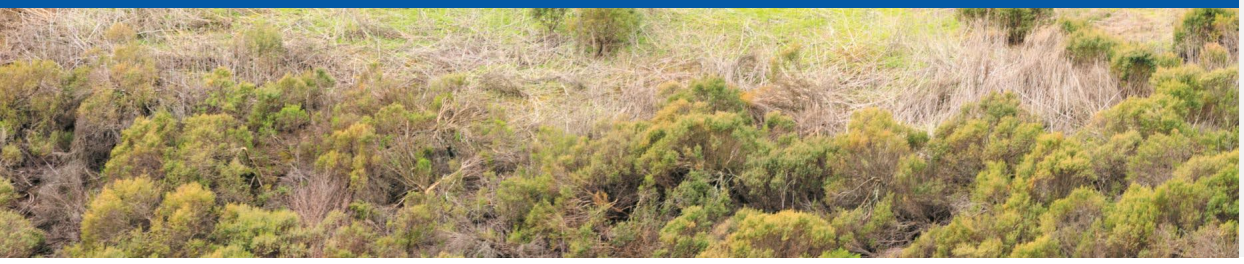
OFFICE OF ENERGY INFRASTRUCTURE SAFETY

REVISED DRAFT 10-YEAR ELECTRICAL UNDERGROUNDING PLAN GUIDELINES

~~May 8~~September 10, 2024



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1. Executive Summary

This document sets forth the Office of Energy Infrastructure Safety's (Energy Safety's) 10-Year Electrical Undergrounding Plan (EUP) Guidelines.

1.1 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."

1.2 Purpose and Scope

Pursuant to Public Utilities Code section 8388.5,[1] a ~~large electrical corporation~~Large Electrical Corporation can prepare and submit a 10-year plan for undergrounding electrical distribution infrastructure to Energy Safety for review and approval. The plan must satisfy the requirements of section 8388.5(d)(2) and contain all required components.

These EUP Guidelines (Guidelines) set forth substantive and procedural requirements for ~~large electrical corporations~~Large Electrical Corporations[2] to prepare and submit plans. The Guidelines apply to ~~large electrical corporations~~Large Electrical Corporations in the State of California.

[1] All statutory references are to the Public Utilities Code unless otherwise specified.

[2] Per statute, a ~~large electrical corporation~~Large Electrical Corporation refers to an electrical corporation with at least 250,000 customer accounts. Section 8388.5(b) limits participation in the program to these entities.

2. Technical Guidelines

2.1 Overview of Electrical Undergrounding Plan (EUP) Required Elements

The elements of the EUP are described in the following sections of these Guidelines:

a. **Basic ~~information~~Information** on the ~~large electrical corporation~~Large Electrical Corporation, as described in Section 2.2 of these Guidelines.

b. **Demonstration of Substantial Risk Reduction**, including a ~~Portfolio~~Plan Mitigation Objective[3] and supporting objectives and targets, as described in Section 2.3 of these Guidelines.

c. The **Project Acceptance Framework** that the ~~large electrical corporation~~Large Electrical Corporation will use to create the list of Undergrounding Projects included in the EUP and to maintain the list of Undergrounding Projects throughout the EUP 10-year period, as outlined in Section 2.4 of these Guidelines.

d. **Project Timelines, Workforce Development Plan, Costs and Benefits, and ~~Non-Ratepayer~~Nonratepayer Funding** ~~addressing~~**Sources** that fulfill other statutory requirements ~~such as project timelines and targets, workforce development, economies of scale, and securing additional funding~~, as described in Section 2.5 of these Guidelines.

e. **EUP Progress Report 0**, which includes the initial list of Undergrounding Projects and required data reporting, as described in Section 2.6 of these Guidelines.

f. Narrative description of the ~~large electrical corporation's~~Large Electrical Corporation's **Risk Modeling Methodology** and decision-making metrics, as described in Section 2.7 of these Guidelines.

g. **Reporting Metrics**, including Project-Level, Portfolio-Level, and System-Level reporting requirements, as described in Section 2.8 of these Guidelines.

2.2 Basic Information

The EUP must include basic information about the ~~large electrical corporation~~Large Electrical Corporation, including, but not limited to:

a. The legal name of the ~~large electrical corporation~~Large Electrical Corporation.

[3] "~~Portfolio~~Plan Mitigation Objective" means the amount of change in risk (wildfire and reliability) that is necessary to meet the substantiality requirements of ~~Section~~section 8388.5(d)(2). See Appendix A (Definitions) for complete list of defined terms.

b. The number of customer accounts to show qualification as a ~~large electrical corporation~~Large Electrical Corporation.

c. A list of the persons responsible for preparing the EUP, including executive-level owner with overall responsibility; program owners with responsibility for specific components; and the primary contact for Energy Safety and stakeholder general questions. Include names, titles, areas of responsibility, and contact information.

2.3 Demonstration of Substantial Risk Reduction

Pursuant to section 8388.5(d)(2), the EUP can only be approved if (1) it will substantially increase electrical reliability by reducing the use of public safety power shutoffs~~,~~ (PSPS), enhanced powerline safety settings~~,~~ (EPSS), deenergization events, and any other outage programs, and (2) it will substantially reduce the risk of wildfire. To support this, the EUP must include the ~~Portfolio~~Plan Mitigation Objective, ~~and~~Plan Tracking Objectives, and other specific objectives and targets as described below.[4]

2.3.1 ~~Portfolio~~Plan Mitigation Objective

The ~~Portfolio~~Plan Mitigation Objective is the total amount of change in risk (wildfire and reliability) that ~~will~~is necessary to meet the requirement of section 8388.5(d)(2). This change in risk must account for only the reduction due to Undergrounding projects (see Core Capabilities Section 2.7.5) and be measured on a *pro rata* basis.

The ~~large electrical corporation~~Large Electrical Corporation must set a ~~Portfolio~~Plan Mitigation Objective for the EUP and provide a supporting narrative and data in the EUP demonstrating how the EUP will achieve the ~~Portfolio~~Plan Mitigation Objective. In order to achieve the ~~Portfolio~~Plan Mitigation Objective, the ~~large electrical corporation~~Large Electrical Corporation will select projects (consisting of individual isolatable Circuit Segments) during the 10-year ~~program~~EUP.

The narrative must address the following:

a. Explanation of the basis of the ~~Portfolio~~Plan Mitigation Objective.

[4] Outage Program is defined in the Guidelines as "(i) any program that interrupts electrical service for the purpose of mitigating or avoiding the risk of causing a wildfire including Public Safety Power Shutoff (PSPS) programs, fast trip settings (including enhanced powerline safety settings, Fast Curve Settings, and Sensitive Relay Profile) and similar programs, and (ii) any program that could result in a deenergization event. Outage Programs exclude maintenance outages and other outages not related to reducing wildfire risk." All defined terms are located in Appendix A to these Guidelines.

b. The source for the risk and reliability scores used to set the ~~Portfolio~~Plan Mitigation Objective.

c. Minimum levels of Ignition Risk and Outage Program Risk reduction as set forth in the Portfolio-Level Standards.

~~c.~~d. Overview of the implementation approach for the EUP (e.g., to reduce risk on the highest risk Circuit Segments first, or to select the most feasible for ~~undergrounding~~Undergrounding first) and an explanation of how the implementation approach will achieve the ~~Portfolio~~Plan Mitigation Objective.

~~d.~~e. ~~Overview~~An overview of how the Project Acceptance Framework, ~~Timelines, Workforce Development, Costs and Benefits, and Non-Ratepayer Funding~~project timelines, plan for workforce development, nonratepayer funding, Progress Report 0, Risk Modeling, and Reporting Metrics all support the ~~Portfolio~~Plan Mitigation Objective (see Sections 2.4 – 2.8 of these Guidelines).

~~e.~~f. A concise summary and clear presentation of the metrics and standards for the Portfolio of Undergrounding Projects and supporting Project-Level metrics. Instructions for developing and calculating these metrics are found in the Risk Modeling Section ~~(Section~~ 2.7, of these Guidelines.

g. A summary of how Undergrounding Projects with multiple Subprojects (including any non-Undergrounding Subprojects) will be reported and how the amount of risk reduced by these Undergrounding Projects will be allocated between the EUP Undergrounding Subprojects and non-Undergrounding Subprojects. This system must be further detailed in Section 2.7.5 of these Guidelines. In this section of the narrative, the Large Electrical Corporation must provide:

i. A description of how the Project-Level Standards are evaluated in a manner which includes the effects of both Undergrounding Subprojects and non-Undergrounding Subprojects.

ii. A description of how Portfolio-Level metrics disaggregate the effects of non-Undergrounding Subprojects for the measurement of the Plan Tracking Objectives and the Plan Mitigation Objective.

iii. A description of how System-Level metrics disaggregate the effects of non-Undergrounding Subprojects and any system hardening work on non-Portfolio Circuits for the measurement of the Plan Tracking Objectives and the Plan Mitigation Objective.

~~f.~~h. Explanatory graphs and figures.

~~g.~~i. Specific ~~cites~~citations to any other EUP content that supports the ~~Portfolio~~Plan Mitigation Objective.

j. A Target/Timeline Table with the following information about the timelines for completion, unit cost targets, mileage targets, anticipated start and end dates, risk reduction, and cost targets for each year of the EUP. Ignition Risk and Outage

Program Risk must be reported as described in Section 2.8.5.1. The information must be in table format in the EUP narrative and included as an Excel workbook.

i. Year of EUP;
ii. Dates for year of EUP;
iii. Underground mileage completion targets (per year and cumulative);
iv. Miles of overhead line deenergized;
v. Miles of Undergrounding in the Project Planning and Construction Phases;
vi. Unit cost targets for each year covered by the EUP;
vii. Risk reduction in instantaneous Ignition Risk for risk at year 10;
viii. Cumulative Ignition Risk reduction[5] anticipated at the end of the expected lifetime (defined as 55 years) of the infrastructure;
ix. Increase in instantaneous Outage Program Risk reliability for risk at year 10; and
x. Cumulative Outage Program Risk reduction[6] anticipated at the end of the expected lifetime (defined as 55 years) of the infrastructure.

[5] The cumulative Ignition Risk reduction is defined as the difference between the cumulative collective Ignition Risk and Baseline cumulative Ignition Risk, measured at the System-Level, as detailed in Section 2.7.3 of these Guidelines.

[6] The cumulative Outage Program Risk reduction is defined as the difference between the cumulative collective Outage Program Risk and Baseline cumulative Outage Program Risk, measured at the System-Level, as detailed in Section 2.7.3 of these Guidelines.

The table below is an example of a Target/Timeline Table.

Table 1. Target/Timeline Table (example)

Year	Start Date	Miles Completed	OH Miles Deenergized	Cumulative Miles Completed	Preconstruction Miles	Unit Cost Target	Change in Instantaneous Wildfire Risk at Year 10	Change in Cumulative Wildfire Fire Risk over 50 years	Change in Instantaneous Outage Program Risk in Year 10	Change in Cumulative Outage Program Risk over 50 years
1	January 1, 2026									
2	January 1, 2027									
3	January 1, 2028									
4	January 1, 2029									
5	January 1, 2030									
6	January 1, 2031									
7	January 1, 2032									

Year	Start Date	Miles Completed	OH Miles Deenergized	Cumulative Miles Completed	Preconstruction Miles	Unit Cost Target	Change in Instantaneous Wildfire Risk at Year 10	Change in Cumulative Wildfire Fire Risk over 50 years	Change in Instantaneous Outage Program Risk in Year 10	Change in Cumulative Outage Program Risk over 50 years
8	January 1, 2033									
9	January 1, 2034									
10	January 1, 2035									
Final	December 31, 2035									

2.3.2 Plan Tracking Objectives ~~and Targets~~

To track and evaluate progress toward the ~~Portfolio~~Plan Mitigation Objective, the EUP must also include specific ~~plan objectives and targets. The objectives must be specific, measurable, achievable, realistic, and timely outcomes for the EUP and~~ Plan Tracking Objectives. The Plan Tracking Objectives will be used to assess how the ~~actual~~ Portfolio of projects ~~meets~~develops over time and whether the ~~Portfolio~~Large Electrical Corporation is on track to meet the Plan Mitigation Objective. The ~~targets~~Plan Tracking Objectives must consist of forward-looking, quantifiable measurements ~~of work~~ and objectives, measured at the Portfolio-Level and System-Level, that will be used to assess progress toward the ~~plan~~Plan Mitigation Objective.

The list of Plan Tracking Objectives must:

a. Be specific, measurable, achievable, realistic, and timely outcomes for the EUP.

b. Include annual and 5-year targets.

c. Include targets based on total Overall Utility Risk Reduction.

d. Include some targets based solely on Ignition Risk Reduction and some based solely on Outage Program Risk.

e. Include some tracking objectives based solely on Ignition Risk Reduction and some based solely on Outage Program Risk.

f. Include tracking objectives. ~~The plan~~ measured by risk reduced per mile.

g. Include tracking objectives ~~and associated targets will be utilized by the~~measured in miles of overhead line deenergized.

h. Include tracking objectives measured in number of projects that have completed Screens 3 and 4.

The Independent Monitor ~~during its assessment of a large electrical corporation's~~will use the Plan Mitigation Objective, Plan Tracking Objectives, and other objectives to assess the Large Electrical Corporation's compliance with its ~~plan and~~EUP. The Plan Mitigation Objective and Plan Tracking Objectives will be tracked in all Progress Reports pursuant to sections 8388.5(f)(3) and 8388.5(g).

2.3.3 Risk Calculations for non-Undergrounding Subprojects

If the Undergrounding Project includes non-undergrounding Subprojects, the non-undergrounding work is counted as follows:

a. **Project Threshold** (see Section 2.4.3.2 and 2.7.5): for purposes of determining if the Circuit Segment meets a Project Threshold, use the risk score for the entire Circuit Segment (including any potential non-undergrounding Subprojects).
b. **Plan Mitigation Objective and Plan Tracking Objectives** (see Sections 2.3.1,2.3.2 and 2.7.5): for purposes of determining progress towards and compliance with the Plan Mitigation Objective and Plan Tracking Objectives, only use the risk reduction attributed to the Undergrounding Subprojects.
c. **Comparative Metrics** (see Section 2.7.10): for purposes of comparative metrics, use the risk reduction for the entire Circuit Segment when determining whether the project meets the Project-Level Standard, but only apply the risk reduction attributed to the Undergrounding Subprojects towards the Plan Mitigation Objective.

2.3.4 Risk Calculations for Changes to a Confirmed Project Polygon

If the geographic area covered by the Confirmed Project Polygon changes (see Sections 2.4.2.4 and C.4.2), risk for the Confirmed Project Polygon is counted as follows:

a. **Expansion of a Confirmed Project Polygon**: in the event that a portion of another Circuit Segment is added to the Confirmed Project Polygon, use the risk reduction for the expanded Confirmed Project Polygon for determining the contribution towards the Plan Mitigation Objective and use the original Confirmed Project Polygon for determining whether the project meets the Project-Level Standard (see Section 2.7.9.2).

2.3.5 Risk Calculations for projects in Wildfire Rebuild Areas

If the Circuit Segment is in a Wildfire Rebuild Area (see Section 2.4.3.1), risk for the Circuit Segment is calculated as follows:

a. **Project Threshold** (see Section 2.4.3.2, 2.7.5 and Appendix C.1.10): if the Circuit Segment does not meet a Project Level Threshold, the Large Electrical Corporation must provide justification for the Circuit Segment to be designated as an Eligible Circuit Segment. The justification must include details about the extent of the damage to the Circuit Segment and must describe the Large Electric Corporation's rationale for including it and any benefits that support designating the Circuit Segment as an Eligible Circuit Segment.
b. **Screen 2 and 3 Comparisons** (see Sections 2.4.4 and 2.7.10): for purposes of the Screen 2 Alternative Mitigation Comparison and the Screen 3 Comparative Metrics, the

pre-fire distribution infrastructure and associated risk must be used as the comparison Baseline.

c. **Plan Mitigation Objective and Plan Tracking Objectives** (see Sections 2.3.1,2.3.2 and 2.7.5): the risk reduction from a Wildfire Rebuild Area Undergrounding Project does not count for purposes of determining progress towards the Plan Mitigation Objective and Plan Tracking Objectives. The risk reduction from a Wildfire Rebuild Area Undergrounding Project must be tracked separately.

2.4 Project Acceptance Framework

Pursuant to section 8388.5(c)(2), the ~~large electrical corporation~~Large Electrical Corporation must identify Undergrounding Projects in its EUP. The Project Acceptance Framework is a multi-step process that the ~~large electrical corporation~~Large Electrical Corporation must establish and use to determine which Circuit Segments can be considered Undergrounding Projects, and, if undergrounded, will substantially increase electrical reliability[7] and substantially reduce the risk of wildfire.

The ~~large electrical corporation~~Large Electrical Corporation must list all Circuit Segments[8] in its service territory (the "All Circuit Segment List"), apply the Project Acceptance Framework to that list, and include the results in the EUP as described below. The ~~large electrical corporation~~Large Electrical Corporation must demonstrate that projects successfully passing through the Project Acceptance Framework contribute to achieving the ~~Portfolio~~Plan Mitigation Objective.

The Project Acceptance Framework has four screens:

Screen 1: Circuit Segment Eligibility

Screen 2: Project Information and Alternative Mitigation Comparison

Screen 3: Project Risk Analysis

Screen 4: Project Prioritization

2.4.1 Project Progression Through Screens

The Project Acceptance Framework has a procedure for progressing a Circuit Segment through the four screens:

[7] Increased reliability is measured through the reduction of the use of ~~public safety power shutoffs~~Public Safety Power Shutoffs, enhanced powerline safety settings, deenergization events, and any other outage programs, pursuant to section 8388.5(d)(2).

[8] For purposes of these Guidelines, "Circuit Segment" means an isolatable circuit segment~~, or a circuit protection zone (CPZ).~~.

Screen 1 Procedure. The EUP must apply Screen 1 (Circuit Segment Eligibility) to all High Fire Threat District (HFTD) and non-HFTD Circuit Segments and any Wildfire Rebuild Areas at the time of EUP filing. The Large Electrical Corporation must identify any Wildfire Rebuild Areas using the procedure described by the Large Electrical Corporation pursuant to Section 2.4.3.1 below. Circuit Segments that are not located in a Wildfire Rebuild Area or a Tier 2 or 3 ~~High Fire Threat District~~ HFTD ("Out of Area Circuit Segments") ~~will be~~are eliminated in Screen 1~~ (Circuit Segment Eligibility). The Circuit Segments passing Screen~~. Each Circuit Segment that is located in a Wildfire Rebuild Area or a Tier 2 or 3 HFTD is then evaluated to determine if the Circuit Segment meets the risk score criteria for eligibility. In-Area Circuit Segments that meet the risk score criteria are "Eligible Circuit Segments" and proceed to Screen 2. In-Area Circuit Segments that do not meet the risk score criteria are "Ineligible Circuit Segments" and do not proceed to Screen 2.

Screen 2 Procedure. The EUP must apply Screen 2 (Project Information and Alternative Mitigation Comparison) to all Eligible Circuit Segments. Circuit Segments that pass Screen 2 are considered Undergrounding Projects and can proceed to Screen 3. These Undergrounding Projects constitute the list of Undergrounding Projects that must be identified in the EUP pursuant to section 8388.5(c)(2).

~~The EUP must apply Screen 1 (Circuit Segment Eligibility) and Screen 2 to all circuit segments at the time of EUP filing.~~ **Screen 3 Procedure.** The EUP must apply Screen 3 (Project Risk Analysis) ~~and Screen 4 (Project Prioritization) to all circuit segments~~to all Undergrounding Projects for which the ~~large electrical corporation~~Large Electrical Corporation has sufficient information. Projects that pass Screen 3 ~~(Project Risk Analysis) and~~ are referred as "Confirmed Projects."

Screen ~~4 (Project Prioritization),~~3 must be applied to a ~~group~~Portfolio of at least 25 individual Undergrounding Projects~~ at the time of EUP filing~~. This Portfolio must include:

~~After the EUP is filed, the large electrical corporation can reapply the screens to take into account new information (such as, project-specific information obtained through scoping and other project work) and model version and calibration changes (such as those detailed in Section 2.7.5.2) and changes made to the list of non-EUP Projects. These updates may result in additional circuit segments becoming eligible through Screen 1 (Circuit Segment Eligibility) and Screen 2 (Project Information and Alternative Mitigation Comparison). These updates may also result in some circuit segments becoming ineligible through Screen 1 (Circuit Segment Eligibility) and Screen 2 (Project Information and Alternative Mitigation Comparison). Once an Undergrounding Project has passed Screen 3 (Project Risk Analysis) it is considered a Confirmed Project and does not need to be removed from the program because of a change.~~

- ~~The large electrical corporation~~at least one Circuit with multiple Undergrounding Projects.
- at least three Undergrounding Projects with multiple Subprojects (if Subprojects will be part of the EUP).

- at least three Undergrounding Projects with non-Undergrounding Subprojects (if non-Undergrounding Subprojects will be part of the EUP).
- at least two Undergrounding Projects considered for the High Frequency Outage Program Threshold (if High Frequency Outage Program will be part of the EUP).
- at least two Undergrounding Projects considered for the Ignition Tail Risk Threshold (if Ignition Tail Risk will be part of the EUP).

Additionally, the Large Electrical Corporation must present, in a separate section, an analysis of at least one Undergrounding Project which the Large Electrical Corporation does not plan on undergrounding due to factors that are captured in the Screen 2 and Screen 3 analysis. This analysis must be presented with narrative description and associated numerical tables in a Plan and as a portfolio named "Example Rejected Portfolio" in Progress Report 0.

Screen 4 Procedure. The EUP must apply Screen 4 (Project Prioritization) to all Confirmed Projects at the time of EUP filing.

The Large Electrical Corporation must detail the implementation approach it will use for each screen. The general requirements of each screen, including the minimum data and information requirements, are further described in the ~~sections~~Sections below.

Figure 1 provides a high-level overview of the Project Acceptance Framework process.

Figure 1. Project Acceptance Framework Flowchart

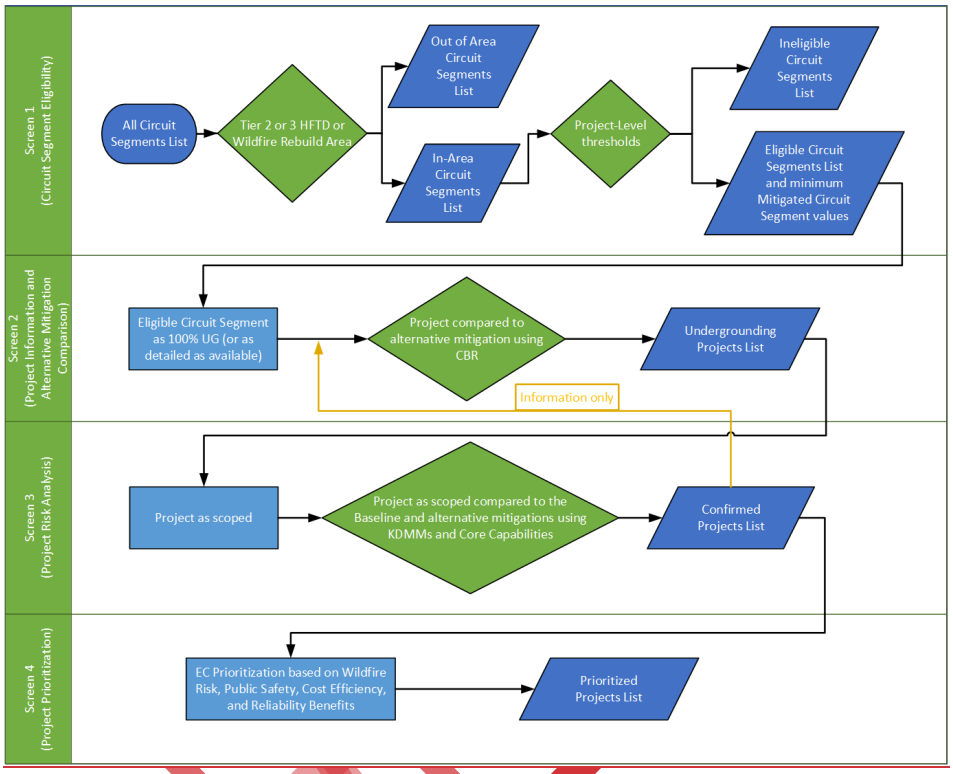

Figure 1 illustrates the Project Acceptance Framework process.

2.4.2 Incorporating Changes

2.4.2.1 Changes to Circuit Segment Information

After the EUP is filed, the Large Electrical Corporation must account for new information (such as project-specific information obtained through scoping and other project work), model version and calibration changes (such as those detailed in Section 2.7.5.2), updates to HFTDs or new Wildfire Rebuild Areas.

If any changes occur on a Circuit Segment before it has passed Screen 3, then Screen 1 and Screen 2 must be reapplied. This could result in Circuit Segments being added or removed

from the EUP. The Out-of-Area Circuit Segment list, In-Area Circuit Segment list, Eligible Circuit Segment list, Ineligible Circuit Segment list, and the list of Undergrounding Projects must all be updated. Information in the Screen 2 comparison must also be updated.

2.4.2.2 Subprojects

During the scoping process, the Large Electrical Corporation may divide an Eligible Circuit Segment into one or more Subprojects. Subprojects may be created for operational reasons, such as differences in expected completion times of portions of the undergrounding work (referred to as Undergrounding Subprojects). Subprojects may also be created to reflect that a portion of the Circuit Segment will be treated with a different wildfire mitigation (referred to as a non-undergrounding Subproject). If a Circuit Segment does not have multiple Subprojects during the scoping process, then it should be reported as a single Subproject.

2.4.2.3 Other Anticipated Changes

The Large Electrical Corporation must provide a narrative describing any other expected or known changes likely to occur and how those changes will be incorporated into the EUP.

2.4.2.4 Physical Changes to a Circuit Segment

The EUP must account for physical changes to a Circuit Segment such as relocating lines for operational reasons, the addition or removal of equipment that redefines the endpoints of a Circuit Segment, or changes in alignment due to undergrounding itself, among other factors. This is accounted for in three ways.

First, the Circuit Segments must be represented by unique identification names, which are unique both spatially and temporally, meaning a name cannot be reused for a "new" Circuit Segment. A Circuit Segment is considered "new" and requires a new Circuit Segment ID if equipment that defines the boundaries between Circuit Segments (e.g. circuit breakers and reclosers) are moved, removed, or added. See the introduction of Appendix C.1 for details.

Second, the evolution of Circuit Segments is tracked in the Circuit Segment Changelog table, linking the prior Circuit Segment ID to the new one (see Section C.1.7 of Appendix C).

Third, a Confirmed Project is defined by the boundaries of the Confirmed Project Polygon that encompasses the entire Circuit Segment on which the Undergrounding Project is defined. The Confirmed Project Polygon is fixed once the Circuit Segment becomes a Confirmed Project. Further details on the Confirmed Project Polygons are defined in Appendix C.4.2. Changes to proposed work on each Undergrounding Project do not need to be re-evaluated or passed through the screens again due to a physical change to the underlying Circuit Segment unless the work would take place outside the Confirmed Project Polygon, in which case additional justification will be required. Any Project or Subproject which has assets outside of the Confirmed Project Polygon must have a provide justification in the C.1.13 Subproject Table.

~~2.4.1~~2.4.3 Screen 1: Circuit Segment Eligibility

Screen 1 (Circuit Segment Eligibility) is the procedure within the Project Acceptance Framework that identifies relevant Circuit Segments and creates the List of Eligible Circuit Segments.

~~2.4.1.1~~2.4.3.1 ~~List~~Identification of Circuit Segments in and out of High Fire Threat District and Wildfire Rebuild Area

~~The large electrical corporation~~In Screen 1, the Large Electrical Corporation must identify all Circuit Segments in its service territory ~~that~~ (All Circuit Segments) and specify which Circuit Segments are located in a Wildfire Rebuild Area or Tier 2 or 3 High Fire-Threat District ("In-Area Circuit Segments").

~~The EUP must include this list of In-Area Circuit Segments along with the following risk scores for each Circuit Segment~~The EUP narrative must describe the process the Large Electrical Corporation will use to identify Wildfire Rebuild Areas and the corresponding affected Circuit Segments. The Large Electrical Corporation must include a narrative in the Progress Reports describing identified Wildfire Rebuild Areas and providing information on the wildfire date, time, location, affected Circuit Segments and facilities impacted. The narrative must indicate if any distribution infrastructure damaged in the wildfire has already been rebuilt. Only Circuit Segments that have been damaged by wildfire and have not previously been rebuilt are eligible.

For each Circuit Segment, the following risk scores must be calculated: (i) Overall Utility Risk Score; (ii) Ignition Consequence Score; and (iii) Outage Program Reliability Score. Section 2.7.9 of these Guidelines details the requirements for these risk scores. Additionally, each Circuit Segment must be identified by location, indicating whether the Circuit Segment is (i) in a Tier 2 or 3 High Fire-Threat District; (ii) in a Wildfire Rebuild Area; or (iii) not located in either a Tier 2 or 3 HFTD or a Wildfire Rebuild Area. The EUP must include the following information in the EUP narrative or an additional table: the total number of Circuit Segments within the Large Electrical Corporation service territory, the total number of Circuit Segments located within a Tier 2 or 3 HFTD, the total number of Circuit Segments located within a Wildfire Rebuild Area, and the total mileage of lines in all Circuit Segments in each of the above groups.

The ~~EUP~~Large Electrical Corporation must ~~contain~~create three ~~versions~~lists of ~~the All~~In-Area Circuit ~~Segment List,~~Segments sorted in descending order by (i) Overall Utility Risk Score; (ii) Ignition Consequence Score; and (iii) Outage Program Reliability Score. The 20 highest scoring Circuit Segments of each list must be included in the EUP narrative as a table, with all three risk scores, the county where the Circuit Segment is located, and the HFTD Tier or Wildfire Rebuild Area that applies to the Circuit Segment.

~~2.4.1.2~~2.4.3.2 Circuit Segment Risk Reduction Levels

Screen 1 (Circuit Segment Eligibility) ensures that the EUP limits eligibility to higher risk Circuit Segments.

The ~~large electrical corporation~~Large Electrical Corporation must follow the instructions in Section 2.7 of these Guidelines to set ~~a range of values~~Project-Level Thresholds and Standards that will be used to categorize Circuit Segments into three types. The EUP must present the ~~values~~Project-Level Thresholds and Standards in the description of the Project Acceptance Framework. Additional information on the required ~~values~~Project-Level Thresholds and Standards is provided in Section 2.7.9 of these Guidelines. The three types of ~~values~~Project-Level Thresholds and Standards to be applied to Circuit Segments are:

1. **Eligible Circuit Segment ~~values~~Thresholds**: the ~~range of~~minimum risk score ~~values~~thresholds that will be used to identify higher risk Circuit Segments that are eligible for the 10-Year ~~Electrical Undergrounding Program~~EUP.[9]
2. **Ineligible Circuit Segment ~~values~~Thresholds**: the ~~range of~~minimum risk score ~~values~~thresholds that will be used to identify lower risk Circuit Segments that are not eligible for the 10-Year ~~Electrical Undergrounding Program~~EUP.[10]
3. **Mitigated Circuit Segment ~~values~~Standards**: the ~~range of~~minimum Project-Level Standard risk score ~~values~~ that an Eligible Circuit Segment must reach to be considered sufficiently mitigated under the terms of the EUP.[11]

After determining these ~~values, the large electrical corporation~~ Project-Level Thresholds and Standards, the Large Electrical Corporation must evaluate the list of In-Area Circuit Segments to determine eligibility and minimum mitigation needs. Circuit Segments in Wildfire Rebuild Areas that do not meet these thresholds must provide justification to be designated as Eligible Circuit Segments as described in Section 2.3.5.

The ~~results~~following must be included in the EUP as follows:

~~The range of values for each of the three categories (in the EUP~~ narrative~~);~~ portion of the EUP:

a. ~~A list~~The Project-Level Thresholds and Standards.

b. The total number of In-Area Circuits.

[9] A Circuit Segment qualifies as an Eligible Circuit Segment if it exceeds one of the Project-Level thresholds described in Section 2.7.9 (High-Risk Threshold, Ignition Tail Risk Threshold, High Frequency Outage Program Threshold).

[10] A Circuit Segment that is below the High-Risk, Wildfire Tail Risk and High Frequency Outage Program Thresholds described in Section 2.7.9 is an Ineligible Circuit Segment.

[11] A Mitigated Circuit Segment is an Eligible Circuit Segment that has been treated to mitigate risk to the required standard described in Section 2.7.9.1 (Risk Reduction Project-Level Standard, ~~Reliability Increase Project~~ High Frequency Outage Program Mitigation Standard, Tail Risk Mitigation Project-Level Standard).

a.c. The number of Eligible Circuit Segments, by category, and the corresponding minimum Mitigated Circuit Segment values (Portfolio Coversheet and data submission); and;

b.d. A listThe number of In-Area Circuit Segments that are below the eligibility values (data submissionthresholds (Ineligible Circuit Segments).

The EUP narrative must include the Baseline per Section 2.7.5 of these Guidelines and list all alternative mitigations including covered conductor and other hardening alternatives, remote fault detection technologies, and vegetation management that will be used in the individual Project Comparisons.

2.4.22.4.4 Screen 2: Project Information and Alternative Mitigation Comparison

Screen 2 (Project Information and Alternative Mitigation Comparison) confirms there is sufficient information available on a circuit segmentCircuit Segment and requires comparison of undergrounding to alternative mitigations in order to determine which Eligible Circuit Segments can be treated as Undergrounding Projects.

For Screen 2 (Project Information and Alternative Mitigation Comparison),, the ge electrical corporationLarge Electrical Corporation must conduct an analysis comparing undergrounding to alternative mitigations and provide the CPUCCalifo Public Utilities Commission (CPUC) Cost Benefit Ratio (CBR) and all information in the CPUC Data Appendix 1[12] at the time the EUP is submitted to Energy Safety. The alternative mitigation comparison must include a comparison of the project to at least two alternative mitigations. as detailed in Section 2.8.7.1.10 and . In Screen 2, the project may be assu to be a fully undergrounded isolatable Circuit Segment, but once the project has com ed its scoping phase, the Screen 2 comparison must be updated to reflect the scoped ject. Appendix C.1.1311 and C.1.14 of these Guidelines set out the instructions for the Screen 2 Project Information Table and Appendix E of these Guidelines contains an exa e Screen 2 Project Informationthe Project Index Table. No project can be considered for the 10-Year Electrical Undergrounding ProgramEUP unless this information is available.

2.4.2.12.4.4.1 Common Set of Values and Assumptions

Screen 2 (Project Information and Alternative Mitigation Comparison) may use common values and assumptions to develop estimates for Circuit Segments when project-specific information is not available. Screen 2 (Project Information and Alternative Mitigation Comparison)Screen 2 includes calculation of risk and benefit scores; it applies to both

[12] CPUC Resolution SPD-15 (March 7, 2024), SB 884 Program: CPUC Guidelines, Appendix 1: SB 884 Project List Data Requirements-Preliminary (https://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&docid=526984185, accessed April 15, 2024). .

undergrounding and alternative mitigations. The EUP must ~~summarize~~ include a narrative summarizing the assumptions underlying the values and ~~explain~~explaining the metrics used in Screen 2 ~~(Project Information and Alternative Mitigation Comparison).~~ This narrative summary must be clear, concise, and comprehensive. At a minimum, this summary must include a:

a. Description of the metrics required by the CPUC Guidelines for the SB 884 Program.
b. Detailed description of alternative mitigations that the ~~large electrical corporation~~Large Electrical Corporation will use for these comparisons. Explanation of why these ~~alternative mitigations~~Alternative Mitigations are being considered. Description of the process for determining which ~~alternative mitigations~~Alternative Mitigations will be used for individual project comparisons. Description of the process for identifying and evaluating new mitigation technologies through the life of the EUP. Description of processes and resources that will be used for deploying each ~~alternative mitigation~~Alternative Mitigation.
c. Description of any assumptions for scope, cost, extent, and wildfire risk reduction and reliability improvements that are ~~common~~applicable to multiple Undergrounding Projects. These descriptions must be provided for all activities (~~undergrounding~~Undergrounding and ~~alternative mitigations~~Alternative Mitigations).
d. Explanation of how the need for additional easements, permits, and CEQA review are accounted for in the assumptions for scope, cost, extent, and risk reduction and reliability improvements.

~~2.4.3~~2.4.5 Screen 3: Project Risk Analysis

Screen 3 (Project Risk Analysis) is the procedure for evaluating an individual Undergrounding Project in the context of the Portfolio of ~~projects~~Undergrounding Projects and includes information obtained through the project development process. ~~The~~ Screen 3 ~~(Project Risk Analysis)~~ considers the wildfire risk reduction and reliability increase elements of the ~~Portfolio~~Plan Mitigation Objective of an Undergrounding Project and includes comparing risk metrics for undergrounding and alternative mitigations.

~~The large electrical corporation must prepare a Project Reference Sheet for each project for consideration under Screen 3 (Project Risk Analysis). Instructions for the Project Reference Sheet are in Section 2.8.7.2 of these Guidelines and an example is attached as Appendix E to these Guidelines.~~

~~Screen 3 (Project Risk Analysis)~~ must be completed for each Undergrounding Project when the ~~large electrical corporation~~Large Electrical Corporation has sufficient information to fulfill the modeling requirements in Section 2.7 for that Undergrounding Project. ~~Screen 3 (Project Risk Analysis) can be applied to projects at any time after submitting the EUP, as detailed~~

~~information becomes available. The Project Reference Sheet must be updated when new data is available; these updates will be part of the Progress Reports.~~

The EUP must contain a ~~detailed Screen 3 (Project Risk Analysis) procedure and describe~~narrative detailing how the ~~large electrical corporation~~Large Electrical Corporation will use ~~the screen~~Screen 3 on individual Undergrounding Projects both before implementation of the EUP begins and after implementation ~~of the EUP~~ begins. The ~~information used for alternative mitigations chosen for the Screen 3 (Project Risk Analysis) must reflect current project-specific information. The procedure~~narrative must include ~~how the large electrical corporation will choose alternative mitigations for Screen 3 (Project Risk Analysis). Instructions~~the Screen 3 procedure for selecting Alternative Mitigations consistent with the instructions on ~~creating and completing the Screen 3 Comparative Risk Metrics Table are~~Alternative Mitigation selection in Section ~~2.8.7.4~~2.7.10. The narrative must include a description of ~~these Guidelines.~~

~~At the time~~how project-specific information will be incorporated into the selection of ~~filing the EUP, there~~Alternative Mitigations. The narrative must ~~be~~include a ~~Portfolio~~description of ~~at least 25 projects considered under Screen 3 (Project Risk Analysis).~~how Baseline values will be determined per Section 2.7.5, Core Capability 6.

The narrative must include a description of the scoping process the Large Electrical Corporation uses to determine what portions of an Eligible Circuit Segment will be undergrounded. Additionally, if the Large Electrical Corporation determines a portion of an Eligible Circuit Segment will require non-undergrounding work, a narrative explanation describing why that work was chosen for each non-undergrounded Subproject is required in the Appendix C.1.13 Subproject Table.

An Undergrounding Project that has completed Screen 3 ~~(Project Risk Analysis)~~ can proceed to Screen 4 ~~(Project Prioritization).~~. Undergrounding Projects that have completed Screen 3 ~~(Project Risk Analysis)~~ are reported as Confirmed Projects ~~Project Reference Sheets and in~~ in Progress Reports.

~~2.4.4~~2.4.6 Screen 4: Project Prioritization

Pursuant to section 8388.5(c)(2), the EUP must include a means of prioritizing undergrounding projects based on "wildfire risk reduction, public safety, cost efficiency, and reliability benefits."

For Screen 4 (Project Prioritization), the EUP must set forth a means of prioritization and its definition for each of the factors in section 8388.5(c)(2), i.e., wildfire risk reduction, public safety, cost efficiency and reliability benefits. ~~In the context of this project prioritization, the large electrical corporation~~If a project is divided into Subprojects, the Large Electrical Corporation must consider the different completion times of Subprojects and the effect of staggered completion times, consistent with the timeline requirements in Section 2.7.5, Core Capabilities 4 and 5. In the context of this project prioritization, the Large Electrical

Corporation may define reliability benefits to include benefits not related to Outage Program Events. The EUP must describe how the factors will be applied to set priority ~~Undergrounding~~for Confirmed Projects. The EUP must describe how the prioritization aligns with and supports the ~~Portfolio~~Plan Mitigation Objective. The EUP must include a narrative of the ~~large electrical corporation's~~Large Electrical Corporation's rationale and supporting data (e.g., KDMMs) for each definition and the means of prioritization included in Screen 4 ~~(Project Prioritization).~~

The EUP must include a list of Confirmed Projects with the Screen 4 ~~(Project Prioritization)~~ prioritization applied.

~~2.4.5~~2.4.7 Required Circuit Segment Information Lists

~~2.4.5.1~~2.4.7.1 Instructions for Circuit Segment Information Lists

~~The EUP must include all the lists in the table below as part of Progress Report 0 (see Section 2.6).~~

~~The Circuit Segment Information Lists must include the modeled risk for each potential Undergrounding Project as of the date of EUP submission. If risks scores are not available for an individual Undergrounding Project or Circuit Segment, the large electrical corporation must provide an explanation. See details on modeling requirements in Section 2.7 of these Guidelines.~~

~~Circuit Segment Information Lists must be created using the large electrical corporation's most recent version and calibration of the Risk Modeling Methodology.~~

~~Where applicable, the Circuit Segment Information Lists must be organized into separate sublists grouped by Project Planning and Construction Phase as required by CPUC Data Appendix 1.~~

~~The Circuit Segment Information Lists must contain sufficient detail to allow analysis and must be updated regularly according to these Guidelines. For data submission purposes, the data for the majority of the Circuit Segment Information Lists will be collected as part of Table 5 (Circuit Segment Identification Table and Data Requirements) in Appendix C of these Guidelines.~~

The Project Acceptance Framework uses a series of screens to evaluate Circuit Segments for the EUP. As described above, each screen requires the Large Electrical Corporation to create and review progressively smaller sets of Circuit Segments which satisfy various criteria and have different levels of information determined, until they finally become Confirmed Projects and Prioritized Projects. The full lists of Circuit Segments which have reached these stages can be generated from the data submission tables described in Appendix C. Each Progress Report, beginning with Progress Report 0 (see Section 2.6), will include the data submission for these lists in a tabular format that can be accessed by members of the public.

The table below describes the lists utilized in the Project Acceptance Framework process, the relevant information they contain, and the tables that can be joined to generate the lists.

Table 2. Circuit Segment Information Lists

~~Sublist~~List Name	Description	Information ~~for list creation~~Provided	~~Instructions~~Tables Containing Information	~~EUP Form~~
All Circuit Segments List ~~(all In-Area Circuit Segments and all Out of Area Circuit Segments in the service territory)~~	List of all ~~circuit segments~~Circuit Segments in service territory	• Unique Circuit IDs and Circuit Segment IDs • For each Circuit Segment, whether it is located in (i) a Tier 2 or 3 High Fire-Threat District or not in either; and/or (ii) a Wildfire Rebuild Area or not. • ~~Circuit Level Ignition~~Overall Utility Risk Score ~~• Circuit Level Outage Program Likelihood Score~~ • ~~Circuit Level~~ Ignition Consequence Score • Outage Program Reliability Score	~~Section 2.4 and~~ Appendix C: C1.6 Circuit Segment Identification Table Appendix C: C1.8 Circuit Segment Risk Score Table.	~~Data Submission~~
In-Area Circuit Segments List	List of all Circuit Segments in a Wildfire Rebuild Area or Tier 2 or 3 High Fire-Threat District (In-Area).	• Overall Utility Risk Score • Ignition Consequence Score • Outage Program Reliability Score	Appendix C: C1.6 Circuit Segment Identification Table Appendix C: C1.8 Circuit Segment	

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~~Sublist~~List Name	Description	Information ~~for list creation~~Provided		~~Instructions~~Tables Containing Information	~~EUP Form~~
			Risk Score Table.		
Eligible Circuit Segments List	List of all In-Area Circuit Segments that are above a Project-Level Threshold and therefore eligible for the ~~10-Year Electrical Undergrounding Program.~~EUP.	• Project-Level Thresholds • Project-Level Standards • Project Variable Modifiers (see Section 2.7.7~~2.7.6~~ of these Guidelines)		~~Section 2.4.1.2 and Appendix C~~	Appendix C: C1.6 Circuit Segment Identification Table Appendix C: C1.8 Circuit Segment Risk Score Table This information can be found in the Portfolio Coversheet. ~~Project Index Table~~ ~~Data Submission~~
Ineligible Circuit Segments List	List of all In-Area Circuit Segments that are below all Project-Level Threshold and therefore are NOT	• Project-Level Thresholds • Project-Level Standards • Project Variable Modifiers (see Section	Appendix C: C1.6 Circuit Segment Identification Table Appendix C: C1.8 Circuit Segment		

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~~Sublist~~List Name	Description	Information ~~for list creation~~Provided		~~Instructions~~Tables Containing Information	~~EUP Form~~
	eligible for the EUP.	2.7.7 of these Guidelines)	Risk Score Table.		
Undergrounding Projects List	List of all Eligible Circuit Segments ~~for which there is sufficient Screen 2 information and indicate if the Circuit Segment is planned for~~that have been compared to multiple mitigation ~~outside of SB 884~~strategies using CBR and, after analysis, determined to be an Undergrounding Project.	• CPUC Data Appendix completed ~~• Project Reference Sheet (with any currently available information included)~~ • CPUC CBR • Screen 2 Table		~~Section 2.4.2 and Appendix C~~	Appendix C: C1.11 Screen 2 Table Appendix C: C1.14 Project Index Table This information can be found in the Portfolio Coversheet ~~Project Reference Sheet~~ ~~Data Submission.~~

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~~Sublist~~List Name	Description	Information ~~for list creation~~Provided	~~Instructions~~Tables Containing Information	~~EUP Form~~
Confirmed Projects List	List of Undergrounding Projects that have had project risk analysis completed in Screen 3	• Risk landscapes for separate, collective, and ablation studies • Screen 3 Table	~~Section 2.4.3 and Appendix C~~	Appendix C: C1.12 Screen 3 Table Appendix C: C1.14 Project Index Table This information can be found in the Portfolio Coversheet ~~Project Reference Sh~~ ~~Data Subm~~on.
Prioritized Projects List	List of Confirmed Projects, with each project prioritized using section 8388.5(c)(2) prioritization	• List of Confirmed Projects sorted by priority • Planning and Construction Phase Status • Subproject Information	~~Section 2.4.4 and~~ Appendix C-: C.1.10 Project Table Appendix C: C.1.14 Project Index Table For more information on Subprojects, see Appendix C: C.1.13 Subproject Table.	~~Portfolio Coversheet~~ ~~Data Submission~~

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~~Sublist~~List Name	Description	Information ~~for list creation~~Provided	~~Instructions~~Tables Containing Information	~~EUP Form~~
Non-EUP Projects List	See Section 2.4.~~5~~7.2 of these Guidelines	See Section 2.4.~~5~~7.2 of these Guidelines	~~Section 2.4.5.2 and Appendix C-1~~Appendix C: C1.6 Circuit Segment Identification Table	~~EUP Narrative~~ ~~Data Submission~~

~~2.4.5.2~~2.4.7.2 Information on ~~non~~Non-EUP Projects

The EUP must include information on any distribution undergrounding ~~projects~~or other system hardening project that ~~are not included in the 10-Year Electrical Undergrounding Program that are~~is funded or in the Project Planning and Construction Phases~~.~~

~~that is not included in the 10-Year EUP ("Non-EUP Project").~~ The ~~large electrical corporation~~Large Electrical Corporation must include this information in the Circuit Segment Identification Table as described in Appendix C.1.6. The Large Electrical Corporation is not required to apply the screens to non-EUP Projects.

The Large Electrical Corporation must also provide a brief overview of all non-EUP ~~projects and~~Undergrounding programs and all other distribution system hardening programs aimed at reducing Ignition Risk and Outage Program Risk~~, including~~. The Large Electrical Corporation must include the timeline for completion of ~~the~~ ~~projects~~Non-EUP Projects, their Project Status, and their associated risk reduction. The overview must discuss how the selection process for these ~~other~~ Non-EUP Projects and programs ~~and the projects selected are~~is different from the EUP and how they will be coordinated with the EUP.

~~The large electrical corporation~~All of the information above must be updated in each Progress Report. The Large Electrical Corporation must also include a narrative describing how these projects are accounted for in the Risk Modeling Methodology.

2.5 Project Timelines, Workforce Development Plan, Costs and Benefits, and ~~Non-Ratepayer~~Nonratepayer Funding Sources

The Timelines, Workforce Development, Costs and Benefits, and ~~Non-Ratepayer~~Nonratepayer Funding ~~Components~~components are the plan components required by sections 8388.5(c)(3), (c)(5), (c)(6) and (j).

2.5.1 Project Timelines and Targets

Section 8388.5(c)(3) requires an EUP to include, "[t]imelines for the completion of identified and prioritized undergrounding projects, and unit cost targets and mileage completion targets for each year covered by the plan." To fulfill this component, the EUP must contain:

4. The Target/Timeline Table described in Section 2.3.1.

a. A project management template that will be used to track and communicate ~~a~~each project's schedule and milestones. The project management template should include dates for scoping, planning/design, permitting/dependencies, pre-construction, construction, and completion.

b. A description of controls that will be in place to ensure the schedules are maintained.

~~h.a. A Plan Objective Table with the following information about the timelines for completion, unit cost targets, mileage targets, anticipated start and end dates, risk reduction and cost targets for each year of the EUP. Ignition Risk and Outage Program Risk must be reported as described in Section 2.8.5.1. The information must be in table format in the EUP narrative and included as an Excel workbook.~~

~~i. Year of EUP;~~

~~ii.i. Dates for year of EUP;~~

~~iii.i. Underground mileage completion targets (per year and cumulative);~~

~~iv. Miles of overhead li[illegible]eenergized, mileage in the Pre-Construction Phase;~~

~~v.i. Unit cost targets for each year covered by the EUP;~~

~~vi. Risk reduction in instantaneous ignition risk for risk at year 10;~~

~~vii. Cumulative Ignition Risk reduction[13] anticipated at the at the end of the expected lifetime (defined as 60 years) of the infrastructure;~~

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~~[13] The cumulative Ignition Risk reduction is defined as the difference between the cumulative collective Ignition Risk and Baseline cumulative Ignition Risk, measured at the System-Level, as detailed in Section 2.7.3 of these Guidelines.~~

~~viii. Increase in instantaneous Outage Risk reliability for risk at year 10; and~~

~~ix. Cumulative Outage Program reduction[14] anticipated at the at the end of the expected lifetime (defined as 60 years) of the infrastructure;~~

2.5.2 Workforce Development Plan

Section 8388.5(c)(5) requires the EUP to include a "plan for utility and contractor workforce development." To fulfill this component, the EUP must contain a description of how the ~~large electrical corporation~~Large Electrical Corporation will successfully secure the resources required to implement the EUP for the full 10 years. Some examples include:

a. A list of the job classifications;

b. Annual EUP workforce targets;

c. A description for workforce training, recruitment, and retention;

d. A description of constraints and strategy for addressing those constraints; and

e. A description of the potential impacts that EUP implementation could have on traditional safety and reliability related projects and programs that rely on the same field personnel.

2.5.3 Costs and Benefits

Section 8388.5(c)(6) requires the EUP to include "an evaluation of project costs, projected economic benefits over the life of the assets, and any cost containment assumptions, including the economies of scale necessary to reduce wildfire risk and mitigation costs and establish a sustainable supply chain." To fulfill this component, the EUP must contain a narrative for each of the following:

a. Evaluation of project costs;
b. Projected economic benefits over the life of the assets;
c. Cost containment assumptions (including economies of scale necessary to reduce wildfire risk and mitigation costs); and
d. ~~Strategy~~Strategies for achieving a sustainable supply chain and the economies of scale necessary to reduce costs over time.

~~[14] The cumulative Outage Program Risk reduction is defined as the difference between the cumulative collective Outage Program Risk and Baseline cumulative Outage Program Risk, measured at the System-Level, as detailed in Section 2.7.3 of these Guidelines.~~

2.5.4 ~~Non-Ratepayer~~Nonratepayer Funding Sources

Section 8388.5(j) requires the ~~large electrical corporation~~Large Electrical Corporation participating in the program to "apply for available federal, state, and other nonratepayer moneys throughout the duration of its approved undergrounding plan" and use acquired funds to reduce the program's costs to ratepayers. To fulfill this component, the EUP must contain:

a. ~~Existing~~List of existing nonratepayer funding opportunities~~.~~;
b. A plan for identifying additional sources of nonratepayer funding and plans for tracking and applying for nonratepayer funding opportunities that may become available~~.~~; and
c. A plan for tracking nonratepayer funds received to ensure ~~they~~the funds are used to reduce ratepayer costs.

2.6 Progress Report 0

The EUP must include a report called "Progress Report 0" as an attachment. Progress Report ~~-~~ 0 must show the status of ~~circuit segments~~Circuit Segments and other matters related to wildfire mitigation at the time of EUP submission.

The ~~large electrical corporation~~Large Electrical Corporation must submit an updated Progress Report 0 every six months during the period the EUP is evaluated by Energy Safety and the CPUC. During this time period, Energy Safety may direct the ~~large electrical corporation~~Large Electrical Corporation to make changes to the format and content of Progress Report 0.

The EUP must contain a narrative explaining the ~~large electrical corporation's~~Large Electrical Corporation's choice of content and structure for Progress Report 0. The narrative must explain and confirm how Progress Report 0 meets the requirements in Sections 2.6.1 and 2.6.2 below.

2.6.1 Content of Progress Report 0

Progress Report 0 must be based on information and data available at the time of submission. For the Circuit Segment Information Lists, the Confirmed Projects List and the Prioritized Project List submitted in ~~Progress Report 0 must include at least 25 Undergrounding Projects to demonstrate that all of the screens are functional~~Progress Report 0 must meet the minimum requirements described in Section 2.4.1 for Screen 3.

Progress Report 0 must, at a minimum, include the following sections:

a. Portfolio Coversheet~~,~~ (narrative);
b. Plan Mitigation Objective (narrative);
c. Plan Tracking Objectives (narrative);

~~b.~~d. Target/Timeline Table~~,~~ (narrative);

~~c. A Project Index Table,~~

~~d. A Project Reference Sheet for each Undergrounding Project in the Portfolio,~~

~~e. Circuit Segment Information Lists and supporting data submissions, and~~

e. Identified Wildfire Rebuild Areas (narrative);

f. Updated Model Report (if applicable, see Section 2.7.2);

g. All data required pursuant to Section 2.8 and Appendix C of these Guidelines; and

~~f.~~h. Any additional System-Level, Portfolio-Level and Project-Level information the ~~large electrical corporation~~Large Electrical Corporation would like to be included in Progress Reports.

~~The large electrical corporation must submit data pursuant to Section 2.8, and Appendix C of these Guidelines to support the Portfolio Coversheet and the Project Reference Sheets at the same time as it submits its Progress Report 0.~~

2.6.2 Relation of Progress Report 0 to Statutory Progress Report Requirement

The content, format, and structure of Progress Report 0 will inform the requirements for future Progress Reports. Energy Safety may provide additional guidance regarding future Progress Report requirements at a later date.

2.7 Risk Modeling

This section describes the requirements for the Risk Modeling Methodology that the ~~large electrical corporation will~~Large Electrical Corporation must employ to establish the ~~Portfolio~~Plan Mitigation Objective and to perform the analysis required in Screen 3 (Project Risk Analysis).

The ~~large electrical corporation~~Large Electrical Corporation must justify its methodology in a narrative section of ~~the~~its EUP submission. This narrative must be organized into the following sections.

Table 3. Narrative Requirements Supporting Risk Modeling Methodology

Section Name	Narrative Requirements	Maximum Length of Narrative Section	Required Tables and Figures	Table Requirements
Overview	See 2.7.1	5 ~~Pages~~pages	Enterprise Diagram(s)	See 2.7.3.1

Section Name	Narrative Requirements	Maximum Length of Narrative Section	Required Tables and Figures	Table Requirements
~~Reports on Sub-models~~Model Report	See 2.7.2	4 ~~Pages~~pages per Sub-~~Model~~model	None	None
Core Capabilities	See 2.7.5	2 ~~Pages~~pages per Capability	None	None
Model Inputs	See 2.7.5.1	1 ~~Page~~page per Input Category	Model Risk Landscape Variables Table	See 2.8.5.1
Project Variable Modifiers	See 2.7.~~6~~7	1 ~~Page~~page per Project Variable Modifier	Project Variable Modifiers Inputs Table Project Variable Modifiers Outputs Table	See 2.8.5.2
Calibration and Versioning	See 2.7.5.2	2 ~~Pages~~pages	None	None
Key Decision-Making Metrics	See 2.7.3	3 ~~Pages~~pages for required KDMMs and up to 1 ~~Page~~page each for up to 5 additional KDMMs	None	None
Portfolio-Level Standards	See 2.7.8	2 ~~Pages~~pages	None	None
Project-Level Thresholds	See 2.7.9.1	2 ~~Pages~~pages	None	None

Section Name	Narrative Requirements	Maximum Length of Narrative Section	Required Tables and Figures	Table Requirements
Project-Level Standards	See 2.7.9.2	2 ~~Pages~~pages	None	None

2.7.1 Overview of Risk Modeling Methodolgy

The ~~large electrical corporation~~Large Electrical Corporation must provide an overview narrative that explains the key elements of its risk modeling approach and definitions. The narrative must detail how the ~~large electrical corporation~~Large Electrical Corporation will compare the potential wildfire risk and reliability impacts of ~~undergrounding~~Undergrounding to ~~alternative mitigations.~~ Alternative Mitigations. The overview must describe the methodology and underlying intent of the ~~large electrical corporation's~~Large Electrical Corporation's risk assessment in no more than five pages, inclusive of all narratives, bullet point lists, and any graphics. The overview narrative should also include any additional Key Decision-Making Metrics (KDMMs) proposed the Large Electrical Corporation and the enterprise diagram as required by Section 2.7.3 below.

2.7.2 Model Reports ~~on Sub-Models~~

The ~~large electrical corporation~~Large Electrical Corporation must present a Model Report consisting of a collection of report chapters on each ~~of the sub-models~~ individual model used in the Risk Modeling Methodology. ~~Sub-models are~~A model is defined as a distinct part of the larger Risk Modeling Methodology that has explainable units. These distinctions must be at least as granular as in the enterprise diagram described in Section 2.7.3.1 of these Guidelines.

~~For each sub-model, the large electrical corporation~~ At a minimum, these models must include an ignition likelihood model, an ignition consequence model, an Outage Program likelihood model, an Outage Program consequence model, and an overall utility risk model. For each model, the Large Electrical Corporation must describe the methodology and numerical calculations involved at a level of detail that would allow for verification and replication. ~~Each sub-model report is a~~ self-contained chapter. Each chapter of the Model Report must be no more than four pages, inclusive of all narratives, bullet point lists, and any graphics. ~~A sub-model report may reference additional documents.~~A Model Report may reference additional, publicly available documents published by the Large Electrical Corporation or third-party vendors. Each Model Report must also attach a technical workbook as an appendix. The technical workbook must demonstrate the numerical calculations and contain the toy problems referenced below.

Each ~~sub-model report~~chapter of the Model Report must be formatted into the following subsections addressing different aspects of the modeling methodology and implementation.

a. **Model Usage**: ~~This~~For each chapter, the Model Usage section must describe the model's scope, how often the model is utilized, what aspects of the electrical system's risk profile are evaluated by this model, and specifically identify what risk or risk component the model is evaluating.

b. **Model Type**: ~~This~~For each chapter, the Model Type section must describe the model's taxonomy (e.g., physics simulation, mathematical model, machine learning classification).

c. **Key Inputs**: ~~This~~For each chapter, the Key Inputs section must describe the data that is fed into a calibrated model, including a description of the original data collection when applicable.

d. **Model Solution**: ~~This~~ For each chapter, the Model Solution section must describe the method used to calibrate, train, simulate, optimize, or implement the model from a mathematical standpoint. The model solution must include relevant information. For example:

   i. If the model is based on ~~an~~a historical frequency table, briefly describe the data procurement and weighting of the decision function.

   ii. If the model is based on a general linear model, Bayesian regression or other under-parameterized model, describe the training data and validation accuracy of the model.

   iii. If the model is based on solving a non-convex problem, briefly describe the optimization procedure and potential pitfalls of local minima.

   iv. If the model is based on an overparameterized ~~learning algorithm~~network, briefly describe the optimization procedure, including the number of learnable parameters, training techniq and the size and origin of the training ~~data~~and testing sets.

   v. If the model is based on a physical simulation, describe the simulation evolution algorithm, spatial and temporal resolution, and any subgrid effects considered.

   vi. If the model is based on Monte Carlo simulations, describe the assumptions made to build the component distributions and the outcome uncertainties.

e. **Model Outputs**: ~~This~~For each chapter, the Model Outputs section must describe how the data produced by the model is fed into other models or used by the ~~large electrical corporation~~Large Electrical Corporation to make risk-related decisions. The ~~large electrical corporation~~Large Electrical Corporation must describe the mathematical type of output (e.g., distribution, average value, score, probability), the spatial resolution (e.g., per ~~circuit~~Circuit, per segment, per county) and temporal resolution (e.g., per day, per season, per year).

f. **Uncertainty**: ~~This~~ For each chapter, the Uncertainty section must describe the amount by which a calculated value output by the model might differ from the actual value when the input parameters are known. ~~This~~Additionally, this section will address any methods the ~~large electrical corporation~~Large Electrical Corporation uses to account for missing input data in its Risk Modeling Methodology. ~~This~~Lastly, this section ~~will~~must address the sensitivity analysis used to determine the relationships between the uncertainty in the inputs used in an analysis and the uncertainty in the resultant dependent variables due to numerical instability or stiffness of the underlying equations.

g. **Toy Problems**: ~~This~~For each chapter, the Toy Problems section must describe three examples, specifying input and output values, using synthetic data. One input must lead to a low-risk (or low-probability, low-consequence) output, one for a medium-risk case, and one for a high-risk case. In each case, the ~~large electrical corporation~~Large Electrical Corporation must describe the magnitude and units of the inputs and outputs as well as the prevalence of each scenario in real-~~word data.~~world data. These examples must also be presented numerically in a workbook attached to the end of the Model Report.

h. **Shelf-life**: ~~This~~For each chapter, the Shelf-life section must describe the length or period the model is expected to be used. This section must describe if/how the model is expected to be updated, both regarding new calibration data and new project input data. This section must describe if/when the model is expected to be retired or replaced by an entirely new model. Sections 2.7.5.2 and 2.7.7 of these Guidelines detail further requirements for updating the Risk Modeling Methodology.

2.7.3 Key Decision-Making Metrics and Enterprise Diagrams

The Key Decision-Making Metrics (KDMMs) are defined to be the collection of top-level metrics that the ~~large electrical corporation~~Large Electrical Corporation proposes to use to evaluate the efficacy of an Undergrounding Project. The KDMMs will be used for approximating risk at the System-Level, Portfolio-Level, and individual ~~Circuit Segment Level.~~Project-Level. A System-Level measurement accumulates information from the entire distribution system into a single number. A Portfolio-Level measurement accumulates information from every Circuit Segment on a Circuit which has one or more Confirmed Projects as well as their effects on the overall circuit into a single number. A Project-Level measurement accumulates risk from all of the equipment on a single Circuit Segment.

~~A large electrical corporation~~The Large Electrical Corporation must include the seven mandatory KDMMs described below and has the option to include five additional KDMMs of its choosing.

a. The ~~large electrical corporation~~Large Electrical Corporation must include the following KDMMs:
   i. **Overall Utility Risk:** A combined measure of Ignition Risk and Outage Program Risk that measures the total risk of wildfires and Outage Program Events related to wildfire risks. This is computed as the inner product of the likelihoods of adverse events and their consequences. This is an unweighted and unscaled calculation.
   ii. **Ignition Risk**: The measure of impacts from wildfire at a given location. This metric is the product of two factors: (1) the likelihood a wildfire will occur, and (2) the potential consequences of a wildfire originating from this location. This is an unweighted and unscaled calculation.
   iii. **Ignition Consequence:** The total anticipated adverse effects from a wildfire on each community it reaches. This metric considers the wildfire hazard intensity, the wildfire exposure potential, and the inherent wildfire vulnerabilities of communities at risk.
   iv. **Ignition Likelihood:** The likelihood of an ignition at a given location given a probabilistic set of environmental conditions.
   v. **Outage Program Risk:** The measure of reliability impacts from Outage Programs at a given location. This metric is the product of two factors: (1) the likelihood an Outage Program Event will be required due to environmental conditions exceeding design conditions, and (2) the potential consequences of the Outage Program for affected customers, considering exposure potential and vulnerability. This is an unweighted and unscaled calculation.
   vi. **Outage Program Consequence:** The total anticipated adverse effects from an Outage Program for a community. This considers the Outage Program exposure potential and inherent Outage Program vulnerabilities of communities at risk.
   vii. **Outage Program Likelihood:** The likelihood of ~~a large electrical corporation~~ an Outage Program being deployed at any given time, given a probabilistic set of environmental conditions. This measure should capture both the probability of an Outage Program Events(s) being initiated at given time and the length of time of those ~~outage~~Outage Program Event(s).

b. Up to five additional KDMMs proposed by the ~~large electrical corporation~~Large Electrical Corporation may also be included. For each additional KDMM, the Large Electrical Corporation must include the following information in the Overview Section of the Risk Modeling Methodology:
   i. Provide a definition, numerical calculation, and units.
   ii. Explain each proposed KDMM, including how the KDMM contributes to measuring Ignition Risk and/or Outage Program Risk.

iii. Report the proposed KDMMs at the same resolution and frequency as the required KDMMs ~~in all Coversheets and Project Reference Sheets~~.

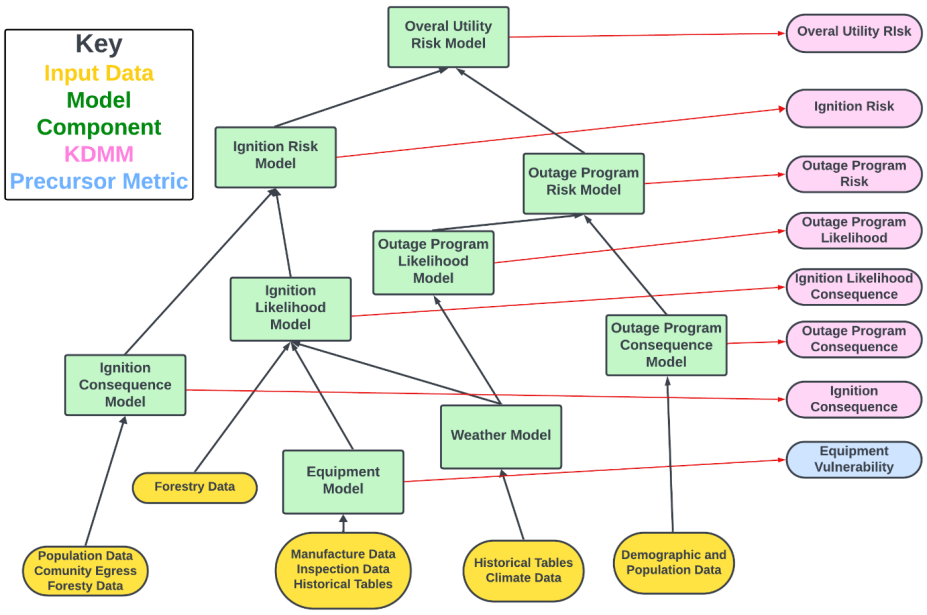
2.7.3.1 Enterprise Diagram

The ~~large electrical corporation~~Large Electrical Corporation must provide one or more entity relation diagram(s) of the system(s) used for quantifying Ignition Risk and one or more entity relation diagram(s) of the system(s) used for quantifying Outage Program Risks.

Each diagram must show how input data feeds into independent ~~submodules~~sub-modules and identify the KDMMs, and all precursor calculations used in generating each KDMM. A precursor calculation is an intermediate modeling value with explainable meaning that is computed from the input data and determined in the process of computing the KDMM. For example, an unscaled consequence score is considered a precursor calculation for a scaled risk score, but an intermediate activation value of a neural network is not considered a precursor. Similarly, if a risk score is normalized by distance (i.e. units of risk per mile), then the raw risk score is considered to be a precursor calculation.

An example of an enterprise diagram for ~~Ignition~~Overall Utility Risk Model, which identities other KDMMs and precursor metrics, is presented below. All sub-models must be clearly labeled with their inputs and outputs classified ~~in a semantically meaningful way.~~intuitively. KDMMs and precursors must be identified by color and shown on the right-hand side of the diagram.

Figure 2. Example Enterprise Diagram for Risk Modeling Methodology



2.7.4 Model Risk Landscape

The Model Risk Landscape is the collection of all inputs, outputs and intermediate calculations used in the Risk Modeling Methodology. This includes all KDMMs, their precursor calculations, and any additional numerical evidence that the ~~large electrical corporation~~Large Electrical Corporation uses to evaluate or report the risk reduction of an Undergrounding Project or ~~alternative mitigati~~ Alternative Mitigation. The Large Electrical Corporation must incorporate the elements ~~of~~ the Model Risk Landscape in its narrative supporting the Risk Modeling Methodolo

All claims involving the comparative risks of individual Undergrounding Projects must be substantiated by numerical comparisons between Model Risk Landscapes using the same version and calibration of the Risk Modeling Methodology.

A Model Risk Landscape is determined by these four elements:

1. The model version must indicate a unique configuration of the ~~sub~~ models as detailed in Section 2.7.5.2 of these Guidelines.

2. The calibration settings must uniquely identify the collection of non-project related input data fed into the models or used in historical tables.
3. The project list must refer to all projects that the model is considering in a specific evaluation for this measurement of Model Risk Landscape.
4. The forecast time must indicate what instantaneous time or accumulative period the model is evaluating.

2.7.5 Required Core Capabilities for Risk Modeling Methodology

Core ~~capabilities~~Capabilities are defined as a set of required use-cases that the ~~large electrical corporation's~~Large Electrical Corporation's Risk Modeling Methodology must be able to achieve to make quantitative arguments about the risk reduction of ~~undergrounding~~Undergrounding Projects and Alternative Mitigations. The ~~large electrical corporation~~Large Electrical Corporation must detail the formal quantitative procedure for achieving each of the following ~~core capabilities~~Core Capabilities:

a. Project-Level Risk Analysis;
b. Aggregate Risk Analysis~~:~~;
c. Ignition Risk and Outage Program Risk as Separate and Collective Risks
d. Approximating Future Risks and ~~Accumulating~~Accumulation of Ignition Risk and Electrical Reliability over Time;
e. Accounting for Projects with Multiple Mitigations and Subprojects;
~~e.~~f. Establishing Baselines and Historical Calibrations; and
~~f.~~g. Comparisons with Alternative Mitigation Strategies.

The ~~large electrical corporation~~Large Electrical Corporation must also list any additional workflows that are critical for evaluating the effectiveness and efficiency of its EUP.

For each capability, the ~~large electrical corporation~~Large Electrical Corporation must provide a narrative description, explicit formulas, and example calculations demonstrating how the ~~compatibility~~capability is achieved. These example calculations may use synthetic inputs, but all formulas, input/output scaling and user parameters must be the same as those used in the Risk Modeling Methodology. The Large Electrical Corporation may include additional workbooks with the Model Report that demonstrate these calculations.

Core Capability 1: Project-Level Risk Analysis

The ~~large electrical corporation~~Large Electrical Corporation must demonstrate that its framework can analyze risk reduction of projects in its Portfolio both separately and collectively. For each project the ~~large electrical corporation~~Large Electrical Corporation must conduct a Collective Analysis, a Separate Analysis, and an Ablation Analysis. Each study will report these results at the Portfolio-Level and Project-Level.

a. The Collective Analysis describes the risk reduction of a single Undergrounding Project in combination with the rest of the ~~projects~~Undergrounding Projects that are in the same Portfolio and details the effects ~~on~~of the specific ~~circuit~~Undergrounding Project on Circuit(s) ~~in the project~~ as well as the entire system. It is reported for each Undergrounding Project at the Portfolio-Level and Project-Level.
b. The Separate Analysis measures the risk reduction of this ~~project~~Undergrounding Project if it was the only ~~project~~Undergrounding Project in the Portfolio and is reported at the Portfolio-Level and Project-Level.
c. The Ablation Study details the effects if this ~~project~~Undergrounding Project is NOT included in the Portfolio at both ~~the at~~ the Portfolio-Level and Project-Level.

The ~~large electrical corporation~~Large Electrical Corporation must explicitly define any risk-scaling used in these calculations ~~and~~, provide examples of the computation, and report the unscaled calculations.

Core Capability 2: Aggregate Risk Analysis

The ~~large electrical corporation~~Large Electrical Corporation must detail, in ~~a~~ narrative form its method for evaluating risk metrics at the Portfolio-Level and System-Level. For each KDMM, the ~~large electrical corporation~~Large Electrical Corporation must provide an explanation of its aggregation process. This narrative may include a summation of ~~circuit/circuit segment~~Circuit/Circuit Segment risks or may include ~~weighed~~ weighted linear~~,~~ or non-linear processes.

The Large Electrical Corporation must also demonstrate how it evaluates the effectiveness of multiple projects simultaneously for both Ignition Risk and Outage Program Risk.

Core Capability 3: Ignition Risk and Outage Program Risk as Separate and Collective Risks

The ~~large electrical corporation~~Large Electrical Corporation must detail its method for evaluating Ignition Risk and Outage Program Risk through separated and combined metrics. The ~~large electrical corporation~~Large Electrical Corporation must demonstrate its framework for performing separate and collective analysis of Ignition Risk reduction and reliability benefits~~.~~ from reduced Outage Program Risk. The ~~large electrical corporation~~Large Electrical Corporation must demonstrate that its analysis for each of these metrics can be performed both independently and collectively ~~and detail the trade-off between the two~~.

The Large Electrical Corporation must additionally describe its method for balancing the trade-off between Ignition Risk and Outage Program Risk in its modeling. That is, the Large Electrical Corporation must explicitly define how it computes Overall Utility Risk as a factor of both Ignition Risk and Outage Program Risk and describe how each of these factors play a role in its process for selecting projects.

Lastly, the Large Electrical Corporation must describe the model gap between the modeled trade-off and the Large Electrical Corporation's real-world approach to limiting ignitions through Outage Programs.

Core Capability 4: Approximating Future Risks and ~~Accumulating~~Accumulation of Ignition Risk and Outage Program Risk over Time

The ~~large electrical corporation~~Large Electrical Corporation must detail its method for evaluating Ignition Risk and ~~electrical reliability~~Outage Program Risk at future dates and the accumulation of Ignition Risk and Outage Program Risk over time. The ~~large electrical corporation~~Large Electrical Corporation must report instantaneous and cumulative risk and reliability scores at 0, ~~5~~1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, ~~60~~and 55 years into the future for all Confirmed Projects. Model Year 0 is defined to begin ~~at the onset~~on the date the Large Electrical Corporation designates as the start date of the EUP, (as set forth in the Target/Timeline Table), and subsequent times are measured at a fixed timeline from ~~this~~the same date.

The ~~large electrical corporation~~Large Electrical Corporation must describe how it uses estimated project timelines to model the reduction of risk and increase in reliability. ~~T~~ ~~large electrical corporation~~ over time. For Undergrounding Projects, this timeline must include the estimated time for the project to acquire new rights-of-way, easements, permits, and CEQA review, if any. For non-undergrounding work, this timeline must use an estimate specific to the type of work using assumptions about the start time and construction time that are reasonable and consistent with the work being performed and assuming that the work will begin and be completed as soon as practicable. The Large Electrical Corporation must detail how these projections reflect its modeling of climate change~~.~~ as described in Core Capability 6.

If any discount ~~rate sums~~rates are employed in the calculation of any KDMM, the ~~large electrical corporation~~Large Electrical Corporation must list them and explain their origin. If the discount ~~rate sums~~rates change over time, the ~~large electrical corporation~~Large Electrical Corporation must explain how they change and why these changes are warranted ~~and~~. Changes must be in line with the CPUC Risk-based Decision-Making Framework Proceeding (Rulemaking ~~R.~~20-07-013 or its successor proceeding).

Core Capability 5: Accounting for Undergrounding Projects with Multiple Mitigations and Subprojects

The Large Electrical Corporation must detail its method for evaluating Ignition Risk and Outage Program Risk for Undergrounding Projects that are completed in stages or have multiple mitigations on a single Circuit Segment. This description must contain explicit formulations and justification for any weighting employed in the computed risk reduction or allocation.

For Circuit Segments containing multiple mitigations (such a portion of the Circuit Segment undergrounded, and another portion of the same Circuit Segment replaced with covered conductor), the Large Electrical Corporation must demonstrate how it models the risk-reduction of the overall project as well as how that risk reduction can be allocated between the different Subprojects. This must include an assessment of what equipment on the previously existing Circuit Segment will be removed, replaced, or refurbished at what a specific time as a part of a Subproject. In this assessment, each individual piece of equipment must be assigned to a single Subproject and cannot be assigned to multiple Subprojects. The Large Electrical Corporation must also comment on any modeling gap between their allocation scheme and the real word risk profile of the Circuit.

The Large Electrical Corporation must develop a projected timeline for completion of each Subproject and factor this into its overall Risk Modeling Methodology. Ignition Risk may only be reduced in the forecasted modeling after an overhead line is projected to be deenergized. Similarly, Outage Program Risk may only be forecasted to be reduced once the new line is projected to be energized. This requirement only directly applies to Screen 3 and Screen 4. Information on Subprojects in Screen 2 must be in accordance with the CPUC Risk-based Decision-Making Framework Proceeding (Rulemaking 20-07-013 or its successor proceeding).

Additionally, the Large Electrical Corporation must demonstrate a method to apportion overall risk reduced by an Undergrounding Project with multiple mitigations to the contribution from each mitigation type. For example, if the Large Electrical Corporation envisions a Confirmed Project with some portions of Undergrounding, covered conductor installation and line-removal, it must be able to determine the overall risk reduction of the Confirmed Project and the amount of that overall risk reduction due to each of the Alternative Mitigation strategies. The apportionment methodology must be consistent across all Undergrounding Projects. The sum of risk reduced by each Subproject in a given Confirmed Project must equal the risk reduction of the Confirmed Project itself.

Core Capability 6: Establishing Baselines and Historical Calibrations

The ~~large electrical corporation~~Large Electrical Corporation must demonstrate how it ensures that the Risk Modeling Methodology is evaluated with up-to-date information, and that comparisons between ~~projects~~Undergrounding Projects and ~~alternatives~~Alternative Mitigations are made on a statistically consistent scale. To do this, the ~~large electrical corporation~~Large Electrical Corporation must develop a system to record Baselines, and historical model calibrations.

To establish a Baseline, the ~~large electrical corporation~~Large Electrical Corporation must model the risk landscape assuming that no ~~projects~~Undergrounding Projects from ~~this~~the EUP program are constructed. This Baseline modeling must include any projects outside of ~~this~~the EUP program that the ~~large electrical corporation~~Large Electrical Corporation plans to undertake. This modeling will attempt to account for climate change. Baselines must be measured and reported at the same cadence as other risk model landscape at 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, and ~~60~~55 years.

Each Baseline must indicate the version of the modeling system~~,~~ and the model calibration(s) that were used to evaluate it. The Baselines must also indicate the date the Baseline was created, and the naming scheme of the Baselines must be consistent across the lifetime of the EUP. Any comparison of an Undergrounding Project or Alternative Mitigation to a Baseline must indicate what Baseline the comparison is being made to.

For Project-Level comparisons, such as the evaluation of the Project-Level Standard, the Baseline also establishes the grid length and alignment on which to make the future comparisons.

Core Capability ~~6~~7: Comparisons with Alternative Mitigation Strategies

The ~~large electrical corporation~~Large Electrical Corporation must demonstrate its method for comparing an Undergrounding ~~Projects~~Project with Alternative Mitigations ~~including covered conductor, remote fault detection technologies, enhanced vegetation management, installation of equipment related to enhanced powerline safety settings, and combinations thereof. All reasonable combinations of these alternative mitigations must be considered, unless a reason is given for exclusion of a permutation (e.g., two incompatible strategies would be used). This must include at least two alternative mitigations. For each project, the large electrical corporation must evaluate its Model Risk Landscape, using the same versioning and calibration, to produce a Separate Alternative Analysis and a Collective Alternative Analysis.~~

~~The Separate Alternative Analysis measures the risk reduction of a given project~~ as detailed in Section 2.7.10. Additionally, if ~~it were the only project and is compared to the Separate Analysis.~~

~~The Collective Alternative Analysis measures the risk reduction if the non-undergrounding project were inserted into the Portfolio instead of~~ the Undergrounding Project ~~that it replaces.~~

~~The Separate Alternative Analysis and the Collective Alternative Analysis must be reported at~~consists of both Undergrounding and overhead hardening Subprojects, as described in Core Capability 5, the Large Electrical Corporation must consider Undergrounding the entire Circuit Segment, or as much as is feasible due to geographic constraints, and report it as another Alternative Mitigation. In this case, only the risk reduction due to the Undergrounding Subprojects may be counted toward the Portfolio-Level ~~and~~Standards, Plan Tracking Objectives, and Plan Mitigation Objective. All the Subprojects (including non-undergrounding Subprojects) may be counted toward the Project-Level~~.~~ Standard. The entirely undergrounded alternative does not count toward the two required Alternative Mitigations.

~~System~~Further details on the required comparisons are given in Section 2.7.10.

2.7.5.1 Model Inputs and Considerations

The ~~large electrical corporation~~Large Electrical Corporation must provide a comprehensive ~~list~~summary of all model inputs used to compute ~~every~~each metric included in its Model Risk Landscape. This ~~list~~summary includes all real-world observations, KDMMs, precursor calculations and any other metric reported in the ~~Project Reference Sheet~~EUP or Portfolio Coversheet.

For each input category, the ~~large electrical corporation~~Large Electrical Corporation must formally define the term~~,~~ and describe the original data sources and the purpose of including these factors in the overall Risk Modeling Methodology in a narrative format of at most one page per requirement.

At minimum, the model inputs must include:

a. **Equipment / Assets** (e.g., type, age, inspection, maintenance procedures, etc.)
b. **Topography** (e.g., elevation, slope, aspect, etc.)
c. **Weather** (at a minimum this must include statistically extreme conditions based on weather history and seasonal weather)
d. **Vegetation** (e.g., type/class/species/fuel model, canopy height/base height/cover, growth rates, moisture content, inspection, clearance procedures, etc.)
e. **Climate change** (e.g., long-term changes in seasonal weather; statistical extreme weather; impact of change on vegetation species, growth, moisture, etc.~~) at~~. At a minimum, this must include adaptations of historical weather data to current and forecasting future climate.~~.~~)
f. **Social vulnerability** (e.g., socioeconomic factors, etc.)
g. **Physical vulnerability** (e.g., people, structures, critical facilities/infrastructure, etc.)
h. **Coping capacities** (e.g., limited access/egress, etc.)

2.7.5.2 Version and Calibration Changes

The ~~large electrical corporation~~Large Electric[illegible]orporation must describe its anticipated schedule for updating its modeling system and methods for recording these changes in a narrative section of one page or less~~.~~ in the EUP. The Large Electrical Corporation must establish a naming system to track h[illegible]rical versions and calibrations. The naming system must be described in a narrative s[illegible]on of one page or less in the EUP.

Version changes are qualitative updates that substantially change the way that the risk model operates and must be accompanied by a new model ~~verification~~ report (see Section ~~2.7.7 of these Guidelines~~2.7.2), the establishment of a new Baseline, and a backtest report (see Section ~~2.7.7 of these Guidelines). These~~2.7.6).

Version changes must markedly improve the Risk Modeling Methodology. The Large Electrical Corporation must substantiate this improvement through the submission of an updated Model Report, with all the sections and requirements detailed in Section 2.7.2, as a subsection of a Progress Report at least 6 months prior to the integration of the new version into the plan.

Calibration changes are smaller changes that do not significantly impact the Model Risk Landscape and only require the establishment of a new Baseline.

~~The EC must establish a naming system to track historical versions and calibrations.~~

Examples of qualitative updates that are large or significant enough to change the versioning of the modeling system include, but are not limited to:

a. Adding or removing any models to/from the system.
b. Replacing a model with an alternative.
c. Any update to a model which a ~~3rd~~third party model developer employed by the ~~large electrical corporation~~Large Electrical Corporation lists as a version update.
d. Retraining an overparameterized neural network on a new dataset.
e. Applying a new optimization procedure for a non-convex problem.
f. Implementation of a new methodology to compute a ~~PMV.~~Project Variable Modifier (PVM).

Examples of qualitative updates that are not significant updates to the version changes, but do qualify as calibration updates, include, but are not limited to, the following:

a. Updating an existing historical actuarial table.
b. Fixing minor code errors.
c. Cleaning input data.
~~d. Any changes to the Project Variable Modifiers (PVMs).~~
~~e.~~d. Updating a PVM based on new data, using a process established in the application or previous Progress Report.

~~2.7.6 Project Variable Modifiers (PVMs)~~

~~A project variable modifier is defined as the set of changes that are made to variables in the risk Modeling Methodology to evaluate the effectiveness of a given project or set of projects and represents how the large electrical corporation values the efficacy of the Alternative Mitigations. The large electrical corporation must list its Project Variable Modifiers, explain how the PVMs were calculated, and if and how their use varies in different evaluations of the Model Risk Landscape. Specifically, this encapsulates what input variables to what calculations are changed, and what is the effect on the output variables and KDMMs.~~

~~The large electrical corporation must describe the formal numerical processes used to arrive at these PVM. If the large electrical corporation employs third-party studies to get to these PVM, it must cite the studies here. If the PVM are the result of internal studies, then the large electrical corporation must describe the datasets, and detail the formal calculations. The large electrical corporation must also make available to Energy Safety the third-party studies and data upon request.~~

~~Baselines, Backtesting and~~The Large Electrical Corporation must include information on modeling changes in a narrative section of at most two pages in the Progress Reports.

~~2.7.7~~2.7.6 Baselines, Backtesting, Model Retention, and Subsequent Model Reports

The ~~large electrical corporation~~Large Electrical Corporation must establish model and calibration retention policies. The ~~large electrical corporation~~Large Electrical Corporation must retain models and calibrations data for the lifetime of the program.

The ~~large electrical corporation~~Large Electrical Corporation must describe its plan to update its Risk Modeling Methodology, including details regarding how and when model version updates and calibrations are planned. Any new calibration or versioning will require a new risk_model_id in the data submission. See Appendix C of these Guidelines for more details.

When a new model or model version is introduced to the Risk Modeling Methodology, ~~the large electrical corporation~~after the approval of an EUP, the Large Electrical Corporation must submit a ~~model report~~Model Report (as described in Section 2.7.2 and ~~2.7.5.2~~2.7.5.2 of these Guidelines) as a subsection of the Progress Report to Energy Safety as well as an historical backtest of the KDMM metrics for the past three years.

In each ~~progress report the large electrical corporation~~Model Report, including in Progress Report 0 and subsequent Progress Reports, the Large Electrical Corporation must establish a new Baseline as detailed in Section 2.7.5 of these Guidelines.

~~The large electrical corporation must include information on modeling changes in a narrative section of at most two pages in Progress Reports.~~

~~2.7.8 Portfolio-Level Standards~~

2.7.7 ~~The Portfolio is defined as a set of all Undergrounding Projects being considered at a point in time. The large electrical corporation~~Project Variable Modifiers (PVMs)

A Project Variable Modifier is defined as a set of changes that are made to variables in the Risk Modeling Methodology to evaluate the effectiveness of a given project or set of projects and represents how the Large Electrical Corporation values the efficacy of the Alternative

Mitigations. The Large Electrical Corporation must list each Project Variable Modifier, explain how the specific PVM was calculated, and explain if and how the use of a specific PVM varies in different evaluations of the Model Risk Landscape. Specifically, the Large Electrical Corporation should provide a general description summarizing what input variables to what calculations are changed, and what is the effect on the output variables and KDMMs. This information may be reported on an average-case basis.

The Large Electrical Corporation must provide a high-level description of the formal numerical processes used to arrive at the PVM. If the Large Electrical Corporation employs third-party studies to get to the PVM, it must cite the studies here. If the PVM is the result of internal studies, then the Large Electrical Corporation must describe the datasets, and detail the formal calculations. The Large Electrical Corporation must also make available to Energy Safety the third-party studies and data upon request both during the review of the EUP and anytime during the expected lifetime of the assets installed though the EUP.

2.7.8 Portfolio-Level Standards

The Portfolio is the set of all Confirmed Projects at Screen 3 or later. A Portfolio is a unique list of Confirmed Projects, and adding or removing Confirmed Projects from the list constitutes an update to the Portfolio and must be indicated with a new portfolio ID. The Large Electrical Corporation must update the Portfolio as Undergrounding Projects are added, removed, or changed, and report these changes through Progress Reports. All Undergrounding Projects that have passed through Screen 3 (Project Risk Analysis), and have not been abandoned, must be included in the Portfolio.

The ~~large electrical corporation~~Large Electrical Corporation must set an Ignition Risk Decrease Standard and a Reliability Increase Standard (collectively, Portfolio-Level Standards). These Portfolio-Level Standards ~~determine~~measure the "substantial" decrease in Ignition Risk and increase in ~~Reliability~~reliability per section 8388.5(d)(2) and will be used to judge the overall efficacy and efficiency of the EUP. These standards must be measured on a per-mile basis.

a. **Ignition Risk Decrease Standard** is the minimum decrease in ~~Ignition~~ ignition-related metrics, as measured through formal calculations of the KDMMs across the entire system at both the System-Level and Portfolio-Level, that the EUP must achieve to meet the required decrease in wildfire risk.
b. **Reliability Increase Standard** is the minimum decrease in Outage Program-related metrics, as measured through formal calculations of the KDMMs across the entire system at both the System-Level and Portfolio-Level, that the EUP must achieve to meet the required increase in reliability.

~~The Portfolio Standards must ensure that at least 50% of circuits that exceed one or more of the Project-Level Thresholds outlined in Section 2.7.9 of these Guidelines and are not already addressed by another program are addressed through the EUP. The large electrical corporation must explain the Portfolio Standards using explicit calculations of the KDMMs.~~

~~The large electrical corporation~~The Large Electrical Corporation must use KDMMs that represent the minimum reduction of Ignition Risk and Outage Program Risk, across its entire electrical distribution system, on an average-case basis necessary for the EUP to be considered successful under the ~~Portfolio~~Plan Mitigation Objective. It is not necessary for each iteration of the Portfolio to meet each of these Portfolio-Level Standards. Comparison to the Portfolio-Level Standards represents an intermediate measurement of the anticipated progress achieved by the Portfolio as scoped at any given time (i.e., those Undergrounding Projects that have passed through Screen 3) in a manner which scales with the size of the Portfolio.

2.7.9 Project-Level Thresholds and Standards

2.7.9.1 Project-Level Thresholds

The ~~large electrical corporation~~Large Electrical Corporation must set and explain a High-Risk Threshold, Ignition Tail Risk Threshold, High Frequency Outage Program Threshold, and Mitigated Risk Threshold (collectively, Project-Level Thresholds), using a combination of the KDMMs to establish the need for mitigation on a Circuit Segment. These Project-Level Thresholds are fixed when the EUP is approved and cannot be altered when risk model versioning or calibration changes occur or when any other changes are made.

a. **High-Risk Threshold** is the Overall Utility Risk level above which a ~~circuit segment~~Circuit Segment is considered eligible for examination for expedited undergrounding. This threshold should consider the size of the Circuit Segment and therefore may be calculated as a normalized score, provided that the Large Electrical Corporation justifies this normalization.

b. **Ignition Tail Risk Threshold** is the measure of consequence above which a ~~circuit segment~~Circuit Segment is considered to have significant potential for ignition of a catastrophic wildfire, so that it merits special consideration. This threshold must represent less than 1% of ~~circuit segments~~Circuit Segments in the entire system by mile and no more than 10% of the ~~wildfire consequence~~Ignition Consequence by score.

c. **High Frequency Outage Program Threshold** is the measure of likelihood above which a Circuit Segment is considered to have a significantly high likelihood of frequent or prolonged disruption of service to customers. This threshold must measure both likelihood of an Outage Program Event and its anticipated length. This threshold must represent less than 1% of ~~circuit segments~~Circuit Segments in the entire system by mile and no more than 10% of Outage Program Likelihood by score.

d. **Mitigated Risk Threshold** is the combined measure of Ignition Risk and Outage Program Risk below which a ~~circuit segment is considered to be~~Circuit Segment is of acceptable risk.

2.7.9.2 Project-Level Standards

The ~~large electrical corporation~~Large Electrical Corporation must set and explain Project-Level ~~standards~~Standards, using a combination of the KDMMs to determine the necessary level of risk reduction needed for ~~a Circuit Segment.~~ an Undergrounding Project to be considered to merit inclusion without considering other EUP projects. These Project-Level Standards are measured against the Baseline in place at the time the Undergrounding Project completes Screen 3. The Project-Level Standards are fixed when the EUP is approved and cannot be altered when risk model versioning or calibration changes occur or when any other changes are made.

It is not necessary for every Undergrounding Project in the Portfolio to meet these Project-Level Standards, but any Confirmed Project which does not meet the appropriate Project-Level Standard must be further justified in the narrative submission associated with the Confirmed Project in the relevant section of the tabular data submission (see Appendix C.1.12).

The proposed ~~standards~~Project-Level Standards, when considered in the context of the EUP and risk landscape, must ensure the EUP substantially increases electrical reliability by reducing the use of public safety power shutoffs, enhanced powerline safety settings, deenergization events, and any other outage programs, and substantially reduces the risk of wildfire.

a. **Risk Reduction Project Level Standard** is the minimum decrease in Ignition Risk and Outage Program Risk, that an Undergrounding Project must achieve to support the ~~Portfolio~~Plan Mitigation Objective. This reduction in wildfire risk and increase in reliability must, at minimum, reduce the risk of the ~~circuit segment~~Circuit Segment to below the Mitigated Risk Threshold.

b. **High Frequency Outage Program Mitigation Standard** is the minimum decrease in Outage Program Likelihood as measured through formal calculations of the KDMMs that any ~~project~~Undergrounding Project considered under the High Frequency Outage Program must achieve to meet the required substantial increase in electrical reliability achieved by reducing the use of public safety power shutoffs, enhanced powerline safety settings, deenergization events, and any other outage programs.

c. **Tail Risk Mitigation Project Level Standard** is the minimum decrease in wildfire likelihood that any ~~project~~Undergrounding Project considered under the Ignition Tail Risk Threshold must achieve to meet the required substantial reduction of the risk of wildfire.

2.7.10 Comparative Metrics

For each Undergrounding Project, the Large Electrical Corporation must compare its project to the required design variations outlined below, including an evaluation of at least two

comparable Alternative Mitigations. Alternative Mitigations may include, but are not limited to, covered conductor, remote fault detection technologies, installation of equipment and settings related to enhanced powerline safety settings, high impedance fault detection, and any combinations thereof. Further information on these required comparisons can be found in Section C.1.11 (Screen 2 Table), Section C.1.12 (Screen 3 Table), and Section C.1.14 (Project Index Table) of Appendix C.

For the purpose of comparisons in this section, the Undergrounding Project is considered to be a 100% undergrounded Circuit Segment in Screen 2. After the project scoping phase in Screen 3, it may be determined that an Undergrounding Project will require non-undergrounding Subprojects. If this happens, the project must be analyzed both as the **Project as Scoped** (see Required Design Variations below) which includes the non-undergrounding Subprojects and the **Undergrounding as Scoped** (see Required Design Variations below) in Screen 3. Screen 2 comparisons must then be updated to include both the Project as Scoped and the Undergrounding as Scoped.

Design Variations Required for Comparison:

- **100% Undergrounded**: A completely undergrounded Circuit Segment must be included as a design variation. This design variation must be used to justify the Project-Level Standards.
- **Project as Scoped**: If the project is scoped to include non-undergrounding Subprojects, then this design variation must include all work in the final project design, including all Undergrounding and non-undergrounding Subprojects. This design variation must be used to justify the Project-Level Standards. This design variation may be omitted if the Circuit Segment will not contain multiple mitigations.
- **Undergrounding as Scoped**: If the project is scoped to include non-undergrounding Subprojects, then this design variation must include only the portion of the Circuit Segment that is to be undergrounded (e.g. just the Undergrounding Subproject(s) without any of the non-undergrounding Subprojects). This design variation must be used to justify the Portfolio-Level Standards, Plan Mitigation Objective, and Plan Tracking Objective. This design variation may be omitted if the Circuit Segment will not contain multiple mitigations.
- **Baseline:** For Screen 3 only, the unmitigated Circuit Segment must be analyzed as a basis for the comparison of the Undergrounding Project. For Circuit Segments in Wildfire Rebuild Areas, the pre-wildfire distribution system must be used as a baseline.
- **Alternative Mitigation 1**: One design variation must include installation of covered conductor on the entire Circuit Segment and some type of protective equipment and

device settings[15] used to reduce wildfire ignition. The protective equipment and device settings can include, but are not limited to, one or more of the following: enhanced power safety settings (EPSS), Fast Curve Settings, Sensitive Relay Profile, downed conductor detection (DCD), high impedance fault detection, fast trip, or other electronic fault detection.

- **Alternative Mitigation 2**: One design variation must include one other mitigation or combination of mitigations that meet or exceed the risk reduction of Alternative Mitigation 1. This can include mitigation strategies currently in use by the Large Electrical Corporation or other new and proven technologies that could be reasonably implemented. The mitigations used in Alternative Mitigation 1 may be included in the combination of mitigations chosen for Alternative Mitigation 2.

Additional Design Variations:

- **Additional Design Variations:** The Large Electrical Corporation may include additional design variations for any other combination of alternative mitigations that it wishes to report. Any unique combination of Alternative Mitigations that meet the Project-Level Standards and could be reasonably implemented by the Large Electrical Corporation should be included.

In every design variation listed above, only the feasible work should be included. For example, if the Circuit Segment contains a large river crossing, the cost to bore under the river should not be included in the design of a fully undergrounded Circuit Segment's cost, if it is prohibitively high relative to the rest of the project.

2.8 Reporting Metrics

This section contains detailed instructions on how the ~~large electrical corporation~~Large Electrical Corporation will report on its Risk Modeling Methodology, ~~its~~ Portfolio of Undergrounding Projects, individual Undergrounding Projects, development of new models, and non-model-based projections. Template files for use by the ~~large electrical corporation~~Large Electrical Corporation will be made available ~~at~~on the e-filing docket at Energy Safety's website. Where possible, Energy Safety and the CPUC reporting requirements will be streamlined and consistent.

[15] The term Protective Equipment and Device Settings (PEDS) has been defined by the CPUC as advanced safety settings implemented by electric investor-owned utilities (IOUs) on electric utility powerlines to reduce wildfire. (https://www.cpuc.ca.gov/industries-and-topics/wildfires/protective-equipment-device-settings, accessed September 09, 2024)

2.8.1 Tabular Data Submission

Progress Report 0 and each subsequent Progress Report must include the following tables~~,~~ and reflect the most current information as of each Progress Report submission:

a. A Plan Table identifying information about the ~~large electrical corporation~~Large Electrical Corporation, the EUP, and thresholds. This Table is not modified during Progress Reports.

b. A KDMM Table listing all KDMMs used by the ~~large electrical corporation~~Large Electrical Corporation in ~~their~~its EUP, with explanations. This ~~Table~~table is not modified during Progress Reports.

c. A Risk Model ~~Circuit~~Version History Table listing and describing all iterations of the risk model versioning and calibration to date.

d. A Portfolio Table that summarizes the Undergrounding Projects at the System-Level and Portfolio-Level.

e. A Risk Model Backtesting Table listing risk models versioning and calibration information, along with their corresponding KDMM values for each version and calibration.

~~e.~~f. A Circuit Segment Identification Table that summarizes identifying information for each Circuit Segment in the utility service territory.

g. A Circuit Segment Changelog Table that tracks changes to Circuit Segment IDs and/or Circuit Segment lengths.

~~f.~~h. A Circuit Segment Risk Score Table that summarizes the risk values for each Circuit Segment in the utility service territory.

~~g.~~i. A Screen History Table tracking the progress of each Circuit Segment through the multiple screens required before an ~~underground~~ project takes ~~place~~Undergrounding Project is constructed.

~~h.~~j. A Project Table for each project, after passing Screen 2, that details each Undergrounding Project, including risk tranching, selection justification, and location at the county and division level.

~~i.~~k. A Screen 2 Table comparing the cost and benefit information for each project, after passing Screen 2, against multiple ~~alternative mitigations~~Alternative Mitigations.

~~j.~~l. A Screen 3 Table comparing the detailed risk modeling projections for each project, after passing Screen 3, against multiple ~~alternative mitigations~~Alternative Mitigations.

~~k.~~m. A ~~Project Status~~Subproject Table ~~for each project that tracks the scoping, modeling~~listing Subproject IDs, their mitigation selection, and construction ~~status for each project, after passing~~information for all Subprojects that are part of Confirmed Projects that have passed Screen 4.

~~l. A Project Construction Table for each project that tracks the project construction and completion status for each project, after reaching the "Ready For Construction" status in the Project Status Table.~~

~~m.~~n. A Project Index Table which summarizes the project information in an easily searchable format ~~and references the Project Refence Sheet.~~ See ~~Section 2.8.7.1 and~~ Appendix C.1.~~12~~14 of these Guidelines for details.

Details about each table, the requirements for the submission, and other instructions are found in Appendix C.1 of these Guidelines.

2.8.2 JSON Data Submission

The ~~large electrical corporation~~Large Electrical Corporation must submit the following JSON data in each Progress Report, including Progress Report 0:

a. A Project Variable Modifiers JSON as described in Section 2.8.5.2 and Appendix C of these Guidelines.
b. A Model Risk Landscape JSON, as described in Appendix C of these Guidelines, with information for each project ~~after passing~~that has passed Screen 3.

These files must reflect the most current information as of each Progress Report submission. Further details on JSON submissions are in Section 3.11 of these Guidelines and in Appendix C.

The ~~large electrical corporation~~Large Electrical Corporation must convert its JSON data submission into ~~csv~~Comma Separated Values (CSV) format and host the ~~.~~CSV files on a publicly available ~~web page~~webpage dedicated to its EUP, as described in Section 3.~~9~~8.1 of these Guidelines.

2.8.3 Spatial Data Reporting for Projects

The ~~large electrical corporation~~Large Electrical Corporation must report additional modeling and Project-Level data though a geodatabase submission. This information will identify isolatable Circuit Segments, Undergrounding Projects, overhead lines that will be deenergized after completion of projects, and critical pieces of infrastructure equipment. The ~~large electrical corporation~~Large Electrical Corporation must update information reported in geodatabase submissions in each Progress Report.

The ~~large electrical corporation~~Large Electrical Corporation must report in its geodatabase submission all Undergrounding Projects that have passed Screen 1 (Circuit Segment Eligibility). The ~~large electrical corporation~~Large Electrical Corporation must indicate the right-of-way and current Project Planning and Construction Phase for all Confirmed Projects (projects that have passed Screen 3 ~~(~~ Project Risk Analysis~~)).~~).

Further details about these submissions are found in Appendix C.3.

2.8.4 Data Validation

Energy Safety will review and validate data and reject data submissions that do not meet the criteria in this section. If a submission fails the validation check and is rejected, the ~~large electrical corporation~~Large Electrical Corporation must correct the errors and resubmit its data as directed by Energy Safety.

Energy Safety will review EUP data submissions according to the following validation criteria:

a. **Data Consistency**: Data is properly labeled with unique integer identifiers, and labels remain consistent both within a submission and from one submission to another.
b. **Structural Integrity**: Data conforms to the required types and modes, such that it can be ingested into Energy Safety data systems.
c. **Completeness**: All required components are included in each submission.
d. **Computational Accuracy**: All summations and other data aggregations within the submission are calculated accurately.

Additionally, when there is no data for a particular field, the ~~large electrical corporation~~Large Electrical Corporation must leave the field null (empty), except where "N/A" is specified and the conditions for its use are met. ~~A large electrical corporation~~The Large Electrical Corporation must not place "Unknown", "0", empty spaces, or other placeholders into fields, or use the "Other, see comment" option~~,~~ when no data are available.

2.8.5 Risk Modeling Methodology Verification Data

This section describes the numerical and visual elements that the ~~large electrical corporation~~Large Electrical Corporation must submit to establish the veracity of its Risk Modeling Methodology.

2.8.5.1 Model Risk Landscape Variables Table

The EUP must include a Model Risk Landscape Variables Table as referenced in Section 2.7 of these Guidelines, that lists each metric in the ~~large electrical corporation's~~Large Electrical Corporation's Model Risk Landscape per the example below and report values at the highest available resolution ~~in the Project Reference Sheets.~~ This table must include the numerical type of each metric, which risk factors that it addresses, the resolution of the modeling, indicate whether the metric is considered a KDMM, and identify what other metric(s) it is a precursor for.

Table 4. Example Model Risk Landscape Variables Table

Field Name	Type	Addresses	Resolution	Is KDMM?	Precursor for
Ignition Risk	TBD	Ignition Risk	Per Circuit	Yes	None
Ignition Consequence	TBD	Ignition Risk	Per Area Unit	Yes	Ignition Risk Score
Ignition Likelihood	Prob-ability	Ignition Risk	Per Circuit Segment	No	Ignition Risk Score
Equipment Risk	TBD	Ignition Risk	Per Circuit Segment	No	Ignition Likelihood, Ignition Consequence, Ignition Risk score
Outage Program Risk	TBD	Outage Program Reliability	Per Circuit	Yes	None
Outage Program Likelihood	Prob-ability	Outage Program Reliability	Per Circuit	Yes	Outage Program Risk

An example table listing the metrics of a model risk landscape and explaining its key attributes.

2.8.5.2 Reporting Project Variable Modifiers

The EUP and each Progress Report (including Progress Report 0) must contain a table summarizing the PVMs as referenced in Section 2.7 and Section 2.8.6 of these Guidelines.

The "~~Project~~Mitigation Type" column describes the nature of the work conducted in the project. The ~~large electrical corporation~~Large Electrical Corporation must, at minimum, consider ~~undergrounding, covered conductor and other hardening alternatives, enhanced vegetation management, fast trip systems and other remote sensing technologies, and line removal, but~~the alternative mitigations described in Section 2.7.10. It may include other alternative methods~~,~~ or divide these types of projects into differentiable sub-types when appropriate.

The "Model" column indicates which models the PVM effects.

The "Inputs Modified" column describes which of the model inputs are changed.

The "Delta" column describes how the inputs are changed, and may be represented as percentages, changes in distribution, changes in category or any other changes to the inputs that the PVM accomplishes.

The "Other Notes" column contains narrative material that clarifies the way that the PVM affects the inputs.

Table 5. Example Project Variable Modifiers Inputs

~~Project~~Mitigation Type	Model	Inputs Modified	Delta	Other Notes
Undergrounding	Equipment Model	Self-Combustion Likelihood	-94 +/- 3%	This PVM has a variable delta depending on the age of the equipment it is replacing.
	Ignition Likelihood Model	Contact From Vegetation	-96%	
		Contact From Object	-94%	
Covered Conductor	Ignition Likelihood Model	Contact From Vegetation	-70%	
~~**Enhanced Vegetation Management**~~	~~Vegetation Growth Model~~	~~Vegetation Zone~~	~~-1 Zone~~	~~This PVM changes the classification of the growth zone. It effects the model at a hyperparameter level.~~

An example table listing the Project Variable Modifiers for different mitigation strategies. Note that the table includes what inputs to what models are changed and how they are changed. The Other Notes column allows for a short explanation of the change.

The large electric corporationLarge Electrical Corporation must report the effects of applying these PVMs to its Portfolio. The large electrical corporationLarge Electrical Corporation must compute the distribution of the changes to each KDMM, for each projectmitigation type and report it in a table that will be attached to the Portfolio Coversheet. An example is given below:

Table 6. Example Project Variable Modifiers Outputs

ProjectMitigation Type	KDMM	Change	Variance
Undergrounding	Ignition Risk	-90%	+/-5%
	Ignition Likelihood	-90%	+/-5%
	PSPSOutage Program Risk	-40%	+/-5%
Covered Conductor	Ignition Risk	-90%	+/-5%
	Ignition Likelihood	-90%	+/-5%
	PSPSOutage Program Risk	-40%	+/-5%

An example table showing how the Project Variable Modifiers for different mitigation strategies effects KDMMs on average. It reports the mean and variance.

2.8.5.3 Verifying and Validating New Model Versions

If the large electrical corporationLarge Electrical Corporation changes its Risk Modeling Methodology in a way that triggers a versioning update, it must backtest the new models using at least three years of historical data. These backtests must include a Project-Level analysis of each Confirmed Project that passed through Screen 3 (Project Risk Analysis) in the past three years.

TheseThe results of these tests must be submitted as an additional data submission following the data schema established in Appendix C.

These backtests must also be summarized in a series of Portfolio Coversheets corresponding to each calibration employed in the past three years.

2.8.6 Reporting a Portfolio of Undergrounding Projects

The ~~large electrical corporation~~Large Electrical Corporation must establish a naming system to track the evolution of the Portfolio overtime. Adding or removing any project to or from the Portfolio constitutes a Portfolio update and will be indicated by incrementing some value(s) in name. ~~Each~~The plan ~~must~~can only have one ~~and only one~~ Portfolio.

2.8.6.1 Portfolio Coversheet Overview

The Portfolio Coversheet is a text document which summarizes the macro-level impacts of the EUP. The ~~large electrical corporation~~Large Electrical Corporation must submit the Portfolio Coversheet in Progress Report 0 and each subsequent Progress Report. The content of the Portfolio Coversheet must be updated with the most up-to-date information available in each Progress Report. ~~An example Portfolio Coversheet is provided in Appendix D.~~

The figures and tables in the Portfolio Coversheet will summarize the most important aspects of the risk modeling at the System Level and Portfolio Level, and must be accompanied by a data submission as detailed in Appendix C.

The Portfolio Coversheet must ~~in~~ include a narrative section which details the formal definition and calculations of the Portfolio-Level ~~Thresholds~~Standards as directed in Section 2.7.8 of these Guidelines.

The Portfolio Coversheet must include a narrative of no more than one page explaining why any Circuit Segment in the top 5% of Overall Utility Risk by score was not included in the EUP.

The Portfolio Coversheet must include a table showing the instantaneous and cumulative values or scores for each KDMM ~~for~~at 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, and ~~60~~55 years. The instantaneous values describe the risk at a single moment in time, while the cumulative values indicate the accumulation over a time. Values that do not accumulate over time, such as consequence scores, must be reported as a value at a given time.

2.8.6.2 System and Portfolio-Level Risk Matrices and Profiles for Key Decision-Making Metrics

The EUP must include a series of visualizations and tables for each of the KDMMs showing the KDMM's distribution both with and without the Portfolio's modeled mitigation. These visualizations will be included in the Portfolio Coversheet.

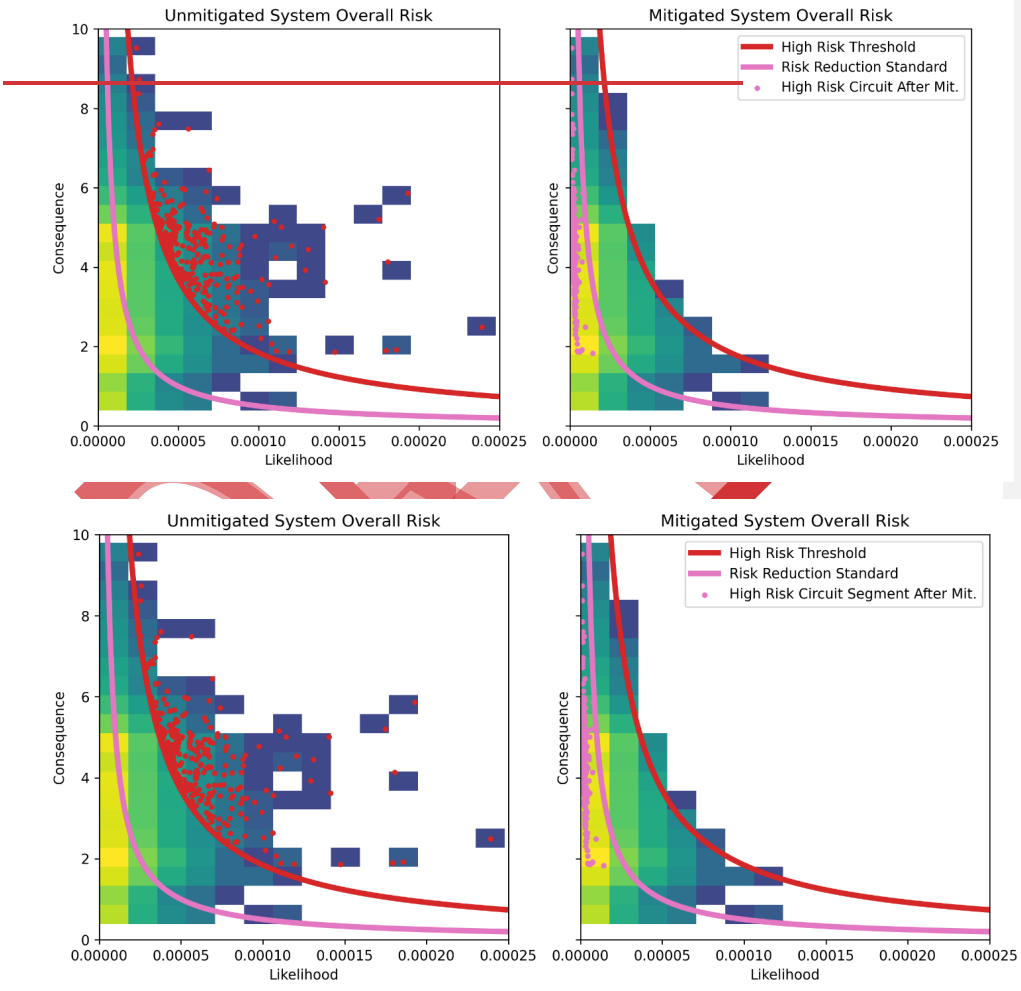
On the Portfolio Coversheet, each KDMM's distribution must be reported on both a system-wide and Portfolio-wide scale and emphasize the position of projects within the risk landscape. Every figure and table on the Portfolio Coversheet must include a caption explaining the figure.

Risk scores, the product of likelihood and consequence, must be reported as two-dimensional risk matrices. Risk scores can be weighted if appropriate. Two examples of risk score matrices for Ignition Risk are presented below (Figures ~~2-5~~3-6), followed by another

example of a risk score matrix for Outage Program Risk (Figures ~~6~~ 7 ~~8~~). Note that the units and scales are not meant to be realistic and are for illustrative purposes only.

~~Figure 2.~~ Examples are given below. Note that the units and scales are not meant to be realistic and are for illustrative purposes only.

Figure 3. Example of Risk Score Matrix Demonstrating Substantial Improvements in Overall Utility Risk Expected due to EUP

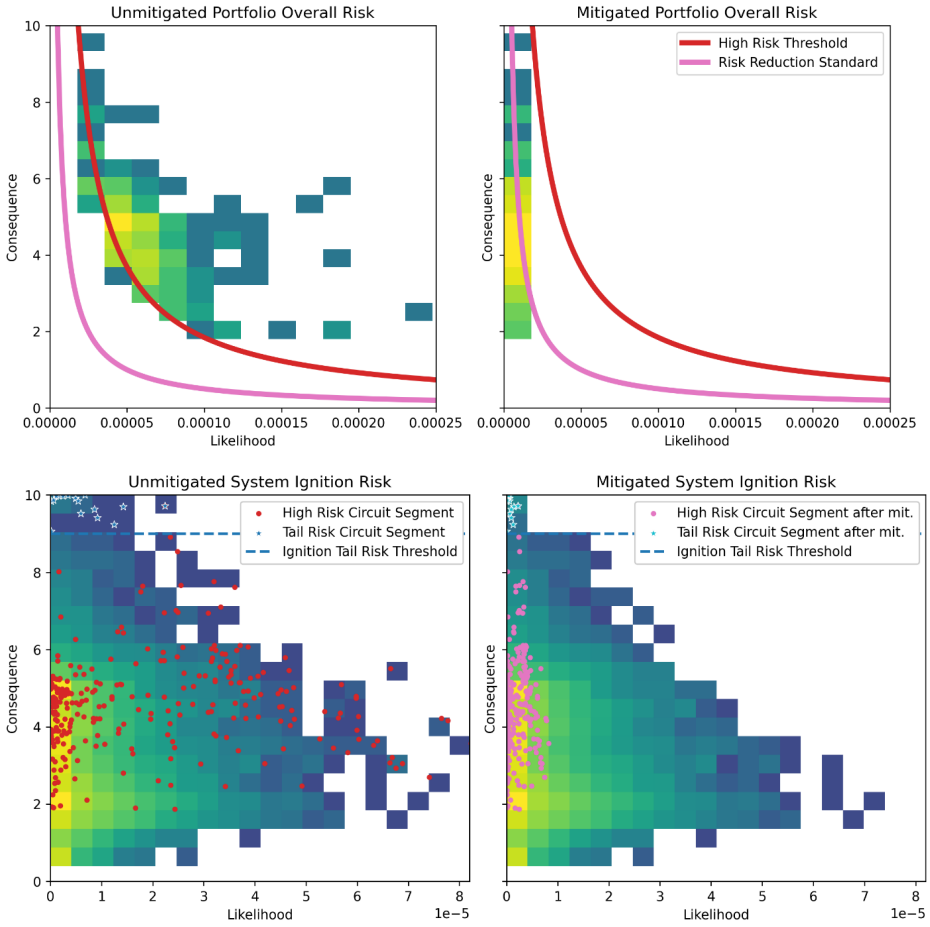


Demonstration of substantial improvements in Overall Utility Risk expected due to EUP, using only Overall Utility Risk as a KDMM. Each plot shows potential Adverse Event Consequence on the y-axis (in arbitrary units), and Adverse Event Likelihood on the x-axis (in arbitrary units), considering both Outage Program Risk and Ignition Risk. The distribution of a model system of Circuit Segments is shown using the heatmap in background. The red line shows the High-Risk Threshold used to identify projects to underground, and the pink line is the Overall Utility Risk Decrease Project-Level Standard required for projects to reach after mitigation.

Left: Data for the electrical distribution system, before any EUP mitigations have taken place. The red points represent all Circuit Segments selected for ~~undergrounding~~Undergrounding, which are selected because they are found above the ~~red~~High Risk Threshold line.

Right: Data for the full system after ~~undergrounding.~~Undergrounding. The heatmap has changed to reflect the ~~circuits~~Circuit Segments moving to lower likelihood. Pink points represent the same selected ~~circuits~~Circuit Segments after mitigation.

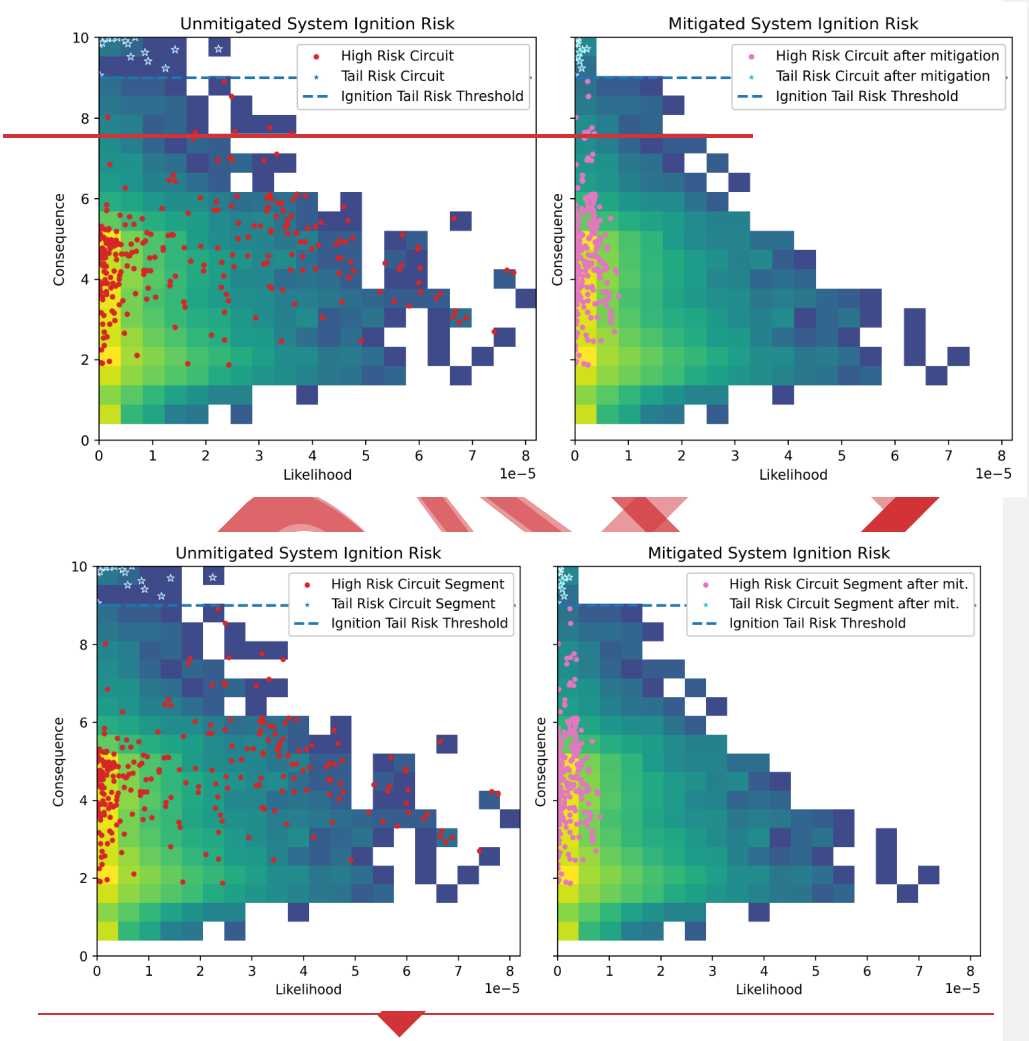
Figure 4. Example of Risk Score Matrix for Portfolio-Level Overall Utility Risk



Same as Figure ~~23~~ 23, but only showing the heatmap of the Portfolio, not the full system.

Left: The Portfolio prior to mitigation. Right: The same Portfolio after mitigations ~~is~~ are applied.

Figure 5. Example of Risk Score Matrix for Demonstration of Substantial Improvements in Ignition Risk



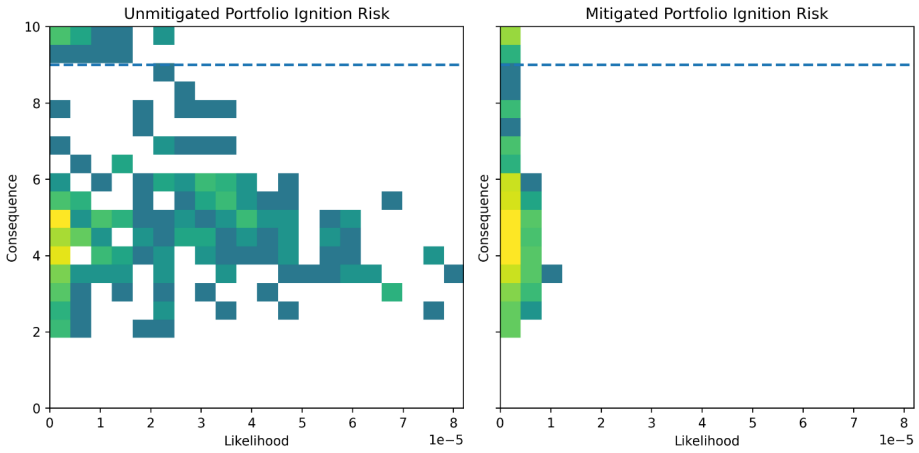
A demonstration of substantial improvements in Ignition Risk expected due to EUP, using overall risk (of Outage Programs and Ignition Risk), as well as wildfire consequence, as KDMMs. Each plot shows potential Ignition Consequence on the y-axis (in arbitrary units), and Ignition Likelihood on the x-axis (in arbitrary units). The distribution of a model system of Circuit

Segments is shown using the heatmap in background, with the Ignition Tail Risk Threshold shown as a blue dotted line.

Left: Data for the electrical distribution system, before any EUP mitigations have taken place. The red points represent all ~~circuits~~Circuit Segments selected for ~~undergrounding~~Undergrounding due to high overall risk, and blue stars represent the ~~circuits~~Circuit Segments selected for exceeding the Ignition Tail Risk Threshold.

Right: Data for the full system after ~~undergrounding.~~Undergrounding. The heatmap has changed to reflect the ~~circuits~~Circuit Segments moving to lower likelihood. Pink points and teal stars represent the same selected high-risk and tail-risk ~~circuits~~Circuit Segments, respectively, after mitigation.

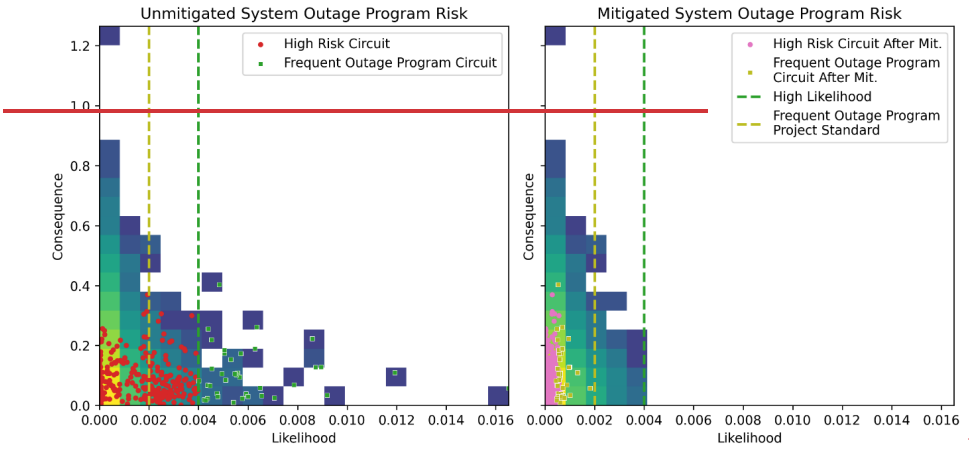
Figure 6. Example Risk Score Matrix for Portfolio-Level Ignition Risk

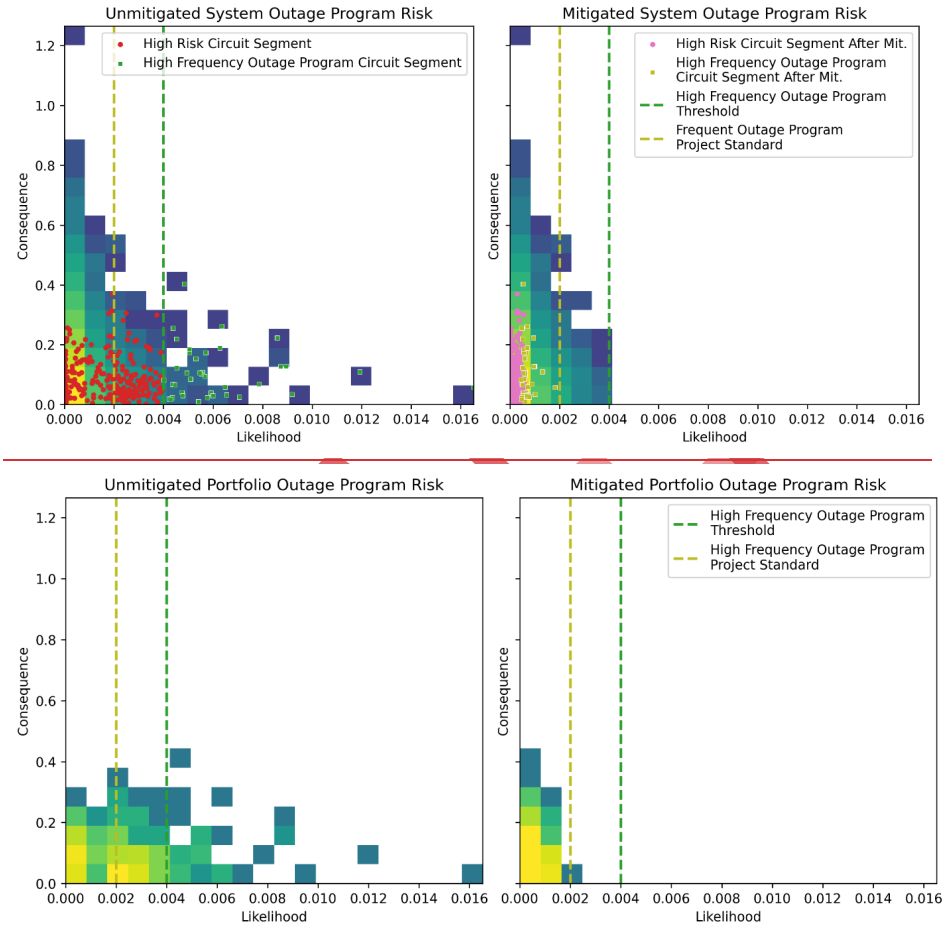


Same as Figure ~~4~~5, but only showing the heatmap of the Portfolio of projects, not the full system.

Left: The Portfolio prior to mitigation. Right: The same Portfolio after mitigations ~~is~~are applied.

Figure 7. Example of Risk Score Matrix for Demonstration of Substantial Improvement in Outage Program Risk





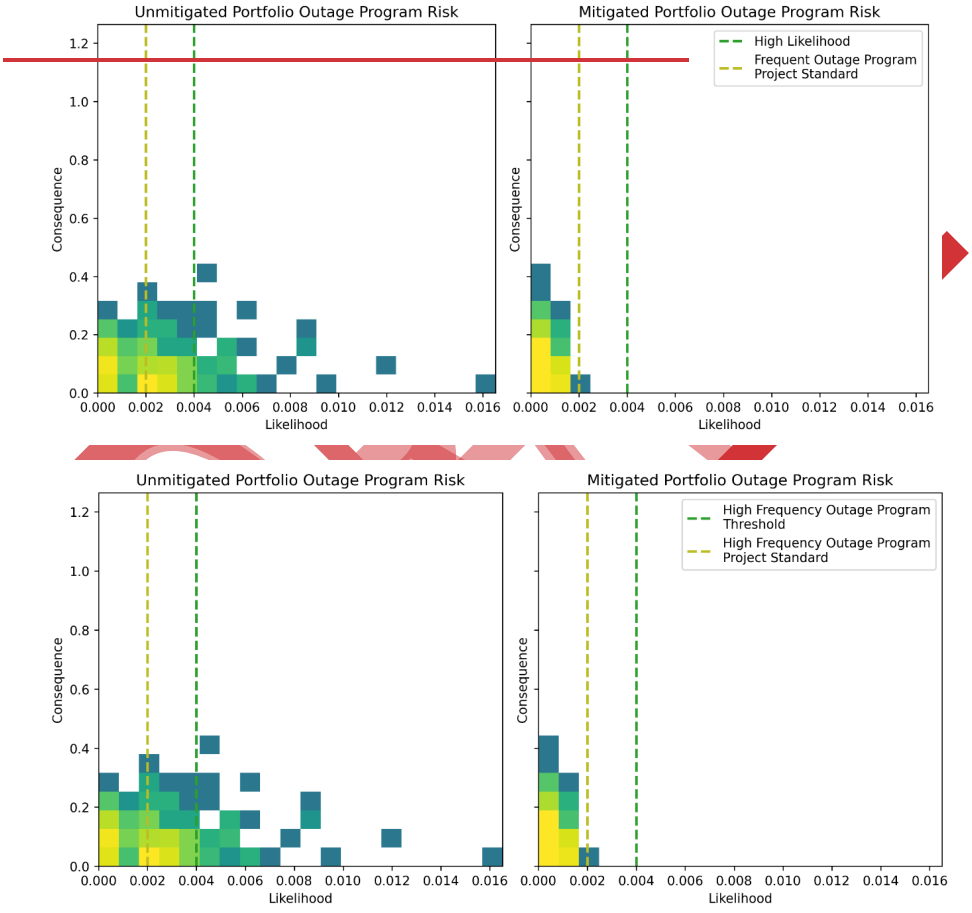
Demonstration of substantial improvement in Outage Program Risk expected due to EUP, using overall risk (of Outage Programs and Ignition Risk), as well as Outage Program Likelihood, as KDMMs. Each plot shows potential Outage Program Consequence on the y-axis (in arbitrary units), and Outage Program Likelihood on the x-axis (in arbitrary units). The distribution of a model system of Circuit Segments is shown using the heatmap in background, with ~~the Frequent~~High Frequency Outage Program Threshold shown as a green dotted line and High Frequency Outage Program Mitigation Standard is shown as an olive dotted line.

Left: Data for the electrical distribution system, before any EUP mitigations have taken place. The red points represent all ~~circuits~~Circuit Segments selected for undergrounding due to high

overall risk, and green squares represent the ~~circuits~~Circuit Segments selected exceeding the ~~Frequent~~High Frequency Outage Program Threshold.

Right: Data for the full system after ~~undergrounding.~~Undergrounding. The heatmap has changed to reflect the ~~circuits~~Circuit Segments moving to lower likelihood. Pink points and olive squares represent the same selected ~~high risk~~High-Risk and ~~Frequent~~High Frequency Outage Program ~~circuits~~Circuit Segments, respectively, after mitigation.

Figure 8. Example Risk Matrix for Portfolio-Level Outage Program Risk



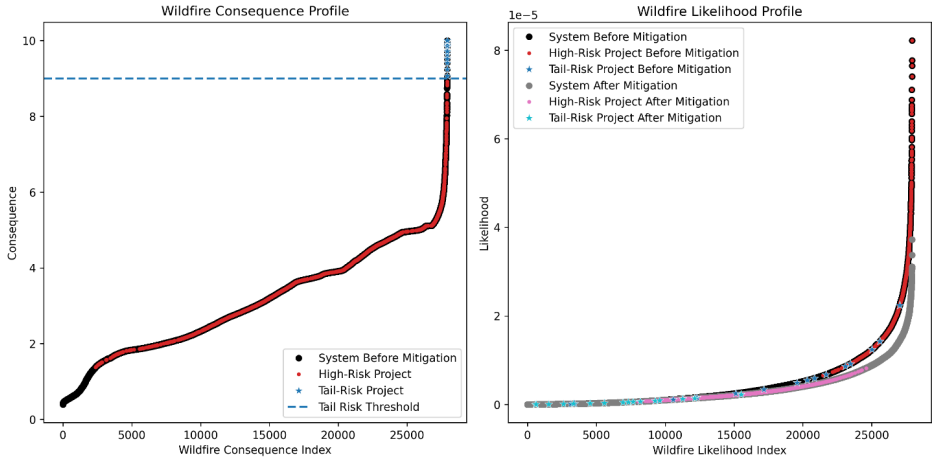
Same as Figure ~~6~~7, but only showing the heatmap of the Portfolio of projects, not the full system.

Left: The Portfolio prior to mitigation. Right: The same Portfolio after mitigations ~~is~~are applied. Ignition Likelihood and Ignition Consequence are reported as profiles, ranked in ascending order. The Ignition Consequence Profile must indicate the ~~large electrical corporation's~~Large Electrical Corporation's Ignition Tail Risk Threshold. Outage Program Likelihood and Outage Program Consequence must be reported similarly to Ignition Likelihood and Ignition Consequence. The System Outage Program Likelihood Profile must indicate the ~~large electrical corporation's~~Large Electrical Corporation's High Frequency Outage Program Threshold and High Frequency Outage Program Mitigation Standard.

~~Examples are given below. Note that the units and scales are not meant to be realistic and are for illustrative purposes only.~~

~~Figure~~

Figure 9. Example of Ignition Consequence and Likelihood Profiles

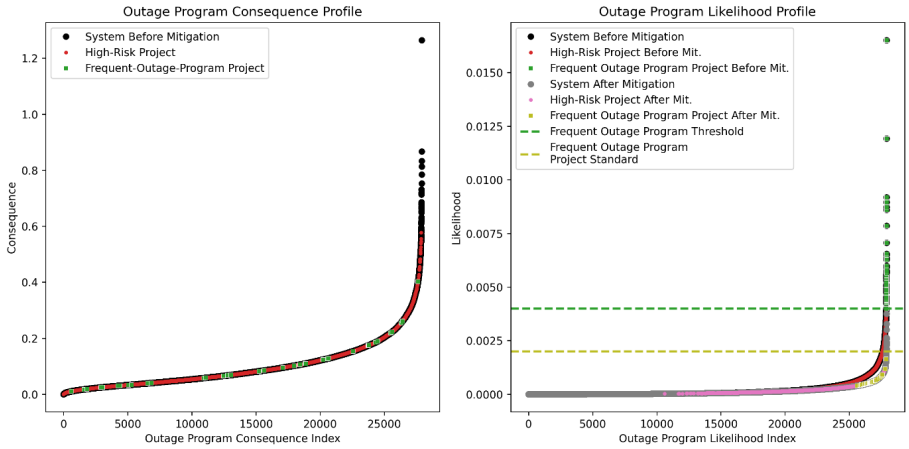


Ignition Consequence and Likelihood Profiles, showing selected ~~circuits~~Circuit Segments using Ignition Risk and wildfire consequence as KDMMs.

Left: All ~~circuit segments~~Circuit Segments within the system ordered from lowest to highest consequence, with the y-axis showing consequence scores (arbitrary units). The blue line is the Tail Risk Threshold for selection via Ignition Consequence, and blue stars are ~~circuit segments~~Circuit Segments above this line. Red dots indicate High-Risk Projects, selected due to high Ignition Risk. Because the mitigations considered here can only impact likelihood and not consequence of wildfire, there is no change to this graph after mitigation.

Right: All ~~circuit segments~~Circuit Segments within the system ordered from lowest to highest Ignition Likelihood, with the y-axis showing likelihood scores (arbitrary units). Red points and blue stars are the same ~~circuits~~Circuit Segments as in the leftmost plot, though they are not ranked in the same order. Plotted over this is the system after mitigation (grey points), with the pink points and cyan stars showing the undergrounded high-risk (red points) and tail-risk (blue stars) ~~circuits~~Circuit Segments, respectively.

Figure 10. Example Outage Program Consequence and Likelihood Profiles



Outage Program Consequence and Likelihood Profiles showing selected ~~circuits~~Circuit Segments using Outage Program Risk and Outage Program Consequence as KDMMs.

Left: All ~~circuit segments~~Circuit Segments within the system ordered from lowest to highest consequence, with the y-axis showing consequence scores (arbitrary units). Green squares are Undergrounding Projects selected because their Outage Program Likelihood exceeds the ~~Frequent~~High Frequency Outage Program Threshold (see right-side plot). Red dots indicate High-Risk Projects, selected due to high Outage Program Risk. Because the mitigations considered here can only impact likelihood and not consequence of Outage Programs, there is no change to this graph after mitigation.

Right: All ~~circuit segments~~Circuit Segments within the system ordered from lowest to highest Outage Program Likelihood, with the y-axis showing likelihood scores (arbitrary units). The green line is the ~~Frequent~~High Frequency Outage Program Threshold for selection via Outage Program Likelihood, and the olive line is the standard for likelihood reduction. Green squares are ~~circuit segments~~Circuit Segments above the green line, and olive squares are the same segments after mitigation, which will fall below the olive line. Red points and green squares are the same ~~circuits~~Circuit Segments as in the leftmost plot, though they are not ranked in the same order. Plotted over this is the system after mitigation (grey points), with the pink points and olive stars showing the undergrounded ~~High-Risk and Frequent Outage Program circuits~~high-risk and high frequency outage Circuit Segments, respectively.

The ~~large electrical corporation~~Large Electrical Corporation must report other KDMMs similarly. The visualizations must demonstrate the distribution of the metric over the entire system and within the scope of the Portfolio separately. Additionally, the visualizations must illustrate the ~~large electrical corporation's~~Large Electrical Corporation's approximation of its

risk profile both before and after the proposed mitigations. Note that these visualizations are not meant to be a comprehensive examination of the EUP, but rather a summary of the most critical metrics.

The ~~large electrical corporation~~Large Electrical Corporation must indicate how it computes the integration, summation, quadrature, or likelihood estimation used to compute this accumulation in its definition of these terms (See Section 2.7.6 of these Guidelines more details).

This discussion will include any discount rates, risk-attitude weights or other user parameters used to model the accumulation of risk over time.

Each of these metrics must be reported for both the Baseline regime and the Portfolio at the System-Level and Portfolio-Level as ~~a part of the Portfolio Coversheet. Below is an example of an acceptable table to report for Ignition Risk.~~ detailed in Appendix C.1 and C.2. a

~~*Table 6. Example of table for Ignition Risk: Portfolio Level*~~

~~Metric~~	~~Setting~~	~~0 Year~~	~~5 Year~~	~~10 Year~~	~~20 Year~~	~~30 Year~~	~~40 Year~~	~~50 Year~~	~~60 Year~~
~~Instantaneous Ignition Risk~~	~~Mitigated~~	~~7.0~~	~~5.0~~	~~4.0.~~	~~3.0~~	~~2.0~~	~~2.0~~	~~2.0~~	~~2.0~~
~~Cumulative Ignition Risk~~	~~Mitigated~~	~~0~~	~~35~~	~~60~~	~~100~~	~~130~~	~~0~~	~~170~~	~~190~~
~~Instantaneous Ignition Risk~~	~~Baseline~~	~~7.0~~	~~7.0~~	~~8.0~~	~~8.0~~	~~8.0~~	~~8.0~~	~~8.0~~	~~8.0~~
~~Cumulative Ignition Risk~~	~~Baseline~~	~~0~~	~~35~~	~~70~~	~~150~~	~~220~~	~~300~~	~~380~~	~~460~~

~~*An example table showing Portfolio-Level Ignition Risk in both instantaneous and cumulative measurements.*~~

~~Note that the numbers in Table 6 reflect a linear accumulation model with piecewise constant risk value that changes at each interval. These properties are used for illustrative purposes only.~~

2.8.6.3 Portfolio Development

The ~~large electrical corporation~~Large Electrical Corporation must detail its system for tracking ~~the change~~changes in the Portfolio of Undergrounding Projects over time as well as the consistency of its modeling updates.

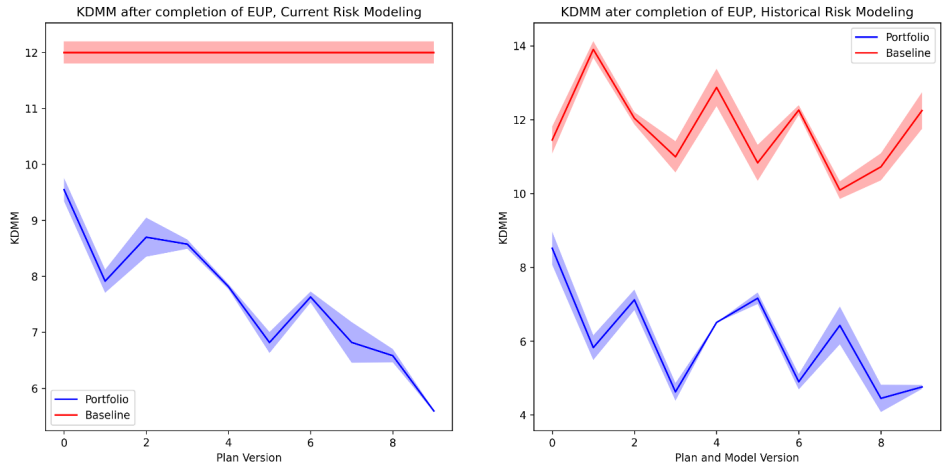
The ~~large electrical corporation~~Large Electrical Corporation must track how its Portfolio of Undergrounding Projects has changed over the duration of the EUP by applying the most up-to-date modeling system version and calibration to each of the historical Portfolios considered during the lifetime of the EUP.

The ~~large electrical corporation~~Large Electrical Corporation must summarize this information in each Progress Report, including Progress Report 0, by creating two plots for each KDMM showing their mean value and first standard variation, measured over the total Portfolio footprint. The total Portfolio footprint is defined as the union of all Circuit Segments included in any Portfolio.

The first plot must show the instantaneous value of the KDMM after the EUP has been completed, as measured by the most recent version and calibration of Risk Modeling Methodology, compared to the Baseline at the beginning of the plan, as measured by the most recent version of the Risk Modeling Methodology.

The second plot must show the same metrics, but measured by the version of the Risk Modeling Methodology used at the time that Portfolio was foremost. An example of a KDMM graph is shown below:

Figure 11. Example KDMM Development



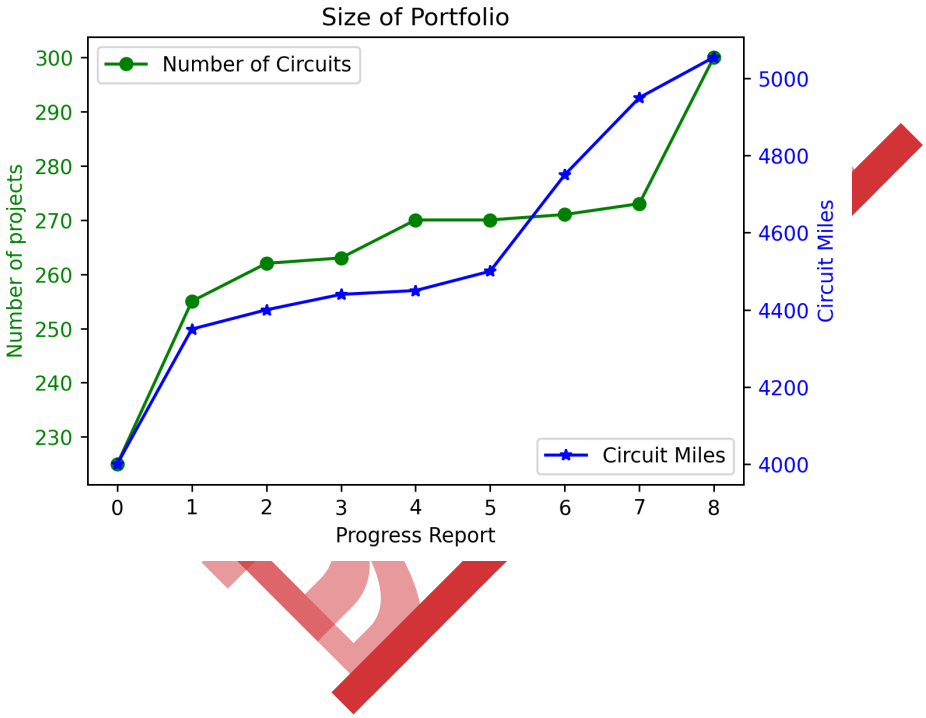
Left: A plot showing a KDMM's Baseline (red) and modeled value after EUP mitigation (blue)

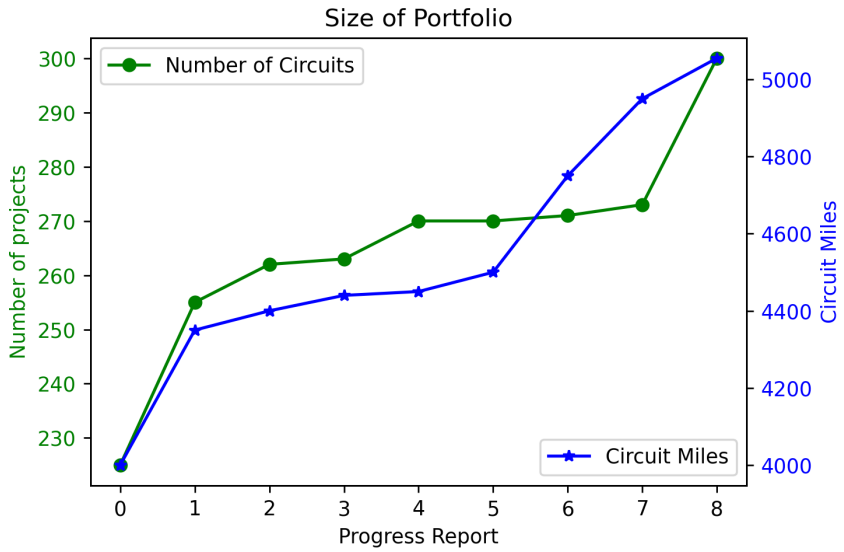
using the most recent version of the model evaluation. The x-axis denotes a different version of the Portfolio.

Right: A plot showing a KDMM's Baseline (red) and modeled value after EUP mitigation (blue) using the version of the Risk Modeling Methodology which was most recent at the time the Portfolio was updated.

The ~~large electrical corporation~~Large Electrical Corporation must report a graph showing the size of each Portfolio as measured in total Undergrounding Projects and total ~~circuit~~Circuit-miles. The graph must include representations of complete and ongoing Undergrounding Projects.

Figure 12. Example Portfolio Development Over Progress Reports





An example figure showing the size of the Portfolio over different ~~progress report~~ Progress Reports. The left y-axis shows the number of ~~project~~projects (green line), and the right y-axis shows ~~circuit~~Circuit miles.

2.8.6.4 Portfolio Coversheet Organization

The Portfolio Cover sheet must be organized as follows:

Table 8. Portfolio Coversh[illegible]Organization

Section	Requirements
Narrative Justification	See Section 2.8.6.1 of these Guidelines
Key Decision-Making Metrics Profiles	See Section 2.8.6.2 of these Guidelines
Project Variable Modifiers	See Section ~~2.7.6~~2.7.7 of these Guidelines
Portfolio Development	See Section 2.8.6.3 of these Guidelines

~~2.8.7 Reporting Individual Undergrounding Projects~~

~~2.8.7.1 Project Index Table~~

~~The large electrical corporation must develop a project index table which summarizes the Screen 2 information for each Undergrounding Project in an easily accessible and searchable format. This table must be included in each progress report and is described in further detail in Appendix C.1.13.~~

~~2.8.7.2 Project Reference Sheet Overview~~

~~The large electrical corporation must develop a Project Reference Sheet for each Undergrounding Project. The Project Reference Sheet is a text document which summarizes the Project-Level impacts of the EUP and is supported by the data submission as detailed in Appendix C. Each Project Reference Sheet must be submitted in Progress Report 0 and each subsequent Progress Report.~~

~~Each Project Reference Sheet must:~~

- ~~a. Establish a reduction of risk in a clear and concise manner.~~
- ~~b. Display the most recent evaluation.~~
- ~~c. Begin with an identification of the isolatable circuit segment, including a summary of its unmitigated risk scores.~~
- ~~d. Indicate whether any communications companies or other third parties have equipment on the poles where the circuit is currently located.~~
- ~~e. Contain a table reporting all KDMMs and other metrics that would be important to a stakeholder when evaluating a project from a risk-management perspective as detailed in Section 2.8.6 of these Guidelines.~~
- ~~f. Contain risk modeling information about comparable alternative mitigations as detailed in Section 2.7.5 of these Guidelines.~~
- ~~g. Contain a short narrative section explaining (i) the selection of the alternative mitigations for comparison for the specific Undergrounding Project; (ii) the selection of undergrounding as the preferred mitigation; and (iv) a timeline of the estimated completion dates. Every figure and table on the Project Reference Sheet must include a caption explaining the figure.~~

~~The Project Reference Sheet must summarize the most critical metrics that substantiate an Undergrounding Project. These metrics include, but are not limited to, all the KDMMs, cost-benefit calculations as well as additional supporting metrics that the large electrical corporation intends to use to justify the project. The Project Reference Sheet must also show the same metrics for at least two comparable alternative mitigations and the Baseline values using the same model version and calibration.~~

The large electrical corporation must summarize its evaluation of the project, referencing only metrics reported in data submission. This table must contain a description of the work type and alternative mitigations, an indication of whether the project meets the appropriate Project-Level standard, and all the KDMMs. Additional Model Risk Landscape metrics can be added to these tables to justify the work. If the project has passed Screen 2 (Project Information and Alternative Mitigation Comparison), the table must also include costs, benefits and the information for the CPUC CBR. The benefits calculation should be separated into safety, reliability, and financial contributors as defined in CPUC Decision 22-12-027.

The narrative evaluation of the project is limited to one page.

At the same time as the submission of the Project Reference Sheets, the large electrical corporation must submit a detailed data submission pursuant to Appendix C.

An example Project Reference Sheet is presented in Appendix E. The numbers in the tables presented there are for illustrative purposes only.

2.8.7.3 Identifying Information

Each project must be given a unique Project ID which identifies the project. The Project Reference Sheets must identify the following fields for each project in a table similar to the Example Undergrounding Project Identifying Information table below.

Table 7. Example Undergrounding Project Identifying Informati

Field	Description
Circuit Segment Id	See Data appendix
Project ID	Unique Project Identifi on Number
Project Category	Identifying if this circuit segment is eligible for consideration under Screen 1, and if so, how. Possible values are the following: • High Risk • Ignition Tail Risk • High Frequency Outage Program
HFTD Tier	CPUC High Fire-Threat District Tier as per R.15-05-006. Possible Values: • Tier 2 • Tier 3

Field	Description
	• Wildfire Rebuild
Risk Tranche[16]	Risk tranches include a group of assets, a geographic region, or other grouping that is intended to have a similar risk profile such as having the same likelihood or consequence of risk events.
Feasibility Score by Project[17]	Cost multiplier indicating the difficulty of undergrounding the Project based on presence of hard rock, water crossing, and gradient. The scale ranges from 1 to 3, with 3 being most challenging. The Phase 2 Application shall define each level of the scale.
Risk Rank[18]	Results of the applicable risk model where Projects are ranked on a 1 to N basis, where 1 is the highest risk Project, and N is the lowest risk.
Overall Risk Score Rank	Overall Risk Score Rank among eligible circuits
Ignition Consequence Rank	Ignition Consequence Rank among eligible circuits
Outage Program Likelihood Rank	Outage Program Likelihood Rank among eligible circuits

2.8.7.4 Comparative Metrics

For each Undergrounding Project, the large electrical corporation must evaluate at least two comparable alternative mitigations, including covered conductor and covered conductor with some type of fast trip system/setting. Any combinations of alternative mitigations that meet the Project-Level Standards must be reported in their least expensive configuration in addition to any other combinations that the large electrical corporation wishes to report.

[16] As per Appendix 1 of the Public Utilities Commission's SB-884 Program Guidelines adopted March 7, 2024.

[17] As per Appendix 1 of the Public Utilities Commission's SB-884 Program Guidelines adopted March 7, 2024.

[18] As per Appendix 1 of the Public Utilities Commission's SB-884 Program Guidelines adopted March 7, 2024.

~~If the project has passed Screen 2 (Project Information and Alternative Mitigation Comparison), the large electrical corporation must report the following information in a table in the Project Reference Sheet for the Undergrounding Project and at least two comparable alternatives.~~

~~An example table is given in Appendix E of these Guidelines.~~

~~Table 8. Example Screen 2 Project Information Table~~

~~Field~~	~~Description~~
~~**Work Type**~~	~~Description of the type of mitigation.~~
~~**Reliability Benefits**~~	~~Reliability Benefits of the Undergrounding Project per D.22-12-027~~
~~**Financial Benefits**~~	~~Financial Benefits of the Undergrounding Project per D.22-12-027~~
~~**Risk Reduction**~~	~~Risk Reduction of the Undergrounding Project per D.22-12-027.~~
~~**Unit Cost Per Overhead Mile Deenergized**[19]~~	~~Project Unit Cost per Mile of Overhead Exposure~~
~~**Unit Cost Per Underground Mile Energized**[20]~~	~~Project Unit Cost per Mile of Undergrounding~~
~~**Total Costs**[21]~~	~~Total Undergrounding Project Cost~~

~~[19] As per Appendix 1 of the Public Utilities Commission's SB-884 Program Guidelines adopted March 7, 2024.~~

~~[20] As per Appendix 1 of the Public Utilities Commission's SB-884 Program Guidelines adopted March 7, 2024.~~

~~[21] As per Appendix 1 of the Public Utilities Commission's SB-884 Program Guidelines adopted March 7, 2024.~~

Field	Description
Cost-Benefit Ratio[22]	Cost-Benefit Ratio of the Undergrounding Project per D.22-12-027. Benefits must relate to the mitigation of overhead line miles, not miles of undergrounding.

If the project has passed Screen 3 (Project Risk Analysis), the large electrical corporation must report the following information for the Baseline, the project and two comparable alterative at the Project Level in a table on the Project Reference Sheet. An example table is given in Appendix E.

Table 9. Example Screen 3 Comparative Risk Metrics Table

Field	Description
Fulfills Project-Level Standard?	Does the proposed mitigation achieve the associated Project-Level Standard?
Cumulative Overall Utility Risk in year 60	The cumulative Overall Utility Risk experienced at this location, accounting for the proposed construction timeline for under grounding and a realistic timeline for alternative mitigations.
Cumulative Ignition Risk in Year 60	The cumulative Ignition Risk experienced at this location, accounting for the proposed construction timeline for under grounding and a realistic timeline for alternative mitigations.
Cumulative Outage Program Risk in Year 60	The cumulative Outage Program Risk experienced at this location, accounting for the proposed construction timeline for under grounding and a realistic timeline for alternative mitigations.
Mean Ignition Consequence in first 10 Years of Program	The mean wildfire consequence score at this location, evaluated over the first 10 years of the program, accounting for the proposed construction timeline for under grounding and a realistic timeline for alternative mitigations.

[22] As per Appendix 1 of the Public Utilities Commission's SB-884 Program Guidelines adopted March 7, 2024.

Field	Description
Mean Outage Program Likelihood in first 10 years of Program	The mean outage program likelihood at this location, evaluated over the first 10 years of the program, accounting for the proposed construction timeline for under grounding and a realistic timeline for alternative mitigations.

For each alternative, it must compute a Separate Alternative Analysis and a Collective Alternative Comparison and report them in the risk landscape JSONs as described in Section 2.8.2 of these Guidelines.

2.8.7.5 Project Reference Sheet Organization

The Project Reference Sheet must be organized as follows:

Section	Requirements
Identification	See Section 2.8.7.2 of these Guidelines
Narrative Justification	See Section 2.8.7.1 of these Guidelines
Other Utilities	See Section 2.8.7.1 of these Guidelines
Project Information	See Section 2.8.7.3 of these Guidelines
Project Risk Analysis	See Section 2.8.7.4 of these Guidelines
Project Timeline	See Section 2.8.7.1 of these Guidelines
Additional Metrics	See Section 2.8.7.1 of these Guidelines

3. Process and Evaluation

This section sets forth the procedural direction and evaluation process for an EUP that is submitted to Energy Safety pursuant to section 8388.5.

3.1 Plan Pre-Submission Review

3.1.1 Purpose of Pre-Submission Review

Energy Safety will first assess the ~~large electrical corporation's~~Large Electrical Corporation's EUP for completeness based on the statutory requirements and these Guidelines. The EUP pre-submission must, at a minimum, contain each of the required components outlined in section 8388.5 and these Guidelines as described below in the pre-submission checklist.

The pre-submission review is a review for completeness and ~~conformity to Guideline requirements~~inclusion of each of the items on the checklist below; the substantive review of the EUP content occurs during the EUP evaluation process.

3.1.2 Pre-Submission Review Process

Ten business days prior to transmitting an EUP to Energy Safety for pre-submission review, the ~~large electrical corporations~~Large Electrical Corporations must notify Energy Safety of its intent to submit an EUP for a pre-submission review by sending ~~a letter to the Deputy Director and~~ an e-mail to ElectricalUndergroundingPlans@energysafety.ca.gov.

After notifying Energy Safety that it will be submitting an EUP for a pre-submission review, the ~~large electrical corporation~~Large Electrical Corporation is required to meet and confer with Energy Safety staff to discuss the contents of the forthcoming EUP pre-submission.

The Large Electrical Corporation must provide a copy of the EUP pre-submission for Energy Safety review.

Energy Safety uses the Pre-Submission Checklist below to confirm that all content required by section 8388.5 and these Guidelines is included and that each item appropriately cross-references the relevant section(s)/ or sub-section(s) of the EUP. If information for an item on the Pre-Submission Checklist is not included in the EUP pre-submission, Energy Safety marks this element as incomplete.

The Pre-Submission Checklist includes the following~~:~~:

a. The EUP has provided a narrative for each section and sub-section in the EUP. If the EUP contains a blank section, an inapplicable cross reference, or insufficient detail, Energy Safety marks this element incomplete.
b. The EUP has addressed all components of the EUP that have been identified in section 8388.5(c).

c. The EUP has addressed the requirements outlined in section 8388.5(d)(2).
d. The EUP has addressed the requirements related to the inclusion of a Project Acceptance Framework.
e. The EUP includes the objectives and targets developed by the ~~large electrical corporation~~Large Electrical Corporation for tracking and evaluation purposes~~.~~ (including all of the objectives and targets required by these Guidelines).
f. The EUP has included the list of Undergrounding Projects.
g. The EUP has responded to requirements related to data and modeling submissions, including model versioning and calibration, and including the data validation requirements in Section 2.8.4.
h. The EUP has submitted all required ~~Project Reference Sheets and~~ Portfolio Coversheets.

The ~~large electrical corporation~~Large Electrical Corporation must include a pre-submission review cover sheet that documents the page number(s) of where each ~~component of~~item on the ~~pre-submission checklist~~Pre-Submission Checklist can be found in the submitted EUP. The pre-submission review cover sheet may not reference internal cross-references and must reference the direct page number.

Energy Safety makes a determination and informs the ~~large electrical corporation's~~Large Electrical Corporation of its findings.

a. If a ~~large electrical corporation's~~Large Electrical Corporation's EUP satisfies the pre-submission review, Energy Safety will instruct the ~~large electrical corporation~~Large Electrical Corporation to submit its EUP as-is, with no changes.
b. If a ~~large electrical corporation's~~Large Electrical Corporation's EUP does not satisfy the pre-submission review, Energy Safety will notify the ~~large electrical corporation~~Large Electrical Corporation as to the missing or incomplete information (i.e., incomplete, not fully referenced, or unsubstantiated statutory compliance checklist).

After Energy Safety affirms that the EUP pre-submission contains the required contents, Energy Safety will open a docket for the EUP, and the ~~large electrical corporation~~Large Electrical Corporation can submit the EUP for evaluation.

Energy Safety will not accept public comments on the EUP pre-submission or review.

3.2 Large Electrical Corporation EUP Submission

Appendix B to these Guidelines contains specific instructions for narrative and other content. A ~~large electrical corporation~~Large Electrical Corporation may submit all documents referenced in the EUP, to the docket established for that ~~large electrical corporation's~~Large

Electrical Corporation's EUP. In addition, the ~~large electrical corporation~~Large Electrical Corporation must mail five hard copies, ~~including~~excluding appendices, of the EUP to:

Office of Energy Infrastructure Safety
Attn: Deputy Director, Electrical Infrastructure Directorate
715 P Street, 20th Floor
Sacramento, CA 95814

Data submissions must be made following the data requirements in these Guidelines including Appendix C.

The nine-month statutory period for Energy Safety to review the EUP starts on the date the EUP is filed for evaluation.

Five business days prior to submitting an EUP for evaluation the ~~large electrical corporation~~Large Electrical Corporation must notify Energy Safety of its intent to submit by sending an e-mail to ~~the Deputy Director and~~ ElectricalUndergroundingPlans@energysafety.ca.gov.

3.2.1 Confidentiality

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

3.2.2 Format

Every document submitted to Energy Safety must comply with the formatting requirements below.

a. Electronically filed documents shall be word searchable and accessible as ~~prescribed~~directed in these Guidelines.
b. Paper documents must be:
    i. Typewritten or otherwise mechanically printed;
    ii. On paper 11 inches long and 8 ½ inches wide;
    iii. Printed on both sides of the page if feasible; and
    iv. Bound securely.
c. Both electronic and paper documents must:
    i. Be in a clear, easily readable font of at least 11 points;
    ii. Have consecutively numbered pages; and
    iii. Include the following information on the first page:
        Name of the docket;
        Number of the docket; and
        Title of the document.

d. For electronic documents, signatures may be electronic.[23]

3.3 Evaluation of Plan

Energy Safety will evaluate the EUP pursuant to the requirements of sections 8388.5(c) and (d)(2) and may ~~approved~~approve or deny an EUP or issue a Modification Notice (see Section 3.5 below) if there are deficiencies in the EUP or supporting documents.

An EUP has met the requirements of sections 8388.5(c) and (d)(2) when Energy Safety determines that the ~~large electrical corporation~~Large Electrical Corporation has demonstrated that the EUP will substantially increase electrical reliability by reducing the use of ~~public safety power shutoffs, enhanced powerline safety settings~~Public Safety Power Shutoffs, Enhanced Powerline Safety Settings, deenergization events, and any other outage programs, and substantially reduce of the risk of wildfire.

To make a determination of whether the EUP has met the requirements, Energy Safety will consider the following.

a. The EUP responds to the requirements contained in section 8388.5(c) and (d)(2) and these EUP Guidelines.
b. The EUP is supported by the risk profiles reported by the ~~large electrical corporation~~Large Electrical Corporation in the initial Baseline and other data sources.
c. The EUP is supported by results from modeling and data analytics provided pursuant to statutory and guidelines requirements.
d. The Project Acceptance Framework is feasible and effective.
e. The plan objectives and targets (including the Risk Mitigation Objective and the Plan Tracking Objectives) are adequate for tracking progress and compliance beginning on the start date of the 10-year period for the EUP.
f. The data submitted is consistent with the data reporting requirements and the modeling methodology reported in the EUP.
g. The EUP plan or approach for personnel retention, data submission, identification of Wildfire Rebuild Areas and other activities that continue for the life of the EUP are feasible and effective.

To assess the EUP, Energy Safety may rely upon the following:

a. The ~~large electrical corporation's~~Large Electrical Corporation's EUP, including errata;

[23] Gov. Code, § 16.5.

b. Public and stakeholder comments;
c. Current and past WMPs;
d. The ~~large electrical corporation's~~Large Electrical Corporation's data submissions;
e. ~~The large electrical corporation's~~The Large Electrical Corporation's responses to data requests; and
f. Any other information Energy Safety may require for the evaluation of the ~~large electrical corporation's~~Large Electrical Corporation's EUP.

3.4 Errata

An erratum is a correction of published text and does not include modifications required by Energy Safety as part of the Modification Notice process.

~~A large electrical corporation~~A Large Electrical Corporation may submit an errata as follows:

Substantive Errata: If within the first 10 days after the date on which the ~~large electrical corporation~~Large Electrical Corporation submitted its complete EUP, the ~~large electrical corporation~~Large Electrical Corporation may submit the substantive errata directly to the docket. After that time, the ~~large electrical corporation~~Large Electrical Corporation must request permission through written request to the Deputy Director prior to filing a substantive erratum.

Nonsubstantive Errata: Nonsubstantive errata are minor corrections to fix typographical and clerical errors, and other obvious, inadvertent errors and omissions. If within the first 30 days after the date on which the ~~large electrical corporation~~Large Electrical Corporation submitted its complete EUP, the ~~large electrical corporation~~Large Electrical Corporation may submit nonsubstantive errata directly to the docket. After 30 days, the ~~large electrical corporation~~Large Electrical Corporation must request permission through written request to the Deputy Director prior to filing a nonsubstantive errata.

Classification of errata as substantive or nonsubstantive is solely within the discretion of Energy Safety.

When submitting errata or a request to submit errata to the Deputy Director, the ~~large electrical corporation~~Large Electrical Corporation must include the following:

a. A cover letter with a summary of the corrections, including:
    i. Whether the ~~large electrical corporation~~Large Electrical Corporation asserts its errata submission is substantive or nonsubstantive~~;~~;
    ii. The EUP page number, section number, and table or figure number (if applicable) of the corrections~~;~~;
    iii. A description of the corrections~~;~~; and
    iv. Reason for the corrections~~; and~~.

b. A redline of the page or pages of the EUP showing the corrections.

If a ~~large electrical corporation~~Large Electrical Corporation submits errata to its EUP, and Energy Safety approves the EUP, the ~~large electrical corporation~~Large Electrical Corporation must submit a final version of its EUP to the docket that includes all previously submitted errata within 10 days of Energy Safety's decision approving the EUP. This final version must also include changes resulting from a Modification Notice, as further discussed below. A ~~large electrical corporation~~Large Electrical Corporation must not include any other changes in ~~its~~the final version of its EUP, unless otherwise directed by Energy Safety.

Energy Safety may allow for stakeholder comments on substantive errata filed more than 10 days after the date on which the ~~large electrical corporation~~Large Electrical Corporation submitted its complete EUP.

3.5 Modification Notice

Section 8388.5(d)(2) states, "[b]efore approving the plan, the office may require the ~~large electrical corporation~~Large Electrical Corporation to modify the plan." Energy Safety effectuates this provision by issuing a Modification Notice. The purpose of a Modification Notice is to ensure the ~~large electrical corporation~~Large Electrical Corporation addresses plan deficiencies prior to completion of Energy Safety's evaluation.

3.5.1 Examples Warranting a Modification Notice

Energy Safety may issue a Modification Notice after the EUP has been filed. Examples of when Energy Safety may choose to issue a Modification Notice include, but are not limited to, the following issues:

a. ~~The large electrical corporation's~~The Large Electrical Corporation's submission does not meet the evaluation criteria listed in Section 3.3 of these Guidelines.

b. The ~~large electrical corporation~~Large Electrical Corporation did not provide sufficient information on risk and outage modeling for Energy Safety to determine whether the plan meets the standard outlined in section 8388.5(d)(2).

c. The proposed EUP is not technically feasible within, or proposes timelines beyond, a 10-year planning horizon.

d. The ~~large electrical corporation~~Large Electrical Corporation proposes a Project Acceptance Framework that includes projects that are not located in a Tier 2 or 3 High Fire-Threat District or Wildfire Rebuild Areas.

e. The EUP does not contain a sufficient explanation of common values, assumptions and metrics used for ~~alternative mitigation~~Alternative Mitigation comparisons.

f. One or more proposed threshold, standard, or other metric, when considered in the context of the EUP and risk landscape as a whole, does not satisfy the ~~Portfolio~~Plan Mitigation Objective.

g. The EUP contains a Plan Mitigation Objective that, when considered in the context of the EUP and the risk landscape as a whole, does not satisfy the substantial risk reduction required by section 8388.5(d)(2).

~~g.~~h. Correction of EUP content for clarity.

i. The Large Electrical Corporation fails to describe an effective approach to a required element of the EUP, such as the procedure for designation of a Wildfire Rebuild Area.

j. The Large Electrical Corporation narrative or data submission indicates that future data submissions will not be formatted in a manner that complies with these Guidelines or with the other Energy Safety guidelines.

k. Data submissions are incorrectly formatted or contain miscalculations.

3.5.2 Modification Notice Process

The Modification Notice process is set forth as follows:

a. Energy Safety determines a ~~large electrical corporation's~~Large Electrical Corporation's EUP contains one or more deficiencies that warrant a Modification Notice.

b. Energy Safety issues a Modification Notice to the ~~large electrical corporation.~~Large Electrical Corporation. The Modification Notice will contain a list of deficiencies the ~~large electrical corporation~~Large Electrical Corporation must address in its Modification Notice Response and applicable schedule or updates to existing schedule.

c. Pursuant to the applicable schedule, the ~~large electrical corporation~~Large Electrical Corporation must resubmit its entire EUP or sections therein, in a redline copy and a clean copy, as directed by the Modification Notice, and provide written responses to each issue delineated in the Modification Notice (Modification Notice Response).

d. If Energy Safety issues a ~~Decision~~decision approving the ~~large electrical corporation's~~Large Electrical Corporation's EUP after issuing one or more Modification Notice, the ~~large electrical corporation~~Large Electrical Corporation must submit ~~to the docket~~, as previously directed in Section 3.2 of these Guidelines, a final version of the EUP that includes changes resulting from all Modification Notices, no later than 10 days after the decision issued. This final version must also include previously submitted errata, as discussed in Section 3.4 of these Guidelines, but must not include any other changes, unless otherwise directed by Energy Safety.

3.6 Public Participation

3.6.1 Docket Access

Persons who wish to receive service of the EUPs, comments on the EUPs, and EUP decisions may enroll by visiting: https://public.govdelivery.com/accounts/CNRA/subscriber/new?topic_id=CNRA_579.

Additional information on Energy Safety's service lists and detailed instructions for signing up can be found at https://energysafety.ca.gov/events-and-meetings/how-to-participate-in public-events/.

3.6.2 Public Comments

3.6.2.1 Written Public Comments

Any person or entity may submit public comments on EUPs, Modification Notice Responses, and draft decisions. Such comments must be submitted in accordance with the schedule and submission instructions published by Energy Safety.

Energy Safety will accept opening and reply comments on ~~submitted EUPs.~~ the date indicated on its published schedule. Energy Safety may publish a revised schedule establishing later deadlines for comments or modify an existing schedule via written notice to the docket. In its discretion, Energy Safety may accept public comment on other submissions or products. Should Energy Safety elect to accept public comment on a product or submission, it will publish a comment schedule and associated procedures.

~~**EUP Submissions:** Opening comments must be submitted to the corresponding docket no later than 30 days after the date on which the large electrical corporation submitted its complete EUP. Reply comments are due 15 days after the deadline for the submission of opening comments.~~

~~**Modification Notice Responses:** Opening comments must be filed with the corresponding docket no later than 10 days after the Modification Notice Response has been filed. Reply comments are due 5 days after the deadline for the submission of opening comments.~~

~~**Draft EUP Decisions:** Opening comments are due 10 days after the draft decision is filed in the corresponding docket. Reply comments are due 5 days after the deadline for opening comments.~~ via written notice to the docket.

The scope of opening comments must focus on information contained in the document subject to the comment period. Opening comments are limited to 30 pages. The scope of reply comments is limited to the issues raised in opening comments. New information not directly related to issues presented in opening comments will not be considered. Reply

comments are limited to 20 pages. Energy Safety may reject comments submitted after the due dates provided within a schedule or comments that are not within the scope as described in this section.

Any person or entity seeking an extension to a public comment due date may email a request to Energy Safety at ElectricalUndergroundingPlans@energysafety.ca.gov. The request must include:

a. Original deadline,
b. Document subject to the comment period,
c. Good cause for the extension, and
d. Proposed new deadline in lieu of the original.

Any extension request must be received by Energy Safety by 5:00 p.m. Pacific time two days prior to the original comment due date.

For any technical issues encountered that may affect the timeliness of a public comment submission, the person or entity submitting the comment must immediately contact efiling@energysafety.ca.gov and ElectricalUndergroundingPlans@energysafety.ca.gov.

Energy Safety will consider public comments before issuing a decision. When a comment is received, it becomes public record and will be made available to the public on the Energy Safety docket. The comments will be posted as received without redaction of personal information. Energy Safety is not required to respond to public comments directly.

3.6.2.2 Workshops

Energy Safety may hold one or more public workshops to discuss part or all of a submitted EUP or any other document or product submitted by the Large Electrical Corporation. Energy Safety will provide notice of the workshop via written notice to the docket.

3.6.3 Submitting Public Comments

Public comments must conform to the following requirements:

a. Comments must be submitted to the related docket on Energy Safety's e-filing system.
b. Comments on a ~~large electrical corporation's~~Large Electrical Corporation's EUP shall be named according to the naming convention set forth in these Guidelines. However, comments shall include the organization or person's name followed by "Opening Comments" or "Reply Comments" and then the relevant abbreviations.
c. See Section 3.9 of these Guidelines for document accessibility requirements.
d. The submission process for confidential information is set forth in section 29200 of Title 14 of the California Code of Regulations.

3.7 Data Requests

3.7.1 Data Requests from Energy Safety

Energy Safety may obtain any information from a ~~large electrical corporation~~Large Electrical Corporation that is relevant to a matter within the scope of Energy Safety's authority~~,~~ or is likely to lead to the discovery of relevant information, via a data request.

The following applies to data requests:

a. Data requests from Energy Safety staff to a ~~large electrical corporation~~Large Electrical Corporation may come from ElectricalUndergroundingPlans@energysafety.ca.gov or from individual Energy Safety staff e-mail addresses. All responses to Energy Safety data requests must be submitted to the appropriate EUP docket. ~~A large electrical corporation~~A Large Electrical Corporation must endeavor to submit one file per data request to the docket (as opposed to a file for every question in the data request).

b. The "Data Request Response Period" for an EUP begins on the date a ~~large electrical corporation~~Large Electrical Corporation submits its EUP for the pre-submission check and continues until issuance of a decision for the ~~large electrical corporation.~~Large Electrical Corporation. The "Data Request Response Period" for Progress Reports is the initial 60 days after a ~~large electrical corporation~~Large Electrical Corporation submits a ~~progress report~~Progress Report.

c. Data requests issued by Energy Safety during the Data Request Response Period are subject to a three-business day response period. Data requests issued by Energy Safety outside of the Data Request Response Period are subject to a ~~10~~ten-calendar day response period unless a different response period is provided by Energy Safety.

d. For data requests submitted by 5:00 p.m. on a business day, the date of submission is Day 0. For data requests submitted after 5:00 p.m. or on a Saturday, or holiday (including all Sundays) as defined in Government Code section 6700, the next business day is Day 0.

    i. Unless a different response time is provided by Energy Safety, a ~~large electrical corporation~~Large Electrical Corporation must respond to all data requests by 5:00 p.m., on day three, with each business day counted as one day. Extension Requests

    ~~ii. Extension Requests~~

    If a ~~large electrical corporation~~Large Electrical Corporation seeks a longer response period than provided in this section or as provided by Energy Safety, the ~~large electrical corporation~~Large Electrical Corporation must request an extension by sending an extension request

to ElectricalUndergroundingPlans@energysafety.ca.gov and to the assigned Energy Safety staff lead for the ~~large electrical corporation's~~Large Electrical Corporation's EUP evaluation.

ii. An extension request must include:

The data request or portion of the data request requiring an extension;

Good cause for the extension; ~~and~~

A proposed date of response in lieu of the original deadline~~.~~; and

Only material related to the extension request will be considered for a new date; remaining questions not in dispute will maintain the original deadline; and

iii. Any extension request must be received by Energy Safety by 5:00 p.m. Pacific time one business day prior to the original data request response due date.

3.7.2 Data Requests from Data Request Stakeholders

A Data Request Stakeholder may obtain, through a data request to the ~~large electrical corporation~~Large Electrical Corporation, information related to any EUP docket matter with a comment period specified in these Guidelines or for which Energy Safety has published a comment schedule.

Prior to issuing a data request, a person or entity must seek and obtain designation as a Data Request Stakeholder pursuant to these Guidelines. A person or entity may submit public comments without designation as a Data Request Stakeholder.

3.7.2.1 Data Request Stakeholder Designation

Any person or entity must submit a request for and receive designation as a Data Request Stakeholder prior to sending data requests. The request must be made within ten days after the ~~large electrical corporation~~Large Electrical Corporation submits a EUP. Energy Safety may grant late requests for designation as a Data Request Stakeholder only on a showing of good cause by the interested person or entity.

A request for designation as a Data Request Stakeholder must include:

a. The docket matter (Docket #) the person or entity intends to participate in (e.g., #2024-EUPs~~);~~;

b. The position and interest of the person in the EUP docket matter~~,~~;

c. Disclosure of the persons or entities on whose behalf the person may be seeking the designation, if any~~,~~;

d. The ~~large electrical corporation~~Large Electrical Corporation for which the person or entity seeks data request stakeholder status~~,~~; and

e. The name, mailing address, e-mail address, and telephone number of the person or entity designee.

A request for designation as a Data Request Stakeholder 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 as a Data Request Stakeholder, a person or entity retains that designation until Energy Safety has issued a decision on the EUP.

3.7.2.2 Data Request Process for Data Request Stakeholders

The following applies to data requests from Data Request Stakeholders:

a. Data Request Stakeholders may issue data requests to a ~~large electrical corporation~~Large Electrical Corporation beginning on the date on which the ~~large electrical corporation~~Large Electrical Corporation submitted its complete EUP and ending when Energy Safety has issued a decision.

b. ~~A large electrical corporation~~A Large Electrical Corporation must respond to all stakeholder data requests within three-business days of the request, unless a different response period is mutually agreed upon by the stakeholder making the data request and the ~~large electrical corporation~~Large Electrical Corporation.

c. Extension Requests

   i. Prior to seeking an extension from Energy Safety to respond to a data request, a ~~large electrical corporation~~Large Electrical Corporation must first make a good-faith effort to ask the stakeholder making the request to agree to the extension.

   ii. If a ~~large electrical corporation~~Large Electrical Corporation cannot reach an agreement with the stakeholder making the request, the ~~large electrical corporation~~Large Electrical Corporation must request an extension by sending an extension request to ElectricalUndergroundingPlans@energysafety.ca.gov.

   iii. An extension request must include:

   - A showing of a good-faith effort by the ~~large electrical corporation~~Large Electrical Corporation to ask the stakeholder to agree to the extension and the result of such effort~~,~~;
   - The data request or portion of the data request requiring an extension~~,~~;
   - Good cause for the extension~~,~~; and
   - A proposed date of response in lieu of the original deadline.

   iv. Any extension request must be received by Energy Safety by 5:00 p.m. Pacific time one business day prior to the date the data request response is due.

3.7.2.3 Data Request Requirements for Data Request Stakeholders

a. Data requests must seek information relevant to the pending docket matter and be designed to facilitate the stakeholder's ability to make an informed public comment.

b. Stakeholders submitting data requests must consider the volume and nature of the data being requested when negotiating response deadlines. In the event that the information requested is already available in WMP filings, the ~~large electrical corporation~~Large Electrical Corporation may choose to refer the stakeholder to the specific part of the WMP record where the information can be found.

c. Prior to submitting data requests, the Data Request Stakeholder must make a reasonable effort to determine if the information is already available, or has already been requested, through any of the following:

   i. Contained in the ~~large electrical corporations'~~Large Electrical Corporations' EUP or WMP submission, or

   ii. Previously requested by Energy Safety, or

   iii. Previously requested by other Data Request Stakeholders.

Data Request Stakeholders may view prior data requests and responses in each ~~large electrical corporation's~~Large Electrical Corporation's Data Request Log, available on the ~~large electrical corporation's~~Large Electrical Corporation's website.

3.7.2.4 Request to Compel or Limit Data Request Stakeholder Data Requests

Data Request Stakeholders and the ~~large electrical corporation~~Large Electrical Corporation must endeavor to resolve all data request disputes amongst themselves. For data request disputes that cannot be resolved, parties to the dispute may seek relief in accordance with the process below:

a. Prior to filing a request to compel or limit data requests, the parties to the dispute must have previously met and conferred in a good faith effort to informally resolve the dispute.

b. The party seeking to compel or to limit data requests bears the burden of proving the reasons why Energy Safety should compel or limit the data request.

c. A request to compel or limit a data request must include:

   i. Facts showing a good faith attempt at an informal resolution of the data request dispute presented by the request~~,~~;

   ii. The data request or portion of the data request at issue~~,~~;

   iii. Basis to compel or limit the data request~~,~~; and

   iv. A proposed determination that clearly indicates the relief requested.

d. A response from a Data Request Stakeholder or ~~large electrical corporation~~Large Electrical Corporation must be submitted within three-business days of the date that the request was submitted to Energy Safety. If no response is submitted to a request to compel or limit a data request, then the request will be deemed granted. Energy Safety will take requests to compel or limit a data request under consideration and will issue a determination on a request to compel or limit a data request after the request and response have been submitted. Energy Safety may request clarification or additional information from the parties to the dispute prior to issuing a determination. Responses to such requests for clarification or additional information must be submitted within three business days of the date of the request.

All filings for a request to compel or limit data requests must be submitted to Energy Safety at ElectricalUndergroundingPlans@energysafety.ca.gov and served to all parties to the dispute.

3.8 Document Maintenance

3.8.1 Document Postings

When submitting an EUP, the ~~large electrical corporation~~Large Electrical Corporation must post its EUP, all documents referenced in its EUP, and any subsequent versions of the EUP and documents on a EUP-specific website in an easy-to-follow format. This will be in addition to the posting of EUPs on Energy Safety's docket and website. ~~A large electrical corporation~~A Large Electrical Corporation must include the website address in a cover letter to its EUP submission. All documents submitted to the Energy Safety docket, including responses to data requests, must be machine readable and searchable.

3.8.2 Data Request Log

Each ~~large electrical corporation~~Large Electrical Corporation that submits an EUP must post an EUP Data Request Log on its website. The EUP Data Request Log must be posted and maintained beginning on the date on which the ~~large electrical corporation~~Large Electrical Corporation submitted its complete EUP and ending upon the completion of each ~~participating large electrical corporation's~~Large Electrical Corporation's 10-Year ~~Electrical Undergrounding Program.~~EUP. Each participating ~~large electrical corporation~~Large Electrical Corporation must also submit to Energy Safety a Data Request Log weekly for the same period. The ~~large electrical corporation~~Large Electrical Corporation is not required to submit a weekly Data Request Log to Energy Safety if there is no new information to report. The requirements for each Data Request Log are set forth as follows.

a. Each ~~large electrical corporation~~Large Electrical Corporation must update its EUP Data Request Log and post all data requests and responses issued to-date weekly each Thursday by 5:00 p.m. Pacific time.

b. Each ~~large electrical corporation~~Large Electrical Corporation must submit to Energy Safety its EUP Data Request Log each Thursday by 5:00 p.m. Pacific time to the appropriate EUP docket.

c. The website or portion of webpage pertaining to data requests must be titled "[EC corporate name] Electrical Undergrounding Plan Data Requests."

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

e. The Data Request Log must indicate:

   i. The attachment number of any additional attachments related to the data request,

   ii. The relevant sections of the EUP, and

   iii. A thematic category and subcategory of the data request.

3.9 Accessibility

It is the policy of the State of California that electronic information be accessible to people with disabilities. Each person who submits information through ~~the Office's~~Energy Safety e-filing system must ensure that the information complies with the accessibility requirements set forth in Government Code section 7405. ~~The Office~~Energy Safety will not accept any information submitted through the e-filing system that does not comply with these requirements.[24]

3.10 Computation of Time and Scheduling

When requirements referenced in these Guidelines set a time limit for performance of an act, the time is computed by excluding the first day (i.e., the day of the act or event from which the designated time begins to run) and including the last day. If the last day falls on a Saturday, Sunday, holiday, or other day when Energy Safety offices are closed, the time limit is extended to include the first day thereafter. If an act occurs after 5:00 p.m. Pacific time, it is deemed as having been performed on the next day.

Energy Safety may modify any schedule outlined in these Guidelines by issuing further scheduling guidance. Additional schedule guidance will take ~~precedent~~precedence over any scheduling included in these Guidelines.

[24] References to laws and regulations related to digital accessibility are available at https://dor.ca.gov/Home/DisabilityLawsandRegulations. Resources on constructing accessible electronic contents are available at https://dor.ca.gov/Home/HowToCreateAccessibleContent.

All instances of specified days in this document are assumed to be defined as calendar days unless otherwise noted.

3.11 Submission Instructions, Locations, and Naming Conventions

Electronic file names for the EUPs ~~and,~~ associated text documents, and narrative reports must follow the standardized electronic naming convention illustrated in ~~Table 10~~8 below. The electronic file name must include, in order, the naming convention identified in each column (without quotation marks~~),~~) with an underscore between the character string of each column. All text files must be submitted in portable document format (pdf).

See examples below.

Examples:

a. First Version of an EUP Submission: "2025-02-05_PGE_2023_EUP_R0.pdf", which would refer to the first version of an EUP submitted by PG&E on February 05, 2025~~, first version~~.

b. Updated submission in response to Energy Safety Modification Notices: "2025-06-05_SDGE_23_MNR_R1", which would refer to a Modification Notice Response submitted by SDG&E on June 5, 2025, mod 1.

Table 9. Electronic File Naming Convention for Text Files with Examples

Date Submitted (Year-Month-Day)	Large Electrical Corporation Abbreviated Name	Document Year	Document Type	Modification Number
"2023-02-05"	• "PGE" (Pacific Gas and Electric Company) • "SDGE" (San Diego Gas & Electric Company) • "SCE" (Southern California Edison Company)		• "EUPPRE" (Electrical Undergrounding Plan Submission for Pre Submission Review) • "EUP" (Electrical Undergrounding Plan Submission) • "PR#" (Semi-Annual Progress Report) • "MNR" (Mod Notice Response) • "DRLOG" (Data Request Log) • "MR" (Model Report) • "EUPOC" (Electrical Undergrounding Plan Opening Comments) • "EUPRC" (Electrical Undergrounding Plan Reply Comments) • "EUPDDOC" (Electrical Undergrounding Plan Draft Decision Opening Comments) • "EUPDDRC" (Electrical Undergrounding Plan Draft Decision Reply Comments)	• R0 (First Version) • R1 (Mod 1) • R2 (Mod 2)

Date Submitted (Year-Month-Day)	Large Electrical Corporation Abbreviated Name	Document Year	Document Type	Modification Number
			• "EUPERR" (Electrical Undergrounding Plan Errata) • "EUPERRC" (Electrical Undergrounding Plan Errata Comments)	

Electronic file names for the associated tabular and special data submissions must follow the standardized electronic naming convention illustrated in Table ~~11~~11 below. More detail on the data submissions can be found in Appendix C.

Table 10. Electronic File Naming Convention for Data Submissions

Submission Type	File Type	Submission Location	Naming Convention
Initial Tabular Data	CSV	eFiling	"[Electrical Corporation Abbreviation]_Intial_Date_R#", *for example:* "PGE_ Initial_2024-01-01_R0.csv"
Progress Report Tabular Data	CSV	eFiling	"[Electrical Corporation Abbreviation]_ PR#_Date_R#", *for example:* "PGE_ PR1_2025-01-01_R0.csv"
Project Variable Modifiers Information	JSON	eFiling	"[Electrical Corporation Abbreviation]_ PR#_Date_PMV_R#", *for example:* "PGE_ PR1_2025-01-01_PMV_R0.json"
Model Risk Landscapes for Projects	JSON	eFiling	"[Electrical Corporation Abbreviation]_ PR#_Date_R#", *for example:* "PGE_ PR1_2025-01-01_Projects_R0.json"
Initial Geodatabase Submission	Zip	Assigned SharePoint	"[Electrical Corporation Abbreviation]_Intial_Date_R#", *for example:* "PGE_Initial_2024-01-01_R0.gdb.zip"
Progress Report Geodatabase Submission	Zip	Assigned SharePoint	"[Electrical Corporation Abbreviation]_PR#_Date_R#", *for example:* "PGE_PR1_2025-01-01_R0.gdb.zip"

4. Compliance

4.1 Progress Reports

Section 8388.5(f) requires that, once an EUP is approved by Energy Safety and the CPUC, the Large Electrical Corporation must file a Progress Report with Energy Safety and the CPUC every six months.

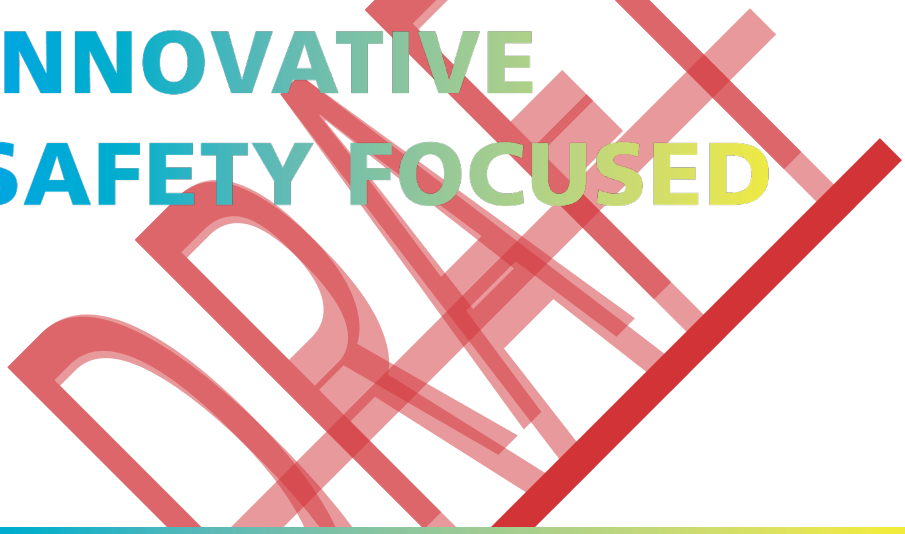
The requirements of these Progress Reports will be informed by the content, format, and structure of Progress Report 0 as detailed in Section 2.6.1. Energy Safety may permit comments on future Progress Reports. Energy Safety will issue additional Guidelines on this topic and other post-approval matters.

~~4.1~~4.2 Independent Monitor Report

Section 8388.5(f) requires that, once an EUP is approved by Energy Safety and the CPUC, ~~the large electrical corporation must file a Progress Report with Energy Safety and the CPUC every six months. Additionally, each year the EUP is in effect, the independent monitor an~~ Independent Monitor must provide an annual report to Energy Safety ~~by submitting th annual report to the related docket.~~ for each year the EUP is in effect. Energy Safet issue additional Guidelines on this topic and other post-approval matters.

~~These Guidelines contain some requirements for content and updates to P ess Reports. Energy Safety will issue additional Guidelines on this topic and other po pproval matter~~

DATA DRIVEN
FORWARD-THINKING
INNOVATIVE
SAFETY FOCUSED



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