	*N/A*	*Quantitative*	*Number of monitored circuits*	*250; September 2028*	*500; September 2029*	*750; November 2030*	*800; November 2031*	*x.x; p. xx*
Vegetation Management	*Implement Vegetation Data Integration and Analytics Platform (VM-03)*	*VM-11*	*Quantitative*	*Percent of vegetation data sources integrated into enterprise platform*	*Not started*	*75; November 2029*	*90; December 2030*	*100; December 2031*	*x.x; p. xx*
Ignition Detection Systems	*Automate Transformer Inspection Work Order Generation (ID-04)*	*N/A*	*Qualitative*	*Milestone progression*	*Rules engine configured; June 2028*	*Pilot automation deployed; June 2029*	*Automated generation operational; June 2030*	*Full Integration complete; June 2031*	*x.x; p. xx*
Weather Forecasting	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*

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13.2 Summary of Enterprise Systems

The electrical corporation must provide a narrative that summarizes its enterprise systems, the architecture and workflow of data through its system, and how it manages and maintains quality data. The electrical corporation must demonstrate that its enterprise systems are supported by appropriate hardware and software, that networks and communication pathways for data exchange are functional and understood by users, and that the electrical corporation considers the needs and uses for its people and end users of the data.

Specific to wildfire risk, the electrical corporation must summarize how its enterprise systems support wildfire mitigation planning, implementation, and monitoring including, but not limited to the following mitigation categories and initiatives, as listed in Table 13-1:

- Risk Methodology and Assessment
- Asset Management
- Grid Monitoring Systems
- Vegetation Management
- Ignition Detection Systems
- Weather Forecasting

The electrical corporation must also address each of the following requirements in the sectional order depicted below.

13.2.1 Enterprise Systems Overview

The electrical corporation must describe how the activities identified in Table 13-1 support wildfire mitigation implementation over the WMP period, including:

- A summary of each enterprise system(s) the electrical corporation plans to use for each initiative or for any other wildfire mitigation;
- A summary of how the activities and targets support wildfire mitigation planning, implementation, monitoring, or risk reduction; and
- For any initiative category that does not have an enterprise systems activity, the electrical corporation must provide a justification for the absence of an activity.

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13.2.2 Data Governance Overview

The electrical corporation must describe how it manages, maintains, and controls its data, including:

- An overview of its data governance plan (i.e., how the electrical corporation manages and oversees its data); and
- A description of the specific employee roles and responsibilities for maintaining data accuracy, completeness, and consistency across enterprise systems.

13.3 Enterprise System Architecture and Data Flow

The electrical corporation must describe the logical architecture[138] of its enterprise systems supporting wildfire mitigation, including:

- A diagram or flowchart similar to Figure 13-1[139] that illustrates how key enterprise systems and databases are interconnected and the end-to-end data flow from data sources through these systems. At minimum, the diagram must depict:
    - Data sources (e.g., inspections, vegetation management, weather stations)
    - Core enterprise systems/databases (including asset management, work management, GIS, etc.)
    - Data flows between systems, depicted by directional arrows that identify:
        - The direction of the data flow

[138] The architectural description and accompanying illustration must focus on the logical architecture (e.g., business applications, core databases, field data collection sources, integration pathways, functional data flows supporting wildfire mitigation, etc.). The electrical corporation is not required to provide physical infrastructure architecture, such as physical hardware servers, network configurations, IP/subnet layouts, underlying cloud hosting environments, physical storage arrays, etc.

[139] This figure is an illustrative example. The specific data flows and system interconnections shown in this example are for illustrative purposes and are not intended to prescribe a particular architectural configuration. While the visual format and orientation of the diagram or flowchart remain at the electrical corporation's discretion, the electrical corporation must provide a comprehensive illustration that reflects the complexity of its enterprise system environments.

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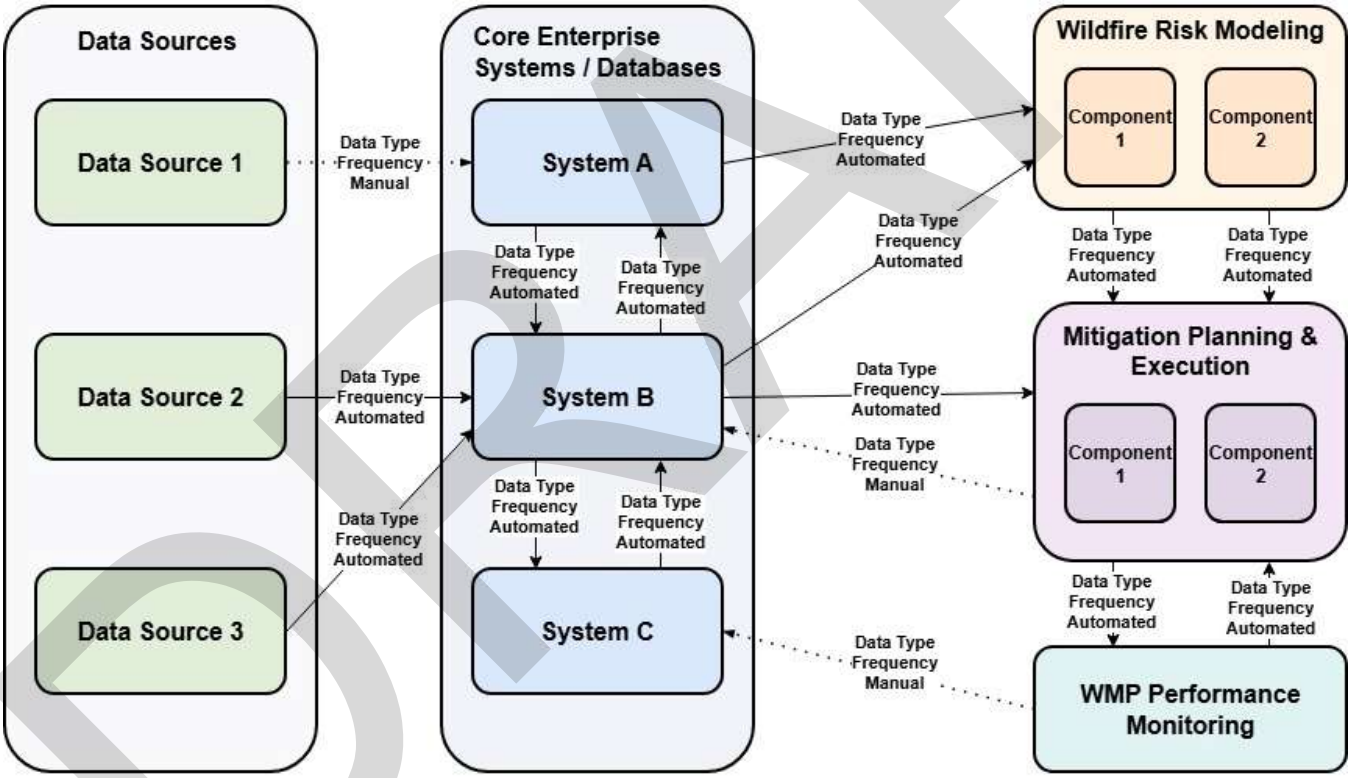
- The data types[140]
- The frequency of the execution (e.g., real-time, hourly, weekly, on-demand)
- The execution types, visually distinguishing between automated scripts and manual processes requiring human intervention (e.g., solid arrows vs dotted arrows)

- Identification of where data is used (including wildfire risk modeling, mitigation activities planning and execution, WMP performance monitoring, etc.)

Figure 13-1: Example of Enterprise Systems Architecture and Data Flow



[140] In this context, "data types" refer to the real-world information categories being shared rather than computer data formats like integer, character, boolean, etc. Examples of "data types" may include field inputs (inspections, sensors), internal system exchanges (asset records, GIS spatial data, work order status), feedback loops (mitigation progress, performance metrics, risk model updates), etc.

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- Description of how and when data collected from field operations (e.g., asset inspections, vegetation inspections, weather monitoring) flows through enterprise systems
- Description of when and where data goes through a QA/QC or auditing process
- Description of how these enterprise systems support the inputs and processes used in the wildfire risk models; and how these enterprise systems support the overall planning and execution of mitigation activities, independent of or in conjunction with risk modeling outputs
- Description of how mitigation activity results inform WMP performance monitoring, including the tracking of mitigation progress and the evaluation of mitigation effectiveness, and if applicable, how mitigation activity results and performance insights feed back into applicable enterprise systems for continuous improvements (e.g., data updates, risk model refinements, future planning)

13.3.1 Integration with Risk Analysis and Mitigation

The electrical corporation must describe how its enterprise systems support wildfire risk analysis and mitigation prioritization. If any of the electrical corporation's enterprise systems or data sets use, reference, or are linked to its WMP activities or risk analysis, it must be included in this description. The description must include:

- How work order, vegetation management, and asset management enterprise systems feed into wildfire risk analysis;
- How enterprise systems inform prioritization of mitigation activities, such as scheduling assets or vegetation inspections, or prioritization of work orders; and
- How enterprise systems support selection of alternative or interim mitigation activities.

13.4 Data Collection and Management

The electrical corporation must describe how its enterprise systems support the collection and management of data used in its wildfire mitigation planning, including:

- Database(s) the electrical corporation uses for data storage;
- The electrical corporation's asset identification process;

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- The electrical corporation's process for identifying 100 percent of its assets, or its justification and timeline if not currently in place; and
- The electrical corporation's approach to identifying, tracking, and integrating vegetation data into its enterprise systems.

13.4.1 Data Accessibility and System Integration

The electrical corporation must describe how it makes its enterprise systems and data accessible and how it integrates data across its systems and operations. At a minimum, this section must include:

- How employees and contractors access and interact with enterprise systems for tracking work order status and scheduling;
- How the electrical corporation communicates data availability and system access procedures to its employees and contractors;
- Technical capabilities for migrating data across systems while maintaining data accuracy and minimizing latency, including how system integration handles cross-functional updates (e.g., how an asset status changes in an asset database trigger corresponding updates in a vegetation management database);
- How enterprise systems are used to track and monitor WMP initiatives and activities; and
- Procedures for updating enterprise systems and databases, including the frequency of updates or synchronization across systems.

13.4.2 Data QA/QC and Auditing

The electrical corporation must describe its processes for ensuring the quality and reliability of data stored in its enterprise systems, including:

- Processes to ensure data integrity (accuracy, completeness, and quality of data);
- QA/QC protocols or auditing procedures used to identify and correct data gaps or errors; and
- Procedures for implementing revised or corrected data across systems, including how changes, updates, or corrections to baseline data are communicated to downstream end-users who rely on that data.

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13.4.3 Data Retention

The electrical corporation must describe how data is retained and stored in its enterprise systems, including policies related to data retention, such as how long data is stored and how it is disposed of after the retention period.

13.5 Enterprise System Updates

The electrical corporation must describe how it has and plans to continue improving its enterprise systems, including:

- Any changes made to enterprise systems since the last WMP submission and the reason for those changes;
- Any planned improvements or updates to enterprise systems and the timeline for implementation of those improvements; and
- Any upgrades aimed at reducing data latency and increasing the reliability, availability, and transparency of data related to enterprise system maintenance and wildfire mitigation.

13.6 Energy Safety Data Guidelines

The electrical corporation must describe how it has integrated updates to Energy Safety's data guidelines into its enterprise system development, including listing which procedure(s) it updated to respond to the latest Data Guidelines.[141] The electrical corporation must describe its internal change management process for adapting its enterprise systems to future updates of Energy Safety's data guidelines or other related wildfire safety reporting requirements. This description must demonstrate how the electrical corporation ensures system readiness and agility to implement reporting changes between WMP periods.

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[141] The "latest Data Guidelines" refers to the most recent version of the Data Guidelines. Data Guidelines can be found in the Data Guidelines Docket
URL: (https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=Data%20Guidelines).

14 WMP Appendices

This section sets the requirements for appendices to the electrical corporation's WMP. All appendices must be clearly labelled and listed in the table of contents. If the electrical corporation chooses to include additional appendices beyond those required by this section, it may create new appendices in alphabetical order following the Energy Safety required appendices (A through E).

If the WMP does not require the use of one of the following appendices, the electrical corporation must still include the appendix with a sentence stating that no information is included in the appendix.

14.1 Appendix A: Areas for Continued Improvement

Appendix A must be the electrical corporation's responses to areas for continued improvement as identified in the most recent Energy Safety WMP Decision in the following format:[142]

- ID and Title of area for continued improvement:
- Description:
- Required Progress:
- Section and Page Number of Any Improvements:
- [Electrical Corporation] Response:

The ID, title, description, and required progress of the area of continued improvement must match verbatim to the language in the WMP decision.

14.2 Appendix B: Risk Modeling Documentation

In this appendix, the electrical corporation must provide additional details about its risk modeling approach and corresponding risk insights and conclusions. The electrical

[142] If a previous Energy Safety WMP Decision stated no further reporting is required on an area for continued improvement, the electrical corporation is not expected to report on that area for continued improvement.

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corporation must demonstrate its understanding of uncertainty within its risk calculations and its plan for addressing that uncertainty. As part of this appendix, the electrical corporation must provide:

1. Summary documentation with additional details on risk modeling;
2. Example calculations showing step-by-step processes for various risk calculations in the WMP; and
3. Detailed modeling documentation, if requested by Energy Safety. The electrical corporation must have compiled at the time of WMP submission any supporting materials that document risk models, as discussed below.[143]

14.2.1 Summary Documentation

The electrical corporation must provide a document summarizing additional details about its risk modeling and assessment approach used and discussed in the Risk Methodology and Assessment section of its WMP. The document must include the following high-level information about the electrical corporation's risk assessment process and models:

- Overarching summary of the risk models.
- A flow diagram depicting the step-by-step risk assessment process.
- Summary of the key insights and conclusions resulting from the risk assessment.
- Current limitations and assumptions.

The following sub-sections provide additional details on each of the requirements listed above.

Overarching Summary of the Risk Models

The electrical corporation must provide a summary of each model and submodel it uses in its risk assessment process, including inputs and outputs. The summary must include the following information:

- **Model inventory,** consisting of a list that includes:
  - Model name/version;

[143] Materials must be compiled at the time of WMP submission as the electrical corporation must be able to meet the required 3-day turnaround for data requests during WMP review. As part of the compilation, the electrical corporation may create redacted versions prepared for confidential filing.

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  - Type of model (e.g., analytical model, empirical model, statistical model or a combination);
  - Technical references;
  - Associated model input/output files, as applicable; and
  - Verification and validation studies if available.
- For each of the models included in the inventory, the electrical corporation must include **key model input parameters** to the model, including:
  - Description and justification for key input parameters that influence the results in each model.; and
  - Classification of model inputs as:
    - Field specific values, with uncertainty representation or sensitivity characterization, if applicable
    - Generic industry values, with uncertainty representation or sensitivity characterization, if applicable
    - Expert judgment, with uncertainty or sensitivity characterization representation, if applicable
- For each of the models included in the inventory, the electrical corporation must include **key model outputs,** including:
  - Description of each key output and how it was calculated through the model;
  - Explanation as to why it was determined to be a significant key output to be calculated; and
  - Description of how the key output is used for risk analysis or by other risk models.
- A depiction of all key model inputs and outputs for each model, as shown in Figure 14-1.

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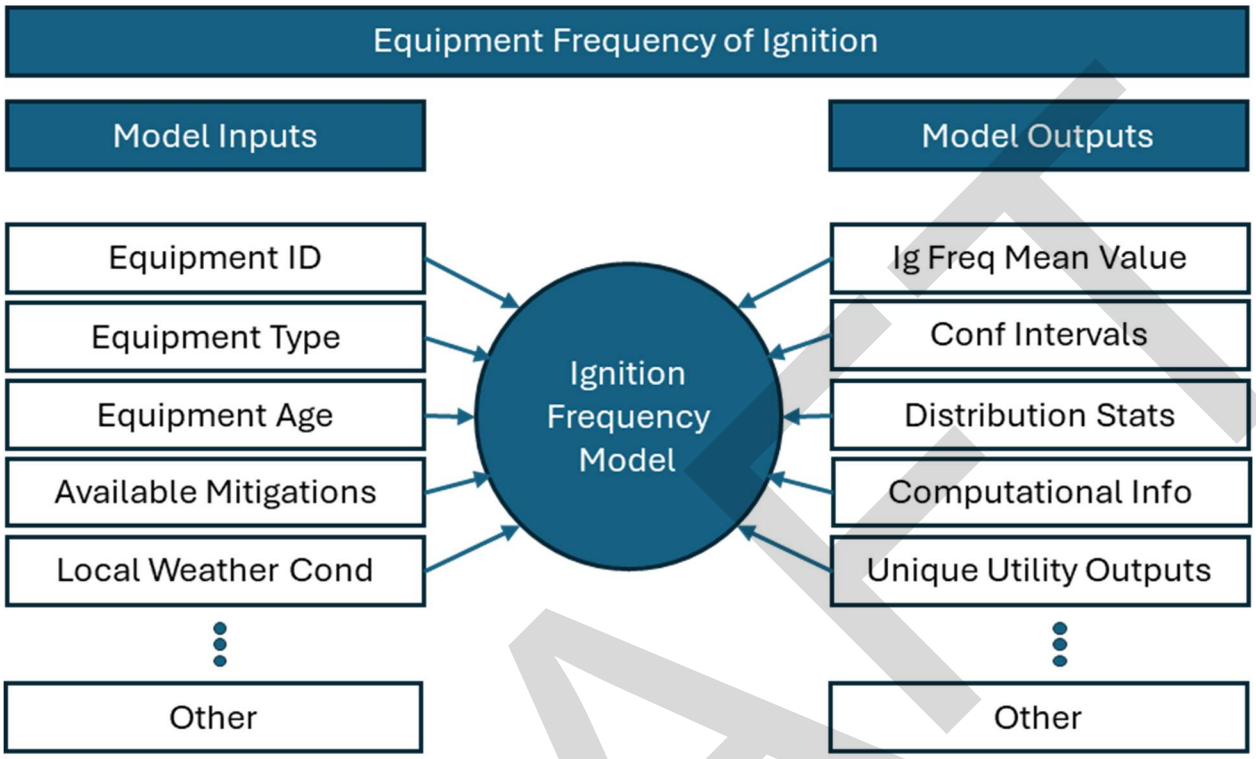
Figure 14-1: Example of a Bow Tie Schematic Capturing inputs and Outputs to a Model



- A description of the interaction between models and submodels. For example, multiple sub models and their corresponding inputs are used in determining the likelihood of ignition (i.e., the model output). Figure 14-2 depicts how such model interactions could be presented; the figure shows how inputs are used in different models resulting in one output.

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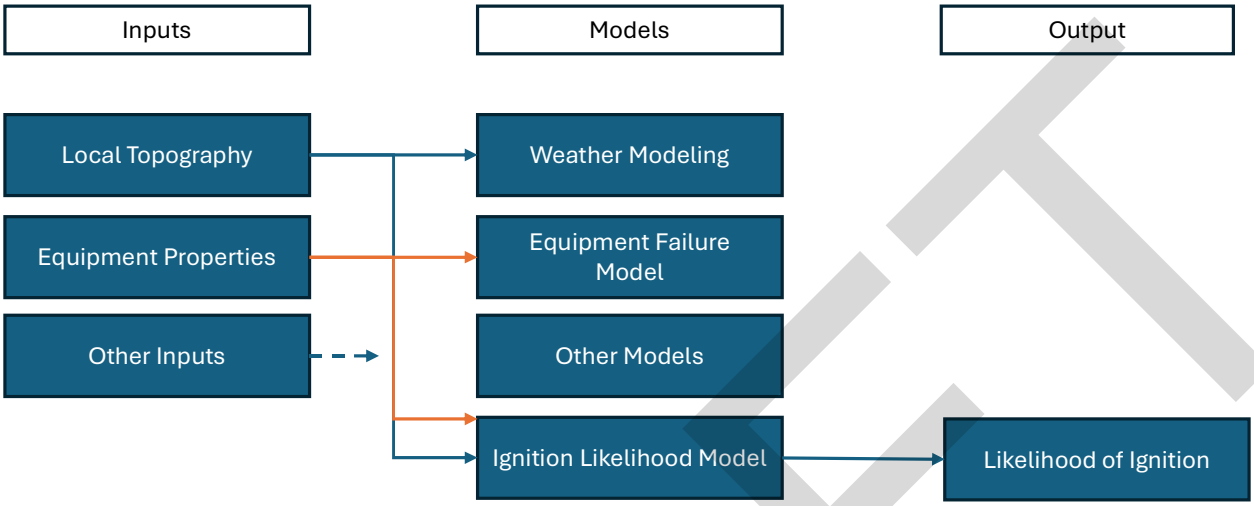
Figure 14-2: Example of Interactions Between Models, Submodels, and Corresponding Input Parameters



Flow Diagram Depicting the Step-by-Step Risk Assessment Process

The electrical corporation must include a diagram (e.g., flow chart, bow tie, etc.) that reflects its risk assessment process, step by step. It is recognized that a quantitative risk assessment often includes iterative steps that may be difficult to represent in chronological order. However, to the extent possible, the diagram should convey each step in the chronology of activities such that each model and its corresponding inputs and outputs can be clearly depicted.

The process typically starts with defining the objectives of the wildfire risk assessment, followed by the definition of the scope in terms of service territory, relevant weather conditions, topography, and applicable hazards to be included in the analysis. Once the objectives and scope are defined, the process continues by identifying the specific wildfire risks to be evaluated—such as those associated with transmission and distribution infrastructure—and establishes the risk metrics and evaluation criteria used to inform mitigation decisions and conclusions.

The process continues with the hazard analysis which includes identifying hazards capable of initiating or propagating wildfires, typically involving ignition sources, combustible materials, and natural hazards. Fire scenarios are then identified and characterized based on location, potential ignition sources, terrain, vegetation, population, infrastructure, and construction characteristics within the territory. For each scenario, the likelihood and consequences are assessed or quantified, followed by an evaluation of available mitigation strategies and their corresponding impact on risk.

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Finally, uncertainty and sensitivity considerations are addressed, and all activities are documented to support completion of the WMP documentation requirements. The electrical corporation must include separate references for any intermediate calculations in models or sub-models and their inputs and outputs.

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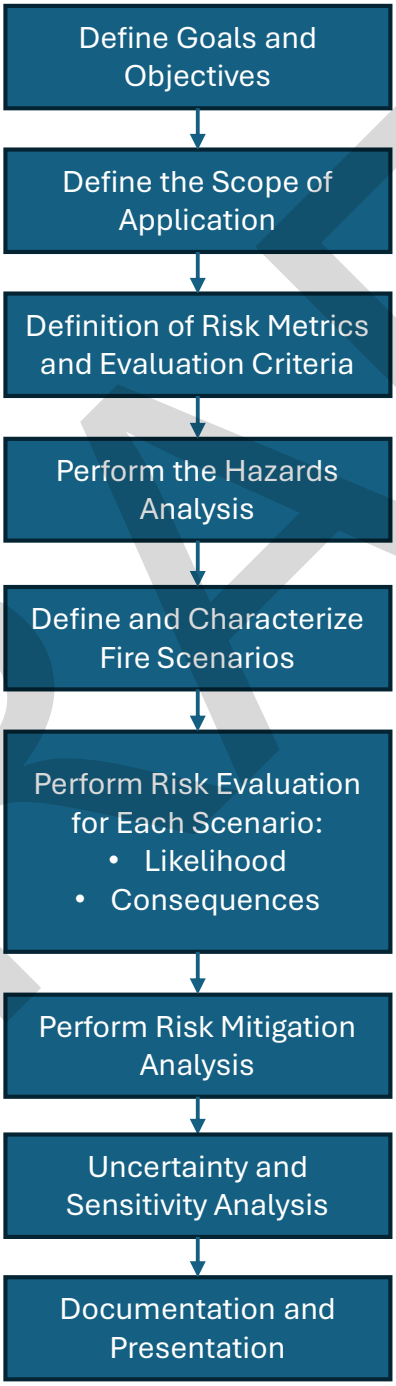
Figure 14-3 is an example diagram in a flow chart format that shows a generic process implemented in multiple fire risk assessments (e.g., 2nd Edition of the SFPE Engineering Guide on Fire Risk Assessment).

Figure 14-3: Example of Flowchart Summarizing the Risk Assessment Process



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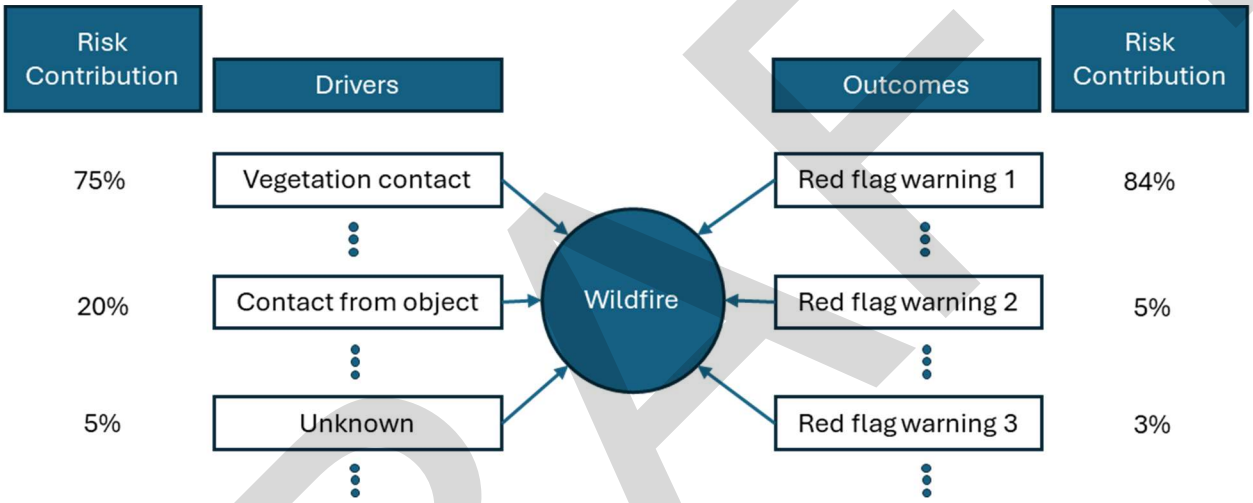
Summarizing the Key Insights and Conclusions Resulting from the Risk Assessment

The electrical corporation must provide a summary of the quantitative results from its risk assessment, together with the insights and conclusions generated from them. The summary must include a description and timeline for planned changes to the calculation procedure during the WMP cycle. An example of key insights generated, including the magnitude and significance of various risk drivers and outcomes, is depicted in Figure 14-4.

Figure 14-4: Example of Bow Tie Schematic of the Risk Assessment Process



Current Limitations and Assumptions

The electrical corporation must provide key assumptions, limitations, and data standards for each element of its risk assessment, as documented in Table 14-1: Example of Risk Modeling Assumptions and Limitations:.[144] This must include the following:

- **Key modeling assumptions** that are specific to each model to represent the physical world and to simplify calculations.
- **Data standards**, which must be consistently defined (e.g., weather model predictions at a 30-ft [10-m] height must be converted to the correct height for fire behavior predictions, such as mid-flame wind speeds).

[144] Pub. Util. Code, § 8386(d)(4).

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- **Consistency of assumptions and limitations** in each interconnected model, which must be traced from start to finish, with any discrepancies between models discussed.
- **Stability of assumptions in the program**, including historical and projected changes.

Table 14-1: Example of Risk Modeling Assumptions and Limitations:

Assumption	Justification	Limitation	Applicable Models
Height of conductors in rural and highly rural areas is assumed to be 28 feet	General Order 95 (GO 95) requires 34 feet or 30 feet over railroads or thoroughfares for 35-kV lines. The sag in the lines in our service territory generally varies from 3 to 10 feet. The average height of conductors is thus: 34 feet – 6 feet = 28 feet	Statute mandates minimum clearance, but the height could be higher. Since wind speed generally increases with height, this could lead to use of non-conservative wind speeds in design.	Each likelihood-of-ignition model

14.2.2 Example Calculations

The electrical corporation must provide its step-by-step calculations for overall utility risk, effectiveness of covered conductor and undergrounding, a benefit cost ratio for a given activity, and its cost per avoided ignition equation. Specifically, this section of the WMP must include:

- The total overall utility risk for the top-ranking circuit segment represented in Table 7-3 in Section 7.4.1, Risk Model Output, Highest-Risk Circuit Segment List, based on the components of the risk model.
- The activity effectiveness for covered conductor and undergrounding each for a specific project location, as described in Section 8.1.2, Mitigation Effectiveness, Project-Specific Activity Effectiveness, including:
    - All inputs, equations, scaling factors, averages, and sub-calculations used to calculate effectiveness. Show each step of the calculation.
    - Narrative explanation of the effectiveness calculations.
    - Impacts based on project location, including a narrative about the specific location and defining features about mitigation implementation (e.g., wind speed, terrain, population density, existing equipment description).

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- Any equations and calculations performed to determine the benefit cost ratio for a mitigation activity, as discussed in Section 8.1.3, Cost Impact Analysis, Benefit Cost Analysis.
- How each component of the cost per avoided ignition equation was calculated, as discussed in Section 8.1.3, Cost Impact Analysis, Cost Per Avoided Ignition.

14.2.3 Detailed Modeling Documentation

The electrical corporation must be able to provide, if requested by Energy Safety or ~~designated stakeholders~~Data Request Stakeholders, detailed documentation for each model and sub-model discussed in the Summary Documentation of this appendix.

The electrical corporation does not need to provide this information as part of its WMP submission but must have this information compiled and ready at the time of WMP submission and available if requested by Energy Safety.

The following sections outline information that Energy Safety may seek via a data request during the WMP evaluation and that the electrical corporation should compile in advance of that request.

Details of Risk Models

- **Purpose of each model:**
  - Define the model objectives in the context of the electrical corporation's wildfire risk assessment.
  - Provide the inputs and datasets used for the model.
  - Define the circumstances (e.g., scenario conditions) in which the model is using. This may include:
    - Time horizon (i.e., real time, annual planning, or both);
    - Spatial scales (i.e., service territory, region, local); and
    - Deterministic (specific forecasts) or probabilistic (statistical).
  - Identify the relevant outcomes and outputs to be predicted by the model.
  - Describe external programs or software libraries used by the software.
- **Model version:**
  - Provide the name and version number of the software, including major and minor release number. Provide version control (git) commit level if available.

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- Document any utility-specific changes implemented in the model and the technical justification for the changes.

- **Model description:**
  - Describe the technical basis for the model, including technical and mathematical basis.
    - Theoretical foundation: Describe or provide the technical reference for the theoretical basis of the model and identify assumptions made in the model, their impact in the governing equations, and the potential impacts on the results.
    - Mathematical foundation: Describe or provide the technical reference for the numerical techniques and computational algorithms used to solve/approximate the governing equations.
  - Describe the precision of the results and any reliance on specific computing hardware or facilities.
  - Discuss model convergence criteria, studies, and resulting grid resolution required to meet the criteria.
  - Identify any additional limitations in the model based on the numerical techniques and implementation.
  - Identify any covariates that have been utilized within the various risk model components, including how those covariates were determined, how statistical significance was defined, and which covariates were included or excluded as a result.
- **Data collection.** Describe data used by the software, including utility-collected and external sources. This should include the following:
  - Any utility-collected data, including the methodology for collection.
  - Characteristics of the data (field definitions/schema, uncertainties, acquisition frequency).
  - Scope and granularity (or resolution) of data in time and location (i.e., date range, spatial granularity for each data element).
  - Sources of data, frequency of data updates, and verification of data quality (including how data is prepared and cleaned). Explain in detail measurement approaches and procedures.

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- Any processes used to modify the data (such as adjusting vegetative fuel models for wildfire spread based on prior history and vegetation growth), including a description of any data transformations used during preprocessing for risk modeling use.

- **Verification and validation.** All models must be verified and validated for the specific application in which they are to be used in accordance with the following Gguidelines.
  - **Data validation** – Identify existing data (e.g., experimental observations, field measurements, historic events, etc.) that was used to validate model performance.
  - **Model verification** – Describe efforts to verify that the model is working as designed and that the equations are being properly solved. Verification is often conducted through independent review of source code and use of unit and integration test suites by the software developer. The verification process can consist of:
    - Verification of the basic functionality of the model through simple test cases. That is, comparison of model results with documented scenarios with known results.
    - Independent third-party review of software implementation and data integration where the third-party is neither an employee nor a contractor of the electrical corporation or software supplier.
  - **Model validation** – This refers to a justification for model applicability to the scenarios and conditions it is meant to evaluate. Models are validated by comparing model predictions to observations from historic events, field measurements or experiments. It is important to note that validation does not mean that a model's predictions are perfect. Rather, the predictive capabilities are well understood for the intended use case. The validation study and uncertainty assessment of each model must include:
    - A quantification of model uncertainty. In this context, model uncertainty refers to a characterization of the predictive capabilities in terms of deviations from reality (e.g., an average model bias determined by comparing model predictions with experimental observations, field measurements, etc.). This should include a discussion of relevant experiments/datasets used to benchmark performance as well as a statistical summary of performance.

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- Examples of the various types of validation performed, including results of those examples. For instance, including an example walkthrough of how field validation is performed on one of the identified top-risk circuits.

- **Model calibration** – Calibration in the context of wildfire risk assessment is focused on modifying model inputs and model parameters to achieve better accuracy. Calibration is an important process to develop validation scenarios as well as to support real-time decision making.

  In general, calibrations limit the propagation of error by correcting to new data but have limited effectiveness in improving the quality of the forecast. However, calibrating the model to each individual scenario does not provide confidence in the predictive capability of the model for new scenarios.

  - For each model that uses ~~real-time~~ calibration, the following must be documented:
  - Data sources used to calibrate the model.
  - Model parameters (such as rate of spread and varying fuel types, such as urban and wildland-urban interface areas) that are modified during calibration and the process used to modify parameters. Describe how these parameters have been identified as needing additional calibration, and what adjustments were made to calibrate these parameters.
  - Uncertainty as a function of lead time (i.e., forecast time) with and without calibration.
  - The degree to which a model-predicted value might differ from the true value, including systematic bias and statistical variance (i.e., model uncertainty assessment). This should be presented as an open calculation.
  - How the identification and need for calibration informs risk model improvements moving forward (e.g., which model features are being focused on and prioritized for improvement, how model results impact operations and planning).

- **Model cross-comparison** - The electrical corporation must test and compare at least three wildfire spread models, at least one of which shall be open-

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source[145] and peer-reviewed, and operated in their native platform, using historical utility-caused wildfires[146] and benchmarking fire behavior results against real perimeters of those fires. Table 14-2 below should be completed to compare model outputs. Each electrical corporation shall provide the following information relating to the cross-model comparison:

- Describe each model that was compared. Characterize the inputs that were used (fuel, weather, typography, space and time resolution, and fire behavior algorithms)
- Describe the evaluation performed to complete the cross-model comparison, including any additional benchmarks, metrics, and evaluation criteria used
- Describe any adjustments made to the models to create a more accurate result. Include how many simulation runs were conducted and what inputs were adjusted to make the best overall estimation.
- Describe how differences in model outputs were validated to be attributable to model structure rather than input handling, and did any sensitivity tests confirm this.
- Provide any additional results demonstrating model comparison, including figures, actual and simulated fire perimeters, and rate-of-spread.
- Provide a justification of why the model or ensemble of submodels selected for use in decision-making is the most appropriate.

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[145] Open-source refers to software that is publicly available in source code form, and provided under an open-source license that permits users to study, change, and improve the software.

[146] Utility-caused fires; at least one event where winds were >30 mph. Reference fires may include, but not limited to: Tubbs, Camp, Witch, Zogg, Harris, Kincaid, Woolsey, Thomas.

Table 14-2: Example of Wildfire Spread Model Comparison

Wildfire Spread Model	**Validation Sources (5 historic fires*)**	**Model Run Time**	**Fuel Type Assigned (Source and model year)**	**Burned Area Difference (acres)**	**Burned Area Difference (geographic extent/shape agreement)**	**Rate of Spread (ch/h)**	**Structures Loss (as defined by correlated fuel model[147])**
Current Model							
Alt A							
Alt B							
Alt C (open source)							

- **Uncertainty and Sensitivity** - for each of its models, the electrical corporation must:
  - Describe its efforts to evaluate the model and parameter uncertainty.
  - Describe its efforts to evaluate the sensitivity of input parameters to the predicted model outcomes.
- **Use of Machine Learning** - the electrical corporation must describe how it uses machine learning to collect data and validate models, including:
  - Data collection methods, including:
    - What data is collected, what data is used to train the model, and methods for data collection;
    - How data was prepared, cleaned, and validated;
    - What data transformations are performed during preprocessing;
    - How data was partitioned for training, testing, and validation, including percentage of data used for each; and
    - A correlation plot demonstrating the relationship between all variables used within each respective risk model that uses machine learning to determine what data to use.

[147] Different models should use the fuel datasets that come with them. Describe how fuel type assignment was determined for each model.

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- Model evaluation and validation, including:
  - Description of how each machine learning model type (i.e. XGBoost, Random Forest) was determined to be the correct methodology for the given risk model;
  - Documentation of validation methods;
  - Results of any validation being performed, including a table with performance metrics on test datasets (including precision, recall, f1-score, support, accuracy, macro average, and weighted average);
  - Description of how features are extracted and how classification occurs;
  - Determination of relative feature importance based on the model's results, including a list of which features are of significance and how that significance was determined; and
  - Timing for validation, and how revised learning occurs, including collection of new data and updating model training.

- **Risk modeling improvements** - The electrical corporation must describe how it is monitoring for risk modeling improvements in the following areas:
  - Adaptation of weather history to current and forecasted climate conditions;
  - Availability of suppression resources, including type, number of resources, and ease of access to the incident location;
  - Height of wind driving fire spread, including any wind adjustment factor calculations;
  - General equipment failure rates based on historical trends for equipment type, equipment age, overdue maintenance, and any wind-speed functional dependences;
  - General vegetation contact rates based on historical trends for vegetation species, vegetation height, and environmental factors such as wind speed, with functional dependences;
  - Height of electrical equipment in the service territory;

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- Stability of the atmosphere and resulting calculation of near-surface winds;
- Vegetative fuels, including models that account for fuel management activities by other land managers (e.g., thinning, prescribed burns);
- Combination of risk components and weighting of attributes and resulting impacts;
- Wind load capacity for electrical equipment in the service territory;
- Number, extent, and type of community assets at risk in the service territory;
- Proxies for estimating impact on customers and communities in the service territory; and
- Extent, distribution, and characteristics of vulnerable populations in the service territory.

Models Supporting Risk Analysis

This section describes additional information associated with specific supporting models used in risk calculations. This includes: weather analysis, fuel conditions, climate change, and fire potential index.

Weather Analysis

The electrical corporation must document how it monitors and accounts for the contribution of weather and associated environmental conditions to wildfire risk in its decision-making processes. The documentation must include the following elements:

- Inclusion of at least the following model outputs: air temperature, barometric pressure, fuel moisture, relative humidity, wind velocity and direction.
- A description of the relationship between local weather conditions with the corresponding vegetation and fuel conditions.
- A description of the use of spatial granularity forecasts that at a minimum include:
  - Horizontal resolution ≤4 km.
  - Vertical resolution sufficient to evaluate average conditions at environmental monitoring system locations.

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- A description of the subset of weather data used, including the timeframe of weather history. Electrical corporations must use at least a 30-year time horizon of the weather analysis throughout the service territory.
- An assessment of the following:
    - Model assumptions, limitations, and parameterizations on the model results.
    - Level of uncertainty of the input parameters to the model.
    - Sensitivity of downstream model output to uncertainty (i.e., potential range of input values with their associated probabilities) in the input values characterizing weather conditions.

Fuel Conditions

The electrical corporation must document how it monitors and accounts for the contribution of fuel conditions to wildfire risk in its decision-making processes. The documentation must include the following elements:

- Measurement and calculation methods used for assessing vegetation fuel conditions (e.g., live and dead fuel moisture, fuel density);
- Measurement and calculation methods used for assessing building fuel conditions (e.g., type of structure, conflagration risks);
- Methodology used for projecting future vegetation fuel conditions;
- Calculation of any proprietary fuel condition indices (or other measures tracked); and
- Thresholds used to delineate vegetation fuel conditions (e.g., mild, moderate, high, extreme), including any factors used to modify thresholds (e.g., fuel type, topography).

Climate change

The electrical corporation must document how it monitors and accounts for the impact of climate change to wildfire risk in its decision-making processes. The documentation must include the following elements:

- Time periods used for forecasting, including justification as to why those time periods were used;
- Methodology used for projecting the extent to which climate change has impacts on wildfire risks, including which factors are impacted (e.g., ambient heat, relative humidity, drought period and intensity, fuel moisture, fuel type changes); and
- Data sources used to calculate climate change projections.

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Fire Potential Index

The electrical corporation must document how it determines its Fire Potential Index (FPI) and how the FPI contributes to risk modeling, including evaluation and classification of historical conditions that meet various FPI thresholds. The documentation must include a description of the following elements:

- Identification and measurement of components for determining the FPI (e.g., weather and fuel conditions);
- Determination of thresholds used for classifying the FPI;
- Evaluation of historical FPI classification; and
- Integration of FPI into its risk modeling, if applicable.

Calculations of Risk and Risk Components

This section identifies requirements for additional documentation for the methodology for determining the key components of a wildfire risk methodology, as identified in *Section 7.2.1, Risk and Risk Component Identification*. The section is intended to establish the baseline evaluation and reporting expectations for risk assessment. If additional components are implemented, they must be reported in similar format. If the technical approach uses a multi attribute value function (MAVF), technical justification should be documented for each parameter (e.g., limits, scaling functions, and weights) used.

Wildfire Likelihood

The electrical corporation must document its methodology used for determining the likelihood of ignition throughout its service territory. The following are key elements to the calculation:

- Total likelihood of ignition, including the contribution of:
    - Equipment likelihood of ignition
    - Contact by vegetation likelihood of ignition
    - Contact by object likelihood of ignition
    - Other sources of ignition
- Normalization of likelihood of ignition, including:
    - Whether or not the ignition would propagate into a wildfire, including any parameters and thresholds used for that determination

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- Any weather normalization to account for year-to-year factors that may impact ignition trends over time (i.e. fuel dryness, precipitation and rainfall impacts, wind speeds and gusts)

Equipment Caused Ignition Likelihood

Equipment caused likelihood of ignition refers to ignition due to equipment present in the specific location. The likelihood must consider the impact from types of equipment as well as the elements influencing the ignition likelihood. Examples of equipment include:

- Arrestors;
- Capacitors / Capacitor banks;
- Circuit breakers;
- Conductors;
- Connection points (e.g., hotline clamps, other connectors);
- Crossarms;
- Fuses;
- Insulators;
- Poles;
- Splices;
- Switches;
- Tie wires; and
- Transformers.

The following elements are key to calculating equipment likelihood of ignition:

- Typical operating conditions;
- Equipment-specific failure rates;
- Relationship between equipment failures and energy release (e.g., arcing, hot metal particle release);
- Spark generation and energy release rates from normal operation;
- Age of equipment;
- Presence of mitigation (e.g., covered conductors, vibration dampers);
- Protective equipment and device settings;

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- Time since most recent asset inspection;
- Open work requests;
- Local weather conditions; and
- Local surface vegetation conditions.

If the electrical corporation determines equipment likelihood of ignition by historical events, it must document the technical basis for the data used (e.g., past ignition events), number of events, description of events, and the statistical tools used as part of the analysis.

Contact from Vegetation Ignition Likelihood

Contact from vegetation likelihood of ignition refers to ignition due to vegetation contacting electrical corporation equipment. The electrical corporation must document the methodology used for determining the likelihood of ignition from vegetation contact throughout its service territory. This must include:

- Contact from vegetation grow-in;
- Contact from vegetation fall-in; and
- Contact from vegetation blow-in.

Describe how the following elements are included in the calculation:

- Type of contact (e.g., grow-in, fall-in, blow-in);
- Local vegetation with contact potential (i.e., type/class/species, canopy height/base height/cover, health, mortality, and growth rates);
- Time since most recent vegetation inspection;
- Local weather conditions; and
- Local surface/surrounding vegetation (i.e., type/class/species, fuel model, canopy height/base height/cover, growth rates, health, and moisture content).

If the electrical corporation calculates contact with vegetation likelihood of ignition by historical events, it must document the technical basis for the data used (e.g., past ignition events), number of events, description of events, and the statistical tools used as part of the analysis.

Contact from Object Ignition Likelihood

Contact from object likelihood of Ignition refers to ignition due to external objects contacting electrical corporation equipment. The electrical corporation must document the

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methodology used for determining the likelihood of ignition throughout the service territory. External objects may include:

- Vehicle contact (pole strike);
- Balloon contact;
- Animal contact; and
- Unknown contact.

If the electrical corporation calculates object likelihood of ignition using historical events, it must document the technical basis for the data used (e.g., past ignition events), number of events, description of events, and the statistical tools used as part of the analysis.

Other Ignition Likelihood

Other ignition risks refer to ignition drivers not captured in the above categories (i.e., other than equipment-caused, vegetation, or contact from object). The electrical corporation must document the methodology used for calculating the likelihood of ignition throughout the service territory. This includes:

- Dig-in;
- Contamination;
- Protective device operation;
- Vandalism / theft;
- Lightning;
- Unknown; and
- Other.

If the electrical corporation calculates likelihood of other ignitions using historical events, it must document the technical basis for the data used (e.g., past ignition events), number of events, description of events, and the statistical tools used as part of the analysis.

Outage Program Likelihood

PSPS Likelihood

PSPS likelihood is the likelihood that an electrical corporation requires a PSPS at a given location given a probabilistic set of environmental conditions. The electrical corporation must document its methodology for determining the annual likelihood of issuing a PSPS for a

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circuit segment within its service territory. The documentation must include treatment for the following key elements:

- Weather (i.e., statistical extreme conditions based on a 30-year average and seasonal weather);
- Historical PSPS data; and
- Fire conditions and thresholds used to enact PSPS.

PEDS Outage Likelihood

PEDS outage likelihood refers to the likelihood of an outage occurring at a given location when increased sensitivity settings on a protective device are enabled. Documentation of the methodology for determining the annual likelihood of issuing a PEDS for a circuit segment within its service territory must include treatment for the following key elements:

- Weather (i.e., statistical extreme conditions based on a 30-year average and seasonal weather);
- Historical PEDS outage data; and
- Fire conditions and thresholds used to enable PEDS.

Wildfire Consequence

Wildfire consequence is the total anticipated adverse effects of a wildfire on each community it reaches. Documentation of the methodology used to determine the consequences of a wildfire throughout the service territory must include the following elements:

- Wildfire spread potential;
- Wildfire hazard intensity;
- Wildfire exposure potential; and
- Wildfire vulnerability.

Wildfire Spread Extent

Wildfire spread extent is the spatial region expected to be reached by a wildfire resulting from an electrical corporation-related ignition at each asset location. Documentation of the methodology for determining wildfire spread likelihood in individual locations within service territory must include treatment for the following key elements:

- Local topography (i.e., elevation, slope, aspect);

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- Local weather (i.e., statistical extreme conditions based on a 30-year average and seasonal weather);
- Local vegetation (i.e., type/class/species, fuel model, canopy height/base height/cover, growth rates, health, and moisture content); and
- Climate change impact on fuel aridity (i.e., impact in seasonal extreme moisture content).

Wildfire Hazard Intensity

Wildfire hazard intensity is the potential intensity of a wildfire at a given location within the service territory. Documentation of the methodology for determining the intensity of a wildfire at a location within the community must include treatment for the following key elements:

- Local topography (i.e., elevation, slope, aspect);
- Local weather (i.e., statistical extreme conditions based on a 30-year average and seasonal weather);
- Local vegetation (i.e., type/class/species, fuel model, canopy height/base height/cover, growth rates, health, and moisture content); and
- Local fire behavior (e.g., heat release rate, flame length).

Wildfire Exposure Potential

Wildfire exposure potential is the potential physical, social, or economic impact of wildfire on people, property, critical infrastructure, livelihoods, health, environmental services, local economies, cultural/historical resources, and other high-value assets. Documentation of the methodology for determining the exposure potential of a wildfire that reaches a community must include treatment for the following key elements:

- Population density;
- Residential, community, and critical infrastructure;
- Environmental resources;
- Social or cultural assets; and
- Economic factors (businesses and individual livelihoods).

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Wildfire Vulnerability

Wildfire vulnerability is the susceptibility of people or a community to the adverse effects of a wildfire, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from those effects. Documentation of the methodology for determining the vulnerability/resilience of a community to a wildfire that reaches that location must include treatment for the following key elements:

- Vulnerable populations (AFN, LEP, elderly);
- Legacy building codes;
- Community collaborative wildfire preparedness initiatives (e.g., Firewise USA);
- Availability of ingress and egress; and
- Fire suppression effectiveness.

PSPS Consequence

PSPS consequence is the anticipated adverse effects of a PSPS on each community impacted. Documentation of the methodology for determining the consequence of a PSPS at each location throughout its service territory must include treatment for the following key elements:

- PSPS exposure potential; and
- Vulnerability of community to PSPS.

PSPS Exposure Potential

PSPS exposure potential is the potential physical, social, or economic impact of a PSPS event on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets. Documentation of the methodology for determining the exposure potential of a PSPS at an affected location within the community must include treatment for the following key elements:

- Population density;
- Residential, community, and critical infrastructure;
- Social or cultural assets; and
- Economic factors (businesses and individual livelihoods).

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PSPS Vulnerability

PSPS vulnerability is the susceptibility of people or a community to the adverse effects of a PSPS event, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from those effects. Documentation of the methodology for determining the vulnerability/resilience of a community to a PSPS that affects the community must include treatment for the following key elements:

- Vulnerable populations (e.g., AFN, LEP, elderly);
- Presence of critical infrastructure; and
- Presence of redundant systems (e.g., secondary power systems).

PEDS Consequence

PEDS outage consequence is the anticipated adverse effects on a community if an outage occurring while increased sensitivity settings on a protective device are enabled at a given location. Documentation of the methodology for determining the consequence of an outage due to enablement of PEDS at each location throughout its service territory must include treatment for the following key elements:

- PEDS exposure potential; and
- Vulnerability of community to PEDS.

PSPS Outage Exposure Potential

PEDS outage exposure potential is the potential physical, social, or economic impact on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets from an outage occurring when PEDS are enabled.

Documentation of the methodology for determining the exposure potential of an outage during PEDS enablement at an affected location within the community must include treatment for the following key elements:

- Population density;
- Residential, community, and critical infrastructure;
- Social or cultural assets; and
- Economic factors (businesses and individual livelihoods).

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PEDS Outage Vulnerability

PEDS outage vulnerability is the susceptibility of people or a community to adverse effects of an outage when PEDS are enabled, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from those effects. Documentation of the methodology for determining the vulnerability/resilience of a community to an outage during PEDS enablement that affects the community must include treatment for the following key elements:

- Vulnerable populations (e.g., AFN, LEP, elderly);
- Presence of critical infrastructure; and
- Presence of redundant systems (e.g., secondary power systems).

Overall Risk

Documentation of the methodology used to calculate risk values at each location throughout the service territory must include wildfire risk, PSPS risk, PEDS risk, outage program risk, and overall utility risk.

Wildfire Risk

Documentation of the methodology used to determine the wildfire risk throughout its service territory:

- Wildfire likelihood (ignition LoRE); and
- Wildfire consequence (ignition CoRE).

As applicable, the calculation of wildfire risk must align with the most recent CPUC decision governing RAMP filings.[148]

PSPS Risk

Documentation of the methodology used to determine the PSPS risk throughout its service territory:

- PSPS likelihood (PSPS LoRE); and
- PSPS consequence (PSPS CoRE).

[148] Pub. Util. Code, §§ 8386(d)(12) and (13).

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Ass applicable, the calculation of PSPS risk must align with the most recent CPUC decision governing RAMP filings.[149]

PEDS Risk

Documentation of the methodology used to determine the PEDS risk throughout its service territory:

- PEDS likelihood (PEDS LoRE); and
- PEDS consequence (PEDS CoRE).

As applicable, the calculation of PEDS risk must aligned with the most recent CPUC decision governing RAMP filings.[150]

Outage Program Risk

Documentation of the methodology used to determine the outage program risk throughout its service territory:

- PSPS risk; and
- PEDS risk.

As applicable, the calculation of outage program risk must align with the most recent CPUC decision governing RAMP filings.[151]

Overall Utility Risk

Documentation of the methodology used to determine the overall utility risk throughout its service territory:

- Wildfire risk
- Outage program risk

As applicable, the calculation of overall risk must align with the most recent CPUC decision governing RAMP filings.[152]

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[149] Pub. Util. Code § 8386(d)(12).

[150] Pub. Util. Code § 8386(d)(12).

[151] Pub. Util. Code § 8386(d)(12).

[152] Pub. Util. Code § 8386(d)(12).

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14.3 Appendix C: Supporting Documentation for Mitigation Activities

Appendix C must contain all supporting documentation referred to throughout the WMP. Supporting documents are the electrical corporation's internal documents including, but not limited to, standards, procedures, policies, plans, and processes. If the supporting document does not include a prominent title, the electrical corporation must include a title page identifying the document.

This appendix should include its own table of contents that lists all documents. For navigation purposes, this appendix must either be sequentially numbered through all documents and include page numbering in the table of contents, or include hyperlinks in the table of contents.

14.4 Appendix D: Additional Tabular Data

Appendix D is a collection of required tabular data in addition to tables required within the WMP. The electrical corporation may include additional tabular data in this appendix (e.g., if it elects to include additional tabular data or a table is too lengthy to include in the body of the WMP). Tables should be grouped by mitigation category and in a logical order.

Tables in this appendix must be numbered in the following format:

[Appendix letter (D)]-[Mitigation category heading number]-[Table number]: [Title]

The electrical corporation may submit these tables in a separate spreadsheet file format with each table on a separate sheet. If the electrical corporation chooses to submit a separate spreadsheet file, Appendix D of the WMP must include a list of all the tables included in the spreadsheet file.

14.4.1 Additional Tables for Risk Methodology and Assessment

Data Inputs for Risk Methodology and Assessment

The electrical corporation must provide an extended table of its data inputs for risk methodology and assessment as described in *Section 7.3.1, Data Inputs*.

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Top-Risk Circuit Segments

The electrical corporation must provide an extended table of its highest-risk circuit segments as described in *Section 7.4.1, Risk Model Output, Highest-Risk Circuit Segment List*.

Prioritized List of Wildfire Risk Drivers

The electrical corporation must provide an extended table of its risks and risk drivers to prioritize as described in *Section 7.4.2, Wildfire Risk Drivers and Trends, Prioritized List of Wildfire Risk Drivers*.

14.4.2 Additional Tables for Mitigation Selection

Effectiveness Against Individual Risk Drivers

The electrical corporation must provide an extended table of the effectiveness of each mitigation activity against individual risk drivers as described in *Section 8.1.2, Mitigation Effectiveness, Effectiveness Against Individual Risk Drivers*.

Planned Mitigations and Risk Reduction

The electrical corporation must provide an extended table of its planned mitigations and risk reduction as described in *Section 8.2.2, Planned Mitigations and Risk Reduction*.

14.4.3 Additional Tables for Grid Design and Operations

Grid Design and System Hardening Status

The electrical corporation must include the following information for all of its distribution circuits~~, differentiated by transmission and distribution,~~ using the "unit" requirement of set forth in *Section 9.1, Targets*, within its service territory:

- Circuit Segment ID
- Circuit Segment Name
- Overall Length
- Wildfire Risk
- Outage Risk
- Overall Risk
- Percent of Overall Risk

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- Current Unhardened/Bare-Wire in HFTD & HFRA~~in HFTD Tier 2~~
- Current Covered Conductor in HFTD & HFRA~~in HFTD Tier 2~~
- Current Undergrounded in HFTD & HFRA~~in HFTD Tier 2~~
- ~~Current Unhardened/Bare-Wire in HFTD Tier 3~~
- ~~Current Covered Conductor in HFTD Tier 3~~
- ~~Current Undergrounded in HFTD Tier 3~~
- ~~Current Unhardened/Bare-Wire in HFRA~~
- ~~Current Covered Conductor in HFRA~~
- ~~Current Undergrounded in HFRA~~
- Current PEDS Coverage in HFTD & HFRA~~in HFTD Tier 2~~
- ~~Current PEDS Coverage in HFTD 3~~
- ~~Current PEDS Coverage in HFRA~~
- Current PEDS Coverage in Non-HFTD/HFRA
- Covered Conductor Planned for [Year 1]
- Covered Conductor Planned for [Year 2]
- Covered Conductor Planned for [Year 3]
- Covered Conductor Planned for [Year 4]
- Undergrounding Planned for [Year 1]
- Undergrounding Planned for [Year 2]
- Undergrounding Planned for [Year 3]
- Undergrounding Planned for [Year 4]
- Total Covered Conductor Planned in HFTD & ~~/~~HFRA
- Total Covered Conductor Planned in non-HFTD/HFRA
- Total Undergrounding Planned in HFTD/HFRA
- Total Undergrounding Planned in non-HFTD/HFRA

~~In addition, the electrical corporation must include the following information for transmission circuits:~~

- ~~Current In-Service Overhead Transmission Conductor in Non-HFTD~~
- ~~Current Out-of-Service Overhead Transmission Conductor in Non-HFTD~~

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- ~~Current Permanently Abandoned Overhead Transmission Conductor in Non-HFTD~~
- ~~Current In-Service Overhead Transmission Conductor in HFTD Tier 2~~
- ~~Current Out-of-Service Overhead Transmission Conductor in HFTD Tier 2~~
- ~~Current Permanently Abandoned Overhead Transmission Conductor in HFTD Tier 2~~
- ~~Current In-Service Overhead Transmission Conductor in HFTD Tier 3~~
- ~~Current Out-of-Service Overhead Transmission Conductor in HFTD Tier 3~~
- ~~Current Permanently Abandoned Overhead Transmission Conductor in HFTD Tier 3~~
- ~~Permanently Abandoned Transmission Line Removal Planned for [Year 1]~~
- ~~Permanently Abandoned Transmission Line Removal Planned for [Year 2]~~
- ~~Permanently Abandoned Transmission Line Removal Planned for [Year 3]~~
- ~~Permanently Abandoned Transmission Line Removal Planned for [Year 4]~~

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Table 14-3: Example of Grid Design and System Hardening Status for Distribution Circuits

Circuit Segment Information			Risk Information[153]				Current System Status (Circuit Miles)			Current PEDS Coverage (%)		Planned System Hardening (Circuit Miles)											
Circuit Segment ID	Circuit Segment Name	Overall Length	Wildfire Risk	Outage Risk	Overall Risk	Percent of Overall Risk	Current Unhardened/Bare-Wire in HFTD & HFRA	Current Covered Conductor in HFTD & HFRA	Current Undergrounded in HFTD & HFRA	Current PEDS Coverage in HFTD & HFRA	Current PEDS Coverage in Non-HFTD/HFRA	Covered Conductor Planned for [Year 1]	Covered Conductor Planned for [Year 2]	Covered Conductor Planned for [Year 3]	Covered Conductor Planned for [Year 4]	Undergrounding Planned for [Year 1]	Undergrounding Planned for [Year 2]	Undergrounding Planned for [Year 3]	Undergrounding Planned for [Year 4]	Total Covered Conductor Planned in HFTD & HFRA	Total Covered Conductor Planned in Non-HFTD/HFRA	Total Undergrounding Planned in HFTD & HFRA	Total Undergrounding Planned in Non-HFTD/HFRA

[153] All risk scores must be based on the current model.

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The electrical corporation must include the following information for all of its transmission circuits using the "unit" requirement of set forth in *Section 9.1, Targets*, within its service territory:

- Circuit Segment ID
- Circuit Segment Name
- Overall Length
- Wildfire Risk
- Outage Risk
- Overall Risk
- Percent of Overall Risk
- Current In-Service Overhead Transmission Conductor in HFTD & HFRA
- Current In-Service Overhead Transmission Conductor in Non-HFTD/HFRA
- Current Out-of-Service Overhead Transmission Conductor in HFTD & HFRA
- Current Out-of-Service Overhead Transmission Conductor in Non-HFTD/HFRA
- Current Permanently Abandoned Overhead Transmission Conductor in HFTD & HFRA
- Current Permanently Abandoned Overhead Transmission Conductor in Non-HFTD/HFRA
- Current Covered Conductor in HFTD & HFRA
- Current Covered Conductor in Non-HFTD/HFRA
- Current Undergrounded in HFTD & HFRA
- Current Undergrounded in Non-HFTD/HFRA
- Total Conductor Replacement Planned for [Year 1] to [Year 4] in HFTD & HFRA
- Total Conductor Replacement Planned for [Year 1] to [Year 4] in Non-HFTD/HFRA
- Total Covered Conductor Planned for [Year 1] to [Year 4] in HFTD & HFRA
- Total Covered Conductor Planned for [Year 1] to [Year 4] in Non-HFTD/HFRA
- Total Undergrounding Planned for [Year 1] to [Year 4] in HFTD & HFRA
- Total Undergrounding Planned for [Year 1] to [Year 4] in Non-HFTD/HFRA
- Total Permanently Abandoned Transmission Line Removal Planned for [Year 1] to [Year 4] in HFTD & HFRA

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- Total Permanently Abandoned Transmission Line Removal Planned for [Year 1] to [Year 4] in Non-HFTD/HFRA

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Table 14-~~4~~3: Example of Grid Design and System Hardening Status for Tranmission Circuits

Circuit Segment Information			Risk Information[154]				Current System ~~Hardening~~ Status (Circuit Miles)										Planned System Hardening (Circuit Miles)							
Circuit Segment ID	Circuit Segment Name	Overall Length	Wildfire Risk	Outage Risk	Overall Risk	Percent of Overall Risk	~~Cu~~Current In-Service Overhead Transmission Conductor in HFTD & HFRA~~rent Unhardened/Bare Wire in HFTD Tier 2~~	Current In-Service Overhead Transmission Conductor in Non-HFTD/HFRA	Current Out-of-Service Overhead Transmission Conductor in HFTD & HFRA ~~Current Covered Conductor in HFTD Tier 2~~	Current Out-of-Service Overhead Transmission Conductor in Non-HFTD/HFRA	Current Permanently Abandoned Overhead Transmission Conductor in HFTD & HFRA ~~Current Undergrounded in HFTD Tier 2~~	Current Permanently Abandoned Overhead Transmission Conductor in Non-HFTD/HFRA	Current Covered Conductor in HFTD & HFRA	Current Covered Conductor in Non-HFTD/HFRA	Current Undergrounded in HFTD & HFRA	Current Undergrounded in Non-HFTD/HFRA	Total Conductor Replacement Planned for [Year 1] to [Year 4] in HFTD & HFRA	Total Conductor Replacement Planned for [Year 1] to [Year 4] in Non-HFTD/HFRA	Total Covered Conductor Planned for [Year 1] to [Year 4] in HFTD &~~/~~HFRA	Total Covered Conductor Planned for [Year 1] to [Year 4] in Non-HFTD/HFRA	Total Undergrounding Planned for [Year 1] to [Year 4] in HFTD &~~/~~HFRA	Total Undergrounding Planned for [Year 1] to [Year 4] in Non-HFTD/HFRA	Total Permanently Abandoned Transmission Line Removal Planned for [Year 1] to [Year 4] in HFTD & HFRA	Permanently Abandoned Transmission Line Removal Planned for [Year 1] to [Year 4] in Non-HFTD/HF

[154] All risk scores must be based on the current model.

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14.4.4 Additional Tables for Asset Management

Work Orders Opened, Closed, Reprioritized, Associated with Unplanned Outages, and Associated with Ignitions

The electrical corporation must provide information pertaining to work orders, ~~unplanned~~ Level 1 conditions, and ignitions. This information must be provided separately for transmission and distribution system work orders.

For each of the four years prior to the year of the WMP submission, for each GO 95 priority level, and for each electrical corporation internal priority level, the electrical corporation must provide the number of:

- Work orders created
- Work orders closed[155]
- Work orders cancelled
- Work orders reprioritized to a higher priority
- Work orders reprioritized to a lower priority
- ~~Unplanned~~ L~~l~~evel 1 conditions on structures with open work orders
- L~~Unplanned l~~evel 1 conditions on structures with overdue[156] work orders
- Ignitions on structures with open work orders
- Ignitions on structures with overdue work orders

If the electrical corporation has not identified an HFRA beyond the HFTD Tier 2 and 3, the HFRA rows may be omitted. If the electrical corporation has identified any HFRA beyond the HFTD Tier 2 and 3, the Non HFTD should not include the HFRA. If the electrical corporation has identified any HFRA that overlaps the HFTD Tier 2 and 3, the HFRA should not include the HFTD Tier 2 and 3.

[155] The act of reprioritizing a work order to a higher or lower priority is not be considered closing a work order. Exclude cancelled work orders.

[156] An overdue work order is any work order that remained open beyond the shorter of two timeframes: the one required by the electrical corporation, or the one required by GO 95.

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Table 14-~~4~~5: Example of Work Order Created, Closed, Reprioritized, Associated with ~~unplanned~~ Conditions, and Associated with Ignitions

HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
HFTD Tier 3	Year - 4	1	A									
HFTD Tier 3	Year - 4	2	B									
HFTD Tier 3	Year - 4	2	C									
HFTD Tier 3	Year - 4	2	D									
HFTD Tier 3	Year - 4	3	E									
HFTD Tier 3	Year - 4	3	F									
HFTD Tier 3	Year - 3	1	A									
HFTD Tier 3	Year - 3	2	B									
HFTD Tier 3	Year - 3	2	C									
HFTD Tier 3	Year - 3	2	D									
HFTD Tier 3	Year - 3	3	E									
HFTD Tier 3	Year - 3	3	F									
HFTD Tier 3	Year - 2	1	A									
HFTD Tier 3	Year - 2	2	B									
HFTD Tier 3	Year - 2	2	C									
HFTD Tier 3	Year - 2	2	D									
HFTD Tier 3	Year - 2	3	E									
HFTD Tier 3	Year - 2	3	F									
HFTD Tier 3	Year - 1	1	A									
HFTD Tier 3	Year - 1	2	B									
HFTD Tier 3	Year - 1	2	C									
HFTD Tier 3	Year - 1	2	D									
HFTD Tier 3	Year - 1	3	E									
HFTD Tier 3	Year - 1	3	F									
HFTD Tier 2	Year - 4	1	A									
HFTD Tier 2	Year - 4	2	B									
HFTD Tier 2	Year - 4	2	C									

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HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
HFTD Tier 2	Year - 4	2	D									
HFTD Tier 2	Year - 4	3	E									
HFTD Tier 2	Year - 4	3	F									
HFTD Tier 2	Year - 3	1	A									
HFTD Tier 2	Year - 3	2	B									
HFTD Tier 2	Year - 3	2	C									
HFTD Tier 2	Year - 3	2	D									
HFTD Tier 2	Year - 3	3	E									
HFTD Tier 2	Year - 3	3	F									
HFTD Tier 2	Year - 2	1	A									
HFTD Tier 2	Year - 2	2	B									
HFTD Tier 2	Year - 2	2	C									
HFTD Tier 2	Year - 2	2	D									
HFTD Tier 2	Year - 2	3	E									
HFTD Tier 2	Year - 2	3	F									
HFTD Tier 2	Year - 1	1	A									
HFTD Tier 2	Year - 1	2	B									
HFTD Tier 2	Year - 1	2	C									
HFTD Tier 2	Year - 1	2	D									
HFTD Tier 2	Year - 1	3	E									
HFTD Tier 2	Year - 1	3	F									
HFRA	Year - 4	1	A									
HFRA	Year - 4	2	B									
HFRA	Year - 4	2	C									
HFRA	Year - 4	2	D									
HFRA	Year - 4	3	E									
HFRA	Year - 4	3	F									
HFRA	Year - 3	1	A									
HFRA	Year - 3	2	B									

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HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
HFRA	Year - 3	2	C									
HFRA	Year - 3	2	D									
HFRA	Year - 3	3	E									
HFRA	Year - 3	3	F									
HFRA	Year - 2	1	A									
HFRA	Year - 2	2	B									
HFRA	Year - 2	2	C									
HFRA	Year - 2	2	D									
HFRA	Year - 2	3	E									
HFRA	Year - 2	3	F									
HFRA	Year - 1	1	A									
HFRA	Year - 1	2	B									
HFRA	Year - 1	2	C									
HFRA	Year - 1	2	D									
HFRA	Year - 1	3	E									
HFRA	Year - 1	3	F									
Non HFTD	Year - 4	1	A									
Non HFTD	Year - 4	2	B									
Non HFTD	Year - 4	2	C									
Non HFTD	Year - 4	2	D									
Non HFTD	Year - 4	3	E									
Non HFTD	Year - 4	3	F									
Non HFTD	Year - 3	1	A									
Non HFTD	Year - 3	2	B									
Non HFTD	Year - 3	2	C									
Non HFTD	Year - 3	2	D									
Non HFTD	Year - 3	3	E									
Non HFTD	Year - 3	3	F									
Non HFTD	Year - 2	1	A									

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HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
Non HFTD	Year - 2	2	B									
Non HFTD	Year - 2	2	C									
Non HFTD	Year - 2	2	D									
Non HFTD	Year - 2	3	E									
Non HFTD	Year - 2	3	F									
Non HFTD	Year - 1	1	A									
Non HFTD	Year - 1	2	B									
Non HFTD	Year - 1	2	C									
Non HFTD	Year - 1	2	D									
Non HFTD	Year - 1	3	E									
Non HFTD	Year - 1	3	F									

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Table 14-~~5~~6: Example of Transmission Work Order Created, Closed, Reprioritized, Associated with Unplanned Conditions, and Associated with Ignitions

HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
HFTD Tier 3	Year - 4	1	A									
HFTD Tier 3	Year - 4	2	B									
HFTD Tier 3	Year - 4	2	C									
HFTD Tier 3	Year - 4	2	D									
HFTD Tier 3	Year - 4	3	E									
HFTD Tier 3	Year - 4	3	F									
HFTD Tier 3	Year - 3	1	A									
HFTD Tier 3	Year - 3	2	B									
HFTD Tier 3	Year - 3	2	C									
HFTD Tier 3	Year - 3	2	D									
HFTD Tier 3	Year - 3	3	E									
HFTD Tier 3	Year - 3	3	F									
HFTD Tier 3	Year - 2	1	A									
HFTD Tier 3	Year - 2	2	B									
HFTD Tier 3	Year - 2	2	C									
HFTD Tier 3	Year - 2	2	D									
HFTD Tier 3	Year - 2	3	E									
HFTD Tier 3	Year - 2	3	F									
HFTD Tier 3	Year - 1	1	A									
HFTD Tier 3	Year - 1	2	B									
HFTD Tier 3	Year - 1	2	C									
HFTD Tier 3	Year - 1	2	D									
HFTD Tier 3	Year - 1	3	E									
HFTD Tier 3	Year - 1	3	F									
HFTD Tier 2	Year - 4	1	A									
HFTD Tier 2	Year - 4	2	B									
HFTD Tier 2	Year - 4	2	C									
HFTD Tier 2	Year - 4	2	D									

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HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
HFTD Tier 2	Year - 4	3	E									
HFTD Tier 2	Year - 4	3	F									
HFTD Tier 2	Year - 3	1	A									
HFTD Tier 2	Year - 3	2	B									
HFTD Tier 2	Year - 3	2	C									
HFTD Tier 2	Year - 3	2	D									
HFTD Tier 2	Year - 3	3	E									
HFTD Tier 2	Year - 3	3	F									
HFTD Tier 2	Year - 2	1	A									
HFTD Tier 2	Year - 2	2	B									
HFTD Tier 2	Year - 2	2	C									
HFTD Tier 2	Year - 2	2	D									
HFTD Tier 2	Year - 2	3	E									
HFTD Tier 2	Year - 2	3	F									
HFTD Tier 2	Year - 1	1	A									
HFTD Tier 2	Year - 1	2	B									
HFTD Tier 2	Year - 1	2	C									
HFTD Tier 2	Year - 1	2	D									
HFTD Tier 2	Year - 1	3	E									
HFTD Tier 2	Year - 1	3	F									
HFRA	Year - 4	1	A									
HFRA	Year - 4	2	B									
HFRA	Year - 4	2	C									
HFRA	Year - 4	2	D									
HFRA	Year - 4	3	E									
HFRA	Year - 4	3	F									
HFRA	Year - 3	1	A									
HFRA	Year - 3	2	B									
HFRA	Year - 3	2	C									

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HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
HFRA	Year - 3	2	D									
HFRA	Year - 3	3	E									
HFRA	Year - 3	3	F									
HFRA	Year - 2	1	A									
HFRA	Year - 2	2	B									
HFRA	Year - 2	2	C									
HFRA	Year - 2	2	D									
HFRA	Year - 2	3	E									
HFRA	Year - 2	3	F									
HFRA	Year - 1	1	A									
HFRA	Year - 1	2	B									
HFRA	Year - 1	2	C									
HFRA	Year - 1	2	D									
HFRA	Year - 1	3	E									
HFRA	Year - 1	3	F									
Non HFTD	Year - 4	1	A									
Non HFTD	Year - 4	2	B									
Non HFTD	Year - 4	2	C									
Non HFTD	Year - 4	2	D									
Non HFTD	Year - 4	3	E									
Non HFTD	Year - 4	3	F									
Non HFTD	Year - 3	1	A									
Non HFTD	Year - 3	2	B									
Non HFTD	Year - 3	2	C									
Non HFTD	Year - 3	2	D									
Non HFTD	Year - 3	3	E									
Non HFTD	Year - 3	3	F									
Non HFTD	Year - 2	1	A									
Non HFTD	Year - 2	2	B									

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HFTD Tier	Year	GO 95, Rule 18 Priority Level	Electrical Corporation Internal Priority Level	# of Work Orders Created	# of Work Orders Closed	# of Work Orders Cancelled	# of Work Orders reprioritized higher priority	# of Work orders reprioritized lower priority	# of ~~Unplanned~~ Level 1 conditions on structures with open work order	# of ~~Unplanned~~ Level 1 conditions on structures with overdue work order	# of Ignitions on structures with open work order	# of Ignitions on structures with overdue work order
Non HFTD	Year - 2	2	C									
Non HFTD	Year - 2	2	D									
Non HFTD	Year - 2	3	E									
Non HFTD	Year - 2	3	F									
Non HFTD	Year - 1	1	A									
Non HFTD	Year - 1	2	B									
Non HFTD	Year - 1	2	C									
Non HFTD	Year - 1	2	D									
Non HFTD	Year - 1	3	E									
Non HFTD	Year - 1	3	F									

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Most Frequent Work Orders Created in the Four Years Prior to Submission in the HFTD and HFRA

The electrical corporation must provide information pertaining to the most frequently created work orders in the HFTD and HFRA. This information must be provided separately for transmission and distribution system work orders.

For each of the 4 years prior to the year of the WMP submission, the electrical corporation must provide the top five most frequently created work orders (e.g., crossarm cracked, pole decayed, damaged insulator, transformer leaking oil, slack guy), the number of each work order created, and the percentage of that year's total work orders represented by each.

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Table 14-~~6~~7: Example of Top Five Most Frequent Distribution Work Orders Created in the HFTD and HFRA

Year	Rank	Work order/ finding type	Number of Work Orders	Percentage of total annual distribution work orders
WMP - 1	1			
	2			
	3			
	4			
	5			
WMP - 2	1			
	2			
	3			
	4			
	5			
WMP - 3	1			
	2			
	3			
	4			
	5			
WMP - 4	1			
	2			
	3			
	4			
	5			

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Table 14-~~7~~8: Example of Top Five Most Frequent Transmission Work Orders Created in the HFTD and HFRA

Year	Rank	Work order/ finding type	Number of Work Orders	Percentage of total annual distribution work orders
WMP - 1	1			
	2			
	3			
	4			
	5			
WMP - 2	1			
	2			
	3			
	4			
	5			
WMP - 3	1			
	2			
	3			
	4			
	5			
WMP - 4	1			
	2			
	3			
	4			
	5			

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Equipment Failures and Ignitions

The electrical corporation must provide information pertaining to equipment failures[157] and ignitions in the HFTD and HFRA.[158] This information must be provided separately for equipment installed in distribution systems with bare wire overhead primaries, covered conductor overhead primaries, underground primaries, and transmission systems. If an equipment type is not used in a given system, the corresponding cells must be populated with "NA."

For each of the four years prior to the year of the WMP Submission, the electrical corporation must provide the following data associated with the equipment types set in Table 14- SEQ Table * ARABIC \s 2 through Table 14- SEQ Table * ARABIC \s 2 .[159]

- Quantity of equipment installed in the HFTD and HFRA.[160] This quantity should be expressed as a count except in the case of conductor, which may be expressed as circuit miles. If the electrical corporation is uncertain of the quantity of an equipment type installed, it must provide an estimate and describe why the value is uncertain in a footnote.
- Number of failures in the HFTD and HFRA attributed to the equipment type.
- Number of CPUC reportable ignitions within the HFTD and HFRA attributed to the equipment type.
- Number of detailed inspections completed within the HFTD and HFRA.
- Number of failures post detailed inspection in the HFTD and HFRA. The electrical corporation must provide the number of failures within the timeframes specified in the example tables.
- Number of repairs completed within the HFTD and HFRA.
- Number of failures post repair work in the HFTD and HFRA.

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[157] Equipment failures in this section should not include failures resulting from vegetation contact, third party contact, object contact, or vandalism.

[158] If the HFTD and HFRA overlap, equipment and events that fall into both must only be counted once.

[159] Table 14- SEQ Table * ARABIC \s 2 , Table 14- SEQ Table * ARABIC \s 2 , and Table 14- SEQ Table * ARABIC \s 2 must include all equipment types listed in Table 14- SEQ Table * ARABIC \s 2 . If an equipment type is not used for a given asset classification (e.g., crossarms for distribution underground primary equipment in Table 14- SEQ Table * ARABIC \s 2), the corresponding cells shall be populated with "N/A."

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Table 14-~~8~~9: Example of Distribution Bare Wire Primary Equipment Failure Information

Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
Capacitors	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Circuit Breakers	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Connectors	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															

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Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
Conductor, including covered conductor	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Crossarms	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Fuses, including expulsion fuses	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															

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Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
Poles	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Lightning arrestors	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Reclosers	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Splices	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															

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Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
	WMP Submission Year -4															
Clamps	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Cutouts	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Guy Systems	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Insulators	WMP Submission Year -1															
	WMP Submission Year -2															

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Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
	WMP Submission Year -3															
	WMP Submission Year -4															
Tie Wires	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Jumpers	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Potheads	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Risers	WMP Submission Year -1															

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Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Switches	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Voltage Regulators	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Tower	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															

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Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
Transformers	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Other Equipment Not Listed	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															

Table 14-910: Example of Distribution Covered Conductor Primary Equipment Failure Information

Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
Capacitors	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															

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Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
	WMP Submission Year -4															
Circuit Breakers	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
. . .	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															

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Table 14-~~10~~11: Example of Distribution Underground Primary Equipment Failure Information

Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
Capacitors	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Circuit Breakers	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
. . .	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															

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Table 14-~~11~~12: Example of Transmission Equipment Failure Information

Equipment Type	Year	Number installed within HFTD and HFRA	Number of Failures	Number of CPUC-Reportable Ignitions	Number of detailed inspections completed	# of failures <= 5 days post detailed inspection	6-30 days post detailed inspection	31-60 days post detailed inspection	61-120 days post detailed inspection	> 120 days post detailed inspection	Number of repairs completed	# of failures <= 5 days post repair work	6-30 days post repair work	31-60 days post repair work	61-120 days post repair work	> 120 days post repair work
Capacitors	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
Circuit Breakers	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															
. . .	WMP Submission Year -1															
	WMP Submission Year -2															
	WMP Submission Year -3															
	WMP Submission Year -4															

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Historical QA and QC Results

The electrical corporation must provide historical QC inspection results and a summary of material QA audit findings and procedural improvements for each of the four years prior to the WMP submission.

Table 14-~~12~~13: Example of Historical QC Inspection Results for the Four Years Prior to Submission

Initiative/Activity Being Audited	**Quality Program Type**	**[Year -4]: Actual Results**	**[Year -3]: Actual Results**	**[Year -2]: Actual Results**	**[Year -1]: Actual Results**
Detailed Distribution Inspections - Ground	*QC*	*Sample size: Pass rate:*	*Sample size: Pass rate:*	*Sample size: Pass rate:*	*Sample size: Pass rate:*
Covered Conductor Installation	*QC*	*Sample size: Pass rate:*	*Sample size: Pass rate:*	*Sample size: Pass rate:*	*Sample size: Pass rate:*
[Add initiative/activity]	*[QC]*	*Sample size: Pass rate:*	*Sample size: Pass rate:*	*Sample size: Pass rate:*	*Sample size: Pass rate:*

Table 14-~~13~~14: Example of Historical QA Audit Findings and Resulting Procedural Improvements for the Four Years Prior to Submission

Initiative/Activity Being Audited	**Year**	**Issue(s) Identified Through QA**	**Corrective Action / Procedural Improvement**	**Implementation Status / Effective Date**
[Initiative/activity]	[Year -4]	[Describe issue identified]	[Describe corrective action or procedural improvement]	[Status/date]
[Initiative/activity]	[Year -3]	[Describe issue identified]	[Describe corrective action or procedural improvement]	[Status/date]
[Initiative/activity]	[Year -2]	[Describe issue identified]	[Describe corrective action or procedural improvement]	[Status/date]
[Initiative/activity]	[Year -1]	[Describe issue identified]	[Describe corrective action or procedural improvement]	[Status/date]

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14.5 Appendix E: Additional Maps

Appendix E must contain additional maps prepared in accordance with *Chapter II, Process and Evaluation, Section 3.2.6, Mapping Requirements*.

If the electrical corporation chooses to host the geospatial layers on a web application in lieu of providing static maps, it must include the specific web address in this appendix.

14.6 Appendix F: Glossary of Terms

Appendix F must be the Glossary of Terms prepared in accordance with *Chapter II, Process and Evaluation, Section 8.1, Glossary of Terms*.

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IV INDEPENDENT TRANSMISSION OWNER REQUIREMENTS

This chapter lays out the Wildfire Mitigation Plan (WMP) requirements for Independent Transmission Owners (ITOs) of California. All technical requirements for ITO WMPs are contained herein and do not require reference to *Chapter III, Wildfire Mitigation Plan Requirements*.

1 Executive Summary

In the opening section of the WMP, the ITO must provide an executive summary that is no longer than three pages. The ITO must summarize the primary goal, plan objectives, and framework for the development of the WMP.

2 Responsible Persons

The ITO must list the individuals responsible for executing the WMP,[161] including:

- Executive-level owner with overall responsibility.
- Program staff members with responsibility for each of the main components of the plan.
- Point-of contact staff member available for questions related to activities described in the WMP.

The information on responsible persons must be publicly available. The ITO may not redact titles, credentials, or contact information of responsible person(s).

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[161] Pub. Util. Code § 8386(d)(1).

3 Overview of the WMP

3.1 Primary Goal

The ITO must state the primary goal of its WMP. The primary goal must be consistent with California Public Utilities Code section 8386(a).

3.2 Plan Objectives

The ITO must summarize its plan objectives over the WMP period.[162] The portfolio of activities proposed in the WMP must reflect the plan objectives.

Plan objectives must identify the wildfire risk drivers, as listed in *Section 7.2.1, Wildfire Risks and Risk Drivers*, which are the highest priority for the ITO.

The ITO must tie Plan objectives to commitments (both quantitative and qualitative) and performance metrics.

3.3 Performance Metrics

The ITO must list the performance metrics, beyond those required by Energy Safety,[163] that the ITO uses to evaluate the performance of the Plan in reducing wildfire and outage program risk.[164]

For each of these self-identified performance metrics, the ITO must provide the following information in tabular form:

- Associated WMP section (self-identified performance metrics can apply to the entire WMP; e.g., number of ignitions, number of acres burned); and
- The assumptions that underlie the use of the metric

Table 3-1 provides an example of the required format.

[162] Pub. Util. Code § 8386(d)(2).

[163] The performance metrics identified by Energy Safety are included in the applicable Energy Safety Data Guidelines.

[164] Pub. Util. Code § 8386(d)(4).

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Table 3-1: Example of Self-Identified Performance Metrics

Performance Metric	Assumption that underlies the use of the metric	Section associated with the Performance Metric (state "WMP" if the metric applies to entire plan)

3.4 Projected Expenditures

The ITO must summarize its projected expenditures in thousands of U.S. dollars per year for the activities set forth in its WMP period. The ITO must follow the format provided in Table 3-2.

Energy Safety's approval of the WMP is not an approval of, or agreement with, the costs listed in the WMP.

Table 3-2: Example of Summary of Projected WMP Expenditures

Year of WMP Cycle	Spend (thousands $USD)
[Year 1]	Projected =
[Year 2]	Projected =
[Year 3]	Projected =
[Year 4]	Projected =

3.5 Climate Change

The ITO must describe how it considered dynamic climate change risks in its WMP.[165] This description must include reference to the ITO's most recent climate vulnerability assessment addressing new or exacerbated wildfire risks. This section is limited to two pages.

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[165] Pub. Util. Code § 8386(d)(3).

4 Overview of Transmission System Footprint

The ITO must provide a high-level overview of the geographic footprint of its transmission infrastructure and key characteristics of the system.[166] This overview must provide information on the scale, location, and physical characteristics of the transmission infrastructure, including whether the infrastructure is located in a High Fire Threat District (HFTD) area.

Unlike large electrical corporations, ITOs do not have end-use customers or distribution services. Therefore, the term, "transmission system footprint" is used here to describe the geographic extent and operational footprint of the ITO's transmission infrastructure and associated wildfire risk areas addressed in the WMP. This terminology is intended to support implementation of Public Utilities Code Section 8386(d)(12) in a manner appropriate to current ITO operations and infrastructure configurations.[167]

4.1 Transmission Infrastructure Overview

The ITO must provide a high-level description of the geographic footprint of its transmission infrastructure in tabular format, addressing the following components:

- Area encompassing the ITO's transmission infrastructure (in square miles); and
- Overview of transmission infrastructure assets.

Table 4-1 provides the required format for presenting the high-level transmission infrastructure footprint components.

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[166] Pub. Util. Code §§ 8386(d)(3) and (8).

[167] Pub. Util. Code § 8386(d)(12).

Table 4-1: Example of High-Level Transmission System Footprint Components

Characteristic	HFTD Tier 2	HFTD Tier 3	Non-HFTD	Total
Transmission system footprint area (sq. mi.)				
Overhead transmission lines (circuit mi.)				
Underground transmission lines (circuit mi.)				

4.2 Catastrophic Wildfire History

The ITO must provide a brief narrative summarizing its wildfire history for the past 20 years as recorded by the ITO, CAL FIRE, or other authoritative government sources. For this section, wildfire history must be limited to ITO-ignited catastrophic fires (i.e., fires that caused at least one death, damaged over 500 structures, or burned over 5,000 acres). This includes catastrophic wildfire ignitions reported to the CPUC that may be attributable to facilities or equipment owned by the ITO and where the cause of the ignition is still under investigation by the CPUC, CAL FIRE, or other authoritative government sources. The ITO must clearly denote those ignitions as still under investigation. In addition, the ITO must provide catastrophic wildfire statistics in the tabular form provided below, including the following key metrics:

- Ignition date;
- Fire name;
- Official cause (if known);
- Size (acres);
- Number of fatalities;
- Number of structures damaged;
- Estimated financial loss (U.S. dollars); and
- Any lesson(s) learned.

Table 4-2 provides the required format and content for the tabulated historical catastrophic ITO-related wildfire statistics. The ITO must cite to an authoritative government source (e.g., CPUC, CAL FIRE, U.S. Forest Service, or local fire authority) for all data provided to the extent this information is available.

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Table 4-2: Example of Catastrophic ITO Wildfires

Ignition Date	Fire Name	Official Cause	Fire Size (acres)	No. of Fatalities	No. of Structures Destroyed and Damaged	Financial Loss (US$)	Lesson(s) Learned
--	--	--	--	--	--	--	--

5 Lessons Learned

The ITO must learn from its own and others' lessons to grow and drive continual improvement in its wildfire mitigation programs.[168] In this section, the ITO must describe the lessons it has learned relative to wildfire mitigation, even if that lesson learned did not, or has not yet, resulted in actionable changes to the WMP.

5.1 Catastrophic Wildfires

The ITO must describe the lessons it has learned from catastrophic wildfires ignited by electrical infrastructure. The ITO must include lessons learned from all catastrophic wildfires within 20 years found to have been caused by its facilities or equipment. If the ITO has learned lessons from catastrophic wildfires caused by electrical infrastructure owned by a different entity, or from wildfires with cause still under investigation by government authorities, it must also include those lessons learned.

For each lesson learned from past catastrophic wildfires, the ITO must identify the following in Table 5-1:

- The fire name and ignition date;
- The subject(s) or mitigation activity(ies) of the lesson learned;
- A description of the lesson(s) learned;
- If applicable, the proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s); and
- If applicable, the timeline for implementing the proposed improvement.

[168] Pub. Util. Code §§ 8386(d)(5) and (22).

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Table 5-1 provides the required format and an example of the minimum acceptable level of information.

Table 5-1: Example of Lessons Learned from Catastrophic Wildfires

Fire Name and Date	Subject	Lesson(s) Learned	Improvement(s) to the WMP	Implementation Timeline
Example Fire Sept 1, 2022	*Detailed asset inspections*	*C-hooks require greater scrutiny during inspections.*	*Increased inspector training and added inspection checklist items related to C-hooks. (Section 10.2.2, pp. X)*	*Improvements completed Q1 2024.*
. . .				

5.2 Incident Investigations

The ITO must describe the lessons it has learned from investigations of incidents that did not lead to a catastrophic wildfire, but did, in the ITO's judgement, inform the management of its risk drivers. These lessons must include those learned from its own internal incident investigations and investigations conducted by the CPUC and may also include investigations from other organizations. To the extent that an ITO has learned lessons from CPUC investigations of incidents caused by another entity's electrical infrastructure, those must also be included. At minimum, the electrical corporation must describe lessons learned from investigations closed within the previous four years. The electrical corporation must also include lessons learned from open investigations if the information from those investigations has informed the electrical corporation's management of risk drivers.

For each lesson learned from the investigation of incidents that did not lead to a catastrophic wildfire, the ITO must include the following in Table 5-2:

- The incident name and date;
- The source of the investigation (e.g. internal, CPUC, etc.) and, for investigations conducted by governmental agencies, the investigation number;
- The subject(s) or mitigation activity(ies) of the lesson learned;

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- A description of the lesson(s) learned;
- If applicable, the proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s); and
- If applicable, the timeline for implementing the proposed improvement.

Table 5-2 provides the required format and an example of the minimum acceptable level of information.

Table 5-2: Example of Lessons Learned from Incident Investigations

Incident Name and Date	**Source and Inv. #**	**Subject**	**Lesson(s) Learned**	**Improvement(s) to the WMP**	**Implementation Timeline**
Example Incident Jan 8, 2025	*Internal Inv. 12345*	*Pole clearing*	*Increased customer outreach is needed to reduce number of customer refusals related to pole clearing.*	*Increased customer outreach and education on pole clearing. (Section 11.5.3, pp. X)*	*Planned to implement Q2 2027*
. . .					

5.3 Performance Assessment

The ITO must describe the lessons it has learned from Energy Safety's assessment of its implementation of past WMPs. At minimum, the ITO must address lessons learned from Energy Safety Annual Performance Reports (APRs) (formerly Energy Safety Annual Reports on Compliance), independent evaluator Annual Implementation Reports (AIRs) (formerly independent evaluator Annual Reports on Compliance), ITO Annual Implementation Reports (AIRs) (formerly ITO Annual Reports on Compliance), and, if applicable, Energy Safety Vegetation Management Audit Reports issued since the submission of its previous WMP.

For each lesson learned from the performance assessment process, the ITO must identify the following in Table 5-3:

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- The report where the lesson learned was identified (e.g., 2024 APR);
- The subject(s) or mitigation activity(ies) of the lesson learned;
- A description of the lesson(s) learned;
- If applicable, proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s); and
- If applicable, the timeline for implementing the proposed improvement.

Table 5-3 provides the required format and an example of the minimum acceptable level of information.

Table 5-3: Example of Lessons Learned from Performance Assessment

Report	**Subject**	**Lesson(s) Learned**	**Improvement(s) to the WMP**	**Implementation Timeline**
2023 ARC	*Enterprise Systems, Data Management*	*Failures in data QC resulted in inconsistencies between the amount of work reported as complete versus work that was actually completed.*	*N/A*	*June 2026*
. . .				

5.4 Performance Metrics

The ITO must describe the lessons it has learned from the metrics it uses or previously used to measure and track the implementation of its WMP.[169] At minimum, the ITO must include lessons learned from at least one performance metric, identified either by Energy Safety or the ITO, from its previous WMP.

For each lesson learned from performance metrics, the ITO must identify the following in Table 5-4:

[169] Pub. Util. Code § 8386(d)(5).

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- The name of the performance metrics;
- The WMP where the performance metric was first tracked;
- The subject(s) or mitigation activity(ies) of the lesson learned;
- A description of the lesson(s) learned;
- If applicable, proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s); and
- If applicable, the timeline for implementing the proposed improvement.

Table 5-4 provides the required format and an example of the minimum acceptable level of information.

Table 5-4: Example of Lessons Learned from Performance Metrics

Metric and First WMP	**Subject**	**Lesson(s) Learned**	**Improvement(s) to the WMP**	**Implementation Timeline**
Hours of customer PEDS outage	Equipment settings	PEDS sensitivity on circuits that have large downstream impacts will be re-evaluated.	N/A	Study completed April 2026
. . .				

5.5 Additional Lesson Learned

The ITO may use this section to highlight additional lessons learned beyond those covered in the previous sections. These may include lessons learned from stakeholder engagement, investigation or audits from other government entities, coordination with other ITOs beyond Energy Safety required working groups, or findings from new research.

Example sources of lessons learned include but are not limited to:

- Internal operations:
  - Following PSPS or outage events;
  - Inspection, QA/QC findings; or
  - Employee reporting systems, e.g., safety culture survey results.
- Collaboration with other ITOs and industry experts:

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    - Collaboration with California ITOs beyond Energy Safety required working groups;
    - Collaboration with other ITOs from around the country or world; or
    - Input received via stakeholder and public engagement.
- Research findings:
    - Internal and contracted studies; or
    - Academic papers.
- Discontinued programs:
    - Cause of unsuccessful or inefficient programs; or
    - Canceled pilots.

For each lesson learned, the ITO must identify the following in Table 5-5:

- The source of the lesson learned;
- The subject(s) or mitigation activity(ies) of the lesson learned;
- A description of the lesson(s) learned;
- If applicable, proposed or implemented improvement(s) in the WMP related to this lesson learned, including the relevant WMP section number(s); and
- If applicable, the timeline for implementing the proposed improvement.

Table 5-5 provides the required format and an example of the minimum acceptable level of information.

Table 5-5: Example of Additional Lessons Learned

Source	**Subject**	**Lesson(s) Learned**	**Improvement(s) to the WMP**	**Implementation Timeline**
Discontinued pilot on remote sensing device X	*Grid Monitoring Systems*	*Device X-type sensors have an unacceptable failure rate during hot and windy conditions.*	*N/A*	*N/A*
. . .				

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6 Situational Awareness and Forecasting

Each ITO's WMP must include its plan for establishing or increasing its situational awareness.[170]

6.1 Targets

The ITO must provide at least one qualitative and quantitative target for each year of the WMP period for the following initiatives:

- Environmental Monitoring Systems
- Asset Monitoring Systems
- Ignition Detection Systems
- Weather Forecasting
- Weather Station Maintenance and Calibration

6.1.1 Qualitative Targets

The ITO must provide qualitative targets for its situational awareness and forecasting, activities, including the following:

- Identification of which initiative(s) and activity/activities in the WMP the ITO is implementing to achieve the stated target, including Tracking IDs and the Tracking ID(s) used in past WMPs ("Previous Tracking ID"), if applicable
- A completion date for when the ITO will achieve the target
- Reference(s) to the WMP section(s) or appendix, including page numbers, where the details of the target(s) are documented and substantiated

The required format and information are shown in Table 6-1 below.

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[170] Pub. Util. Code §§ 8386(d)(2)-(5).

6.1.2 Quantitative Targets

The ITO must also list all quantitative targets it will use to track progress on its situational awareness and forecasting activities, broken out by each year of the WMP period. The ITO must show progress toward completing quantitative targets in subsequent reports, including data submissions. For each target, the ITO must provide the following:

- The initiative(s) and activity/activities in the WMP the ITO is implementing to achieve the stated target, including Tracking IDs and the Tracking ID(s) used in past WMPs ("Previous Tracking ID"), if applicable
- Projected targets and totals for each of the three years of the WMP period, e.g., [Year 1] end of year total, [Year 2] total, [Year 3] total, and [Year 4] total and the associated units for the targets

The ITO's targets must provide enough detail to inform efforts to improve the performance of the ITO's situational awareness and forecasting initiatives. Each activity must have distinct, trackable targets associated with the activity, even if the ITO tracks targets internally with combined activities. If the ITO does not have any overhead powerlines outside of its primary facilities, it is not required to have a target for those systems.

Table 6-1 provides the required format and an example of the minimum acceptable level of information.

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Table 6-1: Example of Situational Awareness and Forecasting Targets by year

Initiative	Activity	Tracking ID	Previous Tracking ID (if applicable)	Target Type	Unit	[Year 1] Target	[Year 2] Target	[Year 3] Target	[Year 4] Target	Target Total	Section; Page Number
Ignition Detection Systems	*Automate ignition detection using third-party software*	*SA-03*									

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6.2 Environmental Monitoring Systems

The ITO must describe its systems and procedures for monitoring environmental conditions within its service territory. This description should include the ITO's near-real-time risk assessment and weather forecast validation. The ITO must describe the following:

- Existing systems, technologies, and procedures
- How the need for additional systems is evaluated
- Implementation schedule for any planned additional systems
- How the efficacy of systems for reducing risk are monitored

The ITO must reference Tracking ID(s) where appropriate.

If the ITO does not have any overhead powerlines outside of its primary facilities (e.g., substation, converter station), the ITO should state such and remove all of the following sections related to environmental monitoring systems.

6.2.1 Existing Systems, Technologies, and Procedures

The ITO must report on the environmental monitoring systems and related technologies and procedures currently in use, highlighting any improvements made since the last WMP submission. The ITO must discuss systems, technologies, and procedures related to the reporting of the following:

- Current weather conditions:
    - Air temperature
    - Relative humidity
    - Wind velocity (speed and direction)
- Fuel characteristics:
    - Seasonal trends in fuel moisture

Each system must be summarized in Table 6-2. In an accompanying narrative, the ITO must provide the following additional information for each system:

- Generalized location of the system/locations measured by the system (e.g., HTFD, entire service territory)
- Integration with the broader ITO's system

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- How measurements from the system are verified
- Frequency of system maintenance
- For intermittent systems (e.g., aerial imagery, line patrols), what triggers data collection. This should include flow charts and equations as appropriate.
- For calculated quantities, the ITO should describe how raw measurements are converted into calculated quantities. This should include flow charts and equations as appropriate.

The required format and information are shown in Table 6-2.

Table 6-2: Example of Environmental Monitoring Systems

System	Measurement/ Observation	Frequency	Purpose and Integration
Weather stations	*Steady wind velocity* *Gust wind velocity* *Air temperature* *Relative humidity*	*3,600 observations / hour*	*Improve weather forecasts through data assimilation* *Validate model*
Remote sensing fuel moistures	*Percentiles*	*Once a day*	*Calculate fuel moisture content*

6.2.2 Evaluation and Selection of New Systems

The ITO must describe how it evaluates the need for additional environmental monitoring systems. This description must include:

- How the ITO evaluates its current systems functionality and evaluates the need or impact of new systems on reducing risk (e.g., expected quantitative improvements in weather forecasting)
- How the ITO evaluates the efficacy of new technologies

These descriptions should include flow charts as appropriate.

6.2.3 Planned Improvements

The ITO must describe its planned improvements for its environmental monitoring systems. This must include any plans for the following:

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- Expansion of existing systems
- Establishment of new systems

6.2.4 Evaluating Activities

The ITO must describe its procedures for the ongoing evaluation of the efficacy of its environmental monitoring activity or program.

6.3 Asset Monitoring Systems

The ITO must describe the systems and procedures it uses to monitor the operational conditions of its assets and equipment.[171] These observations should inform the ITO's near-real-time risk assessment. The ITO must describe:

- Existing systems, technologies, and procedures
- Procedure used to evaluate the need for additional systems
- Implementation schedule for any planned additional systems
- How the efficacy of systems for reducing risk are monitored

The ITO must reference Tracking ID(s) where appropriate.

If the ITO does not have any overhead powerlines outside of its primary facilities (e.g., substation, converter station), the ITO should state such and remove all of the following sections related to asset monitoring systems.

6.3.1 Existing Systems, Technologies, and Procedure

The ITO must report on the asset monitoring systems and related technologies and procedures currently in use, highlighting any improvements made since the last WMP submission. At a minimum, the ITO must discuss its systems, technologies, and procedures related to the detection of:

- Faults (e.g., fault anticipators, rapid earth fault current limiters)
- Failures
- Recloser operations

[171] Pub. Util. Code §§ 8386(d)(3), (6), and (22).

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Each system must be summarized in Table 6-3. In an accompanying narrative, the ITO must provide the following information for each system:

- Location of the system/locations measured by the system
- Integration with the broader ITO's system
- How measurements from the system are verified
- For intermittent systems (e.g., aerial imagery, line patrols), description of what triggers data collection. This should include flow charts and equations where appropriate.
- For calculated quantities, how raw measurements are converted to calculated quantities. This must should flow charts and equations where appropriate.

The required format and information are shown in Table 6-3.

Table 6-3: Example of Asset Monitoring Systems

System	Measurement/ Observation	Frequency	Purpose and Integration
Line sensors	*Electrical current* *Electrical voltage* *Waveform harmonics*	*3,600 observations / hour*	*Early fault detection* *Distribution fault anticipator (DFA)*

6.3.2 Evaluation and Selection of New Systems

The ITO must describe how it evaluates the need for additional asset monitoring systems. This description must include:

- How the ITO evaluates the impact of new systems on reducing risk (e.g., expected reduction in ignitions from failures, expected reduction in failures)
- How the ITO evaluates the efficacy of new technologies

These descriptions should include flow charts where appropriate.

6.3.3 Planned Improvements

The ITO must describe its planned improvements in its asset monitoring systems. This must include any plans for the following:

- Expansion of existing systems

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- Establishment of new systems

6.3.4 Evaluating Activities

The ITO must describe its procedures for the ongoing evaluation of the efficacy of its asset monitoring activity or program.

6.4 Ignition ~~Dection~~ Detection Systems

The ITO must describe its systems, technologies, and procedures used to detect ignitions and gauge ignition size and growth rates.[172]

In this section, the ITO must document the following:

- Existing ignition detection sensors and systems
- Evaluation and selection of new ignition detection systems
- Planned integration of new ignition detection technologies
- Systems, technologies, and procedures for routine sharing of the following:
    - Evaluation of strengths and limitations of new technology
    - Case studies/ lessons learned regarding new ignition detection systems and new ignition detection technologies
    - Lessons learned
- How it monitors initiative improvements

If the ITO does not have any overhead powerlines outside of its primary facilities (e.g., substation, converter station), it should say so and remove all of the following sections related to ignition detection systems.

6.4.1 Existing Systems, Technologies, and Procedures

The ITO must report on the sensors and systems, technologies, and procedures for ignition detection that are currently in use, highlighting any improvements made since the last WMP submission. At a minimum, the ITO must document the deployment of each of the following:

- Early fire detection including, for example:

[172] Pub. Util. Code § 8386(d)(3).

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  - Satellite infrared imagery
  - High-definition video
  - Infrared cameras
- Fire growth potential software

The ITO must summarize each system in Table 6-4. In an accompanying narrative, it must provide the following additional information for each system:

- General location of detection sensors (e.g., HFTD or entire service territory)
- Resiliency of sensor communication pathways
- Integration of sensor data into machine learning or AI software
- Role of sensor data in risk response
- False positives filtering
- Time between detection and confirmation
- Security measures for network-based sensors

The required format and information are shown in Table 6-4 below.

Table 6-4: Example of Fire Detection Systems Currently Deployed

Detection System	**Capabilities**	**Companion Technologies**	**Contribution to Fire Detection and Confirmation**
Video cameras	*Real-time viewing of remote area to detect smoke and wildfires*	*Used with satellite imagery to verify fire detection*	*Video cameras allow fast and accurate detection or confirmation of wildfires and can help operators assess the scope of resource response needed.*

6.4.2 Evaluation and Selection of New Detection Systems

The ITO must describe how it evaluates the need for additional ignition detection technologies. This description must include:

- How the ITO evaluates the impact on new detection technologies on reducing and improving detection and response times
- How the ITO evaluates the efficacy of new technologies

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- The ITO's budgeting process for new detection system purchases

6.4.3 Planned Integration of New Ignition Detection Technologies

The ITO must provide an implementation schedule for new ignition detection and alarm system technologies. This must include any plans for the following:

- Integration of new systems into existing physical infrastructure
- Integration of new systems into existing data analysis
- Increases in budgets and staffing to support new systems

6.4.4 Evaluating Activities

The ITO must describe its procedures for the ongoing evaluation of the efficacy of its ignition detection systems.

6.5 Weather Forecasting

The ITO must describe its systems and procedures used to monitor the weather within its surrounding facility area.[173] If the ITO operates any overhead powerlines outside of its primary facilities (e.g., substation, converter station), it must describe whether it is utilizing a neighboring utility or National Weather Service weather monitoring/forecasting program and the communications established with that utility/program regarding the daily changes.

If the ITO is not utilizing a neighboring utility or National Weather Service weather monitoring/forecasting program, it must provide the following:

- Its existing modeling approach
- The known limitations of its existing approach
- Implementation schedule for any planned changes to the system
- How the efficacy of systems for reducing risk are monitored

[173] Pub. Util. Code § 8386(d)(3).

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6.5.1 Existing Modeling Approach

At a minimum, the ITO must discuss the following components of its weather forecasting:

- Data assimilation from environmental monitoring systems (Section 6.2) within the ITO transmission system footprint
- Ensemble forecasting with control forecast and perturbations
- Model inputs, including, for example:
    - Land cover / land use type
    - Local topography
- Model outputs, including, for example:
    - Air temperature
    - Barometric pressure
    - Relative humidity
    - Wind velocity (speed and direction)
    - Solar radiation
    - Rainfall duration and amount
- Separate modules (e.g., local weather analysis and local vegetation analysis)
- Subject matter expert (SME) assessment of forecasts
- Spatial granularity of forecasts, including:
    - Horizontal resolution
    - Vertical resolution
- Time horizon of the weather forecast throughout the service territory

The ITO must highlight improvements made to its weather forecasting since the last WMP submission.

The ITO must also provide documentation of its modeling approach pertaining to its weather forecasting system in accordance with the requirements in *Appendix B: Supporting Documentation for Mitigation Activities*.

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6.5.2 Known Limitations of Existing Approach

The ITO must describe any known limitations of its existing weather modeling approach resulting from assumptions, data availability, and computational resources. It must discuss the impact of these limitations on the modeling outputs.

6.5.3 Planned Improvements

The ITO must describe its planned improvements in its weather forecasting systems. This must include any plans for the following:

- Increase in model validation
- Increase in spatial granularity
- Decrease in limitations by removal of assumptions
- Increase in input data quality
- Increase in related frequency

6.5.4 Evaluating Activities

The ITO must describe its procedures for the ongoing evaluation of the efficacy of its weather forecasting activity or program.

6.5.5 Weather Station Maintenance and Calibration

The ITO must provide a narrative describing both the maintenance and calibration of its weather stations, as well as the risk impacts due to weather station inoperability. The narrative should be no more than one page and include the following:

- Acceptable percentage of weather station outages as defined by the ITO
- Justification for how reduced coverage does or does not impact PSPS decision making and any methods taken by the ITO to reduce those impacts
- Any limitations to conducting annual maintenance and calibrations (such as staffing, training, terrain, access, etc.)
- This must include the number of incomplete maintenance or calibration events for weather stations in the last calendar year
- A description of what efforts are in place for the ITO to ensure acceptable levels of weather station coverage throughout its transmission system footprint

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6.6 Fire Potential Index

The ITO must describe its process for calculating its fire potential index (FPI) or a similar landscape-scale index used as a proxy for assessing real-time risk of a wildfire under current and forecasted weather conditions.[174] If the ITO operates any overhead powerlines outside of its primary facilities (e.g., substation, converter station), it must describe the following:

- Its existing calculation approach and how its FPI is used in its operations
- The known limitations of its existing approach
- Implementation schedule for any planned changes to the system
- The ITO must reference Tracking ID(s) where appropriate

If the ITO does not have any overhead powerlines or is utilizing a neighboring utilities FPI and communicates that utility regarding the changes in the daily FPI, the ITO should state such and remove all of the following sections.

6.6.1 Existing Calculation Approach and Use

The ITO must describe its FPI calculations, assumptions, and usage, including:

- How it calculates its own FPI or if uses an external source, such as the United States Geological Survey[175]
- Assumptions in calculations and justification for each assumption
- How it uses the FPI in its operations

Table 6-5: Example of Fire Potential Features

Feature Group	Feature	Altitude	Description	Source	Update Cadence	Spatial Granularity	Temporal Granularity
Weather	*Temperature*	*Surface*	*Temperature at the surface in Fahrenheit*	*Weather model*	*6x per day*	*1 km*	*Hourly*

[174] Pub. Util. Code § 8386(d)(3).

[175] United States Geological Survey Fire Danger Map and Data Products Web Page, URL: (https://firedanger.cr.usgs.gov/viewer/index.html) accessed August 26, 2026.

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Fuel Moisture	*Dead Fuel Moisture*	*Surface*	*Fuel moisture content*	*Weather model & third-party dataset*	*Daily*	*2 km*	*Daily*

6.6.2 Known Limitation of Existing Approach

The ITO must describe any known limitations of its current FPI calculation. The ITO must list of any changes implemented since its last WMP submission, including justification for the changes and lessons learned, where applicable.

6.6.3 Planned Improvements

The ITO must describe its planned improvements for its FPI, including a description of the improvement, reason for the change, and the planned schedule for implementation.

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7 Risk Methodology and Assessment

The ITO must provide an overview of its risk methodology and assessment. This should include how it analyzes risk on its system, the assumptions and calculations used to quantify risk, and its plans for improving its risk assessment over time.

7.1 Methodology

The ITO must describe its risk methodology[176] and include the following:

- An overview of its risk analysis approach.
- An overview of its risk model components, if applicable.
- A list of all modeling assumptions, input data and sources, and modeling tools used, if applicable.
- Key assumptions, limitations, and data standards for the individual elements of its risk assessment, if applicable.
- A summary of the calculation approach for each risk and risk component, if applicable.

7.2 Risk Analysis Results and Presentation

ITOs do not file Risk Assessment Mitigation Phase (RAMP) reports with the California Public Utilities Commission (CPUC).[177] Therefore, no reporting is required on RAMP filings.

The ITO must report on whether its risk analysis triggers any proposed changes to the CPUC's current High Fire Threat Districts (HFTDs).[178]

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[176] Pub. Util. Code § 8386(d)(18).

[177] Pub. Util. Code § 8386(d)(13).

[178] Pub. Util. Code § 8386(d)(17).

7.2.1 Wildfire Risks and Risk Drivers

The ITO must provide a list that identifies and prioritizes all wildfire risks and drivers for those risks across its system.[179] The ITO must use the format outlined in Table 7-1 below. In addition, the ITO must provide a narrative description of how it determined the priority for each risk driver, taking into account the frequency and magnitude of each risk. The list and associated narrative must address the following:

- Risks and risk drivers associated with design, construction, operations, and maintenance of the ITO's equipment and facilities.[180]
- The percent of ignitions in the HFTD caused by each risk driver.
- Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the ITO's service territory.[181]
- An explanation of whether the risk driver is wind dependent.

Table 7-1: Example of List of Risks and Risk Driver to Prioritize

Priority	**Risk**	**Risk Driver**	**% of ignitions in HFTD**	**Topographical and Climatological Risk Factors**	**Wind Dependency**
1	*Equipment / Facility Failure*	*Transformer failure*			
2	*Equipment / Facility Failure*	*Conductor failure*			
3	*Vegetation contact*	*Fall-in (branch failure)*			
4					
5					

[179] Pub. Util. Code §§ 8386(d)(12) and (23).

[180] Pub. Util. Code § 8386(d)(12)(A).

[181] Pub. Util. Code § 8386(d)(12)(B).

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7.2.2 Top Risk-Contributing Assets

The ITO must describe how it determines its top risk-contributing assets.

The ITO must identify a list of the highest risk-contributing assets on its system based on risk analysis. The table should include the following information about each asset:

- **Risk Ranking:** The rank of the circuit segment based on the ITO's risk methodology.
- **Asset ID:** Unique identifier for the asset.
- **Asset Description & Type:** Description of the asset.
- **Type of Asset:** Equipment, circuit, segment, span, etc.
- **Wildfire risk score:** Numerical value for each risk, if calculated. If Wildfire Risk Score is not calculated, this information can be omitted or listed as "Not Calculated."
- **Top risk contributors:** The risk components and/or risk drivers that lead to the asset being high risk.

The ITO must use the format outlined in Table 7-2 below.

Table 7-2: Example of Summary of Top-Risk Assets

Risk Ranking	Asset ID	Asset Description & Type	Wildfire Risk Score (Million $)	Top Risk Contributors
1	*ID001*	*Substation*	*0.0473*	*Equipment Failure*
2	*ID002*	*Overhead Transmission Line*	*0.0298*	*Vegetation Contact*

7.3 Quality Assurance and Quality Control

The ITO must provide the procedures it uses to confirm that the data collected and processed for its risk analysis are accurate and comprehensive.[182]

The ITO must describe:

[182] Pub. Util. Code § 8386(d)(22).

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- The procedures for independent review of the risk analysis used, including data and model(s) if applicable
- The quality controls in place for the risk analysis
- A description of any verification, validation, and sensitivity analysis performed for the risk analysis

7.4 Risk Assessment Improvement Plan

A key objective of the WMP review process is to drive year-over-year continuous improvement. The ITO must identify any improvements to programmatic and technical aspects of its wildfire risk assessment. Improvements should be categorized under one of the following key areas:

- **Risk assessment methodology:** Wildfire risk assessment methodology and its documentation, including both quantitative and qualitative approaches.
- **Risk presentation:** Presentation of risk to stakeholders, including dashboards and statistical assessments.
- **Risk event tracking:** Tracking and reconstruction of risk events and integration of lessons learned.

The ITO must provide an overview of its risk assessment improvements consisting of the following information, in tabulated format:

- **Key area:** One of the key areas identified above.
- **Title of proposed improvement:** Brief heading or subject of the improvement.
- **Description of proposed improvement:** Full description of the improvement.
- **Type of improvement:** Technical or process oriented.
- **Anticipated benefit:** Summary of anticipated benefit and any other impacts of the proposed improvement.
- **Timeframe and key milestones:** Total timeframe for undertaking the proposed improvement and any key milestones.

Table 7-3 provides an example of the format and information.

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Table 7-3: Example of Risk Assessment Improvement Plan

Key Area	**Proposed Improvement**	**Proposed Improvement Description**	**Type of Improvement**	**Anticipated Benefit**	**Timeframe and Key Milestones**
Risk assessment methodology	*Modeling Climate Change Impacts.*	*Extend timeframe of climate change consideration from 10 years to 30 years. Analysis extreme event possibilities and potential system impacts.*	*Technical*	*Risk modeling for climate change and extreme events.*	*Start evaluation and modeling, Q2 2027* *Finish evaluation, publish report Q4 2028*
Risk assessment methodology	*Literature and Industry Review on Transmission Wildfire Risks*	*Review industry reports and standards, as well as academic literature, on assessment of transmission wildfire risks. Use findings to inform next WMP.*	*Programmatic*	*Alignment of ITO with peers and industry standard. Improved risk assessment capabilities.*	*Start initial research, Q2 2027* *Finished research, Q2 2028* *Compile recommendations for Risk Assessment Improvement, Q1 2029*

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8 Mitigation Strategy

The ITO must provide a high-level overview of its overall wildfire mitigation strategy.

8.1 Decision-Making Framework

The ITO must describe its decision-making framework for mitigation selection based on the risk analysis outcomes presented in Section 7,

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Risk Methodology and Assessment.

The description must include discussion of the following items, if considered. Items not considered may be omitted.

- Risk model output integration, if a risk model is used.
- Mitigation Effectiveness values, calculation methods, and the data sets used to calculate them.
- Benefit Cost Analysis, including Benefit Cost Ratio, Net Benefit, or other cost impact analysis.
- Estimate of the Cost Per Avoided Ignition, or an explanation on why such a value could not be assigned to a particular mitigation and each risk it mitigates.[183]

8.1.1 Activity Selection Process

The ITO must describe the basis for its decisions regarding which mitigation activities to pursue. The ITO must identify potential mitigation strategies for its list of top-risk contributing assets. It must develop a proposed schedule for implementing each activity and identify its metrics to monitor implementation and effectiveness of the activities.

The ITO must provide a narrative description of the following, at a minimum:

- How it identifies and evaluates options for mitigating wildfire risk.
- Its project prioritization framework and how this framework allows the ITO to meet its plan objectives, optimize its resources, and maximize risk reduction.
- How it schedules activity implementation, including discussion of any iterative processes that may modify activities.
    - The ITO must explain how it considers the speed with which it can and will deploy wildfire risk mitigation measures within its transmission system footprint.[184]

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[183] Pub. Util. Code § 8386(d)(12)(D).

[184] Pub. Util. Code § 8386(d)(12)(C).

- Activities may require several years to implement. The ITO must include a discussion of how it considers the impact of implementation time when determining its mitigation selection and scheduling.[185]
- If the ITO's activities require more than one year to implement,[186] the ITO must evaluate the need for interim activities, as discussed in Section 8.2.2, Interim Activities.

8.1.2 Stakeholder Input for Mitigation Activity Selection

The ITO must describe how it receives and incorporates stakeholder input into its mitigation activity selection process. This description must include how the ITO considers additional the values prioritized by broader stakeholder groups (e.g., Tribal interests, environmental protection, public perception, resilience, cost).

8.2 Mitigation Selection Output

Each ITO must provide an overview of its planned mitigations based on the evaluation process identified in *Section 8.1, Decision-Making Framework*.[187]

8.2.1 Planned Mitigations

The ITO must present any planned mitigations for the top-risk assets identified in Table 7-2 and should present the information in tabular form as demonstrated in Table 8-1 below. Overall wildfire risk columns may be omitted from the table if not calculated.

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[185] Pub. Util. Code § 8386(d)(12)(C).

[186] Meaning that it will take the ITO more than one year to electrify or implement a given activity from the time it determines it will utilize that activity in a given location.

[187] Pub. Util. Code §§ 8386(d)(3) and (4).

Table 8-1: Example of Summary of Planned Mitigation for Top-Risk Assets

Asset ID	**Initial Overall Utility Risk (Million $)**	**[Year 1] Activities**	**[Year 1] Overall Utility Risk (Million $)**	**[Year 2] Activities**	**[Year 2] Overall Utility Risk (Million $)**	**[Year 3] Activities**	**[Year 3] Overall Utility Risk (Million $)**	**[Year 4] Activities**	**[Year 4] Overall Utility Risk (Million $)**
ID001	*0.0473*	*Protective devices and sensitivity settings*	*0.0125*	*Protective devices and sensitivity settings (cont.)*	*0.0125*	*Protective devices and sensitivity settings (cont.)*	*0.0125*	*Protective devices and sensitivity settings (cont.)*	*0.0125*
ID002	*0.0298*	*Vegetation management*	*0.0187*	*Vegetation management*	*0.0187*	*Vegetation management*	*0.0187*	*Vegetation management*	*0.0187*

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8.2.2 Interim Activities

For each activity that will require more than one year to implement,[188] the ITO must evaluate the need for interim activities that will reduce risk until the primary or permanent mitigation is in place. The ITO must describe the following:

- Procedures for evaluating the need for interim risk reduction. If an ITO determines that interim activities are not necessary for a given activity that will take more than one year to implement, it must explain why, and how it is monitoring wildfire risk while working to implement the activity.
- Procedures for determining which interim activities to implement.
- Interim activity selection process, including cost impact analysis, feasibility analysis, activity prioritization, and activity scheduling.

Each interim activity planned by the ITO for implementation on high-risk circuits must be listed as an activity in the section of the relevant mitigation category. In addition, the ITO must discuss interim activities in the relevant mitigation initiative sections of the WMP and include the activities in the related target tables.

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[188] A length of one year was selected given the need to reduce wildfire risk in areas identified as high risk during active fire seasons that would otherwise be unaddressed while the primary activity is being implemented.

9 Deenergization

In order to comply with Public Utilities Code section 8386(d)(8) and (11), the ITO must report on its deenergization.

9.1 Frequently Deenergized Circuits

The ITO must identify circuits that have frequently been de-energized pursuant to a de-energization event[189] to mitigate the risk of wildfire and the measures taken, or planned to be taken, by the ITO to reduce the need for, and impact of, future de-energization of those circuits.

The ITO must include the estimated annual decline in circuit de-energization and the impact on customers, as well as the ITO's efforts to replace, harden, or underground any portion of the circuit of upstream transmission or distribution lines.[190]

If the ITO does not have frequently de-energized circuits, it must state such and explain why it does not.

9.2 Protocols for Deenergization

The ITO must describe its protocols for the deenergization of its transmission infrastructure, for instance, when the de-energization may impact customers or entities that are dependent upon the infrastructure. The protocols shall comply with CPUC orders regarding deenergization events.[191]

If the ITO does not have protocols for de-energization, it must state such and explain why it does not.

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[189] Pub. Util. Code § 8385(a)(1) defines "de-energization event" as "the proactive interruption of electrical service for the purpose of mitigating or avoiding the risk of causing a wildfire."

[190] Pub. Util. Code § 8386(d)(8).

[191] Pub. Util. Code § 8386(d)(11).

10 System Design, Operations, and Maintenance

The ITO must describe its plans for system design, operations, and maintenance.

10.1 Targets

The ITO must provide qualitative and quantitative targets for each year of the WMP period.[192] Qualitative or quantitative targets must be grouped into one of the following initiatives:

- System Design and Hardening
- System Operations and Procedures
- Asset Inspections
- Work Orders
- Equipment Maintenance and Repair
- Quality Management System
- Workforce Planning

10.1.1 Qualitative Targets

The ITO must provide qualitative targets for implementing and improving its system design, operations, and maintenance,[193] including the following:

- Identification of which initiative(s) and activity in the WMP the ITO is implementing to achieve the stated target, including Tracking IDs and the Tracking ID(s) used in past WMPs ("Previous Tracking ID"), if applicable
- A target completion date
- Reference(s) to the WMP section(s) or appendix, including page numbers, where the details of the target(s) are documented and substantiated

This information must be provided in Table 10-1 below.

[192] All end of year targets in all sections of the WMP must follow the calendar year.

[193] Annual information included in this section must align with the applicable data submission.

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10.1.2 Quantitative Targets

The ITO must list all quantitative targets it will use to track progress of its system design, operations, and maintenance activities, broken out by each year of the WMP period. The ITO must show progress toward completing quantitative targets in subsequent reports including data submissions. For each target, the ITO must provide the following:

- Identification of which initiative(s) and activity in the WMP the ITO is implementing to achieve the stated target
- Targets for each year of the WMP period and relevant units for the targets

Each activity must have distinct, trackable targets associated with the activity, even if the ITO tracks targets internally with combined activities.

Table 10-1 below provides examples of the minimum acceptable level of information.

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Table 10-1: Example of System Design, Operations, and Maintenance Targets by Year

Initiative	**Target**	**Activity (Tracking ID #)**	**Target Unit (if applicable)**	**[Year 1] Target / Status**	**[Year 2] Target / Status**	**[Year 3] Target / Status**	**[Year 4] Target / Status**	**Four-Year Total**	**Section; Page Number**
System Design and Hardening	*Quantitative*	*Covered Conductor (GH-4)*	*Circuit Miles*	*5*	*3*	*3*	*0*	*11*	*9.2; p. x*
System Design and Hardening	*Quantitative*	*Undergrounding (GH-2)*	*Circuit Miles*	*7*	*8*	*8*	*10*	*33*	*9.2; x*
Asset Inspection	*Quantitative*	*Transformer inspections (AI-5)*	*Inspections*	*24*	*24*	*24*	*24*	*96*	*9.3; p. x*
Asset Inspection	*Qualitative*	*Update asset inspection protocols (AI-1)*	*n/a*	*Not started*	*Started; March 2027*	*Completed; February 2028*	*Completed; February 2028*	*n/a*	*9.3; p. x*

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10.2 System Design and Hardening

The ITO must describe how it designed its system to reduce wildfire risk and what the ITO is doing to strengthen its infrastructure to reduce the risk of utility-related ignitions resulting in catastrophic wildfires.[194]

The ITO must describe any initiatives it has planned for system design and hardening. The ITO must also describe each planned initiative in the applicable activity section (see the list below). Activity sections with no planned initiatives may be omitted.

- Undergrounding of electric lines and/or equipment
- Substation hardening
- Covered conductor installation
- Transmission pole/tower replacements and reinforcements
- Substation hardening
- Converter station hardening
- Installation of system automation equipment
- Other system topology improvements to minimize risk of ignitions, or technologies not listed above
- Technologies being piloted

In each section it includes, the ITO must provide a narrative that supports and follows the requirements identified in *Section 10.1, Targets,* including the following information for each system design and hardening activity:

- **Tracking ID**
- **Overview of the activity:** A brief description of the activity including reference to related objectives and targets. Additionally, the overview must identify whether the activity is a program, project, pilot, or study.
- **Impact of the activity on wildfire risk:** A brief description of the activity's impact on wildfire risk
- **Updates to the activity:**

[194] Pub. Util. Code §§ 8386(d)(3), (14) and (15).

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- A list of the changes the ITO made to the activity since its last WMP submission.
- Justification for each of the changes, including references to lessons learned if applicable.
- A list of planned future improvements and/or updates to the activity, including a timeline for implementation.

- **Compatible activities:**
  - A list of all activities that can be feasibly deployed in combination with the said activity, and which of these the ITO plans to combine to increase risk reduction effectiveness. This list must include the activity Tracking ID, the section number and a link to the corresponding WMP section where the compatible activity is discussed.
  - For each compatible activity, the ITO must identify the wildfire risk driver(s) and outage program risk driver(s), as applicable, that the compatible activity can mitigate.
  - If work the ITO completes contributes to target attainment of both the activity and the compatible activities, provide:
    - A narrative explanation of how or why both compatible activities targets can be achieved (e.g., if the activities reduce risk from the same risk driver).
    - The percentage of the activity that will satisfy the target of the compatible activity (e.g. Covered Conductor will satisfy 30 of the 50 Animal Protection devices).

10.3 System Operations and Procedures

10.3.1 Equipment Settings to Reduce Wildfire Risk

The ITO must describe the ways in which it operates its system to reduce wildfire risk, including a discussion on any of the following equipment settings:

- Protective Equipment and Device Settings (PEDS)
- Settings of other emerging technologies (e.g., rapid earth fault current limiters)

For any of the above that the ITO utilizes, it must provide a narrative that includes the following. The ITO may omit narratives for equipment settings that are not applicable.

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- A brief overview of the setting or technology.
- Settings used to reduce wildfire risk.
- Criteria for when the ITO enables the settings.
- Operational procedures for when the settings are enabled, including monitoring for re-energization.
- The number of circuit miles capable of these settings, including the percentage of circuit miles in the HFTD and HFRA covered by these settings.
- The total number of days and percentage of time the settings were enabled during each of the past four years, including the associated circuit miles, line miles, facilities, or equipment encompassed by activation.
- An estimate of the effectiveness of the settings for reducing wildfire risk, including the calculation used for determining the effectiveness, a list of assumptions, and justification for these assumptions. The estimate must also include the number of ignitions that still occurred while sensitivity settings were enabled.
- Analysis of reliability/safety impacts for settings the ITO uses.

10.3.2 Issue Response Procedures and Notifications

The ITO must provide a narrative describing the operational procedures it uses to respond to faults, ignitions, and other issues detected on its system that may result in a wildfire including how the ITO:

- Locates the issues
- Prioritizes the issues, including how operational models inform potential prioritization based on risk
- Notifies relevant personnel and suppression resources to respond to issues
- Minimizes/optimizes response times to issues

10.4 Asset Inspections

The ITO must provide an overview of its procedures for inspecting its assets.[195]

[195] Pub. Util. Code § 8386(d)(10).

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The ITO must first summarize details regarding its asset inspections in Table 10-2. The table must include the following:

- **Type of inspection**: Transmission or substation.
- **Inspection Activity (Tracking ID#):** Identify the name of the inspection program, and the activity tracking ID number.
- **Frequency or trigger**: Identify the frequency or triggers for the inspection.
- **Method of inspection**: Identify the methods used to perform the inspection (e.g., on foot, vehicle, drone, helicopter, climbing, intrusive, and LiDAR).
- **Performed by:** Specify the name(s) of the contractor(s) or internal team(s) that schedule and execute the inspections.
- **Governing standards and operating procedures**: Identify the inspection's standards and the ITO's procedures for addressing them, and other internal protocols for work described.
- **% of HFRA and HFTD covered annually by Inspection Activity:** Determine the percentage of either circuit mileage or number of assets covered annually by the inspection activity within the HFRA and HFTD. If the ITO as no assets in the HFRA and HFTD, "N/A" may be listed.
- **Find rate**: Identify the ITO's internal condition priority levels (e.g., Level 1, 2, and 3) and the find rate of each over the four calendar years prior to the WMP submission. The find rate must be expressed as the percentage of inspections resulting in findings and must identify the inspection unit. If a different inspection condition scale is used, explain the scale and equivalent levels.
- **Clarifying information:** Provide ITO-specific risk informed triggers used for asset inspections and ITO-specific definitions of the different methods of inspection.

The required format and information are shown in Table 10-2 below.

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Table 10-2: Example of Asset Inspection Frequency, Method, and Criteria

Type	**Inspection Activity (Tracking ID #)**	**Frequency or Trigger (Note 1)**	**Method of Inspection (Note 2)**	**Performed by**	**Governing Standards & Operating Procedures**	**Target Year 1**	**Target Year 2**	**Target Year 3**	**Target Year 4**	**% of HFRA and HFTD Covered Annually by Inspection Type**	**Condition Find Rate Level 1**	**Condition Find Rate Level 2**	**Condition Find Rate Level 3**
Transmission	*Aerial Transmission Insp. (AI-1)*	*1 year*	*Drone*	*Contractor (Specify name)*	*GO 165*	*10*	*10*	*10*	*10*	*N/A*	*7% (Mile)*	*15% (Mile)*	*3% (Mile)*

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The ITO must also provide a narrative for each asset inspection activity identified in Table 10-2.

The ITO must include inspection activities it is discontinuing or has discontinued since the last WMP submission; in these cases, the ITO must explain why the activity is being discontinued or has been discontinued.

The ITO must also include inspection activities being piloted; in these cases, the ITO must include a discussion of how it measures the effectiveness of the pilot and how it determines next steps for the pilot (e.g. to expand, discontinue, or move to a permanent activity).

The ITO must describe its asset inspection programs according to the format provided in Section 10.4.1. The sections must be numbered Section 10.4.1 to Section 10.4.n (i.e., each asset inspection activity must be detailed in its own section).

10.4.1 [Asset Inspection Activity Name]

Overview

The ITO must provide an overview of the individual asset inspection activity, including the scope and process of the inspection, the titles of documents and procedures used during the execution of the inspection, the process for recording inspection findings, and the various inspection methods used for each inspection activity.

For each inspection method, the ITO must identify the types of conditions the method is intended to detect, the material limitations of the method, and any complementary inspection or monitoring activities used to address those limitations.

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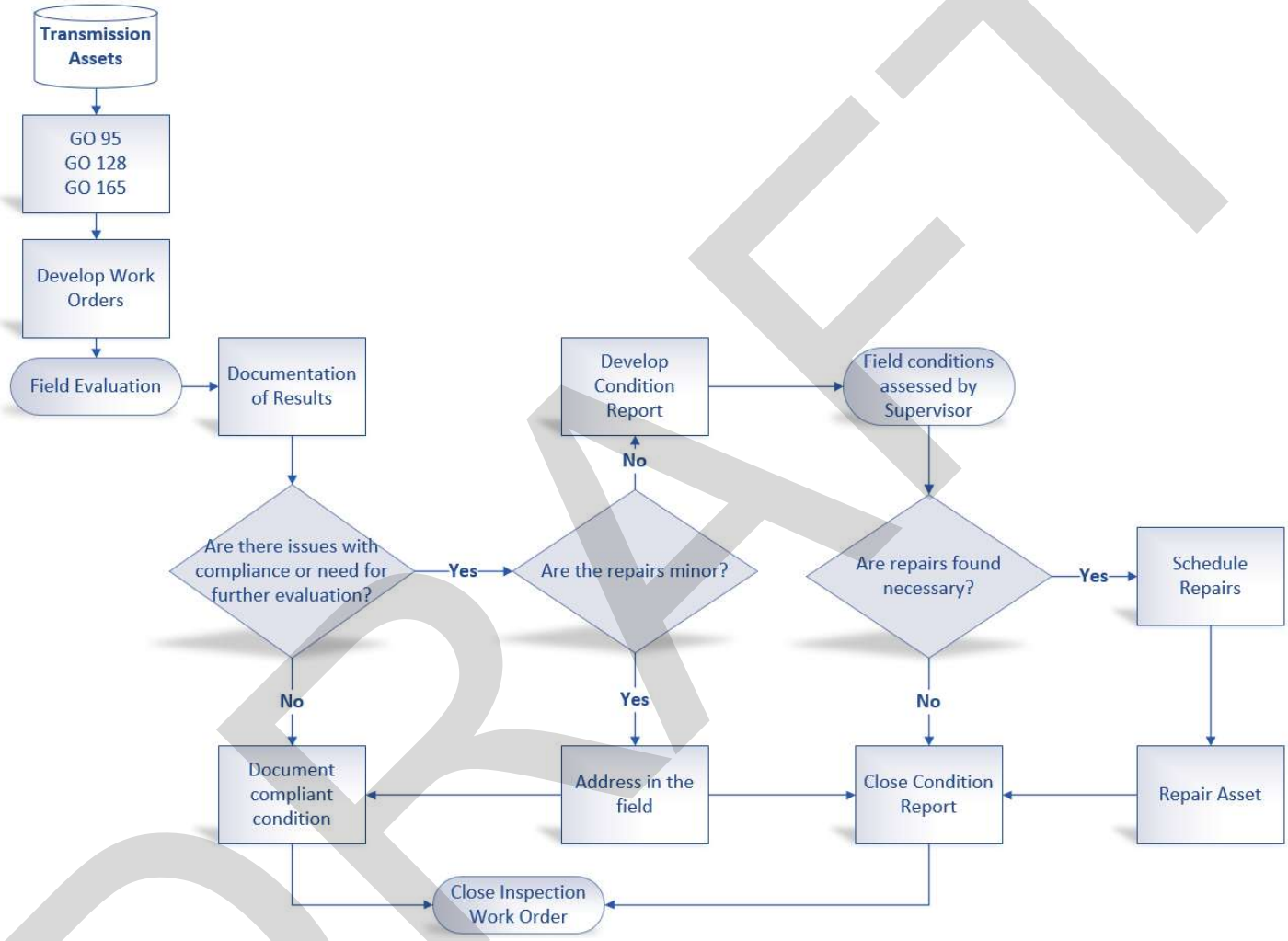
The ITO should include visuals and graphics depicting the workflow and decision-making process for the inspection activity (see the example in Figure 10-1), if applicable.

Figure 10-1: Example of Asset Management and Inspections Workflow



Frequency or Trigger

The ITO must identify the frequency (including how the frequency may differ by HFTD Tier or other risk designation[s]) or triggers it used to initiate the inspection activity, such as inputs from the risk model. The ITO must also identify any seasonal or event-driven triggers that may accelerate, expand, defer, or repeat inspections (e.g., pre-fire-season readiness, Red Flag Warnings, de-energization events, outages, faults, ignitions, or post-fire assessments).

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If the inspection activity is schedule-based, the ITO must explain how it uses risk prioritization in the scheduling of the inspection activity to target high-risk areas. If the ITO does not use risk prioritization in the scheduling of the inspection activity, it must explain why.

Accomplishments, Roadblock, and Updates

The ITO must describe:

- How the ITO measures success for the inspection activity (excluding routine inspections)
- Challenges the ITO has encountered while implementing the inspection activity and how the ITO has addressed the roadblocks
- Lessons learned from wildfire events, ignitions, faults, outages, or prior inspection findings since the last WMP submission that resulted in changes to the inspection activity, including a description of the change and the reason for the change
- Changes or updates to the inspection activity since the last WMP submission, including known future plans (beyond the current WMP period) and new/novel strategies the ITO plans to implement in the next five years, including references to and strategies from pilot projects and research

10.5 Work Orders

The ITO must provide an overview of the procedures it uses to manage its open work orders resulting from inspections that prescribe asset management activities.[196] This overview must include a brief narrative that includes:

- Reference to procedures documenting the work order process. The ITO must provide a summary of these procedures or provide a copy as a supporting document.
- A list of activities that may result in a work order (e.g., planned inspections, outage response, continuous monitoring technologies).
- A description of the plan for correcting any past due work orders (e.g., open work orders that have passed remediation deadlines), if applicable, including the estimated date past due work orders in the HFTD will be completed.
- A description of how work orders are prioritized based on risk, if applicable.

[196] Pub. Util. Code §§ 8386(d)(10) and (14).

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- A description of procedures the ITO uses for monitoring and/or reinspecting open work orders, if applicable.
- A discussion of how past trends of open work orders have informed the ITO's current procedures and prioritization for addressing work orders, if applicable. This may include analysis of the following:
    - Types of findings within the backlog
    - Equipment types related to the findings within the backlog
    - Reinspection frequency
    - Outcomes of reinspection, including changes to findings, prioritization, or expected due dates
- Prioritization level within the backlog[197]

10.6 Equipment Maintenance and Repair

In addition to the information described above regarding inspections, the ITO must also provide a brief narrative of its maintenance activities or programs.[198] The ITO should describe the maintenance activity for each type of facility and equipment and include any of the following equipment that the ITO maintains and repairs. Equipment that is not used may be omitted.

- Capacitors
- Circuit breakers
- Connectors, including hotline clamps
- Conductor, including covered conductor
- Fuses, including expulsion fuses
- Lightning arrestors
- Reclosers
- Splices
- Clamps

[197] The ITO must include the associated GO 95 Rule 18 level. If the ITO uses a different prioritization level system, this must be included in addition to the GO 95 levels, with an explanation as to why a different system I sued.

[198] Pub. Util. Code §§ 8386(d)(3) and (10).

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- Cutouts
- Guy Systems
- Insulators
- Tie Wires
- Jumpers
- Potheads
- Risers
- Switches
- Voltage Regulators
- Transmission Line Switches
- Transmission poles/towers
- Transformers
- Pre-GO 95 legacy equipment
- Other equipment not listed

For the equipment types above, the ITO may include sub-categories with the following information:

- **Maintenance Strategy:** identification and brief description of the maintenance strategy (e.g., reactive, preventative, predictive, reliability-centered, time based, condition based).
- **Condition monitoring:** a description of how the ITO monitors the condition of the equipment (e.g., human visual inspection, automated visual inspection, human sensor readings, automated sensor readings).
- **Replacement/Repair Condition Identification:** a description of how equipment is identified for repair or replacement (e.g., time interval, inspection finding, sensor reading, predictive maintenance, data analytics, machine learning).
- **Remediation execution:** a description of the maintenance execution process, including documents and procedures utilized by maintenance personnel during such execution. If there are instances during which ITO personnel complete maintenance work in the absence of a work order, the ITO must detail all circumstances that may result in such an instance.

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- **Equipment Failure Data Collection Granularity:** a description of the granularity at which equipment failure data is recorded (e.g., equipment type level, manufacturer level, manufacturer part number level).
- **Equipment Failure and Ignition Trends:** a discussion of any equipment failure and ignition trends identified by the ITO and corresponding changes to its asset management practices. The ITO must consider trends in rate, quantity, occurrences shortly after inspections and occurrences shortly after repair work.
- **Failure and Ignition Causes:** A narrative describing root cause analyses performed for failures and associated CPUC ignitions within the HFTD and HFRA, including any lessons learned and solutions implemented to decrease ignition rates.

10.7 Quality Management System

The ITO must describe how it controls and ensures the quality of its system design, operations, and asset management work so that it meets or exceeds its quality requirements. To do so, the ITO must describe its quality assurance (QA) audit and quality control (QA) inspection activities.

For WMPs, Energy Safety defines QA audits and QC inspections as follows:

- A **QA audit** uncovers improvement opportunities by determining if processes achieve quality objectives. A non-exhaustive list of audit activities includes: reviewing procedures, work documentation, and QC inspection findings; performing interviews; testing training effectiveness; creating new processes; and observing procedure use. A QA audit results in a report that recommends corrective actions to deliver continued improvements.
- A **QC inspection** reviews outputs of a process by comparing the output's attributes to attributes specified in procedures. QC inspections of sampling units typically estimate the quality level of a population of work. After QC inspections, applying corrections remediates nonconformities. If the sample-estimated quality level is below a predetermined threshold, a decision is made to accept the population of work or rework all or a portion of the population of work.

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10.7.1 Overview, Objectives, and Targets

The ITO must provide an overview of its system design, operations, and asset management QA and QC activities.[199] The overview must include the following information in Table 10-3 of its WMP for each quality management activity:

- **Activity Subject to an Audit or Inspection:** The name of the activity subject to a QA audit or QC inspection (each activity name should match an activity described in *Section 10.2,System Design and Hardening* through *Section 10.4, Asset Inspections*).
- **Tracking ID:** A unique QA or QC Tracking ID that is an extension of the activity Tracking ID (e.g., if the activity Tracking ID is GDSH-2, then the QA tracking ID for the same activity must be GDSH-2.1 or another extension, and the QC tracking ID for the same activity must be GDSH-2.2 or another extension).
- **Quality Management Activity Type:** The quality management activity type (QA audit or QC inspection).
- **Objective of the Quality Management Activity:** A statement identifying why the QA audit or QC inspection will help the ITO achieve and maintain quality for its system design and operations activity.

Table 10-3 provides an example of the appropriate level of detail and required format.

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[199] Pub. Util. Code §§ 8386(d)(10) and (22).

Table 10-3: Example of System Design, Inspections, and Maintenance QA and QC Program Objectives

Activity Subject to an Audit or Inspection	Tracking ID	Quality Program Type	Objective of the Quality Program
Asset Inspections	*GH-04*	*QA*	*To ensure inspectors are following ITO procedures for inspections and identify areas for improvement.*
Asset Inspections	*AI-09*	*QC*	*To estimate the number of conditions missed by inspectors within a population of work.*
Inspection Finding Remediation	*AI-16*	*QA*	*Ensure personnel are following ITO procedures for maintenance and identify areas for improvement.*
Asset Inspections	*GH-04*	*QA*	*To ensure inspectors are following ITO procedures for inspections and identify areas for improvement.*

10.7.2 Sample Size

The ITO must describe how it determines the sample size for each QC inspection. This must include how the HFTD Tier, HFRA, the ITO's risk model, or other risk designations affect the sampling plan, and how the ITO ensures samples are representative of the population (e.g., sample size relative to population size, randomization, stratification, weighting).

10.7.3 Quality Metrics

The ITO must list and describe the QC inspection metrics it uses to evaluate the effectiveness of its system design, operations, and asset management activities and procedures. For example, the ITO could consider the following: conformity rates, rework rates, outage rates within X months of equipment installation, maintenance rework rate, etc.

10.7.4 Documentation and Resolution of Findings

The ITO must describe how it documents its QA and QC findings, resolves nonconformities, and uses lessons learned from those findings to inform corrective actions. This description must include:

- How nonconformities identified by QC inspections are corrected.

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- How the ITO uses the proportion of samples meeting quality specifications to inform corrective actions (e.g., procedural changes, training, etc.).
- Data the ITO leverages in addition to QC inspections to inform corrections and corrective actions.
- How the ITO implements corrections and corrective actions in response to the proportion of samples meeting quality specifications and leveraged data.

10.7.5 Procedures

The ITO must list the applicable procedure(s), including the version(s) and effective date(s), used for each system design, operations, and asset management QA and QC program listed in Table 10-3. The ITO must include the most recent procedures in *Appendix B: Supporting Documentation for Mitigation Activities*.

10.7.6 Scheduling

The ITO must describe how it schedules quality management activities. The description must include the frequency of the quality management activity (e.g. monthly, quarterly, project base) and the length of time between when it completes the system design, operations, and asset management activities and when it performs the quality management activity.

10.7.7 Updates

The ITO must provide:

- A list of changes it made to its QA and QC procedure(s) or activities since its last WMP submission.
- An explanation for why each change was implemented, including references to lessons learned as applicable.
- A list of planned improvements or updates, or both improvements and updates, to QA and QC procedure(s) including a timeline for implementation.

10.8 Workforce Planning

The ITO must provide an overview of its personnel, including qualifications, and training practices, who are in roles associated with asset inspections, system hardening, and risk

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event inspection.[200] The ITO should also describe how its workforce can promptly restore service after a major event.

10.8.1 Personnel Work Procedures and Training in Conditions of Elevated Fire Risk

The ITO must provide a narrative on the following:

- The ITO's procedures that designate what type of work the ITO allows (or does not allow) personnel to perform during operating conditions of different levels of wildfire risk, including:
    - What the ITO allows (or does not allow) during each level of risk
    - How the ITO defines each level of wildfire risk
    - How the ITO trains its personnel on those procedures
    - How it notifies personnel when conditions change, warranting implementation of those procedures
- The ITO's procedures for deployment of firefighting staff and equipment (e.g., fire suppression engines, hoses, water tenders, etc.) to worksites for site-specific fire prevention and ignition mitigation during on-site work

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[200] Pub. Util. Code §§ 8386(d)(16) and (19).

11 Vegetation Management

Each ITO's WMP must include plans for vegetation management.[201]

11.1 Targets

The ITO must provide at least one quantitative target for vegetation management for each year of the WMP period. This quantitative target (or targets) must reflect work both inside and outside its primary facilities (e.g., converter station, substation). As such, it may be necessary to set separate targets for each activity, one representing work inside and one representing work outside the primary facility.

If no vegetation is present and vegetation management activities are not required, the ITO is not required to provide targets. Instead, the ITO must provide a description of the facility's construction and conditions and an explanation of why vegetation management is unnecessary.

The **quantitative target** must reflect the full scope of vegetation management the ITO conducts and specify the number of times within each year of the WMP period that the ITO inspects, controls, and removes vegetation. Each activity must have distinct, trackable targets associated with the activity, even if the ITO tracks targets internally with combined activities.

The ITO may provide **qualitative targets** in addition to the required quantitative target. Qualitative targets must have specific, measurable, achievable, relevant, and timely outcomes for a given year that the ITO can implement to satisfy the WMP activity's primary goals and subgoals.

For each target, the ITO must provide the following in Table 11-1.

- **Activity:** Identification of which activity(ies) in the WMP the ITO is implementing to achieve the target.
- **Quantitative or Qualitative:** Whether the target is qualitative or quantitative.
- **Tracking ID:** The activity Tracking ID.
- **Target Unit:** The unit for the annual target. This field may not be applicable to qualitative targets.

[201] Pub. Util. Code §§ 8386(d)(3) and (9).

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- **Target / Outcome:** For a quantitative target, the targeted number of units for a given year. For a qualitative target, the specific, measurable, achievable, relevant, and timely outcome for a given year.
- **Section; Page Number:** Reference(s) to the WMP section(s) or appendix, including page numbers, where the ITO provides details supporting the target.

Table 11-1 provides an example of the minimum acceptable level of information and required format.

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Table 11-1: Example of Vegetation Management Targets by Year

Activity	Quantitative or Qualitative	Tracking ID	Target Unit (if applicable)	[Year 1] Target/ Outcome	[Year 2] Target/ Outcome	[Year 3] Target/ Outcome	[Year 4] Target/ Outcome	Section; Page Number
Inspect for and remove non-conforming vegetation inside the Butte County Converter Station perimeter wall.	*Quantitative*	*VM-01*	*Inspect and remove vegetation where needed.*	*4*	*4*	*4*	*4*	*10.x; p. x*
Maintain defensible space around Butte County Converter Station.	*Quantitative*	*VM-02*	*Inspect and remove vegetation where needed.*	*2*	*2*	*2*	*2*	*10.x; p. x*

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11.2 Vegetation Inspection, Control, and Removal

11.2.1 Overview

The ITO must provide an overview of its vegetation management activities, including inspection, control, removal, and other vegetation management activities it performs. This overview should describe the creation and maintenance of defensible space in accordance with applicable codes and regulations, such as Public Resources Code section 4291, or in exceedance of these requirements.

If the ITO has, or will have, overhead conductors outside of its primary facilities, it must provide an overview of vegetation clearance activities and corresponding details in the procedures, scheduling, and updates sections below (11.2.2, 11.2.3, and 11.2.4).

The ITO must describe all control and removal methods it uses to manage vegetation, including, but not limited to: the strategic use of herbicides, growth regulators, or other chemical controls; mechanical fuel treatment; weed abatement; and management of vegetative debris, downed wood, and slash generated by vegetation management activities.

The ITO must specify whether vegetation management activities are discrete or occur in conjunction with other operations and maintenance functions (e.g., during a single visit, an inspector assesses vegetation and the condition of electrical assets).

11.2.2 Procedures

The ITO must list the procedures it uses for vegetation inspection, control, and removal activities, including the version(s) and effective date(s). The ITO must include the most recent procedural documents as of the date of the WMP submission in *Appendix B: Supporting Documentation for Mitigation Activities*.

11.2.3 Scheduling

The ITO must describe how it schedules and when it performs vegetation inspections, control, removal, and other vegetation management activities, including:

- The frequency (e.g., annual, quarterly, four-year period) and/or triggers (e.g., severe weather events, risk model outputs) of vegetation management activities.

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- The maximum length of time within which the ITO will perform vegetation control and removal activities after identifying the work.
- The time of year during which vegetation management activities take place, including any seasonal constraints, and the approximate month by which the ITO intends to complete non-constrained work within this activity.

11.2.4 Updates

The ITO must describe changes or updates to its vegetation inspection, control, and removal activities since the last WMP submission, including future plans (beyond the current WMP period) and novel strategies, technologies, or techniques the ITO plans to implement over the next five years (e.g., based on pilot projects and research). The ITO must include lessons learned, as applicable.

11.3 Pole and Tower Clearing

In this section, the ITO must provide an overview of its clearing activities around poles and towers outside of its primary facilities.

If the ITO has overhead electrical equipment or assets mounted on poles or towers outside of its primary facilities, it must describe its clearing work, including activities to comply with Public Resources Code section 4292 and USFS Order Number 91-1. The ITO must detail its procedures, implementation schedules (including inspection-to-completion timelines, seasonal constraints, and tracking periods), and any procedural updates or planned improvements since its last WMP submission.

If the ITO has poles and towers with overhead equipment outside of its primary facilities but does not clear them, it must provide justification for not doing so.

11.4 Activities Based on Weather Conditions

The ITO must provide an overview of its planning and execution of operational changes to address wildfire risk associated with weather conditions. This overview must include how it assigns or restricts vegetation management activities based on, and in advance of, forecasts indicating an elevated probability of ignition, wildfire spread, or both (e.g., a Red Flag Warning). If the ITO does not need to plan and execute operational changes to address wildfire risk associated with weather conditions, it must state as such and explain why.

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11.5 Quality Management

The ITO must provide an overview of its quality management for vegetation management activities. This overview must include:

- A reference to the applicable procedure(s), including the version(s) and effective date(s), used for quality management. The ITO must include the most recent procedural documents as of the WMP submission in an appendix to this WMP.
- A description of how it documents quality management findings, responds to those findings, and resolves nonconformities, while using lessons learned to inform the implementation of corrective actions (e.g., training, procedural adjustments). The length of time within which it performs the quality inspection after it completes the vegetation management activity.
- A description of the changes the ITO has made to its quality management program since its last WMP submission.
- A description of future improvements and/or updates to quality management, including a timeline for implementation.

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12 Emergency Preparedness, Collaboration, and Community Outreach

The ITO must develop and adopt an emergency preparedness plan in compliance with the standards established by the CPUC pursuant to Public Utilities Code section 768.6(a).[202] Its plan must cover the ITO's preparedness, response, and communication around both wildfire and PSPS events.

12.1 Emergency Preparedness and Recovery Plan

The ITO must provide an overview of how it has evaluated, developed, and integrated wildfire- and PSPS-specific emergency preparedness strategies, practices, policies, and procedures into its overall emergency plan based on the minimum standards described in GO 166.[203] The ITO must provide the title of and link to its latest emergency preparedness plan, the date of the plan, and an indication of whether the plan complies with CPUC R.15-06-009, D.21-05-019, and GO 166. The overview provided by the ITO must be no more than two paragraphs.

In addition, the ITO must provide a list of any other relevant documents that govern its wildfire and PSPS emergency preparedness planning for response and recovery efforts. This must be a bullet point list with document title, version (if applicable), and date. For example:

- ITO's Emergency Response Plan (ECERP), Third Edition, dated January 1, 2021

12.1.1 Overview of Wildfire and PSPS Emergency Preparedness and Service Restoration

The ITO must provide an overview of its wildfire- and PSPS-specific emergency preparedness and service restoration plan.[204] The overview must describe the following:

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[202] Pub. Util. Code § 8386(d)(19).

[203] Pub. Util. Code §§ 8386(d)(7), (11), (16), (19), and (20).

[204] Pub. Util. Code § 8386(d)(16), (19), and (20).

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- Overview of protocols, policies, and procedures for responding to and recovering from a wildfire event (e.g., means and methods for assessing conditions, decision-making framework, prioritizations). This must include: Key personnel, qualifications, and training that show the ITO has trained the workforce to promptly restore service accounting for workers pursuant to mutual aid agreements or contracts.

12.2 External Collaboration and Coordination

12.2.1 Communication Strategy with Public Safety Partners

The ITO must describe its communication strategy used to inform external public safety partners and other interconnected ITO partners of wildfire, PSPS, and re-energization events as required by GO 166 and Public Utilities Code section 768.6.[205] This description must include the policies, practices, and procedures the ITO adopts to establish appropriate communication protocols with public safety partners for both wildfire- and PSPS-specific incidents to ensure timely, accurate, and complete communications. The ITO may refer to its emergency preparedness plan as needed to provide more detail. The narrative must be no more than two pages.

As each public safety partner will have its own unique communication protocols, procedures, and systems, the ITO must coordinate with each entity individually. As such, the ITO must summarize the following information:

- All relevant public safety partner groups (e.g., fire, law enforcement, OES, municipal governments, Energy Safety, CPUC, other ITOs) at every level of government (state, county, city, or Tribal), as applicable
- Key protocols for ensuring the necessary level of voice and data communications (e.g., interoperability channels, methods for information exchange, format for each data typology, communication capabilities, data management systems, backup systems, common alerting protocols, messaging), and associated references in the emergency plan for more details
- Frequency of prearranged communication review and updates

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[205] Pub. Util. Code §8386(d)(19).

12.2.2 Collaboration on Local and Regional Wildfire Mitigation Planning

The ITO must provide a high-level overview of its plans, activities or programs, and/or policies for collaborating with communities on local and regional wildfire mitigation planning (e.g., wildfire safety elements in general plans, community wildfire protection plans, local multi-hazard mitigation plans) within its service territory.[206] The narrative must be no more than one page.

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[206] Pub. Util. Code § 8386(d)(19).

13 Enterprise Systems

Enterprise systems encompass structures and methods that allow the ITO and its employees and/or contractors to accept, store, retrieve, and update data for the production, management, or scheduling of related work. In this section, the ITO must provide an overview of inputs to, operation of, and support for various enterprise systems or any data systems or platforms it uses, as applicable, for risk methodology assessment, asset management and inspection, asset monitoring systems, vegetation management, ignition detection systems, and weather forecasting initiatives.[207]

13.1 Targets

The ITO must provide at least one target (qualitative, quantitative, or both) for each year of the WMP period for any planned initiative that relates to the implementation and improvement of its enterprise systems. Each activity must have distinct, trackable targets associated with the activity, even if the ITO tracks targets internally with combined activities. If no activity is planned for a specific initiative, the ITO must include the mitigation category or mitigation initiative in Table 13-1 with "N/A" under the Activity (Tracking ID #) column and provide a justification for why there is no planned activity within the summary narrative in *Section 13.2.1, General Enterprise Systems Overview*. The ITO may add rows to Table 13-1 to list multiple activities under a category or initiative.

Table 13-1 below provides an example of the format and information

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[207] Pub. Util. Code §§ 8386(d)(10), (14), and (18).

Table 13-1: Example of Enterprise Systems Targets

Mitigation Category or Initiative	**Activity (Tracking ID #)**	**Previous Tracking ID (if applicable)**	**Target Type (Qualitative/ Quantitative)**	**Target Unit**	**[Year 1] Status or Total; Completion Date**	**[Year 2] Status or Total; Completion Date**	**[Year 3] Status or Total; Completion Date**	**[Year 4] Status or Total; Completion Date**	**Section; Page Number**
Risk Methodology and Assessment	*Improve Risk Model Data Ingestion Automation (RA-02)*	*RA-05*	*Qualitative*	*Milestone-based model improvement*	*Data mapping complete; December 2029*	*Pilot Complete; Dec 2030*	*Integration Operational; December 2031*	*Full Implementation; Dec 2032*	*x.x; p. xx*
Asset Inspection	*Implement Real-Time Data Quality Rules in Mobile Field Inspection Application (AI-01)*	*N/A*	*Quantitative*	*Percent of completed field inspection records passing automated QA/QC validation upon entry*	*75; December 2029*	*85; December 2030*	*95; December 2031*	*100; December 2032*	*x.x; p. xx*
Asset Monitoring Systems	*Integrate real-time sensor data into centralized enterprise system (ES-03)*	*N/A*	*Quantitative*	*Percent Sensor data integrated*	*50; September 2029*	*75; September 2030*	*90; November 2031*	*100; November 2032*	*x.x; p. xx*
Vegetation Management	*Implement Vegetation Data Integration and Analytics Platform (VM-03)*	*VM-11*	*Quantitative*	*Percent of vegetation data sources integrated into enterprise platform*	*Not started*	*75; November 2030*	*90; December 2031*	*100; December 2032*	*x.x; p. xx*
Ignition Detection Systems	*Automate Transformer Inspection Work Order Generation (ID-04)*	*N/A*	*Qualitative*	*Milestone progression*	*Rules engine configured; June 2029*	*Pilot automation deployed; June 2030*	*Automated generation operational; June 2031*	*Full Integration complete; June 2032*	*x.x; p. xx*
Weather Forecasting	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*

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13.2 Summary of Enterprise Systems

The ITO must provide a narrative that discusses how its enterprise systems support wildfire mitigation planning, implementation, and monitoring.

The ITO must also address each of the following requirements.

13.2.1 General Enterprise Systems Overview

The ITO must provide the following information:

- A summary of each enterprise system(s) the ITO plans to use for each planned initiative listed in Table 13-1 or any other wildfire mitigation related activity
- For any initiative listed in Table 13-1 that does not have an associated activity, the ITO must provide a justification for the absence of an activity
- If applicable, a summary of how the enterprise systems support the implementation and tracking of targets listed in Table 13-1
- Any database(s) or primary system(s) the ITO uses for data storage

13.2.2 Data Management Quality, Governance and Retention

The ITO must provide the following information:

- Procedures for entering, validating, and updating data into its enterprise system(s)
- Any QA/QC protocols or auditing of its system to identify data gaps or errors, and how identified issues are addressed
- Processes to ensure data integrity (accuracy, completeness, and quality of data)
- Overview of any data governance plan (i.e., how the ITO manages and oversees its data), including roles and responsibilities for maintaining data accuracy, completeness, and consistency across systems
- Policies related to data retention, including how long data is stored and how it is disposed of after any retention period

13.2.3 System Utilization and data Accessibility

The ITO must provide the following information:

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- How current WMP initiatives or activities are being tracked and monitored in the ITO's systems
- How employees and/or contractors access and interact with the data and systems for tracking work order status and scheduling

13.2.4 Enterprise System Updates

The ITO must provide the following information:

- Any changes made to enterprise systems since its last WMP submission and the reason for those changes
- Any planned improvements or updates to enterprise systems and the timeline for implementation of those improvements

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14 Appendices

This section sets the requirements for appendices to the ITO's WMP. All appendices must be clearly labelled in a list of appendices at the start of the appendices and in the WMP's table of contents. If the ITO chooses to include additional appendices beyond those required appendices in this section, it may create new appendices in alphabetical order that follow the Energy Safety required appendices.

If the WMP does not require the use of one of the following appendices, the ITO must still include the appendix with a sentence stating that no information is included in the appendix.

14.1 Appendix A: Areas for Continued Improvement

In Appendix A of its WMP, the ITO must provide responses to areas for continued improvement identified in the previous Energy Safety WMP Decision:[208]

- ID and Title of area for continued improvement:
- Description:
- Required Progress:
- Section and Page Number of Any Improvements:
- [ITO's] Response:

14.2 Appendix B: Supporting Documentation for Mitigation Activities

In Appendix B of its WMP, the ITO must include all supporting documentation referred throughout its WMP. Supporting documents include, but are not limited to, standards, procedures, policies, plans, and processes. If the supporting document does not include a prominent title, the ITO must include a title page identifying the document.

[208] If a previous Energy Safety WMP Decision stated no further reporting is required on an area for continued improvement, the ITO is not expected to report on that area for continued improvement.

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In either the list of appendices, or at the beginning of Appendix B, the ITO must provide a list of all supporting documents contained in this appendix.

14.3 Appendix C: Additional Tabular Data

The ITO may include additional tabular data in this appendix (e.g., if it elects to include additional tabular data or a table is too lengthy to include in the body of the WMP). Tables should be grouped by mitigation category and in a logical order.

Tables in this appendix must be numbered in the following format:

[Appendix letter (D)]-[Mitigation category heading number]-[Table number]: [Title]

The ITO may submit these tables in a separate spreadsheet file format with each table on a separate sheet. Appendix D of the WMP must include a list of all the tables included in the spreadsheet file.

14.4 Appendix D: Additional Maps

Throughout the WMP, the ITO is required to provide maps or may use maps for illustrative purposes. The ITO should provide one representative map within the main body of the WMP and provide additional maps for clarity (e.g., if the scale of the map in the WMP is too small) in Appendix C of its WMP.

In lieu of static maps, the ITO may host the applicable geospatial layers on a publicly accessible web application and include the specific web address in this appendix. The ITO must host these layers until at least the submission of its next WMP (i.e., the WMP covering the subsequent period) or as otherwise directed by Energy Safety. The ITO may not modify these layers without notifying Energy Safety.

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V REVISIONS FOR GENERAL RATE CASE ALIGNMENT

While WMPs and GRCs come into timeframe alignment, WMP revisions will follow one of two different sets of Gguidelines. For WMPs submitted after the adoption of these Guidelines but associated with GRC applications prior to January 1, 2027, the petition to amend process in the WMP Guidelines adopted February 24, 2025, shall apply.[209] For WMPs submitted with GRC applications after January 1, 2027, the Revised WMP in these Guidelines shall apply.

An electrical corporation must submit a Revised WMP to Energy Safety within 45 days of the California Public Utilities Commission's (CPUC) General Rate Case (GRC) decision, or any subsequent CPUC order modifying that decision.[210] The Revised WMP process is intended to align changes after the CPUC "[c]onsider[s] the cost of implementing each electrical corporation's plan in its general rate case proceeding and... approve[s] the costs for wildfire risk mitigation programs and activities it determines are just and reasonable."[211] It is incumbent on the electrical corporation to ensure and demonstrate that the changes to its WMP conform with the CPUC's revenue authorization in the GRC decision.[212]

1 Submission Requirements

All changes included in the Revised WMP must directly correlate to the revenue authorized in the GRC decision. Any other changes, including non-substantive revisions (such as corrections to typographical errors) are not allowed in the Revised WMP.

A Revised WMP submission must include the following documents:

- Cover Letter including:

[209] WMP Guidelines adopted February 24, 2025, Chapter IV Petition to Amend, page 172, URL: (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=58026&docket=WMP-Guidelines&shareable=true).

[210] Pub. Util. Code § 8386.4(b)(3).

[211] Pub. Util. Code § 8386.4(a)(1).

[212] Pub. Util. Code § 8386.4(b)(3).

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- Date of WMP submission to Energy Safety;
- Date of Energy Safety's WMP Decision;
- Date of the electrical corporation's GRC application to the CPUC and full application proceeding number;
- GRC decision number, date issued, and a link to the GRC decision; and
- A summary of all changes made to the WMP, not to exceed two pages.

- Redlined Revised WMP identifying all changes.[213]
- Clean Revised WMP.[214]
- Revised WMP Supporting Narrative: A separate stand-alone document containing a detailed narrative of each change made to the WMP. For every change to the WMP the electrical corporation must:
  - Identify each change made to the WMP by:
    - Section and page number from the WMP redline version;
    - Relevant section(s) and page number(s) from the GRC decision that impact the revenue to carry out the WMP commitments; and
    - Cross-reference to the relevant WMP-to-GRC Crosswalk entry.[215]
  - Provide a narrative describing why the change is necessary to the WMP to align with revenue authorizations in the GRC decision. The electrical corporation should cross-reference the redlined WMP and GRC decision page numbers as necessary. This narrative must:
    - Demonstrate how the change made to the WMP aligns with the revenue authorized in the GRC decision.;
    - Discuss the electrical corporation's plans to adjust other mitigation activities to ensure maximum overall risk reduction and to address any gaps created in its wildfire mitigation portfolio due to the changes

[213] See *Chapter II, Process and Evaluation, Section 3.2.2, Required Redline Edits*.

[214] See *Chapter II, Process and Evaluation, Section 3.2.2, Required Redline Edits*.

[215] If the change does not correlate to a crosswalk entry, the Revised WMP Supporting Narrative must include a similar level of detail regarding how the change to the WMP aligns with the GRC decision with similar detail to the crosswalk specifying where the supporting information in the GRC decision is located.

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necessary to conform with the CPUC's revenue authorization in the GRC decision.;

- Describe any other cascading impacts in the WMP due to the change.; and
- Describe the electrical corporation's decision-making processes and methodologies, including calculations, if applicable.

- **A GRC-to-WMP Crosswalk:** A table that demonstrates a granular and detailed connection between the electrical corporation's WMP commitments and the associated revenue authorization in the GRC decision.
  Each change made to the WMP included in the crosswalk must be listed as a separate row (i.e., if one component of a GRC decision resulted in multiple changes, each change must be listed in a separate row). There must be no empty cells in the table. Electrical corporations may use "n/a" or a dash ("– ") if there is no associated value. These instructions also apply to any GRC dDecision that adopts a settlement agreement.
  The crosswalk must contain the following columns, in the following order with no additional columns:
  - WMP Year ~~and GRC Decision Year~~
    - List the WMP year (i.e., "2031" when changing a commitment previously approved for 2031).
    - If one change impacts multiple years of the WMP, create separate lines for each year.
  - GRC Decision Year
    - List the GRC decision year that applies (e.g., Test Year (TY)+1).
      If one change impacts multiple years of the WMP, create separate lines for each year.
  - WMP Mitigation Category/Initiative
    - Indicate, at the most granular level available, the mitigation category or initiative, as stated in the WMP (example mitigation category: Grid Design and Operations; example mitigation initiative: Grid Design and System Hardening).
  - WMP Mitigation Activity and Tracking ID

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- Indicate the Mitigation Activity and Tracking ID, if available, as stated in the WMP (example mitigation activity and tracking ID: Covered Conductor/GDSH-1).
- If the change to the WMP is not at the mitigation activity level, and there is no change to a target, use "n/a".

- GRC Program and Activity Title and Unique Identifier
  - List any unique program or activity categories or codes from the GRC decision that correlates to the WMP change.
    - For example, any associated planning orders, major work categories (MWC), maintenance activity type code (MAT), or any other identifiers that correlate in some way to the WMP revision – this does not need to be an exact or one-to-one match and serves to further demonstrate alignment of the WMP with the GRC decision.
- Associated Capital Expenditures (CAPEX) Requested
  - List expenditure as thousands of dollars (k$).
  - Identify where in the GRC decision the requested CAPEX associated with the change is discussed (include as many entries as necessary or "n/a" if not applicable).
  - Provide the GRC decision subsection title, if available.
  - Include page number(s) from the GRC decision.
- Associated Operations and Maintenance (O&M) Expenditure Requested
  - List expenditure as thousands of dollars (k$).
  - Identify where in the GRC decision the requested O&M associated with the change is discussed (include as many entries as necessary or "n/a" if not applicable).
  - Provide the GRC decision subsection title, if available.
  - Include page number(s) from the GRC decision.
- Associated Capital Expenditures (CAPEX) Authorized in the GRC Decision
  - List expenditure as thousands of dollars (k$).

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        - Identify where in the GRC decision the change to the WMP conforms with the authorized CAPEX revenue (include as many entries as necessary or "n/a" if not applicable).
        - Provide the GRC decision subsection title, if available.
        - Include page number(s) from the GRC decision.
    - Associated Operations and Maintenance (O&M) Expenditure Authorized in the GRC Decision
        - List expenditure as thousands of dollars (k$).
        - Identify where in the GRC decision the change to the WMP conforms with the authorized O&M revenue (include as many entries as necessary or "n/a" if not applicable).
        - Provide the GRC decision subsection title, if available.
        - Include page number(s) from the GRC decision.
    - Authorized Other Revenue in the GRC Decision
        - Identify where in the GRC decision the change to the WMP conforms with the authorized revenue not previously identified (include as many entries as necessary or "n/a" if not applicable).
        - Provide the GRC decision subsection title, if available.
        - Include the page number(s) from the GRC decision.
    - Other Associated GRC Decision Documents ~~(etc.)~~
        - List all GRC decision documents where the electrical corporation may track revenue related to the change to the WMP.
            - For example, any appendices, workpapers, exhibits, testimony, memorandum, balancing accounts, work papers, settlement agreement, etc. associated with the change.
            - Include the page number(s) associated with the WMP change in the document(s) listed.
    - Mitigation Activity's Risk Reduction Value (k$) in WMP
        - List value as thousands of dollars.
    - Mitigation Activity's Estimated Risk Reduction Value (k$) in Revised WMP
        - List value as thousands of dollars.

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        - The estimate must follow the same risk model calculation methodology for risk reduction as the WMP.
    - Mitigation Activity's WMP Target
        - Include unit of measure, unchanged from the WMP.
    - Mitigation Activity's Target in Revised WMP
        - Include unit of measure, unchanged from the WMP.

1.1 Revised WMP with No Changes

If an electrical corporation has no changes to its WMP after the GRC Decision, in lieu of the items listed above, it must submit a letter that includes the following information:

- Date of WMP submission to Energy Safety;
- Date of Energy Safety's WMP Decision;
- Date of the electrical corporation's GRC application to the CPUC and full application proceeding number;
- GRC decision number, date issued, and a link to the GRC decision; and
- A statement that no changes to the WMP were made.

2 Evaluation

Energy Safety may require the electrical corporation to modify its Revised WMP if it fails to meet all the evaluation criteria described in the Process and Evaluation chapter of the WMP Gguidelines.[216] Energy Safety will evaluate and issue a decision on a Revised WMP. Energy Safety will consider the following criteria when evaluating the Revised WMP submission:

- Whether the electrical corporation provided sufficient information for Energy Safety to evaluate each change made to the WMP.
- Whether the electrical corporation demonstrated a direct connection to the GRC decision authorized revenue for each change.
- The impact on overall utility risk.

[216] See Chapter II Process and Evaluation, Section 7.2, Evaluation Criteria.

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VI WILDFIRE MITIGATION PLAN UPDATES

Prior WMP Guidelines required electrical corporations with an approved three-year "Base WMP" to submit WMP Updates for the second and third year of that three-year period. Energy Safety created the Revised WMP process as described in *Chapter V, Revisions for General Rate Case Alignment*, to achieve alignment between WMPs and General Rate Cases pursuant to Public Utilities Code, section 8386.4(b). WMP Updates are only allowed as described below.

After an electrical corporation's WMP or Revised WMP is approved, Energy Safety may require the submission of a WMP Update. A WMP Update is an updated version of a WMP that is submitted in the middle of the WMP period.

Changes to align a WMP with a General Rate Case (GRC) is not covered by this chapter. Refer to *Chapter V, Revisions for General Rate Case Alignment*, for requirements regarding Revised WMPs and GRC alignment.

1 Reasons for a WMP Update

Energy Safety may require a WMP Update from an electrical corporation for any reason. Examples of potential reasons for an update are listed below:

- An area for continued improvement identified during the WMP evaluation is urgent or important enough to necessitate reporting and integration in the middle of the WMP period.
- Current events, including recent wildfires or investigation reports, prompt reporting on lessons learned and mitigation strategies to address relevant risk drivers.
- An electrical corporation plans to add a new program to address an emerging or previously underestimated risk.
- An electrical corporation plans to discontinue an existing program due to an updated understanding of the program's efficacy.
- Results of an audit or performance evaluation expose the need for corrective actions and commitments to be included in the current WMP.

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- An Electrical Undergrounding Plan approved by Energy Safety and the CPUC under Public Utilities Code section 8388.5 warrants an update to the current WMP.[217]
- New laws, regulations, or executive orders impact an electrical corporation's wildfire mitigation planning or programs.

An electrical corporation may notify Energy Safety of a reason it believes warrants a WMP Update by emailing the ESPD Program Manager and, when applicable, the assigned ESPD staff lead.

2 Notice of a Required WMP Update

Energy Safety will consider potential reasons, such as those listed above, and timelines to determine if an electrical corporation must submit a WMP Update. If Energy Safety determines a WMP Update is required, Energy Safety will provide notice to the affected electrical corporation which will include the scope and schedule for the WMP Update.

Energy Safety will provide a notice for a required WMP Update either in an electrical corporation's WMP Decision, or as a separate notice emailed to the affected electrical corporation and published to the relevant WMP docket. In either case, Energy Safety will provide the following guidance regarding the specific WMP Update:

- The affected electrical corporation(s)
- The reporting requirements for the WMP Update (e.g., what topics or issues the Update must address, any specific details or data to include in the Update, etc.)
- The years of the WMP the Update will affect
- Submission date for the WMP Update
    - Energy Safety will endeavor to provide as much notice as possible before the WMP Update submission due date and will provide no less than 90 days' notice.

[217] Energy Safety expects an electrical corporation to prepare its WMP under the assumption that a subsequent Electrical Undergrounding Plan will be approved without modifications. Therefore, an electrical corporation would need to change its WMP only if Energy Safety or the CPUC require a modification to the Electrical Undergrounding Plan.

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The greater the volume and complexity of the information required in the update, the more notice Energy Safety will endeavor to provide.

- Expected Energy Safety evaluation timeline

3 Submission Requirements

A WMP Update submission must include the following documents:

- **WMP Update:** A standalone document that describes the updates to the WMP. An electrical corporation may only provide updates that fall within the scope of the WMP Update requirements specified in the WMP Update notice. This document must include the following:
  - A description of each update made to the WMP, including how and why the update resulted from the requirements set forth in Energy Safety's WMP Update notice.
  - Description of all downstream impacts due to the update. For example, if the update impacts more than one mitigation activity, the electrical corporation must explain why and how other activities are impacted.
  - A table listing each update made to the approved WMP and the specific section(s), page(s), and table(s) with associated redlined edits in the Redlined WMP (e.g., Section "6.2.2, page 56" rather than "6.2").
  - As mentioned above, one update may result in downstream impacts and, as a result, changes to multiple sections. All sections and pages must be listed in the table associated with each update (e.g., Section X Lessons Learned, Section Y Mitigation Category, Table Z with new targets, etc.).
- **Redlined WMP identifying** all changes.[218, 219]

Every change in the Redlined WMP must be associated with an update described in the WMP Update document, and every update in the WMP Update must have an associated redline.

[218] See Chapter II, Process and Evaluation, Section 3.2.2, Required Redline Edits.

[219] Note that a clean WMP is not required as part of the WMP Update submission. The electrical corporation must submit a clean WMP only at the end of the WMP Update evaluation, after Energy Safety issues its Decision.

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4 Evaluation

Energy Safety will use the evaluation criteria set forth in the Process and Evaluation Chapter of the WMP Guidelines when evaluating the electrical corporation's WMP Update submission.[220]

Energy Safety may reject, in whole or in part, without further evaluation a WMP Update submission that contains updates beyond those required by the notice. During its review, Energy Safety will determine whether the electrical corporation's WMP Update will be approved or denied, in whole or in part.

If any part of the WMP Update is rejected or denied by Energy Safety, Energy Safety may direct the electrical corporation to resubmit its WMP Update, in whole or in part.[221]

After Energy Safety publishes a WMP Update Decision, the electrical corporation must submit a clean version of the WMP that includes all updates approved by Energy Safety within 10 calendar days.

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[220] See Chapter II Process and Evaluation, Section 7.2, Evaluation Criteria.

[221] Pub. Util. Code § 8386.3(a).

DATA DRIVEN
FORWARD-THINKING
INNOVATIVE
SAFETY FOCUSED

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OFFICE OF ENERGY INFRASTRUCTURE SAFETY
A California Natural Resources Agency
www.energysafety.ca.gov

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ATTACHMENT 1: DEFINITIONS

Term	Definition
Access and functional needs population (AFN)	Individuals, including, but not limited to, those who have developmental or intellectual disabilities, physical disabilities, chronic conditions, or injuries; who have limited English proficiency or are non-English speaking; who are older adults, children, or people living in institutionalized settings; or who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or are pregnant. (Gov. Code, § 8593.3(f)(1).)
~~**Burn likelihood**~~	~~The likelihood that a wildfire with an ignition point will burn at a specific location within the service territory based on a probabilistic set of weather profiles, vegetation, and topography.~~
Catastrophic wildfire	A fire that caused at least one death, damaged over 500 structures, or burned over 5,000 acres.
Circuit miles	The total length in miles of separate transmission and/or distribution circuits, regardless of the number of conductors used per circuit (i.e., different phases).
Circuit segment	A defined portion of an electrical distribution circuit extending from one qualifying protective device to the next downstream qualifying protective device or circuit endpoint. Qualifying protective devices include switches, circuit breakers, reclosers, fuse savers, and other protection devices that limit the size of fault interruptions.
Compatible activities	Activities for which the same completed work contributes to the quantitative targets of more than one grid design and system hardening activity.
Conductor replacement	The replacement of existing bare overhead conductor with new bare conductor.
Consequence	The adverse effects from an event, considering the hazard intensity, community exposure, and local vulnerability.

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Term	Definition
Construction standards	The standard specifications, special provisions, standards of practice, standard material and construction specifications, construction protocols, and construction methods that an electrical corporation applies to activities undertaken by the electrical corporation pursuant to a WMP initiative in a given compliance period.
Contact from object ignition likelihood	The likelihood that a non-vegetative object (such as a balloon or vehicle) will contact utility-owned equipment and result in an ignition.
Contact from vegetation likelihood of ignition	The likelihood that vegetation will contact utility-owned equipment and result in an ignition.
Corridor miles	The total linear distance in miles between the sequence of utility support structures that hold at least one continuous circuit. Where parallel sets of support structures exist in a single corridor, corridor miles are calculated using the set of structures that results in the largest measurement.
Critical facilities and infrastructure	Facilities and infrastructure that are essential to public safety and that require additional assistance and advance planning to ensure resiliency during PSPS events. (CPUC D.19-05-042 and D.20-05-051)
Customer hours	Total number of customers, multiplied by average number of hours (e.g., of power outage).
Dead fuel moisture	The moisture content of dead organic fuels, expressed as a percentage of the oven dry weight of the sample, that is controlled entirely by exposure to environmental conditions.
Detailed inspection	In accordance with General Order (GO) 165, an inspection where individual pieces of equipment and structures are carefully examined, visually and through routine diagnostic testing, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each is rated and recorded.
Electrical corporation	Every corporation or person owning, controlling, operating, or managing any electric plant for compensation within California, except where the producer generates electricity on or distributes it through private property solely for its own use or the use of its tenants and not for sale or transmission to others. (Pub. Util. Code § 218)

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Term	Definition
Enhanced inspection	Inspection whose frequency and thoroughness exceed the requirements of a detailed inspection, particularly if driven by risk calculations.
Equipment caused ignition likelihood	The likelihood that utility-owned equipment will cause an ignition through either normal operation (such as arcing) or failure.
Exposure	The presence of people, infrastructure, livelihoods, environmental services and resources, and other high-value assets in places that could be adversely affected by a hazard.
Fire potential index (FPI)	Landscape scale index used as a proxy for assessing real-time risk of a wildfire under current and forecasted weather conditions.
Fire season	The time of year when wildfires are most likely for a given geographic region due to historical weather conditions, vegetative characteristics, and impacts of climate change. Each electrical corporation defines the fire season(s) across its service territory based on a recognized fire agency definition for the specific region(s) in California.
Frequent PSPS events	Three or more PSPS events per calendar year per line circuit.
Fuel density	Mass of fuel (vegetation) per area that could combust in a wildfire.
Fuel moisture content	Amount of moisture in a given mass of fuel (vegetation), measured as a percentage of its dry weight.
Fuels management	Act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives. (National Wildfire Coordinating Group URL: [https://www.nwcg.gov/node/386549)
~~**Full-time equivalent (FTE)**~~	~~The full-time equivalent number of employees calculated by dividing the total hours all employees work by the number of hours required for a single employee to work full-time.~~
GO 95 nonconformance	Condition of a utility asset or of vegetation that could affect a utility asset that does not meet standards established by GO 95.

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Term	Definition
Grid hardening	Actions (such as equipment upgrades, maintenance, and planning for more resilient infrastructure) taken in response to the risk of undesirable events (such as outages) or undesirable conditions of the electrical system to reduce or mitigate those events and conditions, informed by an assessment of the relevant risk drivers or factors.
Grid topology	General design of an electric grid, whether looped or radial, with consequences for reliability and ability to support PSPS (e.g., ability to deliver electricity from an additional source).
Hazard	A condition, situation, or behavior with the potential for harm or damage to people, property, the environment, or other valued resources.
Hazard tree	A tree that is, or has portions that are, dead, dying, rotten, diseased, or structurally defective that may fail in whole or in part and damage electrical infrastructure.
High Fire Risk Area (HFRA)	Areas that the electrical corporation has deemed at high risk from wildfire, independent of HFTD designation.
High Fire Threat District (HFTD)	Areas of the state designated by the CPUC as having elevated wildfire risk, where each utility must take additional action (pursuant to GO 95, GO 165, and GO 166) to mitigate wildfire risk.
High wind warning (HWW)	National Weather Service (NWS) issued warning when sustained wind or wind gust speeds reach a risk-based threshold.
Highly rural region	Area with a population of less than seven persons per square mile, as determined by the United States Bureau of the Census. For purposes of the WMP, “area” must be defined as a census tract.
High-risk species	Species of vegetation that have a higher risk of coming into contact with powerlines, causing an outage or ignition, or igniting due to proximity to electrical equipment failures. Characteristics that determine a specie’s’ high-risk status include: growth rate; failure rates of limbs, trunk, and roots (as compared to other species); height at maturity; flammability; and vulnerability to disease or insects.

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Term	Definition
HWW overhead (OH) circuit mile day	Sum of OH circuit miles of utility grid subject to a HWW each day within a given time period, calculated as the number of OH circuit miles under a HWW multiplied by the number of days those miles are under said HWW. For example, if 100 OH circuit miles are under a HWW for one day, and 10 of those miles are under the HWW for an additional day, then the total HWW OH circuit mile days would be 110.
Ignition likelihood	The total anticipated annualized ~~number~~ likelihood of ignitions resulting from electrical corporation-owned assets at each location in the electrical corporation's service territory. This considers probabilistic weather conditions, type and age of equipment, and potential contact of vegetation and other objects with electrical corporation assets. ~~This should include the use of any method used to reduce the likelihood of ignition. For example, the use of protective equipment and device settings (PEDS) to reduce the likelihood of an ignition upon an initiating event.~~
Level 1 finding	In accordance with GO 95, an immediate risk of high potential impact to safety or reliability.
Level 2 finding	In accordance with GO 95, any other risk of at least moderate potential impact to safety or reliability.
Level 3 finding	In accordance with GO 95, any risk of low potential impact to safety or reliability.
Limited English proficiency (LEP) population	Population with limited English working proficiency based on the International Language Roundtable scale.
Line miles	The number of miles of transmission and/or distribution conductors, including the length of each phase and parallel conductor segment.
Live fuel moisture content	Moisture content within living vegetation.
Match-drop simulation	Wildfire simulation method forecasting propagation and consequence/impact based on an arbitrary ignition.
Memorandum of Agreement (MOA)	A document where two or more agencies agree to assist each other, work on a project together, or both. The document lays out the Gguidelines under which the agreement will operate.

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Term	Definition
Mitigation	Undertakings to reduce the loss of life and property from natural disasters, human-caused disasters, or both. Mitigations avoid or lessen the impact of a disaster. Energy Safety organizes mitigations into categories, initiatives, and activities.
Mitigation activity	A measure that contributes to or accomplishes a mitigation initiative designed to reduce the consequences and/or probability of wildfire or outage event. Mitigation activities are the most specific items in the WMP mitigation hierarchy. For example, covered conductor installation is a mitigation activity under the mitigation category of Grid Design and Operations.
Mitigation category	The highest subset in the WMP mitigation hierarchy. There are ~~five~~ six Mitigation Categories in total: Situational Awareness and Forecasting~~;~~, Grid Design and Operations, Asset Management, Vegetation Management~~;~~, PSPS and Wildfire Preparedness~~;~~, and Enterprise Systems.
Mitigation initiative	Efforts within a mitigation category either proposed or in process, designed to reduce the consequences and/or probability of wildfire or outage event. For example, Grid Design and System Hardening is a mitigation initiative under the Grid Design and Operations mitigation category.
Model uncertainty	Representation (e.g., statistical representation) of the difference between a model prediction and "reality." That is, a quantified metric representing the difference between a model prediction from the true value when the input parameters are known (i.e., model bias generated from the limitation of the model itself based on assumptions). (Adapted from SFPE, 2010, "Substantiating a Fire Model for a Given Application," *Society of Fire Protection Engineers Engineering Guides*.)
Mutual aid	Voluntary aid and assistance by the provision of services and facilities, including but not limited to electrical corporations, telecommunication carriers, and transportation organizations. Mutual aid is intended to provide adequate resources, facilities, and other support to an electrical corporation whenever its own resources prove inadequate to cope with a given situation.

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Term	Definition
National Incident Management System (NIMS)	A systematic, proactive approach to guide all levels of government, nongovernment organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from the effects of incidents. NIMS provides stakeholders across the whole community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the National Preparedness System. NIMS provides a consistent foundation for dealing with all incidents, ranging from daily occurrences to incidents requiring a coordinated federal response.
Operational Performance Analysis	A retrospective, empirical evaluation of how a mitigation, setting, technology, or program performed after implementation or enablement, grounded in observed operational and field data. Statistical or modeling methods may be used to estimate outcomes, but must be clearly identified; the analysis is distinct from modeled or expected mitigation effectiveness used for mitigation selection and planning.
Outage program risk	The measure of reliability impacts from wildfire mitigation related outages at a given location.
Overall utility risk	The comprehensive risk due to both wildfire and PSPS incidents across a utility's territory; the aggregate potential of adverse impacts to people, property, critical infrastructure, or other valued assets in society.
Overall utility risk, PSPS risk	See Outage program risk.
Parameter uncertainty	A representation of the lack of knowledge on the true value of an input parameter. It is often characterized as a statistical representation of the variability of an input parameter.
Patrol inspection	In accordance with GO 165, a simple visual inspection of applicable utility equipment and structures designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.
PEDS outage consequence	The total anticipated adverse effects from an outage occurring while increased sensitivity settings on a protective device are enabled at a specific location, including reliability and associated safety impacts.

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Term	Definition
PEDS outage exposure potential	The potential physical, social, or economic impact of an outage occurring when PEDS are enabled on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets.
PEDS outage likelihood	The annualized likelihood of an outage occurring while increased sensitivity settings on a protective device are enabled at a specific location given a probabilistic set of environmental conditions.
PEDS outage risk	The total expected annualized impacts from PEDS enablement at a specific location.
PEDS outage vulnerability	The susceptibility of people or a community to adverse effects of an outage occurring when PEDS are enabled, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from the related adverse effects (e.g., high AFN population, poor energy resiliency, low socioeconomics).
Performance metric	A quantifiable measurement that indicates the extent to which a WMP is driving performance outcomes.
Permanently Abandoned Distribution Line Removal	The removal of a distribution line that has been taken out of service and that the electrical corporation does not intend to return to service.
Permanently Abandoned Transmission Facilities	As defined in Public Utilities Code section 8386(23)(B).
~~**Permanently Abandoned Transmission Line Removal**~~	~~The removal of a transmission line that is out of service, as determined by the CPUC, and the electrical corporation cannot demonstrate, with appropriate documentation, an intent to place the line, or portions of the line, into service within a time determined by the CPUC.~~

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Term	Definition
Pole/Tower Material Conversion and Reinforcements for Distribution and Tranmission Lines	Pole/Tower Material Conversion and Reinforcements refers to the replacement of existing distribution and transmission poles or towers with structures of stronger materials or the structural reinforcement or retrofitting of existing poles or towers to increase their strength and resilience. This activity excludes like-for-like pole or tower replacements resulting from inspection or maintenance activities, as well as poles or towers replaced or added as part of Covered Conductor or Conductor Replacement activities. Such structures must not be counted toward this activity's quantitative targets.
Population density	Population density is calculated using the American Community Survey (ACS) one-year estimate for the corresponding year or, for years with no such ACS estimate available, the estimate for the immediately preceding year.
Protective equipment and device settings (PEDS)	The electrical corporation's procedures for adjusting the sensitivity of grid elements to reduce wildfire risk, other than automatic reclosers (such as circuit breakers, switches, etc.). For example, PG&E's "Enhanced Powerline Safety Settings" (EPSS).
PSPS consequence	The total anticipated adverse effects of a PSPS for a community. This considers the PSPS exposure potential and inherent PSPS vulnerabilities of communities at risk.
PSPS event	The period from notification of the first public safety partner of a planned public safety PSPS to re-energization of the final customer.
PSPS exposure potential	The potential physical, social, or economic impact of a PSPS event on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets.
PSPS likelihood	The annualized likelihood of an electrical corporation requiring a PSPS given a probabilistic set of environmental conditions.
PSPS risk	The total expected annualized monetized impacts from PSPS at a specific location. This considers two factors: (1) the likelihood a PSPS will be required due to environmental conditions exceeding design conditions, and (2) the potential consequences of the PSPS for each affected community, considering exposure potential and vulnerability.

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Term	Definition
PSPS vulnerability	The susceptibility of people or a community to adverse effects of a PSPS event, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from the adverse effects of a PSPS event (e.g., high AFN population, poor energy resiliency, low socioeconomics).
Public safety partners	First/emergency responders at the local, state, and federal levels; water, wastewater, and communication service providers; community choice aggregators (CCAs); affected publicly owned electrical corporations/electrical cooperatives; tribal governments; Energy Safety; the Commission; the California Office of Emergency Services; and CAL FIRE.
Qualitative target	Specific, measurable, achievable, relevant, and timely outcomes for the overall WMP strategy, mitigation initiatives, or activities that a utility can implement to satisfy WMP program goals.
Quantitative target	A quantitative target is the number of completed units the electrical corporation is committed to completing in a given year. Electrical corporations will show progress toward completing targets in subsequent reports, including data submissions and WMP Updates.
RFW OH circuit mile day	Sum of OH circuit miles of utility grid subject to RFW each day within a given time period, calculated as the number of OH circuit miles under RFW multiplied by the number of days those miles are under said RFW. For example, if 100 OH circuit miles are under RFW for one day, and 10 of those miles are under RFW for an additional day, then the total RFW OH circuit mile days would be 110.
Risk	A measure of the anticipated adverse effects from a hazard considering the consequences and probability of the hazard occurring. (Adapted from D. Coppola, 2020, "Risk and Vulnerability," *Introduction to International Disaster Management*, 4th ed.)
Risk component	A part of an electric corporation's risk analysis framework used to determine overall utility risk.
Risk driver	The action or event that creates the risk of an ignition due to interaction with or behavior of the electrical corporation's assets. Examples include: animal contact, equipment failure, vegetation fall-in, etc.

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Term	Definition
Risk evaluation	The process of comparing the results of a risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable. (ISO 31000:2009.)
Risk event	An event with likelihood of ignition, such as wire down, contact with objects, line slap, event with evidence of heat generation, or other event that causes sparking or has the potential to cause ignition. The following all qualify as risk events: • Ignitions • Outages not caused by vegetation • Outages caused by vegetation • Wire-down events • Faults • Other events with potential to cause ignition
Risk management	Systematic application of management policies, procedures, and practices to the tasks of communication, consultation, establishment of context, and identification, analysis, evaluation, treatment, monitoring, and review of risk. (ISO 31000.)
Rural region	In accordance with GO 165, area with a population of less than 1,000 persons per square mile, as determined by the U.S. Bureau of the Census. For purposes of the WMP, “area” must be defined as a census tract.
Sensitivity analysis	Process used to determine the change in model outputs given variations in the independent variables (“input”) used in an analysis.
Slash	Branches or limbs less than four inches in diameter, and bark and split products debris left on the ground as a result of utility vegetation management. (PRC § 4525.7)
Span	The space between adjacent supporting poles or structures on a circuit consisting of electric lines and equipment. "Span level" refers to asset-scale granularity.
Trees with strike potential	Trees that could either, in whole or in part, “fall in” to a powerline or have portions detach and “fly in” to contact a powerline in high-wind conditions.
Uncertainty	Reflection of lack of knowledge. In practice, it is treated from the perspective of parameter uncertainty (i.e., uncertainty associated with inputs to a model) and model uncertainty (i.e., uncertainty associated with a model).

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Term	Definition
Urban region	In accordance with GO 165, area with a population of more than 1,000 persons per square mile, as determined by the U.S. Bureau of the Census. For purposes of the WMP, "area" must be defined as a census tract.
Utility-related ignition	An event that meets the criteria for a reportable event subject to fire-related reporting requirements. (CPUC D.14-02-015)
Validation	Process of determining the degree to which a calculation method accurately represents the real world from the perspective of the intended uses of the calculation method without modifying input parameters based on observations in a specific scenario. (Adapted from ASTM E 1355.)
Vegetation management (VM)	The assessment, pruning, and removal of trees and other vegetation around electrical infrastructure to reduce risk and improve safety and reliability.
Verification	Process to ensure that a model is working as designed, that is, that the equations are being properly solved. Verification is essentially a check of the mathematics. (SFPE guidance.)
Vulnerability	The susceptibility of a community to suffering adverse effects from a hazard.
Wildfire consequence	The total anticipated monetized adverse effects from a wildfire on a community that is reached. This considers the wildfire hazard intensity, the wildfire exposure potential, and the inherent wildfire vulnerabilities of communities at risk.
Wildfire exposure potential	The potential physical, social, or economic impact of wildfire on people, property, critical infrastructure, livelihoods, health, environmental services, local economies, cultural/historical resources, and other high-value assets. This may include direct or indirect impacts, as well as short- and long-term impacts.
Wildfire hazard intensity	The potential intensity of a wildfire at a specific location within the service territory given a probabilistic set of weather profiles, vegetation, and topography.

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Term	Definition
Wildfire likelihood	The total anticipated annualized likelihood of a wildfire occurring at a given location within the electrical corporation's service territory, resulting from utility-related ignitions at that location. This should account for ignition frequency based on the total anticipated annualized number of ignitions from electrical corporation-owned assets at each location in the electrical corporation's service territory. The ignition frequency should consider probabilistic weather conditions, equipment type and age, and potential contact between vegetation and other objects with electrical corporation assets.~~The total anticipated annualized number of fires reaching each spatial location resulting from utility-related ignitions at each location in the electrical corporation service territory. This considers the ignition likelihood and the likelihood that an ignition will transition into a wildfire based on the probabilistic weather conditions in the area.~~
Wildfire mitigation strategy	Overview of the key mitigation initiatives at enterprise level and component level across the electrical corporation's service territory, including interim strategies if long-term mitigation initiatives have long implementation timelines. This includes a description of the enterprise-level monitoring and evaluation strategy for assessing overall effectiveness of the WMP.
Wildfire risk	The total expected annualized impacts from ignitions at a specific location. This considers the likelihood that an ignition will occur, the likelihood the ignition will develop into a wildfire, and the potential consequences—considering hazard intensity, exposure potential, and vulnerability—the wildfire will have for each community it reaches.
Wildfire spread extent	The spatial region expected to be reached by a wildfire resulting from an electrical corporation-related ignition at each asset location based on a probabilistic set of weather profiles, vegetation, and topography.
Wildfire spread likelihood	The likelihood that a fire with a nearby but unknown ignition point will develop into a wildfire and will spread to a location in the service territory based on a probabilistic set of weather profiles, vegetation, and topography.

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Term	Definition
Wildfire vulnerability	The susceptibility of people or a community to adverse effects of a wildfire, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from the adverse effects of a wildfire (e.g., AFN customers, Social Vulnerability Index, age of structures, firefighting capacities).
Wildland-urban interface (WUI)	The geographical area where human development, including structures and other infrastructure, meets or intermixes with undeveloped wildlands.
Wire down	Instance where an electric transmission or distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object.
Work order	A prescription for asset or vegetation management activities resulting from asset or vegetation management inspection findings.

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