APPENDICES

Appendix A. Definitions

Unless otherwise expressly stated, the following words and terms, for the purposes of these Guidelines, have the meanings shown in this section.

"10-Year Electrical Undergrounding Program" means "an expedited utility distribution infrastructure undergrounding program" established by the CPUC pursuant to section 8388.5(a).

"Ablation Analysis" means the effects of a ~~portfolio~~Portfolio if a single project is taken out of the ~~portfolio~~Portfolio. It reports these effects at both the ~~circuit~~Project-Level and Portfolio-Level.

"Alternative Mitigation" means a mitigation strategy, other than undergrounding, used to reduce the consequence or likelihood of wildfires and Outage Program Events on a particular ~~circuit segment~~Circuit Segment.

"Baseline" means the expected risk and reliability profile of the ~~large electrical corporation's~~Large Electrical Corporation's existing distribution system assuming that no Undergrounding Projects from the EUP program are constructed during the asset life cycle. The Baseline includes all previously approved ~~undergrounding projects~~Undergrounding Projects, system-hardening projects, and similar mitigation activities.

"Circuit" means a combination of all Circuit Segments that are fed from the same substation circuit breaker.

"Circuit Segment" means an isolatable ~~circuit segment, or a circuit protection zone (CPZ).~~Circuit Segment. Unless otherwise indicated "~~circuit segment~~Circuit Segment" also refers to an isolatable ~~circuit segment~~Circuit Segment.

"Collective Alternative Comparison" means risk reduction if an ~~alternative mitigation~~Alternative Mitigation were inserted into the Portfolio instead of an ~~undergrounding project~~Undergrounding Project on the same ~~circuit segment~~Circuit Segment. These results are reported at both the Project-Level and System-Level.

"Collective Analysis" means the effects of a single ~~project~~Undergrounding Project, in combination with the rest of the projects that are in the Portfolio. The Collective Analysis reports these effects on the ~~specific circuit~~Project-Level as well as the ~~entire portfolio~~Portfolio-Level.

"Confirmed Project" means an Undergrounding Project that has completed Screen 3 (Project Risk Analysis).

"Confirmed Project Polygon" means a special boundary generated at the beginning of Screen 3 that encompasses the entire Eligible Circuit Segment on which the Undergrounding

Project is defined, except any sections already contained in another Confirmed Project Polygon.

"Core Capabilities" means the required use-cases that the ~~large electrical corporation's~~Large Electrical Corporation's Risk Modeling Methodology must be able to achieve in order to make quantitative arguments about the risk reduction of ~~undergrounding~~Undergrounding and Alternative Mitigations.

"CPUC CBR" means the cost-benefit ratio produced by the cost-benefit approach adopted in the CPUC's Decision 22-12-027 ~~or its successor.~~(as modified by any subsequent decision).

"CPUC Data Appendix 1" means the final adopted version of "Appendix 1: SB 884 Project List Data Requirements-Preliminary" to the SB 884 Program CPUC Guidelines dated March 7, 2024, and adopted by the CPUC in Resolution ~~SPD15~~SPD-15.

"Data Request Response Period" means the period of time during which Energy Safety data requests automatically have a three-day response time unless otherwise specified by Energy Safety.

"Data Request Stakeholder" means a stakeholder who has requested and obtained Data Request Stakeholder in accordance with Section 3.7.2.

"Deenergization Event" has the meaning given in section 8385(a)(2) ("the proactive interruption of electrical service for the purpose of mitigating or avoiding the risk of causing a wildfire"). See also **"Outage Program."**

"Electrical ~~corporation~~Corporation" has the same meaning as set forth in section 218 of the California Public Utilities Code.

"Electrical Undergrounding Plan" or **"EUP"** means a plan submitted pursuant to section 8388.5.

"Eligible Circuit Segment" means a Circuit Segment that falls within the risk score values that will be used to identify high risk Circuit Segments that are eligible for the 10-Year Electrical Undergrounding Program.

"**GO 95**" means CPUC General Order 95 (Rules for Overhead Line Construction).

"GO 128" means CPUC General Order 98 (Rules for Construction of Underground Electric Supply and Communication Systems).

"HFTD" or **"High Fire-Threat District"** means areas of the state designated by the CPUC as having elevated wildfire risk, where each ~~electrical corporation~~Electrical Corporation must take additional action to mitigate wildfire risk pursuant to Decision 17-01-009 or its successor.

"High Frequency Outage Program Mitigation Standard" is the minimum decrease in Outage Program Likelihood as measured through formal calculations of the Key Decision-Making Metrics that any 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.

"High Frequency Outage Program Threshold" is the measure of likelihood above which 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.

"High-Risk Threshold" means the Overall Utility Risk level above which a Circuit Segment is considered eligible for examination for expedited undergrounding.

"Ignition Consequence" means 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.

"Ignition Likelihood" means the likelihood of an ignition at a given location given a probabilistic set of environmental conditions. This is an unweighted and unscaled calculation.

"Ignition Risk" means 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.

"**Ignition Risk Decrease Standard**" is the minimum decrease in Ignition related metrics, as measured through formal calculations of the Key Decision-Making Metrics 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.

"Ignition Tail Risk Threshold" is the measure of consequence above which a ~~circuit segment~~Circuit Segment is considered to have significant potential for catastrophic wildfire, 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 by score.

"In-Area Circuit Segment" means ~~an isolatable circuit segment, or~~ a ~~circuit protection zone (CPZ),~~Circuit Segment located within the ~~large electrical corporation's~~Large Electrical Corporation's service territory that is located in a Tier 2 or 3 High Fire-Threat District or a Wildfire Rebuild Area.

"Independent Monitor" means the independent monitor selected by Energy Safety and hired by the ~~large electrical corporation~~Large Electrical Corporation per section 8388.5(f)(3).

"**JSON**" or "**JavaScript Object Notation**" is a data file type designed to track unstructured data that would not be appropriate for a spreadsheet format.

"Key- Decision-Making Metric" or **"KDMM"** means the key decision-making metrics developed pursuant to Section 2.7.3 of these Guidelines.

"Large Electrical Corporation" has the meaning given in section 3280 of the California Public Utilities Code ("an electrical corporation with 250,000 or more customer accounts within the state.")

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

"Model Risk Landscape" or **"MRL"** means the model risk landscape defined for the EUP pursuant to Section 2.7.4 of these Guidelines.

"Modification Notice" means the notice issued by Energy Safety if Energy Safety requires changes to an EUP before approving an EUP.

"Modification Notice Response" means the written response of the ~~large electrical corporation~~Large Electrical Corporation to a Modification Notice.

"**Non-EUP Project**" means a distribution undergrounding or other system hardening project that is funded or in the Project Planning and Construction Phases, that is not included in the 10-Year EUP.

"Out of Area Circuit Segment" means a Circuit Segment located within the ~~large electrical corporation's~~Large Electrical Corporation's service territory that is not located in a Tier 2 or 3 High Fire-Threat District or a Wildfire Rebuild Area.

"Outage Program" means (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.

"Outage Program Consequence" is 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.

"Outage Program Event" means an outage that results from an Outage Program.

"Outage Program Likelihood" is the likelihood of a ~~large electrical corporation~~Large Electrical Corporation utilizing an Outage Program given a probabilistic set of environmental conditions.

"Outage Program Risk" is 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.

"Overall Utility Risk" is defined as the 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.

~~**"Plan for Workforce Development"** means the plan for utility and contractor workforce development required by section 8388.5(c)(5).~~

~~**"Portfolio"** means the set of all Undergrounding Projects being considered or modeled at a point in time. A portfolio is a unique list of projects, and adding or removing projects from the list constitutes an update to the portfolio and must be indicated with a new portfolio ID.~~

~~**"Portfolio-Level Metric"** means a single measurement of risk-related quantities that takes into account all of the Project-Level Metrics for the entire portfolio.~~

~~"Portfolio~~"Plan **Mitigation Objective"** means the amount of change in risk (wildfire and reliability) that is necessary to meet the ~~substantiality~~ requirements ~~of~~contained in section 8388.5(d)(2).

~~"Portfolio~~"Plan Tracking Objectives" are forward-looking, quantifiable measurements and objectives, measured at the Portfolio-Level and System-Level, used to assess progress toward the Plan Mitigation Objective.

"Portfolio" means 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.

"Portfolio-Level" refers to a measurement that accumulates information from every Circuit Segment on a Circuit which has one or more Confirmed Projects as well as the effects of Confirmed Projects on the overall Circuit into a single number.

"Portfolio-Level **Standards"** means the Ignition Risk Decrease Standard and a Reliability Increase Standard.

"Predicted Change" means difference between Baseline as forecast on the date on which the ~~large electrical corporation~~Large Electrical Corporation submitted its complete EUP and Portfolio Risk Landscape as forecast on the date on which the ~~large electrical corporation~~Large Electrical Corporation submitted its complete EUP.

"Project Acceptance Framework" means the multi-step process, described in Section 2.4 of these Guidelines, that the ~~large electrical corporation~~Large Electrical Corporation will use to create the list of Undergrounding Projects pursuant to section 8388.5(c)(2), to select Undergrounding Projects for construction, and to maintain and update the Circuit Segment Information Lists throughout the EUP 10-year period.

"**Project Completion Phase"** is the Project Planning and Construction Phase when the Undergrounding Project is completed, and the overhead line is deenergized.

"Project Identification Phase" is the Project Planning and Construction Phase when an Undergrounding Project has been identified by the ~~large electrical corporation~~Large Electrical Corporation.

"Project-Level" refers to a measurement that accumulates risk from all of the equipment on a single Circuit Segment into a single number.

"Project-Level Standards" means the Risk Reduction Project Standard, the Reliability Increase Project Standard, the Tail Risk Mitigation Project Standard.

"Project Planning and Construction Phases" means the status categories for projects as listed in CPUC Data Appendix 1. The five phases designated and defined by the CPUC are: (1) Project Scoping, (2) Project Designing/Estimating, (3) Project Permitting/Dependency, (4) Project Ready for Construction, and (5) Project Construction and two additional phases that Energy Safety has designated and defined: Project Identification Phase and Project Completion Phase.

~~**"Project Standards"** means the Risk Reduction Project Standard, the Reliability Increase Project Standard, the Tail Risk Mitigation Project Standard.~~

~~**"Project-Level Metric"** means a measurement of a risk-related quantity assigned to a single circuit or circuit segment. This measurement may take into account factors from circuits other than the assigned one.~~

"PSPS" means ~~public safety power shutoff.~~Public Safety Power Shutoff. See also "**Outage Program**."

"PVM" or **"Project Variable Modifier"** means 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.

"Reliability Increase Project Standard" is the minimum decrease in Outage Program Risk, as measured through formal calculations of the Key Decision-Making Metrics that any project considered under the High-Risk Threshold 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.

"Reliability Increase Standard" is the minimum decrease in Outage Program-related metrics, as measured through formal calculations of the Key Decision-Making Metrics across the entire system at both the System-Level and Portfolio-~~level~~Level, that the EUP must achieve to meet the required increase in reliability.

~~"~~**"Risk Landscape"** means the set of metrics the ~~large electrical corporation~~Large Electrical Corporation uses to estimate the risks.

"Risk Modeling Methodology" means the collection of numerical models and algorithms that the ~~large electrical corporation~~Large Electrical Corporation employs to approximate the likelihood and consequences of utility related wildfires and wildfire related Outage Programs.

"Risk Reduction Project 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.

"Separate ~~Alternative~~ Analysis" means the risk reduction of ~~this project~~ the Undergrounding Project if it was the only ~~one~~project in the ~~portfolio and required to report these effects at the Project Level and~~ Portfolio ~~Level.~~

~~**"Separate Analysis"** means the risk reduction of this project if it was the only one in the portfolio and required to report these effects~~. Effects must be reported at the Project-Level and Portfolio-Level.

"Subproject" means a delimited portion of work on a Confirmed Project. A Subproject must have a uniform set of mitigations applied to the entire Subproject. If a a project does not have a uniform set of mitigations, it must be divided into more Subprojects.

"System-Level ~~Metric"~~ ~~means~~" refers to a ~~single~~ measurement ~~of risk related quantities~~ that ~~takes into account risk over~~accumulates information from the entire electrical distribution system into a single number.

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

"**Target/Timeline Table**" means the table, described in Subsection 2.3.1j setting forth project timelines and targets that are required to fulfill section 8388.5(c)(3).

"Threshold Level" means the value of a risk score above which a Circuit Segment ~~or CPZ~~ warrants consideration for undergrounding. (see High-Risk Threshold, Ignition Tail Risk Threshold, High Frequency Outage Program Threshold, and Mitigated Risk Threshold).

~~**"Undergrounding Project"** means an Eligible Circuit Segment for which the EUP contains a Project Reference Sheet with the CPUC Data Appendix 1 information completed. See also "Confirmed Project."~~

"Undergrounding" means actions taken to convert overhead ~~electrical~~distribution lines and/or equipment to underground ~~electrical~~distribution lines and/or equipment ~~(i.e., located underground and~~ in accordance with GO 128~~).~~ and includes all Undergrounding ~~does not~~Support Work.

"Undergrounding Project" means an Eligible Circuit Segment that has completed Screen 2 including the CPUC Data Appendix 1 information completed.

"Undergrounding Subproject" means a Subproject that is comprised of only Undergrounding activities including the Undergrounding Support Work necessary to complete the Undergrounding Subproject.

"Undergrounding Support Work" means the work done in direct support of Undergrounding distribution lines. This includes work and equipment that (i) directly facilitates Undergrounding lines, (ii) transitions between overhead and underground lines, or (iii) is required by construction or design standards or GO 95. This may include ~~microgrids~~the construction of no more than three new distribution poles on either end of an undergrounded portion of distribution line if they are necessary to facilitate the safe transition from overhead to underground.

"Wildfire Rebuild Area" means a location where distribution infrastructure has been damaged by wildfire that ~~qualifies as a rebuild area under section 8388.5~~ is specifically identified by the Large Electrical Corporation in the EUP or in a Progress Report.

"WMP" means the wildfire mitigation plan program and requirements mandated by sections 8385 through 8389.

Appendix B. Organization of EUP

The purpose of this appendix is to assist in the organization of an EUP. This appendix is not a comprehensive enumeration or a modification of existing requirements outlined in the EUP Guidelines.

B.1 Narrative Content

The EUP must include a main document, including narrative and tables, organized into chapters as follows and submitted to the docket following the instructions in Section 3 of the Guidelines. The narrative includes tables appropriate in size and content for a narrative document. The tabular data required for the data submission is detailed in Section B.3 below.

Chapter 1 Basic Information

Required Content	Description of Required Narrative Content
Basic Information	See Section 2.2 of these Guidelines.

Chapter 2 Narrative Requirements for Demonstration of Substantial Risk Reduction

Required Content	Description of Required Narrative Content
~~Portfolio~~Plan **Mitigation Objective: Narrative and Implementation Approach**	See Section 2.3.1 of these Guidelines.
Target/Timeline Table	See Table 1 in Section 2.3.1 for example.
~~**Demonstration of Substantial Risk Reduction:**~~**Plan Tracking Objectives** ~~**and Targets**~~	See Section 2.3.2 of these Guidelines.

Chapter 3 Narrative Requirements for Project Acceptance Framework

Required Content	Description of Required Narrative Content
Project Framework Change Procedure	See Section 2.4.2 of these Guidelines
Screen 1: Circuit Segment Eligibility	See Section 2.4.~~1~~3 of these Guidelines ~~See Circuit Segment Information Lists below for non-narrative requirements.~~
Screen 2: Project Information and Alternative Mitigation Comparison	See Section 2.4.~~2~~4 of these Guidelines ~~See Circuit Segment Information Lists below for non-narrative requirements.~~
Common Set of Values and Assumptions	See Section 2.4.4.1 of these Guidelines.
Screen 3: Project Risk Analysis	See Section 2.4.~~3~~5 of these Guidelines ~~See Circuit Segment Information Lists below for non-narrative requirements.~~
Screen 4: Project Prioritization	See Section 2.4.~~4~~6 of these Guidelines ~~See Circuit Segment Information Lists below for non-narrative requirements.~~

Chapter 4 Narrative Requirements for Circuit Segment Information Lists

Most of the Circuit Segment Information Lists will be submitted as part of the tabular data submission. A narrative describing how the tabular data can be combined and sorted to create the required Circuit Segment Information Lists. Shorter versions of key Circuit Segment Information Lists (for example, a list of the top 25 highest risk Circuit Segments) can be included in this chapter to provide an overview.

Required Content	Description of Required Narrative Content
Narrative describing Circuit Segment Information Lists	See Section 2.4.~~5~~7.1 of these Guidelines for content.

	~~See Circuit Segment Information Lists below for non-narrative requirements.~~
Narrative describing Non-EUP projects and programs	See Section 2.4.7.2.

Chapter 5 Project Timelines, Workforce Development Plan, Costs and Benefits, and Non-Ratepayer Funding Sources

Required Content	Description of Required Narrative Content
Project Timeline and Targets	See Table 1, Section 2.5.1 of these Guidelines; section 8388.5(c)(3)
Workforce Development Plan	See Section 2.5.2 of these Guidelines; section 8388.5(c)(5)
Costs and Benefits	See Section 2.5.3 of these Guidelines; section 8388.5(c)(6)
~~**Non-Ratepayer**~~**Nonratepayer Funding Sources**	See Section 2.5.4 of these Guidelines

Chapter 6 Narrative Requirements for Progress Report 0

Required Content	Description of Required Narrative Content
Narrative about Progress Report 0 and in support of Progress Report 0	See Section 2.6 of these Guidelines Note: the actual Progress Report 0 is submitted separately from this narrative.

Chapter 7 Narrative Support for 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	Enterprise Diagram(s)	See 2.7.3.1
Reports on ~~Sub-models~~Models	See 2.7.2	4 Pages per ~~Sub-~~Model	None	NA

Section Name	Narrative Requirements	Maximum Length of Narrative Section	Required Tables and Figures	Table Requirements
Core Capabilities	See 2.7.5	2 Pages per Capability	None	NA
Model Inputs	See 2.7.~~4~~5.1	1 Page per Input Category	Model Risk Landscape Variables Table	See 2.8.5.1
Project Variable Modifiers	See 2.7.~~6~~7	1 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 and 2.7.7	2 Pages	None	None~~NA~~
Key Decision-Making Metrics	See 2.7.3	3 Pages for required KDMMs and up to 1 Page each for up to 5 additional KDMMs	None	~~NA~~None
Portfolio-Level Standards	See 2.7.8	2 Pages	None	~~NA~~None
Project-Level Thresholds	See 2.7.9.1	2 Pages	None	~~NA~~None
Project-Level Standards	See 2.7.9.~~1~~2	2 Pages	None	~~NA~~None

Chapter 8 Narrative ~~Requirements~~ for ~~Reporting Metrics~~Baseline, Backtesting, Model Retention and Subsequent Model Reports

Required Content	Description of Required Narrative Content

~~Reporting Metrics~~Models and Calibration Retention Policies	See Section 2.~~8. of these Guidelines~~7.6
Plan to Update Risk Modeling	See Section 2.7.6

Chapter 9 Narrative Requirements for Reporting Metrics

Provide any narrative to support Section 2.8 of these Guidelines regarding submission of Tabular Data, JSON Data, Spatial Data Reporting, and Data Validation

B.2 Progress Report 0

Progress Report 0 must be submitted as a separate attachment to the EUP.

a. All data required pursuant to Section 2.8 and Appendix C of these Guidelines; and
b. Any additional System-Level, Portfolio-Level and Project-Level information the Large Electrical Corporation would like to be included in Progress Reports.

Required Content	Description
Portfolio Coversheet	See 2.8.4 and 2.8.6 of these Guidelines
Plan Mitigation Objective	See 2.3.1 of these Guidelines
~~Project Reference Sheet completed for each Undergrounding Project~~Plan Tracking Objectives	See 2.~~8.5 and~~ 3.2.~~8.7~~ of these Guidelines
Target/Timeline Table	See 2.3.1(j) of these Guidelines
~~Circuit Segment Information Lists~~Identified Wildfire Rebuild Areas	See 2.4.~~5~~3.1 of these Guidelines
Current Model Report	See 2.7.2 of these Guidelines
Data Submission	All data required pursuant to Section 2.8 and Appendix C of these Guidelines

Additional Content (mandatory)	Energy Safety may direct the Large Electrical Corporation to include specific additional content in Progress Report 0.
Additional Content (optional)	Additional content that the ~~large electrical corporation~~Large Electrical Corporation proposes to track in its Progress Reports

B.3 Data Submissions

Instructions on the format for data submissions are found in Appendix C of these Guidelines.

Appendix C. Data Organization & Structure

The purpose of this appendix is to summarize all the information needed for the data submission accompanying the EUP and during all Progress Reports.

C.1 Tabular Data Submissions

This appendix establishes the requirements for the tabular data submission. The submission of the tabular data must map to the submission of the spatial data for both the initial EUP submission and every subsequent Progress Report. The data submission accompanying the initial EUP submission will have the ~~exact~~ same format as the Progress Reports, so it is referred to in this document as Progress Report 0.

The submission of tabular data must encompass the tables set forth in this appendix. ~~The requirements herein may necessitate multiple submissions of some of the tables such as the Project Table, Project Status Table, and Circuit Screens Table with each data submission. The large electrical corporation must use the template files provided by Energy Safety for data submission.~~ Template files to aid in submission of the data requirements are available on Energy Safety's website. The format of these files is in the form of ".CSV" or comma-separated values files.

~~Some tables require a JSON submission for a particular field. This is fully distinct from the submission of the two supplemental JSON files required in Section C.2 of these Guidelines. Instead, in these cases the "Data Type Requirements" column will show the keys and values associated with the JSON key-value structure. These are simply strings which follow JSON formatting, not links to external files or nested dictionaries.~~

Tables C.6 through C.14 are anchored around uniquely identifiable Circuit Segments with unique IDs. The Circuit Segment IDs are required to be unique not only spatially (e.g. no repeated IDs in the system at a particular time) but also temporally (e.g. if a new Circuit Segment is created in Progress Report 1, it must not use an ID found in Progress Report 0). If the Large Electrical Corporation's Circuit Segment naming schema would reuse Circuit Segment IDs, it must append the "minting date," or the date of submission of the first Progress Report in which this Circuit Segment appears, to the end of the Circuit Segment name as an 8-digit date string (e.g. "January 1, 2025" as "01012025").

A Circuit Segment is considered "new", and requires a new Circuit Segment ID, if any of the individual pieces of equipment that define the boundaries of where the Circuit Segment connects to other Circuit Segments or substations (e.g. circuit breakers, reclosers, and other equipment), are removed, are added, or if any of that equipment moves to a new spatial location. However, a Circuit Segment is not considered "new" just because there is any other

maintenance, changes to non-terminal equipment, swapping out or upgrading terminal equipment without moving it, changes to the length, or movement of non-connecting endpoints (e.g. the last customer meter on a line). Changes which create "new" Circuit Segments will be tracked in the Circuit Segment Changelog Table.

C.1.1 Plan Table

This section establishes the requirements for a Plan Table. This table is submitted once in Progress Report 0.

The large electrical corporation must initially submit the Plan Table with its EUP. but not in subsequent submissions. This table is not to be submitted with subsequent Progress Reports.

Table C. 1. describes the construction and data requirements for the for the Plan Table.

Table C.1. Example Plan Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Requi
plan_id	A unique value identifying the plan.	NVARCHAR(255)INT	Unique
utility_name	EC abbreviation. Acceptable values are the following: • PG&E • SDG&E • SCE	NVARCHAR(32)	Limited Option
plan_type	A categorical value representing the type of plan an EC is submitting. Acceptable values are the following: • 884	NVARCHAR(32)	Limited Option
name	The name of the plan.	NVARCHAR(255)	
start_date	Start date of the plan.	DATEDATETIME	
end_date	End date of the plan.	DATEDATETIME	
plan_submission_date	Date the plan was submitted /to Energy Safety.	DATETIME	
narrative_submission	A text field to describe a plan.	TEXT	

Column Name	Field Description	Data Type	Data Requi
high_risk_threshold	See "High-Risk Threshold" in Section ~~3.4.1.4,~~ 2.7.9, Project-Level Thresholds and ~~Project-Level~~ Standards for definition.	REAL	
~~wf~~ignition_tail_risk_threshold	See "~~Wildfire~~Ignition Tail Risk Threshold" in Section ~~3.4.1.4,~~ 2.7.9, Project-Level Thresholds and ~~Project-Level~~ Standards for definition.	REAL	
high_frequency_outage_program_threshold	See "High Frequency Outage Program Threshold" in Section 2.7.9, Project-Level Thresholds and ~~Project-Level~~ Standards for definition.	REAL	

Additional requirements for a Plan Table are as follows:

a) The Plan Table has only a single row of data which designates static information regarding the submitted EUP. Values in this table cannot be modified. If any value needs to be modified, this requires submission of a new EUP.

~~b)~~ The PLAN_ID is defined by the value in this table, and must remain consistent for all subsequent tables, including in future Progress Reports. However, the ~~large electrical corporation~~Large Electrical Corporation must assign a new PLAN_ID, if an EUP is rejected and needs to be resubmitted.

~~c)~~b) ~~The large electrical corporation must designate "884" as the value for PLAN_TYPE.~~

C.1.2 Key Decision-Making Metrics Table

This section establishes the requirements for a KDMM Table that the ~~large electrical corporation~~Large Electrical Corporation must submit. The ~~large electrical corporation~~Large Electrical Corporation must submit a KDMM Table in Progress Report 0, describing all KDMMs which they will use during application of the EUP.

Table C.2. describes the construction and data requirements for the KDMM Table.

Table C.2. Example KDMM Table Construction ~~of the KDMM Table~~ and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	NVARCHAR(255)~~INT~~	must match Plan Table

Column Name	Field Description	Data Type	Data Type Requirements
kdmm_name	The name of the KDMM (e.g., Overall Utility Risk, Ignition Consequence, etc.) Name must match those from the KDMM table in Section 2.7.3 of these Guidelines	NVARCHAR(255)	limited values
kdmm_number	For the seven required (and up to 5 optional) KDMMs, which number (1,2,3, etc.).	~~INTEGER~~INT	
~~temporal_type~~kdmm_is_cumulative	Indicate whether the KDMM is "Cumulative" or “Non-Cumulative"	BOOLEAN~~NVARCHAR(255)~~	~~limited values~~
kdmm_definition	An explanation of what this KDMM represents.	TEXT	

Additional requirements for a KDMM Table are as follows:

a) The ~~large electrical corporation~~Large Electrical Corporation must use KDMM_NAME to map submissions of this table to the JSON data submissions.
b) This table is only to be submitted once, at the initial submission of the Plan. This table is not to be resubmitted or edited with future Progress Reports.
c) This table must include the same KDMMs as the EUP narrative and table submission.
d) The KDMM_NUMBER is defined by this table, and the project_variable_~~multiplier~~modifiers and risk_landscape JSON files must use the same KDMM_NUMBERS.

C.1.3 Risk Model Version History Table

This section establishes the requirements for a Risk Model Version History Table accompanying the submission of the ~~project_variable_multiplier~~PROJECT_VARIABLE_MODIFIERS JSON file with the initial submission of the Project and all subsequent Progress Reports. Each row of this table is a unique calibration of the ~~large electrical corporation’s~~Large Electrical Corporation’s Risk Modeling Methodology. This table must reflect the most current information as of each Progress Report submission.

Table C.3. describes the construction and data requirements for the Risk Model ~~Projections~~Version History Table.

Table C.3. Example ~~Construction of the~~ Risk Model ~~Versions~~Version History Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	~~INT~~NVARCHAR(255)	must match Plan Table
risk_model_version_id	A unique value identifying the risk model versioning.	NVARCHAR(255)	must match JSON submission
version_date	Date this version was established.	DATETIME	
risk_model_calibration_id	A unique value identifying the calibration number for this risk model version	~~INT~~NVARCHAR(255)	must match JSON submission
calibration_date	Date this calibration was established.	DATETIME	
change_description	Text explaining what changes took place compared to the previous version/calibration. If only a calibration update, describe which modules were recalibrated and the topline effects. If a full version update, describe any new models or interactions, and topline outcome effects	Text	

Additional requirements for a Risk Model ~~Versions~~Version History Table are as follows:

a) This table is a historical record table, with rows to be added as new versions are created and calibrated. At least one row must be submitted alongside Progress Report 0, and this table is to be resubmitted with each Progress Report only if new rows are added. The final row of this table is presumed to ~~be the large electrical corporation's current~~record the Large Electrical Corporation's most up to date Risk Modeling Methodology.

b) A model's CALIBRATION_DATE is the date the ~~model~~model's calibration was finalized internally at the ~~large electrical corporation~~Large Electrical Corporation, not the date of submission of this model in a subsequent Progress Report.
c) If multiple updates to the Risk Modeling Methodology are made at different times between Progress Reports, ~~the large electrical corporation~~then the Large Electrical Corporation will add multiple new rows to the table.
d) Each new row of this table in each Progress Report will be accompanied by a submission of a PROJECT_VARIABLE_~~MULTIPLIERS~~MODIFIERS JSON data file, even if this would require multiple new JSON file submissions. The RISK_MODEL_VERSION_ID and RISK_MODEL_CALIBRATION_ID must match those submitted in those files.

C.1.4 Portfolio Table

This section establishes the requirements for a Portfolio Table in Progress Report 0 and in every subsequent Progress Report. This table includes information on the current ~~portfolio~~and previous portfolios and Risk Modeling ~~Methodology~~Methodologies being used by the ~~large electrical corporation~~Large Electrical Corporation.

Table C.4. describes the construction and data requirements for the Portfolio Table.

Table C.4. Example Portfolio Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
~~plan~~portfolio_id	A unique value identifying the ~~plan~~portfolio.	NVARCHAR(255)~~INT~~	unique~~must match Plan Table~~
~~portfolio~~plan_id	A unique value identifying the ~~portfolio~~plan.	NVARCHAR(255)~~INT~~	must match Plan Table~~unique~~
project_list	A comma delimited list of all projects in the portfolio, by their project_id.	TEXT	Must match the Project Table
description~~total_circuit_segments_in_portfolio~~	~~Total number of circuit segments in portfolio.~~A narrative overview of the current Portfolio, including a description of the changes since the last Progress Report	TEXT~~INT~~	

Column Name	Field Description	Data Type	Data Type Requirements
total_circuit_segments_in_portfolio~~start_date~~	~~Start date of the Plan.~~Total number of Circuit Segments in portfolio.	~~DATE~~INT	-
~~estimated_completion~~start_date	~~Estimated completion~~Start date of ~~final project in portfolio~~the Plan.	~~DATE~~DATETIME	
~~baseline_MRL_metrics~~estimated_completion_date	~~MRL metrics, assuming no plan, reported at the Portfolio-Level and System-Level~~Estimated completion date of final project in portfolio.	~~JSON~~DATETIME	~~Keys: Strings, names for MRL metrics~~ ~~Values: Floats, current-day value for each metric~~
risk_model_version_id	A unique value identifying the risk landscape.	~~INT~~NVARCHAR	must match version in project_variable_~~multipliers~~modifiers.json file
risk_model_calibration_id	A unique model identifying the calibration number of the risk landscape	~~INT~~NVARCHAR	must match calibration in project_variable_~~multipliers~~modifiers.json file

Additional requirements for a Portfolio Table are as follows:

a) The Portfolio Table is a historical records table, with rows to be added as the Portfolios evolve. This will be submitted ~~as a single~~with an additional new row of data at each Progress Report.
b) The ~~large electrical corporation~~Large Electrical Corporation must assign the Portfolio a unique integer ID, which is the unique identifier for the list of projects being considered for undergrounding. When this list of projects changes, so too does the PORTFOLIO_ID. However, changes to the individual details of a project (e.g., changing the cost estimate, undergrounded length, etc.) do not change the list of projects and therefore do not change the PORTFOLIO_ID.
c) In Progress Reports, the ~~large electrical corporation~~Large Electrical Corporation must update the Portfolio Table, including RISK_MODEL_VERSION_ID,

RISK_MODEL_CALIBRATION_ID, and DESCRIPTION, if there are any modifications to the Risk Modeling Methodology. The version and calibration of the risk model are the current one as of the Progress Report submission, and the distinction between versioning and calibration is as described in Section 2.7.5.2 of the Guidelines.

d) START_DATE refers to the inception date of the Plan, not the start date of individual projects.

e) The ~~large electrical corporation~~Large Electrical Corporation must submit a JSON file for the Portfolio with the risk model and again in any Progress Report with a risk model update. See JSON instructions (Section C.2) for requirements on the risk model JSON file.

C.1.5 Risk Model Backtesting Table

This section establishes the requirements for a Risk Model Backtesting Table. This table is submitted once with the initial submission of the EUP and in all subsequent Progress Reports. Each row of this table is a particular calibration of the Large Electrical Corporation's Risk Modeling Methodology, applied to a particular baseline and portfolio to generate all KDMMs at that baseline and portfolio.

Table C.5 describes the construction and data requirements for the for the Risk Model Backtesting Table.

Table C.5. Example Risk Model Backtesting Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	NVARCHAR(255)	must match Plan Table
risk_model_version_id	A unique value identifying the risk model versioning.	NVARCHAR(255)	must match Risk Model Version History Table
risk_model_calibration_id	A unique value identifying the calibration number for this risk model version	NVARCHAR(255)	must match Risk Model Version History Table
calibration_date	Date this calibration was established	DATETIME	must match Risk Model Version History Table

Column Name	Field Description	Data Type	Data Type Requirements
baseline_date	The date representing the baseline used for modeling in this row	DATETIME	must match date of initial submission or subsequent Progress Report
portfolio_id	The portfolio used for modeling in this row	NVARCHAR(255)	must match the portfolio_id of the Portfolio which was current as of the baseline_date.
Then, for each KDMM, the following columns:			
kdmm_#_name	The name of the KDMM	NVARCHAR(255)	Must match KDMM Table
kdmm_#_value_baseline	The value of this KDMM output from applying the specified risk model to the specified baseline	REAL	
kdmm_#_uncertainty_baseline	Uncertainty of this KDMM under these modeling conditions	NVARCHAR(255)	write numerical effects as string, e.g. • "± 0.4" • "+0.2, -0.1", • "± 10%"
kdmm_#_value_portfolio	The value of this KDMM output from applying the specified risk model to the specified portfolio	REAL	
kdmm_#_uncertainty_portfolio	Uncertainty of this KDMM under these modeling conditions	NVARCHAR(255)	write numerical effects as string, e.g. • "± 0.4" • "+0.2, -0.1", • "± 10%"

Additional requirements for a Risk Model Backtesting Table are as follows:

e) This table is a historical record table, with rows to be added as new versions are created and calibrated. At least one row must be submitted alongside Progress Report 0, applying the initial risk model to the initial baseline and Portfolio.
f) With each Progress Report, a new row is added which applies the *current* risk model to the *current* baseline and Portfolio.
g) Additionally, with each update to the Risk Modeling Methodology (e.g. addition of a new row to the Risk Model Version History Table via either a new model or a new calibration), a row will be added applying the *current* risk model to *all prior* baselines and Portfolios, one row per baseline/portfolio and model.
h) Additionally, with each Progress Report, a new row will be added applying each *prior* risk model to the *current* baseline/portfolio, one row per model.
i) For each KDMM, three additional columns are added. The "#" character in the column names is to be replaced by an integer, e.g. ("kdmm_1_name", "kdmm_2_name", etc.).
j) The KDMMs must be listed in the same order as they appear as rows of the KDMM Table.

~~C.1.5~~C.1.6 Circuit Segment Identification Table

This section establishes the requirements for a Circuit Segment Identification Table, first submitted in Progress Report 0 and submitted again in every subsequent Progress Report. This table must reflect the most current information as of each Progress Report submission, this includes construction of new ~~circuit segments~~Circuit Segments, the splitting of ~~circuit segments~~Circuit Segments into smaller ~~circuit segments~~Circuit Segments or the merging of segments into larger segments.

Table C.~~5~~6 describes the construction and data requirements for the Circuit Segment Identification Table.

Table C.~~5.~~6. Example Circuit Segment Identification Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
circuit_segment_id	A unique value identifying the ~~circuit segment~~Circuit Segment ID.	NVARCHAR(255)	~~unique, CPZ ID or isolated Circuit Segment ID~~See introduction to Appendix C
circuit_id	A unique value identifying the circuit.	NVARCHAR(255)	~~unique,~~ must match circuit_~~id~~ids as provided in ~~QDR spatial~~WMP data submission~~ files~~

Column Name	Field Description	Data Type	Data Type Requirements
qdr_circuit_segment_id	If this circuit segment was included in the most recent Quarterly Data Report submission as part of the WMP process, list the name used in that report	NVARCHAR(255)	Must match an entry in the WMP data submission
project_id	A unique value identifying the project.	~~INT~~NVARCHAR(255)	must match project_id from ~~one~~ Project Table if this circuit ~~is~~ has passed through Screen 2 and has been assigned a project_id, otherwise leave blank
~~plan_id~~is_non_eup_project	~~A unique value identifying the plan.~~Whether this Circuit Segment is not part of the EUP, but is already planned for mitigations through mechanisms besides the EUP	~~INT~~BOOL	~~must match Plan Table~~
external_funding~~qdr_circuit_segment_id~~	~~A unique ID matching circuit_segment_id used in special quarterly data report (QDR)~~If mitigation of this Circuit Segment is already funded through the General Rate Case or other funding, describe that program here.	TEXT~~NVARCHAR(255)~~	~~must match a circuit_segment_id provided in QDR~~See below for instructions depending on whether this is an Undergrounding Project, a Non-EUP Project, or neither.
planned_mitigation_explanations~~external_funding~~	If ~~undergrounding~~mitigation of this Circuit Segment is ~~already funded~~currently planned for this circuit through mechanisms besides the ~~General Rate Case or other funding~~EUP, describe ~~that program~~the mitigation type here~~.~~	TEXT	Leave blank if Circuit Segment is not planned for ~~undergrounding~~mitigation, or ~~if funding for undergrounding~~mitigation is only expected to ~~come from~~be undergrounding through the EUP.
~~screen_number~~	~~A unique value identifying the next screen to be applied to the Circuit Segment. Enter value between 1 and 4.~~	~~INT~~	-

Column Name	Field Description	Data Type	Data Type Requirements
~~screen_name~~wmp_utility_initiative_tracking_id	~~Provide the name~~If mitigation of ~~the next screen.~~ • ~~Screen 1:~~this Circuit Segment ~~Eligibility~~ • ~~Screen 2: Project Information and Alternative~~is going to take place as part of the Wildfire Mitigation ~~Comparison~~ • ~~Screen 3: Project Risk Analysis~~ ~~Screen 4: Project Prioritization~~Plan (WMP), list the utility_initiative_tracking_id as defined in the WMP	NVARCHAR(255)	-Leave blank if not applicable.
circuit_segment_length	The length of the ~~circuit segment~~Circuit Segment, in miles.	REAL	
hftd_tier	Which High Fire Threat District tier the Circuit Segment falls into. Options: • Tier 3 • Tier 2 • Non-HFTD	NVARCHAR(255)	limited options
rebuild_area	Whether this Circuit Segment falls within a Wildfire Rebuild Area	Boolean	
is_in_area	Whether this Circuit Segment falls into the In-Area Circuit Segments List (i.e. either hftd_tier = Tier 3 or Tier 2, or rebuild_area = True)	Boolean	
is_eligible_circuit_segment	Whether this Circuit Segment has passed Screen 1 and is on the Eligible Circuit Segments List	Boolean	
county~~Is_undergrounding_project~~	~~Whether this~~Name of the county that the Circuit Segment ~~has passed Screen~~	NVARCHAR(255)~~Boolean~~	Must be a county name in California

	~~2 and is on the Undergrounding Projects List~~falls primarily into		
~~is_confirmed_project~~	~~Whether this Circuit Segment has passed Screen 3 and is on the Confirmed Projects List~~	~~Boolean~~	
~~is_prioritized_project~~	~~Whether this Circuit Segment has passed Screen 4 and is on the Prioritized Projects List~~	~~Boolean~~	

Additional requirements for a Circuit Segment Identification Table are as follows:

a) In the initial submission, the ~~large electrical corporation~~Large Electrical Corporation must provide each Circuit Segment within its territory as a separate row. This must be a comprehensive list including all Circuit Segments in the utility territory, even ones which do not qualify for undergrounding under the proposed EUP.

b) When this table is submitted in Progress Reports, the Circuit Segments must remain the same, unless they have been newly created, merged, or split, as described above. ~~With the proposal of a new Project in the Project Table (Table 8 below), a link must be established between the PROJECT_ID and CIRCUIT_SEGMENT_ID, and this link must remain unchanged throughout the Plan duration. If a project is abandoned and a new project is later proposed on that Circuit Segment, it will be proposed with a new PROJECT_ID.~~

c) Each Undergrounding Project is associated with only a single Circuit Segment. For example, any proposed undergrounding which takes place on e.g., two adjacent ~~circuit segments~~Circuit Segments must be considered as two individual projects. Conversely, all proposed undergrounding work on a single Circuit Segment will be considered one project and share the same PROJECT_ID.

~~d) The SCREEN_NAME and SCREEN_NUMBER fields refer to the "next" screen this segment would need to pass through to be considered for undergrounding. E.g., a Circuit Segment that has passed screen 2 would have entries "Screen 3: Project Development Evaluation" and "3" for these fields, while a project which is not eligible for undergrounding under the EUP because it is not in a High Fire Threat District or Rebuild Area, would have entries "Screen 1: Circuit Eligibility" and "1," respectively. The four "~~If a Circuit Segment is substantially modified, e.g. by splitting into two Circuit Segments, the change must appear in the Circuit Segment Changelog Table (Appendix C.1.7). The new Circuit Segments must use unique names that have never been submitted before through the Circuit Segment Identification Table.

d) The "EXTERNAL_FUNDING" variable is tracked as follows, depending on whether the Circuit Segment is a Project within the EUP, a Non-EUP Project, or neither. If this Circuit Segment is a Project within the EUP, list the external sources of all funding for

Non-Undergrounding Subprojects on this Circuit Segment. If this Circuit Segment is a Non-EUP Project, list the external sources of all funding for mitigation of this Circuit Segment, including for undergrounding or other system hardening. If this Circuit Segment is not being considered for mitigations, leave this field blank.

e) The Large Electrical Corporation~~Boolean" variables at the end confirm whether that row (i.e., Circuit Segment) has passed through the screens, they should be False until the project has reached the relevant stage, and True afterwards, even as the project advances through further screens. The lists generated by filtering this table by each stage must be the same as the lists submitted in the EUP, for example filtering this list by "IS_CONFIRMED_PROJECT" being TRUE should have identical projects as the Confirmed Projects List in the Portfolio Coversheet.~~

~~The large electrical corporation~~ must submit associated spatial data with each Progress Report (Section C.4 below). The CIRCUIT_ID and CIRCUIT_SEGMENT_ID in the Circuit Segment Identification Table must map to the associated IDs in that submission. Additionally, the QDR_CIRCUIT_SEGMENT_ID must also map to a ~~circuit segment~~Circuit Segment in the spatial data provided in the most recent Wildfire Mitigation Plan Quarterly Data Report.

C.1.7 Circuit Segment Changelog Table

This section establishes the requirements for a Circuit Segment Changelog Table. This table is not submitted with the initial submission of the EUP (Progress Report 0), however it must be submitted with all subsequent Progress Reports. Each row of this table is a change which results in a new Circuit Segment with a new CIRCUIT_SEGMENT_ID.

Table C.7 describes the construction and data requirements for the for the Circuit Segment Changelog Table.

Table C.6. Example Circuit Segment Changelog Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	NVARCHAR(255)	Must match Plan table
circuit_segment_id	A unique value identifying the new Circuit Segment ID.	NVARCHAR(255)	unique, CPZ ID or isolated Circuit Segment ID

Column Name	Field Description	Data Type	Data Type Requirements
circuit_id	A unique value identifying the circuit.	NVARCHAR(255)	unique, must match circuit_id provided in most recent QDR spatial submission files
change_type	Identification of how this Circuit Segment has been defined or redefined since the last Progress Report. Possible options: • New Construction • Rename • Split • Merge • Other, see comment	NVARCHAR(255)	Limited Values
change_date	Date this Circuit Segment change was reported (i.e. date of submission of this Progress Report)	DATETIME	
source_circuit_segment_ids	comma-delineated list of all Circuit Segments submitted in the prior Progress Report, which contributed to this new segment. May be a single value if only one prior Circuit Segment connects.	TEXT	Each comma-separated value must be identifiable with a Circuit Segment ID from the prior Progress Report.
comment	Explanation of the change if change_type is "other, see comment"	TEXT	Leave blank if change_type is not "other, see comment"

Additional requirements for a Circuit Segment Changelog Table are as follows:

a) This table is a historical record table, with rows to be added as equipment is added or removed that redefines the boundaries of Circuit Segments. With each Progress Report, a new row is added for each new CIRCUIT_SEGMENT_ID, identifying if this new Circuit Segment is a split, rename, new construction, or has some other relationship with the Circuit Segments submitted in the previous Progress Report. When this table is submitted in subsequent Progress Reports, previous rows must continue to be included as well as any new rows to be added.

b) In all Progress Reports subsequent to Progress Report 0, the CIRCUIT_SEGMENT_ID in each row in the Circuit Segment Identification Table must correspond to either a

CIRCUIT_SEGMENT_ID in the prior Progress Report's Circuit Segment Identification Table, or to a CIRCUIT_SEGMENT_ID in this Circuit Segment Changelog Table.

c) CIRCUIT_SEGMENT_IDs cannot be reused. If a new Circuit Segment is created and it requires a new ID, this ID must not have been previously submitted at any point in the lifetime of the EUP (e.g. including the date of the Progress Report in which this ID was first submitted within the string name).

d) If a Circuit Segment's CHANGE_TYPE is "New Construction", then the Circuit Segment is created entirely from new assets, and does not overlap with any Circuit Segment present in the previous Progress Report.

e) If a Circuit Segment's CHANGE_TYPE is "Rename", then the Circuit Segment's CIRCUIT_SEGMENT_ID is new, but the assets themselves are identical to a Circuit Segment submitted in the previous Progress Report.

f) If a Circuit Segment's CHANGE_TYPE is "Split", then the Circuit Segment's CIRCUIT_SEGMENT_ID is new, but the assets themselves are a subset of a Circuit Segment submitted in the previous Progress Report, e.g. a new segmentation device was added.

g) If a Circuit Segment's CHANGE_TYPE is "Merge", then the Circuit Segment's CIRCUIT_SEGMENT_ID is new, but the assets themselves are a composed from multiple Circuit Segments submitted in the previous Progress Report, e.g. a segmentation device was removed.

h) If a Circuit Segment's CHANGE_TYPE is "Other, see comment", then the Circuit Segment's CIRCUIT_SEGMENT_ID is new, and the relationships to assets submitted in a previous Progress Report is not captured in the other options. In this case, list relevant Circuit Segments from the previous Progress Report as well as explain how this segment was created. The comment should be sufficient as to allow Energy Safety to identify what the relationship is that this Circuit Segment has to previous Circuit Segments in the same geographic area.

i) In each of the above sections, small overlaps, small changes to the Circuit Segment such as addition of equipment, upgrades, or small changes in location do not need to be considered here, only major changes that would make a Circuit Segment impossible to directly track over time.

~~C.1.6~~C.1.8 Circuit Segment Risk Score Table

This section establishes the requirements for a Circuit Segment Risk Score Table. The ~~large electrical corporation~~Large Electrical Corporation must submit a Circuit Segment Risk Score Table for each Undergrounding Project at the initial submission of that project and with each Progress Report. This table must reflect the most current information as of each Progress Report submission.

Table C.~~6~~8 describes the construction and data requirements for the Circuit Segment Risk Score Table.

Table C.7. Example ~~Construction of~~ Circuit Segment Risk Score Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
circuit_segment_id	A unique value identifying the Circuit Segment ID.	NVARCHAR(255)	unique, CPZ ID or isolated Circuit Segment_id
circuit_id	A unique value identifying the circuit.	NVARCHAR(255)	unique, must match Project Table circuit_id and QDR spatial submission circuit_id
~~**circuit_segment_id**~~	~~A unique value identifying the circuit segment ID.~~	~~NVARCHAR(255)~~	~~unique, CPZ ID or isolated circuit segment_id~~
~~**project_id**~~	~~A unique value identifying the project.~~	~~INT~~	~~must match project_id from Project Table if this circuit passes Screen 2, otherwise leave blank~~
project_id	A unique value identifying the project.	NVARCHAR(255)	must match project_id from Project Table if this circuit passes Screen 2, otherwise leave blank
risk_model_version_id	A unique value identifying the current version of the Risk Model	NVARCHAR(255)	Must match last row of Risk Model Version History Table
risk_model_calibration_id	A unique value identifying the current calibration of the Risk Model	~~INT~~NVARCHAR(255)	Must match last row of Risk Model Version History Table

Column Name	Field Description	Data Type	Data Type Requirements
risk_category	Identifying if this ~~circuit segment~~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 • None	NVARCHAR(255)	String of one of the available options. If a ~~circuit segment~~Circuit Segment qualifies under multiple categories, list all categories separated by commas.
overall_utility_risk~~_score~~	Utility risk score ~~from the WMP~~.	REAL	
ignition_consequence	Ignition consequence score ~~from WMP~~.	REAL	
outage_program_likelihood	Outage Program likelihood.	REAL	
overall_utility_risk_rank_system	Rank of the risk within the system.	INT	
overall_utility_risk_rank_portfolio	Rank of the risk within the portfolio.	INT	Leave blank if not included in the portfolio
ignition_consequence_rank_system	Rank within the wildfire consequence.	INT	
ignition_consequence_rank_portfolio	Rank within the wildfire consequence.	INT	Leave blank if not included in the portfolio
outage_program_likelihood_rank_system	Rank within the wildfire consequence.	INT	
outage_program_likelihood_rank_portfolio	Rank within the wildfire consequence.	INT	Leave blank if not included in the portfolio

Additional requirements for a Circuit Segment Risk Score Table are as follows:

a) In the initial submission, the ~~large electrical corporation~~Large Electrical Corporation must provide each Circuit Segment within its territory as a separate row. This must be a comprehensive list including all Circuit Segments in the utility territory, even ones which do not qualify for undergrounding under the proposed EUP.
b) The Circuit Segments here must match those submitted in the Circuit Segment ~~Risk Score~~Identification Table.
c) With each Progress Report, the values in this table will update if the risk model changes. Use the current risk model outputs at the ~~circuit segment~~Circuit Segment level. This does not require projects to pass through screens again, even if the new risk model scores would not pass through the existing screens.

~~C.1.7~~C.1.9 Screen History Table

This section establishes the requirements for a Screen History Table. The ~~large electrical corporation~~Large Electrical Corporation must submit a Screen History Table in Progress Report 0 and in every subsequent Progress Report. This table must reflect the most current information as of each Progress Report submission. Multiple screens may be applied between Progress Reports. The ~~large electrical corporation~~Large Electrical Corporation must submit each applied screen as a new row.

Table C.~~7~~9 describes the construction and data requirements for the Screen History Table.

Table C.8. Example ~~Construction of the~~ Screen History Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
~~circuit_segment~~plan_id	A unique value identifying the ~~circuit segment ID~~plan.	NVARCHAR(255)	must match Plan Table~~unique, CPZ ID or isolated Circuit Segment ID~~
circuit_segment_id	A unique value identifying the ~~circuit~~Circuit Segment ID.	NVARCHAR(255)	unique, CPZ ID or isolated Circuit Segment ID~~unique, must match circuit_id provided QDR spatial submission files~~
~~project~~circuit_id	A unique value identifying the ~~project~~circuit.	~~INT~~NVARCHAR(255)	unique, must match ~~a Portfolio Table, may be blank if not being used~~circuit_id

Column Name	Field Description	Data Type	Data Type Requirements
			provided QDR spatial submission files
~~order__number~~project_id	~~California Public Utility Commission Order Number~~A unique value identifying the project.	NVARCHAR(255)	~~Must match CPUC Guidelines for SB 844 Program Appendix 1~~ must match Project Table, may be blank if not being used
portfolio_id	A unique value identifying the portfolio.	~~INT~~NVARCHAR(255)	must match a Portfolio Table, may be blank if not being used
is_active	~~Is the project active?~~This project is currently being considered for the next screen, or if confirmed and prioritized, is being developed for construction.	BOOLEAN	
screen_number	A unique value identifying the screen. Enter value between 1 and 4. Every time the screen is applied to the ~~circuit segment~~Circuit Segment, update this field and the remaining fields in this table.	INT	
screen_name	Provide the name of the screen. • Screen 1: Circuit Segment Eligibility • Screen 2: Project Information and Alternative Mitigation Comparison • Screen 3: Project Risk Analysis • Screen 4: Project Prioritization	NVARCHAR(255)	
passed_date	Date at which this screen was applied.	~~DATE~~DATETIME	

-Additional requirements for a Screen History Table are as follows:

a) In the initial submission, the ~~large electrical corporation~~Large Electrical Corporation must provide a row for each screen applied to each Circuit Segment, e.g., if a particular Circuit Segment has already passed Screen 3, it must have a row for when that segment was passed through each of Screen 1, Screen 2, and Screen 3, with the dates those screens were applied (which may be before submission of the EUP). Consequently, Circuit Segments which have not passed Screen 1 will not be included in this table.

b) This table is recorded at the Project level, meaning that the Circuit Segment ID used should match the original Circuit Segment the Project was created on, even if that Circuit Segment no longer appears in the Circuit Segment Identification Table.

~~b)~~c) In each subsequent Progress Report, additional rows will be added to the table to reflect additional screens that individual Circuit Segments have passed through. Prior rows should not be modified, however the order of rows (append all new updates to end, grouping all updates for a particular project together, etc.) will be left up to the ~~large electrical corporation~~Large Electrical Corporation.

~~c)~~d) If a Project is abandoned on a Circuit Segment ~~and a new Project is proposed on that same Circuit Segment, the new project must pass through all the screens again, and,~~ that progress must be reflected as new rows on this table with a new PROJECT_ID, without overwriting or removing the progress of the earlier Project.

~~C.1.8~~C.1.10 Project Table

This section establishes the requirements for a Project Table. The ~~large electrical corporation~~Large Electrical Corporation must submit a Project Table which contains information on each Undergrounding Project as an individual row. Projects must be included in this table once they have passed through Screen 2 (Project Information and Alternative Mitigation Comparison). This table must reflect the most current information as of each Progress Report submission, so any changes to the information in this table for a particular Project will be reflected in future submissions. The ~~large electrical corporation~~Large Electrical Corporation will update and submit all Project Tables with each Progress Report, even if no update was made to an individual project.

Table C.~~8~~10 describes the construction and data requirements for the Project Table.

Table C.~~8.~~10. Example Project Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
~~**project_id**~~	~~A unique value identifying the project.~~	~~INT~~	~~unique~~

Column Name	Field Description	Data Type	Data Type Requirements
project_id	A unique value identifying the project.	NVARCHAR(255)	unique
circuit_segment_id	A unique value identifying the Circuit Segment which was used to define this Project.	NVARCHAR(255)	unique, CPZ ID or isolated Circuit Segment ID
circuit_id	A unique value identifying the circuit.	NVARCHAR(255)	unique, must match circuit_id provided in QDR spatial submission files
~~circuit_segment_id~~	~~A unique value identifying the circuit segment.~~	~~NVARCHAR(255)~~	~~unique, CPZ ID or isolated circuit segment ID~~
~~plan_id~~	~~A unique value identifying the plan.~~	~~INT~~	~~must match Plan submission~~
circuit_segment_vintage	The Progress Report in which this Project was defined	INT	Must be a previous Progress Report number 0, 1, 2, etc.
portfolio_ids	A list of all Portfolios this project was included in	STRING	Comma-delimited list of strings
is_confirmed_project	True if this project has passed Screen 3. Else False	BOOLEAN	
order_number	CPUC order number	NVARCHAR(255)	Must match CPUC Guidelines for SB 844 Program Appendix 1

Column Name	Field Description	Data Type	Data Type Requirements
cpuc_project_code	A code that identifies a grouping of undergrounding projects associated with a certain activity. Examples include the following: • O8W - System Hardening Wildfire Resiliency Projects • 3UG - Targeted Undergrounding • 95F - Electric Distribution Major Emergency	NVARCHAR(255)	Leave blank if does not apply.
~~**initiative_type_name**~~	~~A categorical value for the initiative type. Acceptable values are the following:~~ ~~• Undergrounding~~	~~NVARCHAR(255)~~	~~limited values~~
~~**project**~~**risk_category**	The category of the project. Acceptable values are: • High Risk Project • Ignition Tail Risk Project • High Frequency Outage Program Project	NVARCHAR(255)	limited values
division	Division of the service territory in which the	NVARCHAR(255)	

Column Name	Field Description	Data Type	Data Type Requirements
	project will take place.		
~~**fips_**~~**county**~~**_codes**~~	~~A Federal Information Processing Standards code used to uniquely identify U.S. counties and their equivalents.~~County of location of this Project	~~JSON~~NVARCHAR(255)	~~Keys: Int, 5-digit code for each~~ Separate with commas if multiple~~county~~ ~~the project resides in~~ ~~Values: String, corresponding county name~~
hftd_tier	~~An integer value~~A string representing the CPUC High Fire-Threat District (HFTD) area. Below are the integer values with the associated meaning. Acceptable values are the following: • HFTD Tier 2 • HFTD Tier 3 • Non-HFTD	NVARCHAR(32)	limited values
rebuild_area	A categorical value signifying whether a project is in a Wildfire Rebuild Area or not. Below are the possible values: • Not in Wildfire Rebuild Area • In a Wildfire Rebuild Area	BOOLEAN	
customer_count	Number of customers served by project, as defined by CPUC Data Appendix 1	INT	

Column Name	Field Description	Data Type	Data Type Requirements
feasibility_score	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.	INT	limited values
risk_model_version_id	A unique value identifying the risk model version under which this project was selected.	NVARCHAR(255)	must match an entry in the Risk Model ~~Versions~~Version History Table
risk_model_calibration_id	A unique value identifying the risk model calibration under which this project was selected.	NVARCHAR(255)	must match an entry in the Risk Model ~~Versions~~Version History Table
selection_justification	For every ~~circuit segment~~Circuit Segment, a justification using the ~~MRLs~~KDMMs of why it was selected.	TEXT	
project_priority	Prioritization level of the Project, according to the prioritization scheme defined in the EUP.	TEXT	Blank if the project has not passed Screen 4
wmp_~~circuit~~_overlap_current	Is this ~~circuit~~Project included in a current WMP initiative?	BOOLEAN	
wmp_overlap_historical	Is this circuit included in a WMP historical initiative?	BOOLEAN	

Column Name	Field Description	Data Type	Data Type Requirements
~~utiliy~~wmp_utility_initiative_tracking_id	Provide any associated utility initiative tracking ID.	NVARCHAR(255)	~~Could be blank~~Leave blank if wmp_overlap_current and wmp_overlap_historical are False
~~wmp_circuit_overlap_historical~~	~~Is this circuit included in a WMP historical initiative?~~	~~BOOLEAN~~	-
risk_~~tranches~~tranche	CPUC defined "risk ~~tranches~~tranche". 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.	NVARCHAR(255)~~TEXT~~	~~comma-delimited list~~
list_of_subprojects	The list of all Subprojects associated with this project	TEXT	Comma-delimited list. Leave blank if Subprojects have not yet been scoped.
project_complete	Is this project finished?	Boolean	
project_defunct	Is this project not complete, but no longer intended for construction?	Boolean	

Additional requirements for a Project Table are as follows:

a) PROJECT_IDs are defined by this table and must remain consistent over time and not be altered during updates. A Project must be added to this table when it has passed through Screen 2. A Project is identified with a Circuit Segment~~, so a single project cannot encompass multiple~~ when it is added to this table. If the Circuit Segments~~, nor can a single~~ change after this point, the Project remains identified with the original

Circuit Segment ~~have multiple Projects. However,~~, even if ~~a Project is abandoned and a new Project is proposed on that~~ it no longer appears in the Circuit Segment~~, the new Project will be considered with a new PROJECT_ID, leaving the abandoned Project in the list~~ Identification Table. The PROJECT_IDs must map one-to-one to the "ORDER" category as defined in the CPUC guidelines.

b) Projects cannot be defined as overlapping. If a Project is defined on a Circuit Segment which already has some overlap with existing Projects, the overlapping sections must be removed in all analysis.

~~b)~~c) In each Progress Report, any newly proposed projects ~~(along with new CIRCUIT_SEGMENTS)~~ must be included with new PROJECT_IDs. All previously included Projects must still be included, however the order of rows (append, move defunct projects to end, grouping by prioritization, etc.) will be left up to the ~~large electrical corporation~~Large Electrical Corporation.

~~c)~~d) Each Project's PORTFOLIO_IDS table will include the PORTFOLIO_ID of all Portfolios whose Project List includes this project. For example, if a project is included in Portfolio 0, then PORTFOLIO_IDS will be "0". If that same project is included again in Portfolio 1, then PORTFOLIO_IDS will be "0,1". If a project has passed Screen 2 but has not yet passed Screen 3, then it will not yet be included in any Portfolio. In this case, this field is to be left blank. If, on the other hand a project is removed from the Portfolio because it is finished, it is abandoned, or it is dropped from the list for some other reason, it will still be submitted in this table with information on the portfolios it was included in.

~~d)~~e) The RISK_MODEL_VERSION_ID and RISK_MODEL_CALIBRATION_ID refer to the version and calibration under current use when this project was originally selected for undergrounding and passed Screen 2. If the version or calibration changes in future Progress Reports, this field is not to be updated for existing projects.

~~C.1.9~~C.1.11 Screen 2 Table

This section establishes the requirements for a Screen 2 Table that the ~~large electrical corporation~~Large Electrical Corporation must submit for each project which has passed Screen 2. The ~~large electrical corporation~~Large Electrical Corporation must submit a Screen 2 ~~table~~Table at the initial EUP submission and with each Progress Report. This table must reflect the most current information as of each Progress Report submission.

Table C.~~9~~11 describes the construction and data requirements for the Screen 2 Table.

Table C.9~~. Construction for the~~. Example Screen 2 Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	NVARCHAR(255)	must match Plan Table
project_id	A unique value identifying the project.	~~INT~~ NVARCHAR(255)	must match Project Table
alternative_~~mitigation_number~~comparison_name	~~A value identifying~~The name of the alternative ~~mitigation~~comparison considered. Options include: • Project as scoped • 100% Underground • Alternative Mitigation 1 • Alternative Mitigation 2 • Under-grounding as scoped • Additional Comparison	~~INT~~NVARCHAR(255)	~~use 0 for underground project, then 1, 2, etc. for each alternative considered.~~Limited values, though additional alternatives may also be included if described in the EUP.
portfolio_id	A unique value identifying the portfolio.	~~INT~~NVARCHAR(255)	must match Portfolio Table, or blank if this project has not yet passed Screen 3.
circuit_segment_id	A unique value identifying the ~~circuit~~Circuit Segment ID on which this Project was defined.	NVARCHAR(255)	must match Project ~~table~~Table
circuit_~~segment_~~id	A unique value identifying the circuit ~~segment ID~~on which this Project was defined.	NVARCHAR(255)	must match Project ~~table~~Table
work_type	~~Must match one of the alternatives described in Chapter 7~~Work to be performed on Circuit Segment or "multiple".	NVARCHAR(255)	limited values
work_type_description	Description of the type of mitigation. If work type is "multiple", list all of the mitigations or combination of mitigations that will be applied throughout the Circuit Segment.	Text	

Column Name	Field Description	Data Type	Data Type Requirements
fraction_undergrounded	Fraction of Circuit Segment's original unmitigated overhead that will be removed and replaced with undergrounded line.	REAL	Value between 0 and 1
reliability_benefits	Reliability Benefits of the mitigation per D.22-12-027.	REAL	Dollarized Value
financial_benefits	Financial Benefits of the mitigation per D.22-12-027.	REAL	Dollarized Value
safety_benefits	Safety Benefits of the mitigation D.22-12-027.	REAL	Dollarized Value
total_risk_reduction	Risk Reduction of the mitigation per D.22-12-027.	REAL	Dollarized Value
unit_cost_per_overhead_mile_deenergized	Project Unit Cost per Mile of Overhead Exposure. Leave blank for non-Undergrounding Projects	REAL	Dollarized Value
unit_cost_per_circuit_mile_energized	Project Unit Cost per Mile of Undergrounding for Undergrounding Project **or** Project Unit Cost per Circuit Mile for Alternative Mitigation.	REAL	Dollarized Value
total_costs	Total mitigation cost.	REAL	Dollarized Value
cost_benefit_ratio	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.	REAL	

Additional requirements for a Screen 2 Table are as follows:

a) Each row of this table is a considered project, or an alternative ~~mitigation. The large electrical corporation is required to consider at least two alternative mitigation types, as well as undergrounding, for each project. The PROJECT_IDs are to remain the same for all considered mitigations, with different ALTERNATIVE_MITIGATION_IDs. For example, if the first project in this table was named Project 1, the first three rows could be~~project comparison. The required alternative comparisons are explained further in Section 2.7.10.

- ~~PROJECT_ID 1, ALTERNATIVE_MITIGATION_ID 0, WORK_TYPE "undergrounding"~~

- ~~PROJECT_ID 1, ALTERNATIVE_MITIGATION_ID 1, WORK_TYPE "Covered Conductor"~~
- ~~PROJECT_ID 1, ALTERNATIVE_MITIGATION_ID 2, WORK_TYPE "Enhanced Vegetation Management"~~

b) The WORK_TYPE field must correspond to one of the required comparisons in Section 2.7.10 and match one of the alternatives described in Chapter ~~7~~3 of the EUP narrative for project acceptance framework of the approved EUP. List "multiple" if multiple mitigations are being considered on different parts of the Circuit Segment.

c) All projects in the Project Table must appear here.

d) The order of rows in this table must keep all alternatives to the same project together, in order of ALTERNATIVE_MITIGATION_ID.

e) After the project has been scoped and the final undergrounding percentage can be calculated, additional rows comparing the Scoped Undergrounding and Scoped Project are to be added to this table.

~~e)~~f) This table must be updated and the values recalculated if the CPUC definitions of any of the above terms are changed or updates to the Risk Model Version would change their values.

~~C.1.10~~C.1.12 Screen 3 Table

This section establishes the requirements for a Screen 3 Table that the ~~large electrical corporation~~Large Electrical Corporation must submit for each project which has passed Screen 3. The ~~large electrical corporation~~Large Electrical Corporation must submit a Screen 3 ~~table~~Table at the initial submission and with each Progress Report. This table must reflect the most current information as of each Progress Report submission.

Table C.~~10~~12 describes the construction and data requirements for the Screen 3 Table.

Table C.~~10. Construction for the~~.12. Example Screen 3 Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	NVARCHAR(255)	must match Plan Table
project_id	A unique value identifying the project.	~~INT~~ NVARCHAR(255)	must match ~~Plan submission~~Project Table

Column Name	Field Description	Data Type	Data Type Requirements
alternative_~~mitigation_number~~comparison_name	~~A value identifying~~The name of the alternative ~~mitigation~~comparison considered. Options include: • Project as scoped • 100% Under-ground • Alternative Mitigation 1 • Alternative Mitigation 2 • Undergrounding as scoped • Baseline • Additional Comparison	~~INT~~NVARCHAR(255)	~~use 0 for underground project~~Limited values, though additional alternatives may also be included if described in the EUP.
portfolio_id	A unique value identifying the portfolio.	~~INT~~NVARCHAR(255)	must match current Portfolio Table
circuit_segment_id	A unique value identifying the ~~circuit~~Circuit Segment ID on which the Project was defined.	NVARCHAR(255)	must match Project ~~table~~Table
circuit_~~segment_~~id	A unique value identifying the circuit ~~segment ID~~on which the Project was defined.	NVARCHAR(255)	must match Project ~~table~~Table
work_type	~~Must match one of the alternatives described in Chapter 7~~Work to be performed on Circuit	NVARCHAR(255)	limited values

Column Name	Field Description	Data Type	Data Type Requirements
	Segment or "multiple".		
work_type_description	Description of the type of mitigation. If work type is "multiple", list all of the mitigations or combination of mitigations that will be applied throughout the Circuit Segment.	Text	
fraction_undergrounded	Fraction of Circuit Segment's original unmitigated overhead that will be removed and replaced with undergrounded line.	REAL	Value between 0 and 1
fulfills_project_level_standard	Does the proposed mitigation fulfill the Project-Level Standard?	Boolean	
additional_justification	Additional narrative required to justify this project's inclusion if it does not fulfill the Project-Level Standard	TEXT	Left blank if "fulfills_project_level_standard" is True
cumulative_overall utility_risk_in_year_~~60~~55	The cumulative Overall Utility Risk experienced at this location, accounting for the proposed construction timeline for undergrounding and a realistic timeline for alternative mitigations.	REAL	

Column Name	Field Description	Data Type	Data Type Requirements
cumulative_wildfire _risk_in_year_~~60~~55	The cumulative Ignition Risk experienced at this location, accounting for the proposed construction timeline for undergrounding and a realistic timeline for alternative mitigations.	REAL	
cumulative_outage_ program_risk_in_ year_~~60~~55	The cumulative Outage Program Risk experienced at this location, accounting for the proposed construction timeline for undergrounding and a realistic timeline for alternative mitigations.	REAL	
mean_ignition_-consequence_in_ first_ 10_years_of_-program	The mean Ignition Consequence score at this location, evaluated over the first 10 years of the program, accounting for the proposed construction timeline for undergrounding and a realistic timeline for alternative mitigations.	REAL	
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	REAL	

Column Name	Field Description	Data Type	Data Type Requirements
	timeline for undergrounding and a realistic timeline for alternative mitigations.		

Additional requirements for a Screen 3 Table are as follows:

a) Each row of this table is a considered project, or an alternative ~~mitigation. The large electrical corporation is required to consider at least two alternative mitigation types, as well as undergrounding, for each project. The PROJECT_IDs are to remain the same for all considered mitigations, with different ALTERNATIVE_MITIGATION_IDs. For example, if the first project in this table was named Project 1, the first three rows could be:~~project comparison. The required alternative comparisons are explained further in Section 2.7.10.

- ~~PROJECT_ID 1, ALTERNATIVE_MITIGATION_ID 0, WORK_TYPE "undergrounding"~~
- ~~PROJECT_ID 1, ALTERNATIVE_MITIGATION_ID 1, WORK_TYPE "Covered Conductor"~~
- ~~PROJECT_ID 1, ALTERNATIVE_MITIGATION_ID 2, WORK_TYPE "Enhanced Vegetation Management"~~

b) The WORK_TYPE field must correspond to one of the required comparisons in Section 2.7.10 and match one of the alternatives described in the Chapter ~~7~~3 narrative for project acceptance framework of the approved EUP. ~~The alternative~~List "multiple" if multiple mitigations are being considered ~~must match the ones considered in the Screen 2 Table~~on different parts of the Circuit Segment.

c) Projects are considered to have passed Screen 3 when all the information in this table has been calculated. Therefore, there may be Projects which do not appear in this Table but which appeared in the Project Table.

d) This table must be updated and the values recalculated if the CPUC definitions of any of the above terms are changed or updates to the Risk Model Version would change their values.

e) If Subprojects are modified after a project passes Screen 3, the Screen 3 "Scoped Project" values, must be modified to reflect the current status, until the project is completed and it is updated to reflect as-built status.

~~e)~~f) This table must agree with the PROJECT_RISK_LANDSCAPES JSON file submission, which includes this information among other KDMMs. Each row in this table must be accompanied by an entry in the JSON file and vice versa.

~~C.1.11~~C.1.13 ~~Project Status~~Subproject Table

This section establishes the requirements for a ~~Project Status~~Subproject Table. ~~The large electrical corporation must submit~~

This table is submitted with the initial submission of the Project (Progress Report 0), as well as all subsequent Progress Reports. Each row of this table is a ~~Project Status Table~~Subproject, and this table includes all Subprojects, for each ~~Project~~project which has passed Screen 4. ~~This table must reflect the most current information as of each Progress Report submission.~~

Table C.~~11~~13 describes the construction and data requirements for the ~~Project Status~~Subproject Table.

Table C.~~11.~~13. Example Subproject Table Construction ~~of the Project Status Table~~ and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	NVARCHAR(255)	must match Plan Table
subproject_id	A unique value identifying the Subproject	NVARCHAR(255)	New Subproject ID. Must retain the same Subproject ID over time. New Subprojects must receive new Subproject IDs which have not been used for any previously submitted Subproject.
project_id	A unique value identifying the project.	~~INT~~NVARCHAR(255)	must match Project ~~table~~Table
mitigation_type	The type of mitigation applied to this Subproject (e.g. undergrounding, covered conductor, etc.)	NVARCHAR(255)	Must match one of the mitigation types described in the project_variable_modifiers JSON.
subproject_justification	A narrative describing why this Subproject was chosen.	TEXT	

Column Name	Field Description	Data Type	Data Type Requirements
circuit_segment_id	A unique value identifying the circuitCircuit Segment ID on which the Project was defined.	NVARCHAR(255)	must match Project tableunique, CPZ ID or isolated Circuit Segment ID
circuit_segment_id	A unique value identifying the circuit segment IDon which the Project was defined.	NVARCHAR(255)	unique, must match Project tablecircuit_id provided QDR spatial submission files
wmp_subproject	Is there a wildfire mitigation plan initiative associated with this subproject?	BOOLEAN	
plan_idwmp_utility_initiative_tracking_id	A unique value identifying the plan.Utility initiative tracking ID (if applicable).	INTNVARCHAR(255)	must match Plan tableunique, leave blank if wmp_plan_subproject is False
portfolio_idwmp_cycle	A unique value identifying the portfolio.If the subproject is associated with a past, current, or future WMP submission, please provide the applicable WMP date ranges. Possible values include the following: • 2019 • 2020-2022 • 2023-2025 • 2026-2028 • 2029-2031 • 2031-2033	INTNVARCHAR(255)	must match current entry in Portfolio tablelimited values, leave blank if wmp_plan_subproject is False
prioritization_levelproject_risk_reduction_fraction	The category of prioritization of the project. See SCREEN 4 of these Guidelines for details. The fraction of this project's Overall Utility Risk Score that will be removed by completion of this Subproject.	REALNVARCHAR(255)	must match scheme established in Screen 4Real number between 0 and 1
start_datecircuit_risk_reduction_fraction	The start date of the project.The fraction of the	DATEREAL	-Real number between 0 and 1

Column Name	Field Description	Data Type	Data Type Requirements
	circuit's Overall Utility Risk Score that will be removed by completion of this Subproject		
~~est~~expected_completion_date~~_next_status_change~~	~~Estimated completion date to reach the next status.~~The date this Subproject is estimated to be completed, with both the new alignment energized and the old alignment de-energized.	~~DATE~~DATETIME	-
is_active	This Subproject is currently being considered or worked on for the next status phase.	BOOLEAN	
is_abandoned	Is the Subproject abandoned?	BOOLEAN	
pre_mitigation_alignment_id	Map to geo-spatial submission.	NVARCHAR(255)	
post_mitigation_alignment_id	Map to geo-spatial submission.	NVARCHAR(255)	
pre_mitigation_length	Length of pre-mitigation overhead line in miles	REAL	
post_mitigation_length	Length of post-mitigation (overhead or underground) line in miles.	REAL	
new_right_of_way	Whether the Large Electrical Corporation requires a new right-of-way or easement to perform this Subproject	BOOLEAN	
~~est_full_project_completion_date~~new_right_of_way_timeline	~~Estimated date of completion (Overhead De-energization) of this project in the Portfolio.~~Expected date to acquire this right-of-way for this Subproject	~~DATE~~DATETIME	-Leave blank if new_right_of_way is False

Column Name	Field Description	Data Type	Data Type Requirements
status_current	Current ~~project~~Subproject status. Possible options are given by CPUC defined categories. Acceptable values are the following: • Scoping • Designing • Permitting • Ready for Construction • Construction In Progress • Construction Completed • Overhead De-energization	NVARCHAR(255)	limited values
status_change_date	The date the ~~project~~Subproject was moved to its current status	~~DATE~~DATETIME	

~~-~~Additional requirements for a ~~Project Status~~Subproject Table are as follows:

~~a) Each row of this table is a considered project.~~
~~b) The projects in this table must all be included in the current Portfolio. If a project is removed from the Portfolio of projects, it is also removed from this table.~~
~~c) If a project moves "backwards" in the project status field, e.g., goes from "Permitting" back to "Designing", the STATUS_CHANGE_DATE still refers to the date it was moved to the current status, e.g., "Designing".~~
~~d) After completion of the Project, EST_FULL_PROJECT_COMPLETION_DATE should show the final completion date of the Project.~~

~~C.1.12 Project Construction Table~~

~~This section establishes the requirements for a Project Construction Table. The large electrical corporation must submit a Project Construction Table for each project, with each Progress Report, once that project has passed all screens and reached the "Ready For Construction" stage. This table will be updated and resubmitted with each subsequent Progress Report until Plan completion, even if the project finishes construction or construction is abandoned. This table must reflect the most current information as of each Progress Report submission.~~

~~The large electrical corporation must provide a Project Construction Table for every project or subproject with all applied screens. The large electrical corporation must update and submit the Project Construction Table in subsequent progress reports when information therein changes.~~

~~Table C.12 describes the construction and data requirements for the Constructed Project Table.~~

~~Table C.12. Construction for the Project Construction Table and Data Requirements~~

~~Column Name~~	~~Field Description~~	~~Data Type~~	~~Data Type Requirements~~
~~**project_id**~~	~~A unique value identifying the project.~~	~~INT~~	~~must match Project Table~~
~~**circuit_id**~~	~~A unique value identifying the circuit.~~	~~NVARCHAR(255)~~	~~unique, must match circuit_id provided QDR spatial submission files~~
~~**circuit_segment_id**~~	~~A unique value identifying the circuit segment ID.~~	~~NVARCHAR(255)~~	~~unique, CPZ ID or isolated Circuit Segment ID~~
~~**wmp_plan_circuit**~~	~~Is there a plan initiative associated with this circuit?~~	~~BOOLEAN~~	~~-~~
~~**utility_initiative_tracking_ID**~~	~~Utility initiative tracking ID (if applicable).~~	~~NVARCHAR(255)~~	~~unique~~
~~**wmp_plan_info**~~	~~If the circuit is associated with a past, current, or future WMP submission, please provide the applicable WMP date ranges. Possible values include the following:~~ ~~• 2019~~ ~~• 2020-2022~~ ~~• 2023-2025~~ ~~• 2026-2028~~	~~JSON~~	~~key: string, one of the possible values given in left column~~ ~~value: Int, first year of the WMP submission (e.g., "2020-2022" would map to 2020. Leave blank if wmp_plan_circuit is False.~~

Column Name	Field Description	Data Type	Data Type Requirements
	• 2029-2031 • 2031-2033		
is_active	Is the project active?	BOOLEAN	
is_abandoned	Is the project abandoned?	BOOLEAN	
historical_line_id	Map to geo-spatial submission.	NVARCHAR(255)	
new_alignment_id	Map to geo-spatial submission.	NVARCHAR(255)	
length_of_constructed_project	Length of undergrounded line in feet.	REAL	
est_full_project_completion_date	Estimated date of completion (Overhead De-energization) of this project in the Portfolio.	DATE	-

Additional requirements for a Project Construction Table are as follows:

a) Within this table, a large electrical corporation must provide WMP details pertaining to the Circuit Segment incorporated within the project.

a) With this data submission, there is an associated spatial data submission. The SUBPROJECT_ IDs for the NEW_ALIGNMENT and HISTORICAL_LINE_ID must match all C.4.3 - C.4.6 GIS data submissions must match the values presented here. The ALIGNMENT_ IDs also must match the current spatial data submissions. , though this alignment may be modified between Progress Reports.

b) The large electrical corporationLarge Electrical Corporation must give the constructed projectSubproject a unique integer ID under the CONSTRUCTED_PROJECTSUBPROJECT_ID field. This ID must remain consistent with all future submissions.

c) This table lists all proposed Subprojects, including active, abandoned, and completed Subprojects.

d) The "PROJECT_RISK_REDUCTION" field must show the reduction of risk from this subproject within the project, meaning any segments outside of the Project Polygon are not counted.
e) The Large Electrical Corporation must provide a brief narrative that explains why each Subproject was chosen in the SUBPROJECT_JUSTIFICATION field. The narrative must include, as applicable, Subproject specific details on why any alternative mitigation was chosen over undergrounding, an explanation for any construction timeline variance from the rest of the project, and a description of any other unique constraints that defined the Subproject. In particular, if any part of the Subproject does not fall within the Confirmed Project Polygon, an explanation is required to justify this Subproject's addition to this Project.

~~C.1.13~~C.1.14 Project Index Table

This section establishes the requirements for a Project Index Table that the ~~large electrical corporation~~Large Electrical Corporation must submit for each project which has passed Screen 2. This table includes information found in the Screen 2 ~~table~~Table and other tables and reported data must be compatible with the information submitted elsewhere in the data submission. This table must reflect the most current information as of each Progress Report submission.

Table C.~~13~~14 describes the construction and data requirements for the Project Index Table.

Table C.~~13. Construction for the~~.14. Example Project Index Table Construction and Data Requirements

Column Name	Field Description	Data Type	Data Type Requirements
plan_id	A unique value identifying the plan.	NVARCHAR(255)	must match Plan Table
project_id	A unique value identifying the project.	~~INT~~NVARCHAR(255)	must match Project Table
portfolio_id	A unique value identifying the portfolio.	~~INT~~NVARCHAR(255)	must match current Portfolio Table
circuit_segment_id	A unique value identifying the ~~circuit~~Circuit Segment ID.	NVARCHAR(255)	must match Project ~~table~~Table

Column Name	Field Description	Data Type	Data Type Requirements
circuit_~~segment_~~id	A unique value identifying the circuit ~~segment ID~~.	NVARCHAR(255)	must match Project ~~table~~Table
~~fips_~~county~~_codes~~	~~A Federal Information Processing Standards code used to uniquely identify U.S. counties and their equivalents.~~County of location of this Project	~~JSON~~TEXT	~~Keys: Int, 5-digit code for each county the project resides in~~ ~~Values: String, corresponding county name~~Separate with commas if multiple
project_category	The category of the project. Acceptable values are: • High Risk Project • Ignition Tail Risk Project • ~~High~~ Frequency Outage Program Project • ~~None~~	NVARCHAR(255)	limited values
is_confirmed_project	Whether this Project has passed Screen 3 as of this submission	Boolean	
is_prioritized_project	Whether this Project has passed Screen 4 as of this submission	Boolean	
project_priority	Prioritization level of the Project, according to the prioritization scheme defined in the EUP.	TEXT	Blank if the project has not passed Screen 4
hftd_tier	~~An integer~~A value representing the CPUC High Fire-Threat District (HFTD) area.	NVARCHAR(32)	limited values

Column Name	Field Description	Data Type	Data Type Requirements
	Below are the integer values with the associated meaning. Acceptable values are the following: • HFTD Tier 2 • HFTD Tier 3 • Non-HFTD		
fulfills_project_level_standard	Does the proposed mitigation fulfill the Project-Level Standard?	Boolean	
Cumulateive_risk_difference	Difference between the cumulative Overall Utility Risk baseline and the cumulative Overall Utility Risk for the proposed mitigation over 55 years	Real	
project_risk_reduction	Risk Reduction of the ~~Undergrounding Project~~ mitigation per D.22-12-027.	REAL	Dollarized Value
percent_undergrounded	Percent of Circuit Segment's original unmitigated overhead line that will be removed and replaced with undergrounded line.	REAL	Value between 0 and 100
project_unit_cost_per_overhead_mile_deenergized	Project Unit Cost per Mile of Overhead Exposure.	REAL	Dollarized Value
project_unit_cost_per_underground_mile_energized	Project Unit Cost per Mile of Undergrounding.	REAL	Dollarized Value

Column Name	Field Description	Data Type	Data Type Requirements
project_total_costs	Total Undergrounding Project Cost.	REAL	Dollarized Value
project_cost_benefit_ratio	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.	REAL	
Then, for each of the alternative mitigations considered, the following columns.			
alt_#_comparison_name	The name of the alternative comparison considered. Options include: • 100% Under-ground • Alternative Mitigation 1 • Alternative Mitigation 2 • Undergroundi ng as scoped • Additional Comparison	NVARCHAR(255)	Limited values, though additional alternatives may also be included if described in the EUP.
alt_#_work_type_description	Description of the type of mitigation~~.~~ considered for this alternative.	~~NVARCHAR(255)~~Text	~~limited values~~
alt_#_fulfills_project_level_standard	Does the alternate mitigation fulfill the Project-Level Standard?	Boolean	
alt_#_cumulateive_risk_difference	Difference between the cumulative Overall Utility Risk baseline and the cumulative	Real	

Column Name	Field Description	Data Type	Data Type Requirements
	Overall Utility Risk for the alternative mitigation over 55 years		
alt_#_risk_reduction	Risk Reduction of the Undergrounding Project per D.22-12-027.	REAL	Dollarized Value
alt_#_project_unit_cost_per_overhead_mile_deenergized	Project Unit Cost per Mile of Overhead Exposure removed.	REAL	Dollarized Value
alt_#_project_unit_cost_per_underground_mile_energized	Project Unit Cost per Mile of Undergrounding.	REAL	Dollarized Value
alt_#_project_total_costs	Total Undergrounding Project Cost.	REAL	Dollarized Value
alt_#_project_cost_benefit_ratio	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.	REAL	

Additional requirements for the Project Index Table are as follows:

a) The rows of this table are every project which has passed Screen 2.
b) For each alternative mitigation considered for this project, six additional columns are added, describing what alternative is being considered, and repeating the analysis for costs and benefits. The "#" character in the column names is to be replaced by an integer, e.g. ("alt_1_project_unit_cost_per_overhead_ mile_deenergized).
c) This table must be updated and the values recalculated if the CPUC definitions of any of the above terms are changed or updates to the Risk Model Version would change their values.

C.2 Description of JSON Data Submissions

This section establishes the requirements for JSON Data Submissions. As part of Progress Report 0 and with each Progress Report, the ~~large electrical corporation~~Large Electrical Corporation must submit two required JSON files. The required format is set forth in Energy Safety's template files, which are available on Energy Safety's website.

C.2.1 Project Variable Modifiers JSON

The first JSON file is for the Portfolio Table and must include all estimates pertaining to undergrounding and other mitigation efforts. The required format for this JSON file is as follows:

At the top level, the JSON structure comprises the PLAN_ID, RISK_MODEL_VERSION_ID, RISK_MODEL_CALIBRATION_ID, and the ~~creation~~file submission date, alongside each type of mitigation considered, including undergrounding and all alternatives outlined in Section 2.8.5.2~~-~~.The main body of each JSON object in this file must be nested as follows, with top-level key "Mitigation Types".

- For each mitigation type:

  At the second level, the ~~large electrical corporation~~Large Electrical Corporation must separate the two variable classifications: "Model Input Variables" and "Model Output Variables."

- For each classification:

  At the third level, the ~~large electrical corporation~~Large Electrical Corporation must incorporate the sub-models earmarked for modification, such as the Ignition Likelihood Model or equipment model, as specified by the ~~large electrical corporation.~~Large Electrical Corporation. Regarding outputs, the ~~large electrical corporation~~Large Electrical Corporation must ~~simplify the structure by using~~use the single key "Model Output."

- For each ~~sub-model~~submodel:

  The fourth level consists of the unique SUBMODEL_ID of the model, and the key "Variables." For "Model Output," the SUBMODEL_ID remains "null." The value for the key "Variables" must be each variable affected by the mitigation procedure. On the input side, the ~~large electrical corporation~~Large Electrical Corporation must provide only the inputs influenced by this mitigation, not the entire list~~.~~ of all inputs to the submodel. On the output side, the variables must ~~mirror~~be the full list of KDMMs ~~provided in the body of the Plan.~~ , even if they are not affected by this mitigation.

- For each variable:

  The fifth level must include, for input variables, the keys "Type of Change" and "Explanation," containing strings representing a quantitative change and a qualitative

explanation, respectively. These explanations must be detailed enough for reviewers without access to the full modeling procedure to understand. For output variables, ~~if~~the only required key is “Type of Change”. If no change occurs, these values must be "null." Additionally, output variables may include uncertainties indicated by a "+/-" character or another measurement of uncertainty.

Figure C.1 shows an example JSON file for Project Variable Modifiers and includes comments on the individual elements to be submitted for illustrative purposes. The ~~large electrical corporation~~Large Electrical Corporation must omit the comments in its submission.

Figure C.1. Commented Example JSON file for Project Variable Modifiers

```
{
    //For each update to the risk model, new risk_model tracking IDs will be given for use in backtesting etc.
    "risk_model_version_id": "1.2",
    "risk_model_calibration_id": 1,
    //This shows the date this risk model was finalized.
    "Last Update Date": "1/1/2025",
        //KDMMs: This is the set of KDMMs used by the utility in evaluating this project.
        //There are at least 7 KDMMs, and must include Wildfire Risk, Wildfire Consequence,
        //Wildfire Likelihood, Outage Program Risk, Outage Program Consequence,
        //Outage Program Likelihood, and Overall Risk
        //These must match the KDMMs proposed in the Plan submission
        //In this example, only three are given for brevity.
    "KDMMs": "Risk Score,Wildfire Consequence,Outage Program Likelihood",
    //For all mitigation types, e.g. undergrounding, covered conductor, etc. Add more to this as needed
    "Undergrounding": {
        //For each of two classifications of variables, model inputs and model outputs:
        "Model Input Variables": {
            //For each submodel that has an input affected by this mitigation (may be one or more):
            //Example with two models effected, 'Equipment Model' and 'Ignition Likelihood Model'
            "Equipment Model": {
                //Give the submodel id, which must match a submodel used in the Plan submission
                "Submodel_id": 29303952,
                //Give the key 'Variables'
                "Variables": {
                    //For all input variables affected by this mitigation (may be one or more)
                    "Self-Combustion Likelihood": {
                        //Give quantitative effect on this variable, including confidence interval if known
                        "Type of Change": "-94% +/- 3%",
                        //Give text explanation of the quantitative effect above.
                        "Explanation": "It affects the model at a hyperparameter level."
                    }
                }
            },
            "Ignition Likelihood Model": {
                "Submodel_id": 29939992,
                "Variables": {
                    //Example with two affected input variables in a single model
                    "Contact From Vegetation": {
                        "Type of Change": "-96%",
                        "Explanation": "It affects the model at a hyperparameter level."
                    },
                    "Contact From Object": {
                        "Type of Change": "-94%",
                        "Explanation": "It affects the model at a hyperparameter level."
                    }
                }
            }
        },
        "Model Output Variables": {
            //There is only one 'submodel' here, it is called 'Model Output' and is fixed.
            "Model Output": {
                //This does not have a submodel id.
                "Submodel_id": null,
                //Give the key 'Variables'
                "Variables": {
                    //In this case, the effected variables are the KDMMs. All KDMMs listed at
                    //the top level must be included here. If one is not effected by this change,
                    //list it as 'null'.
                    "Risk Score": {
                        "Type of Change": "-90% +/- 5%",
                        "Explanation": "Project-level percentage change in risk-score"
                    },
                    //Example where the KDMM is not affected by this mitigation strategy.
                    "Wildfire Consequence": {
```

```
                    "Type of Change": null,
                    "Explanation": null
                },
                "Outage Program Likelihood": {
                    "Type of Change": "-40% +/- 5%",
                    "Explanation": "Project-level percentage multiplier for risk-score"
                }
            }
        }
    },
    "Covered Conductor": {
        "Model Input Variables": {
            "Ignition Likelihood Model": {
                "Submodel_id": 19329332,
                "Variables": {
                    "Contact From Vegetation": {
                        "Type of Change": "-70%",
                        "Explanation": "It affects the model at a hyperparameter level."
                    }
                }
            }
        },
        "Model Output Variables": {
            "Model Output": {
                "Submodel_id": null,
                "Variables": {
                    "Risk Score": {
                        "Type of Change": "-90% +/- 5%",
                        "Explanation": "Project-level percentage change in risk-score"
                    },
                    "Wildfire Consequence": {
                        "Type of Change": null,
                        "Explanation": null
                    },
                    "Outage Program Likelihood": {
                        "Type of Change": "-40% +/- 5%",
                        "Explanation": "Project-level percentage multiplier for risk-score"
                    }
                }
            }
        }
    },
    "Enhanced Vegetation Management": {
        "Model Input Variables": {
            "Vegetation Growth Model": {
                "Submodel_id": 19329335,
                "Variables": {
                    "Vegetation Zone": {
                        "Type of Change": "-1",
                        "Explanation": "This PVM changes the classification of the growth zone. It affects the model at a hyperparameter level."
                    }
                }
            }
        },
        "Model Output Variables": {
            "Model Output": {
                "Submodel_id": null,
                "Variables": {
                    "Risk Score": {
                        "Type of Change": "-50% +/- 5%",
                        "Explanation": "Project-level percentage change in risk-score"
                    },
                    "Wildfire Consequence": {
```

```
                        "Type of Change": "-30% +/- 5%",
                        "Explanation": "Percent decrease in expected average monetary consequence of wildfire ignitions"
                    },
                    "Outage Program Likelihood": {
                        "Type of Change": "-10% +/- 1%",
                        "Explanation": "Project-level percentage multiplier for risk-score"
                    }
                }
            }
        }
    }
}
```

```
{
  "comment_1": "*** NOTE: this sample JSON file is being
                submitted with comments submitted as text
                for clarity. Comments are to be omitted
                in the final submission. ***",
  "plan_id": "TestUtilityPlan1",
  "comment_2": "*** The plan_id must match the value in the
                Plan table (Table 1). ***",
  "KDMMs": "KDMM1,KDMM2,KDMM3",
  "comment_3": "*** Comma-separated list of KDMMs by
                number. This list of KDMMs be the same length
                as the list of KDMMs submitted in the
                KDMM table (Table 2) and the EUP
                submission. ***",
  "KDMM_names": "Overall Utility Risk,Ignition Consequence,Outage Program Likelihood",
  "comment_4": "*** Comma-separated list of KDMMs by name.
                This list of KDMMs must exactly match
                the list of KDMMs submitted in the KDMM
                table (Table 2) and the EUP submission. ***",
  "risk_model_version_ID": "v0.0",
  "risk_model_calibration_ID": "c0",
  "comment_5": "*** This version and calibration ID must
                match the current (last) row of the Risk
                Model Versions Table (Table 3). ***",
  "Mitigation Types": {
    "comment_6": "*** In this dictionary, all mitigation
                types are listed, using their names as keys. ***",
    "Undergrounding": {
      "comment_7": "*** In this dictionary, there are two
                classifications for variables, \"Model Input
                Variables\" and \"Model Output Variables\". ***",
      "Model Input Variables": {
        "comment_8": "*** In this dictionary, we list all the
                sub-models which are affected by doing this
                mitigation. ***",
        "Equipment Model": {
          "comment_9": "*** In this dictionary, the submodel_id is
                listed (if the submodel is not \"Model
                Output\"), and there is a single key
                \"Variables\". ***",
          "Submodel_id": 29303952,
          "Variables": {
            "comment_10": "*** In this dictionary, all relevant
                variables are listed. For the input variables,
                this is only whatever variables are
                actually affected by this mitigation. On
                the output variables, all KDMMs must be
                listed. ***",
            "Self-Combustion Likelihood": {
              "Type of Change": "-94 +/- 3%",
              "Explanation": "It affects the model at a hyperparameter level."
            }
          }
        },
        "Ignition Likelihood Model": {
          "Submodel_id": 29939992,
          "Variables": {
            "Contact From Vegetation": {
              "Type of Change": "-96%",
              "Explanation": "It affects the model at a hyperparameter level."
            },
            "Contact From Object": {
              "Type of Change": "-94%",
              "Explanation": "It affects the model at a hyperparameter level."
```

```
            }
          }
        }
      },
      "Model Output Variables": {
        "comment_13": "*** In this dictionary, we have a single
            key \"Model Output\" which should be
            affected by doing this mitigation. ***",
        "Model Output": {
          "Submodel_id": null,
          "Variables": {
            "Overall Utility Risk": {
              "Type of Change": "-90% +/- 5%"
            },
            "Ignition Consequence": {
              "Type of Change": null
            },
            "Outage Program Likelihood": {
              "Type of Change": "-40% +/- 5%"
            }
          }
        }
      }
    },
    "Covered Conductor + Fast Trip": {
      "Model Input Variables": {
        "Ignition Likelihood Model": {
          "Submodel_id": 19329332,
          "Variables": {
            "Contact From Vegetation": {
              "Type of Change": "-70%",
              "Explanation": "It affects the model at a hyperparameter level.
            }
          }
        }
      },
      "Model Output Variables": {
        "Model Output": {
          "Submodel_id": null,
          "Variables": {
            "Overall Utility Risk": {
              "Type of Change": "-60% +/- 5%"
            },
            "Ignition Consequence": {
              "Type of Change": null
            },
            "Outage Program Likelihood": {
              "Type of Change": "-20% +/- 5%"
            }
          }
        }
      }
    },
    "Vegetation Anihillation": {
      "Model Input Variables": {
        "Vegetation Growth Model": {
          "Submodel_id": 19329335,
          "Variables": {
            "Vegetation Zone": {
              "Type of Change": "-1",
              "Explanation": "This PVM changes the classification of the
                growth zone. It affects the model at a hyperparameter level."
            }
          }
        }
```

```
        }
      },
      "Model Output Variables": {
        "Model Output": {
          "Submodel_id": null,
          "Variables": {
            "Overall Utility Risk": {
              "Type of Change": "-50% +/- 5%"
            },
            "Ignition Consequence": {
              "Type of Change": "-30% +/- 5%"
            },
            "Outage Program Likelihood": {
              "Type of Change": "-10% +/- 1%"
            }
          }
        }
      }
    }
  }
}
```

C.2.2 Risk Landscape JSON

The Risk Landscape JSON contains the array of Key Decision-Making Metrics (KDMMs) utilized by the ~~large electrical corporation~~Large Electrical Corporation to assess the impact of the Undergrounding Project~~. It must include the seven required KDMMs: Ignition Risk, Ignition Consequence, Ignition Likelihood, Outage Program Risk, Outage Program Consequence, Outage Program Likelihood, and Overall Risk~~.

The Risk Landscape JSON file is for modeling all KDMMs affected by individual projects, projected over the years specified in Section 2.7.5 (Core Capability 4) of these Guidelines. The required format for this JSON file is as follows:

At the top level, the JSON ~~file must be an array of JSON objects, one for each proposed project. The objects must encompass all essential details: PROJECT_ID, reporting years (these must be~~structure comprises the ~~same as those required by Section 2.4), utilized KDMMs (both cumulative and non-cumulative), and the~~ PLAN_ID, PORTFOLIO_ID, RISK_MODEL_VERSION_ID ~~and,~~ RISK_MODEL_CALIBRATION_ID~~. The JSON file must also include various project types tracked: "Baseline" (no project), "Undergrounding" (the proposed project), "Alternative_1," and "Alternative_2" (two comparable undergrounding alternatives), and additional alternatives as used in the Screen 2 Table. The alternatives must match those~~, and the file submission date. It also includes information about the structure of the internal values, listing the set of years to be projected as a comma-separated list and shows the utilized KDMMs by number, by name, and finally by whether they are considered ~~in the Screen 2 Table.~~"cumulative" as described in Section 2.8.6.1 of these Guidelines.

The main body of each JSON object in this file must be nested as follows~~:~~, with key "Projects".

- For each ~~project type~~PROJECT_ID:

  At the second level, there must be ~~a~~ multiple potential mitigations~~description~~ of the ~~type, which is vital if Alternatives 1 and~~ Circuit Segment identified by the Project ID,

including “Baseline,” “Project as scoped,” “100% Under-ground,” “Alternative Mitigation 1,” “Alternative Mitigation 2 ~~differ~~,” “Undergrounding as scoped,” “Additional Comparison,” where these terms are all defined as in the Screen 3 Table (Appendix C.1.12).

- For each mitigation ~~strategies. It also must include two analysis scopes: "Project-level" and "Portfolio-level."~~type:
- ~~For each scope:~~

  The third level must incorporate ~~three studies:~~multiple “settings” (i.e. Separate, Collective, Ablation, or None) used to track the effects of individual projects: For the “Baseline”, all settings would be equivalent, so the only option is “No Setting”. For the “Project as scoped” i.e. the work proposed by the Large Electrical Corporation, the required settings are "Separate" (impact of the project alone), "Collective" (impact of the full proposed portfolio as scoped), and "Ablation" (impact of the remainder of the portfolio without this project). For all other mitigations, the required settings are “Separate” and “Collective”.

- For each ~~study~~setting:

  The fourth level must contain the tracked KDMMs, matching those presented at the top level.

- For each KDMM:

  The KDMM is reported at two scales; the “project-level” scale and the “portfolio-level" scale.

- For each scale:

  The fifth ~~and final~~ level ~~must be comprised of~~lists the ~~modeled data~~calculated output types for this KDMM at this scale. If the KDMM is cumulative, ~~two entries must exist: "Instantaneous"~~according to the KDMM table and ~~"Cumulative" with comma-separated floating-point numbers for each.~~the list of KDMMs at the top level of this file, there are two outputs, “instantaneous” and “cumulative”. If the KDMM is non-cumulative, there is only one output, “value”.

- For each output:

  The sixth and final level is the output data, which must be a ~~single entry: "Value" with the same comma-separated string of data values~~comma-separated list of decimal-precision real numbers. The number of entries in this list will exactly match the number of years in the “years” variable at the top level of this file. Each floating-point number represents this particular output, of this KDMM, at this scale, with this setting, for this mitigation type or alternative, for this project, at each of the specified years since Plan inception.

The ~~large electrical corporation~~Large Electrical Corporation must submit a single JSON file for the full suite of projects in its portfolio. Figure C.2 shows an example JSON file and

includes comments on the individual elements to be submitted for illustrative purposes. The ~~large electrical corporation~~Large Electrical Corporation must omit the comments in its submission.

Figure C.2. Example JSON File with Commented Explanation

```
[
  {
    /*
      note: this is being submitted as a JSON with comments for clarity.
      In the actual submission, refrain from using comments.
    */
    //project_id is the individual unique name for the project
    "project_id": 123456,
    //Years: This is the set of years given for the projection.
    //These years must be equal to the set of years given in the Guidelines.
    "Years": "0,5,10,20,30,40,50,60",
    //KDMMs: This is the set of KDMMs used by the utility in evaluating this project.
    /*
      There are at least 7 KDMMs, and must include Wildfire Risk, Wildfire Consequence,
      Wildfire Likelihood, Outage Program Risk, Outage Program Consequence,
      Outage Program Likelihood, and Overall Risk.
      If you add additional KDMM past the intial 7, please use consistent naming and
      numbering with the KDMM tabular submission and this JSON file
      These must match the KDMMs proposed in the Plan submission
      In this example, only two are given for brevity and to show the difference between
      'Cumulative' and 'Non-cumulative' KDMMs.
    */
    "KDMMs": "KDMM1,KDMM2",
    //Include KDMM names that match the KDMM tabular submission. This must have the
    //same number of entries as 'KDMMs' above.
    "KDMM_names":  "Wildfire Risk,Wildfire Consequence"
    //Risk_model_id: This is the id of the risk model used in calculating these KDMMs.
    //It must match an existing risk_model_id entry in the project_variable_multipliers JSON
    "risk_model_id": 1,
    //KDMM_is_cumulative: This is a JSON of each KDMM and whether it is considered cumulative.
    /*
      Cumulative variables include likelihoods and products of likelihoods, non-cumulative
      variables include consequence scores and other quantities where the product of the value
      by time is not meaningful. All KDMMs need to be represented here.
    */
    "KDMM_is_cumulative": {
      "KDMM1": true,
      "KDMM2": false
    },
    "risk_model_version_id":"1.1",
    "risk_model_calibration_id":1
    //For each project, four scenarios are presented: 'Baseline',
    //'Undergrounding', 'Alternative_A' and 'Alternative_B.'
    //The names of these are fixed.
    "Baseline": {
      //The baseline values will be the values of the existing infrastructure.
      //At the portfolio level, this means the baseline will be the same for all
      //projects. At the project level, this is for the individual project.
      //This description is fixed for the baseline.
      "Description": "No project done",
      //For each scenario, two scopees are considered, project-level and portfolio-level
      //At the project-level, only report KDMM values on this circuit segment. At the
      //portfolio-level, report KDMM values for the entire portfolio.
      "Project-level": {
        //For each scope, three studies are considered: separate (no other projects done),
        //collective (all projects done), and ablation (all projects done except this one)
        "Separate": {
          //For each study, all KDMMs are reported.
          "KDMM1": {
            /*
              If the KDMM is cumulative, two rows are included in the data, one for
              instantaneous values and one for cumulative values. The final output
              is a comma-delineated string of the value at each year in the 'years'
              variable above. Must have same number of values as the years variable.
```

```
            */
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
        },
        "KDMM2": {
            //If the KDMM is non-cumulative, one row is included in the data.
            //The final output is a comma-delineated string of the value at each
            //year in the 'years' variable above. Must have same number of values
            //as the years variable.
            "Value": "0,5,10,20,30,40,50,60"
        }
    },
    "Collective": {
        "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
        },
        "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
        }
    },
    //In the Baseline scenario, 'ablation' values should be equal to 'separate'.
    //Still, both should be included.
    "Ablation": {
        "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
        },
        "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
        }
    }
},
"Portfolio-level": {
    "Separate": {
        "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
        },
        "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
        }
    },
    "Collective": {
        "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
        },
        "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
        }
    },
    "Ablation": {
        "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
        },
        "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
        }
    }
}
},
"Undergrounding": {
```

```
      //This description is fixed for the undergrounding project
      "Description": "Proposed Undergrounding",
      "Project-level": {
        "Separate": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Collective": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Ablation": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        }
      },
      "Portfolio-level": {
        "Separate": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Collective": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Ablation": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        }
      }
    },
    "Alternative_A": {
      "Description": "Covered conductor",
      "Project-level": {
```

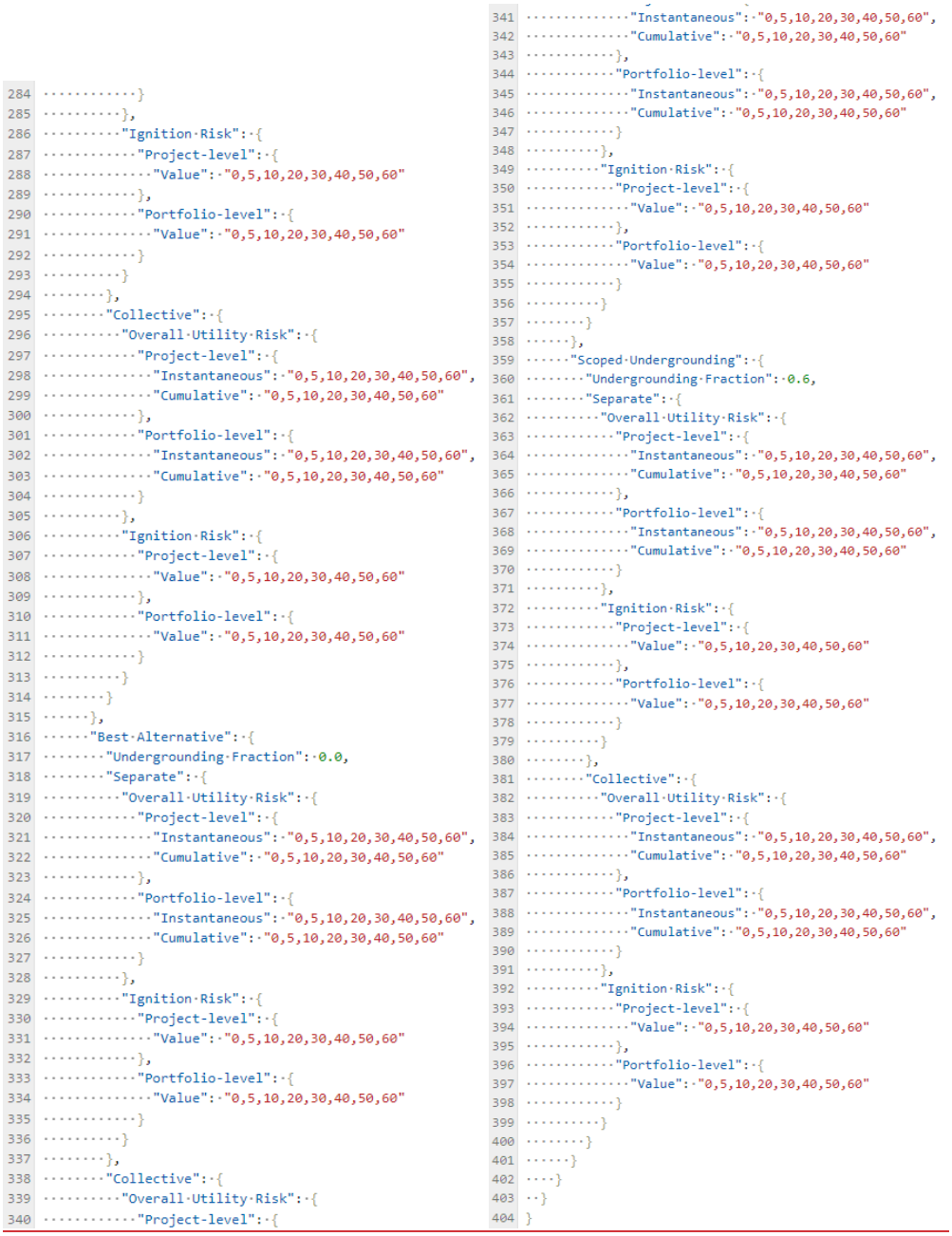
```
        "Separate": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Collective": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Ablation": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        }
      },
      "Portfolio-level": {
        "Separate": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Collective": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Ablation": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        }
      }
    },
    "Alternative_B": {
      "Description": "Covered conductor + fast-trip",
      "Project-level": {
        "Separate": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Collective": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Ablation": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        }
      },
      "Portfolio-level": {
        "Separate": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Collective": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        },
        "Ablation": {
          "KDMM1": {
            "Instantaneous": "0,5,10,20,30,40,50,60",
            "Cumulative": "0,5,10,20,30,40,50,60"
          },
          "KDMM2": {
            "Value": "0,5,10,20,30,40,50,60"
          }
        }
      }
    }
  },
  {
    "Project_ID": "proj456",
    "etc.": "same rows as other proj"
  }
]
```

```
{
  "comment_1": "*** NOTE: this sample JSON file is being
                submitted with comments submitted as text
                for clarity. Comments are to be omitted
                in the final submission. ***",
  "plan_id": "TestUtilityPlan1",
  "portfolio_id": 1,
  "comment_2": "*** The plan_id and portfolio_id must match
                the values in the Plan and Portfolio
                tables (Table 1 and 4), respectively. ***",
  "Years": "0,5,10,20,30,40,50,60",
  "comment_3": "*** Comma-separated list of values. This
                list of years is specified by Section XXX.
                These years are static as the plan
                moves, i.e. year 0 always refers to the Plan
                start date. ***",
  "KDMMs": "KDMM1,KDMM2,KDMM3,KDMM4,KDMM5,KDMM6,KDMM7,KDMM8,KDMM9,KDMM10",
  "comment_4": "*** Comma-separated list of KDMMs by
                number. This list of KDMMs be the same length
                as the list of KDMMs submitted in the
                KDMM table (Table 2) and the EUP
                submission. ***",
  "KDMM_names": "Overall Utility Risk,Ignition Risk,Ignition Likelihood,
                 Ignition Consequence,Outage Program Risk,Outage Program Likelihood,
                 Outage Program Consequence,Equipment Risk,Total Benefits,
                 Reliability Benefits",
  "comment_5": "*** Comma-separated list of KDMMs by name.
                This list of KDMMs must exactly match
                the list of KDMMs submitted in the KDMM
                table (Table 2) and the EUP submission. ***",
  "risk_model_version_ID": "v0.0",
  "risk_model_calibration_ID": "c0",
  "comment_6": "*** This version and calibration ID must
                match the current (last) row of the Risk
                Model Versions Table (Table 3). ***",
  "KDMM_is_cumulative": {
    "comment_7": "*** Short dictionary describing whether a
                KDMM accumulates over time, with KDMM
                names as keys, \"true\" or \"false\" as values.
                Whether or not it is True must match
                the requirements described in Section XXX. ***",
    "Overall Utility Risk": true,
    "Ignition Risk": false,
    "Ignition Likelihood": true,
    "Ignition Consequence": false,
    "Outage Program Risk": false,
    "Outage Program Likelihood": true,
    "Outage Program Consequence": false,
    "Equipment Risk": true,
    "Total Benefits": true,
    "Reliability Benefits": true
  },
  "Projects": {
    "comment_8": "*** In this dictionary, all projects are
                listed, using their project_ids as keys. ***",
    "proj001": {
      "comment_9": "*** In this dictionary, all mitigation
```

```
            types (proposed project, baseline, and
            alternative mitigations) are listed, using
            the list of names specified in Section
            XXX. Additional alternatives may be added,
            but they must be defined in the EUP.
            Definitions: 1. Baseline: The evolution of
            risk on this Circuit Segment if no
            mitigations are planned or applied to any of
            the portfolio. 2. Scoped Project: The
            project as proposed and scoped. This may
            include multiple subprojects which may
            use multiple mitigation strategies, of
            which at least some must include
            undergrounding for the EUP. 3. 100%
            Undergrounding: The potential project of
            undergrounding the entire Circuit Segment, or if
            certain sections are infeasible as defined
            in section XXX, all feasible
            undergrounding. 4. 100% Covered Conductor: The
            potential project of adding covered conductor
            to the entire Circuit Segment, or if
            certain sections are infeasible as defined
            in section XXX, all feasible covered
            conductor additions. 5. Best Alternative:
            The potential project of doing the most
            efficient non-undergrounding work
            available, which may include remote grids,
            fast-trip settings, and other mitigation
            strategies. 6. Scoped Undergrounding: The
            project as proposed and scoped, but if
            only the undergrounding subprojects are
            finished. The full project may include
            multiple subprojects which may use
            different mitigation strategies, but here we
            track the evolution of KDMMs if only the
            undergrounding subprojects are carried
            out.  ***",
      "Scoped Project": {
        "comment_10": "*** In this dictionary, all settings (No
            Setting, Seperate, Collective, and
            Ablation studies) are listed, as well as the
            total fraction of the project (as defined
            in Section XXX) which would be
            undergrounded with this mitigation type.
            Definitions: 1. No Setting: Because the baseline
            has no projects, there is no
            distinction between seperate, collective, etc. 2.
            Separate: Effects on the system for just
            implementing this single mitigation,
            with all other projects not taking place.
            3. Collective: Effects on the system for
            implementing this single mitigation,
            with all other projects taking place \"as
            scoped\", i.e. using the \"Scoped Project\"
            as described. 4. Ablation: Effects on
            the system for implementing all other
            projects taking place \"as scoped\", i.e.
```

```
            using the \"Scoped Project\" as described, but
            with this project in particular not
            taking place. ***",
        "Undergrounding Fraction": 0.6,
        "Separate": {
          "comment_11": "*** In this dictionary, all KDMMs are
            listed. These must match the KDMMs listed at
            the top level. ***",
          "Overall Utility Risk": {
            "comment_12": "*** In this dictionary, the two scales for
            publication (Project-level and
            Portfolio-level) are listed. Definitions: 1.
            Project-level: the value of all KDMMs for
            this specific Circuit Segment, under the
            selected setting. 2. Portfolio-level: the
            sum of values for all KDMMs for the
            entire set of Circuit Segments included in
            the Portfolio ***",
            "Project-level": {
              "comment_13": "*** In this dictionary, the required
              outputs for data collection (Instantaneous &
              Cumulative, or Value) are listed. Which
              outputs are required for each KDMM are
              defined in Section XXX. Definitions: 1.
              Instantaneous: The value at each
              particular year for this KDMM. 2. Cumulative: The
              integrated or summedvalue at each
              particular year for this KDMM. 3. Value: If
              instantaneous and cumulative values are
              not both required, this output is used
              instead to distinguish the cases. It is
              calculated as the value at each particular
              year for this KDMM, identically to how
              \"instantaneous\" was defined. ***",
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        },
        "Collective": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
```

```
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        },
        "Ablation": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        }
      },
      "Baseline": {
        "Undergrounding Fraction": null,
        "No Setting": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        }
      },
      "100% Undergrounding": {
        "Undergrounding Fraction": 1.0,
        "Separate": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        },
        "Collective": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        }
      },
      "100% Covered Conductor": {
        "Undergrounding Fraction": 0.0,
        "Separate": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
```



```
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        },
        "Collective": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        }
      },
      "Best Alternative": {
        "Undergrounding Fraction": 0.0,
        "Separate": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        },
        "Collective": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        }
      },
      "Scoped Undergrounding": {
        "Undergrounding Fraction": 0.6,
        "Separate": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        },
        "Collective": {
          "Overall Utility Risk": {
            "Project-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Instantaneous": "0,5,10,20,30,40,50,60",
              "Cumulative": "0,5,10,20,30,40,50,60"
            }
          },
          "Ignition Risk": {
            "Project-level": {
              "Value": "0,5,10,20,30,40,50,60"
            },
            "Portfolio-level": {
              "Value": "0,5,10,20,30,40,50,60"
            }
          }
        }
      }
    }
  }
}
```

C.3 Spatial Data Submissions

The ~~large electrical corporation~~Large Electrical Corporation must include spatial data ~~for their projects~~ with every Progress Report as described below. The ~~large electrical corporation~~Large Electrical Corporation must use the template files provided by Energy Safety for data submission. Template files are available on Energy Safety's website.

Technical requirements for spatial data submissions are as follows:

a. Submit data in a single geodatabase (GDB).
b. Submit GDB files that are interoperable and compatible with standard industry practices.
c. Ensure all data attributes follow the schema required in Section 2.8.3.
d. Customize metadata as needed to follow the requirements in this document.
e. Use the WGS 1984 California (Teale) Albers (US Feet) projected coordinate system (WKID Esri 102599) for all data submitted.
f. With each Progress Report, the Large Electrical Corporation is not required to resubmit a feature class if no changes are made to that feature class.
~~f.~~g. Delete any feature classes and/or tables which are not used in this way (do not submit empty feature classes or tables~~), unless the field is specified as required in the schema.~~).
~~g.~~h. Compress the GDB into a zipped folder and submit that folder to Energy Safety's SharePoint file transfer portal. Each ~~large electrical corporation~~Large Electrical Corporation will have a designated folder on Energy Safety's SharePoint site for this purpose.
~~h.~~i. Name the GDB according to the following convention:
    i. "[Large Electrical Corporation Abbreviation]PR#_Date_R#",
        1. *for example:* "PGE_PR1_2025-01-01_R0.gdb.zip"

The ~~large electrical corporation~~Large Electrical Corporation must ensure location accuracy in its GIS data submissions, including, but not limited to:

a. All records in feature classes must include geometry.
b. Horizontal locations reported in feature classes must be within 20 meters of actual locations as established using a commercially available GNSS receiver in the current epoch of the WGS84 datum under conditions where the receiver's estimated horizontal positional error is 5 meters or less.
c. All records must be for assets located at least partially within California state boundaries, except where assets outside California boundaries are being relied upon by the ~~large electrical corporation~~Large Electrical Corporation for operations within California. For example, electrical corporation cameras or weather stations installed on mountain tops in another state that are observing conditions within California would be included in the data submission.

C.4 GIS Data Schema

The ~~large electrical corporation~~Large Electrical Corporation must report its geospatial data in accordance with the data schema provided ~~herein~~below.

C.4.1 ~~Overhead Conductor~~Circuit Segment (Line Feature Class)

~~A large electrical corporation must report overhead project circuit segments identified for removal/undergrounding.~~

The Large Electrical Corporation must report all Circuit Segments representing its entire distribution system as a spatial data submission. Each record in this feature must match with one and only one row of the Circuit Segment Identification Table and be identified by the same CIRCUIT_SEGMENT_ID. This feature class must consolidate each Circuit Segment to a single row which includes both primary and secondary distribution lines.

Table C.~~14. Overhead Conductor~~.15. Circuit Segment GIS Data

Field ~~Name~~Name	**Field ~~Description~~Description**
utility_~~name~~name	Large electrical corporation abbreviation. Acceptable values are the following: • PG&~~E~~E • SDG&~~E~~E • ~~SCE~~ • SCE This field is required.
plan_~~id~~id	Unique value identifying the plan. Must match ID in ~~plan~~Plan Table. This field is required.
~~project_id~~	**~~A unique value identifying the project. Must match ID used in Project Table. This field is required.~~**
~~portfolio_id~~	~~Unique value identifying the portfolio. Must match Portfolio Table. This field is required.~~
~~line_class~~	~~Classification of line asset. Possible values:~~ • ~~Transmission~~ • ~~Primary Distribution~~ • ~~Secondary Distribution~~ ~~This field is required.~~
~~segment_id~~	~~Unique ID of circuit segment. Must be a unique value that identifies this portion of the circuit and a traceable stable ID within the electrical corporation's operations/processes. This field is required. A segment may be anything more granular than a circuit, including a single span.~~

circuit_~~id~~id	Unique ID for a specific circuit on which the project is located. Must be a traceable stable ID within the electrical corporation's operations/processes. Primary Key for the feature class if the electrical corporation does not uniquely identify segments with persistent IDs. This field is required.
~~**status_current**~~	~~**CPUC-defined categories. Acceptable values are the following:**~~ ~~• Scoping~~ ~~• Designing~~ ~~• Permitting~~ ~~• Ready for Construction~~ ~~• Construction~~ ~~• Completed~~ ~~**This field is required.**~~
~~**status_change_date**~~	~~The last date the record's status was changed. This field is required.~~
~~active~~**circuit_segment_id**	~~Is the portion of a project represented by the line planned for undergrounding? Acceptable values:~~ ~~• Yes~~ ~~• No~~ ~~This field is required.~~Unique ID for a specific Circuit Segment on which the project was defined. This Circuit Segment must be available in the Circuit Segments list at the time of the vintaging.
~~abandoned_date~~**internal_circuit_segment_id**	~~Date the portion of a project represented by the line was abandoned. This field is required if the line segment is no longer planned for undergrounding.~~If the large electrical corporation reuses internal names for Circuit Segments in a non-unique way, or otherwise uses another set of names besides the circuit_segment_id as defined in C.1, report that name here. However, the circuit_segment_id must append the 8-digit minting date to this field as described in the introduction of Appendix C.

C.4.2 Confirmed Project Polygon (Polygon Feature Class)

The Large Electrical Corporation must report each Confirmed Project as a polygon, which is designed to encompass the entire Circuit Segment the Project was defined on, minus any

overlap with existing Confirmed Project Polygons. Each row of this table must match with one and only one row of the Project Table and be identified by the same PROJECT_ID.

Table C.16.Project GIS Data

Field Name	Field Description
utility_name	Large Electrical Corporation abbreviation. Acceptable values are the following: • PG&E • SDG&E • SCE This field is required.
project_id	A unique value identifying the project. Must match ID used in Project Table. This field is required.
plan_id	Unique value identifying the plan. Must match ID in Plan Table. This field is required.
portfolio_id	Unique value identifying the current portfolio. Must match Portfolio Table. This field is required.
circuit_id	Unique ID for the specific Circuit on which the project was defined. This circuit must have been submitted in the Circuit Segments list in the Progress report listed in circuit_segment_vintage.
circuit_segment_id	Unique ID for the specific Circuit Segment on which the project was defined. This circuit segment must have been submitted in the Circuit Segments list in the Progress report listed in circuit_segment_vintage.
circuit_segment_vintage	Number of the Progress Report when this Project was defined.

Additional requirements for the construction of the Confirmed Project Polygon feature class are as follows:

a) Circuit Segments must be reasonably, and completely, bounded by the Confirmed Project Polygon, using a Minimum Bounding Box algorithm or similar. However, the vertices may be manually adjusted, and in some cases may be required to be manually

adjusted to avoid overlapping. The exception to the completeness requirement is if a new Circuit Segment is already partially included in an existing Project (see below).

b) Confirmed Project Polygons must be defined to include only assets associated with the Circuit Segment their Project is defined on. The Large Electrical Corporation must manually remove any overlap from other Circuit Segments, unless avoiding overlap with other Circuit Segments is not possible (e.g. crossing Circuit Segments, shared equipment, etc).

c) Confirmed Project Polygons cannot overlap with one another except at shared vertices, unless creating non-overlapping polygons is completely unfeasible (e.g. crossing Circuit Segments, shared equipment, etc).

d) The Confirmed Project Polygon does not need to be redrawn due to changes in Circuit Segment topology, even if these changes cause one or more Circuit Segments to partially or completely overlap with a Confirmed Project Polygon. The Confirmed Project Polygon defines the boundary of pre-mitigation lines that can be mitigated as part of this Project.

e) If a Circuit Segment already overlaps with an existing Confirmed Project Polygon when it is considered for undergrounding within the EUP, the risk modeling on this Circuit Segment must only consider the portion not overlapping with any existing Project, and if confirmed, the Confirmed Project Polygon based on this Circuit Segment will be drawn only around the portion not overlapping with any existing Project.

f) Confirmed Project Polygons are not to be edited in subsequent submissions. Any change to a Confirmed Project Polygon is considered a new Project and must be passed through the screens again.

C.4.3 Pre-mitigation Overhead Conductor (Line Feature Class)

The Large Electrical Corporation must report the existing overhead line associated with each Subproject appearing in the Subproject Table. This feature class reports the Subproject before mitigations took place.

Table C.17. Pre-mitigation Overhead Conductor GIS Data

Field Name	Field Description
utility_name	Large Electrical Corporation abbreviation. Acceptable values are the following: • PG&E • SDG&E • SCE This field is required.

Field Name	Field Description
subproject_id	Unique ID of the portion of overhead line to be mitigated in working on this Subproject. Must be a unique value that identifies this portion of the circuit and a traceable stable ID within the electrical corporation's operations/processes. This field must also match the ID used in the Subproject Table. This field is required.
historical_alignment_id	Integer representing the versioning of this Subproject. If the length or endpoints of this Subproject change in future Progress Reports, a new historical_alignment_id will be used. After construction, this no longer updates, and represents the final pre-mitigation line mitigated by this Subproject. This field is required.
project_id	A unique value identifying the project. Must match ID used in Project Table. This field is required.
plan_id	Unique value identifying the plan. Must match ID in plan. This field is required.
portfolio_id	Unique value identifying the current portfolio. Must match Portfolio Table. This field is required.
line_class	Class of line contained in Subproject planned for undergrounding. Possible values: • OH-P • OH-S • UG-P • UG-S This field is required.
circuit_id	Unique ID for the specific Circuit on which this Project was defined. Primary Key for the feature class if the electrical corporation does not uniquely identify segments with persistent IDs. This field is required.
circuit_segment_id	Unique ID for the specific Circuit Segment on which the Project was defined. This field is required.

Additional requirements for the Pre-mitigation Overhead Conductor feature class are as follows:

a) Subprojects described in this feature class must fall within the bounds of the associated Confirmed Project Polygon, as described in C.4.2, unless an explanation for exceeding the boundaries is given, as described in C.1.14.
b) A new ALIGNMENT_ID is issued for any change in the location of any endpoints of the Line GIS object, or any change in length.

c) The abbreviations in the "LINE_CLASS" variable represent the following: OH-P: Overhead Primary Distribution, OH-S: Overhead Secondary Distribution, UG-P: Underground Primary Distribution, UG-S: Underground Secondary Distribution.

~~C.4.2~~C.4.4 Pre-mitigation Assets (Point Feature Class)

The ~~large electrical corporation~~Large Electrical Corporation must report some overhead assets other than conductor identified for removal/undergrounding: capacitor banks, fuses, switches/reclosers, ~~and transformers~~transformers, and support structures. In this feature class, each row is an individual piece of equipment which is currently operationally attached to a specific Subproject and is intended to be moved, removed, or deenergized.

Table C.~~15. Overhead~~.18. Pre-mitigation Assets GIS Data

Field Name	Field Description
utility_name	Large Electrical Corporation abbreviation. Acceptable values are the following: • PG&E • SDG&E • SCE This field is required.
~~plan~~subproject_id	~~Unique value identifying the plan. Must match ID in plan. This field is required.~~Unique ID of the portion of overhead line to be mitigated in working on this Subproject. Must be a unique value that identifies this portion of the circuit and a traceable stable ID within the electrical corporation's operations/processes. This field must also match the ID used in the Subproject Table. This field is required.
historical_alignment_id	Integer representing the versioning of this Subproject. If the length or endpoints of this Subproject change in future Progress Reports, a new historical_alignment_id will be used. After construction, this reflects the pre-construction assets that have since been moved or removed. This field is required.
project_id	A unique value identifying the project. Must match ID used in Project Table. This field is required.
plan_id	Unique value identifying the plan. Must match ID in plan. This field is required.
portfolio_id	Unique value identifying the portfolio. Must match Portfolio Table. This field is required.

Field Name	Field Description
~~segment~~circuit_id	Unique ID ~~of circuit segment. Must be a unique value that identifies~~for the specific Circuit on which this ~~portion of the circuit and a traceable stable ID within~~Project was defined. Primary Key for the ~~electrical corporation's operations/processes. This field is required IF~~feature class if the electrical corporation ~~has~~does not uniquely identify segments with persistent ~~stable~~ IDs ~~for circuit segments. A segment may be anything more granular than a circuit, including a single span~~. This field is required.
circuit_segment_id	Unique ID for ~~a~~the specific ~~circuit. Must be a traceable stable ID within the electrical corporation's operations/processes. Primary Key for~~Circuit Segment on which the ~~feature class if the electrical corporation does not uniquely identify segments with persistent IDs.~~Project was defined. This field is required.
asset_type	Type of asset represented. Acceptable values: • Capacitor bank • Fuse • Switchgear • Transformer • Support structure This field is required.
~~status_current~~	~~CPUC defined categories. Acceptable values are the following:~~ • ~~Scoping~~ • ~~Designing~~ • ~~Permitting~~ • ~~Ready for Construction~~ • ~~Construction~~ • ~~Completed~~ ~~This field is required.~~
~~status_change_date~~	~~The last date the record's status was changed. This field is required.~~
~~active~~	~~Is the asset represented by the point planned for undergrounding? Acceptable values:~~ • ~~Yes~~ • ~~No~~ ~~This field is required.~~

Field Name	Field Description
~~abandoned_date~~	~~Date the portion of a project represented by the line was abandoned. This field is required if the line segment is no longer planned for undergrounding.~~

~~Underground Alignment~~Additional requirements for the Pre-mitigation Assets feature class are as follows.

a) All equipment in each Subproject described in this feature class must fall within the bounds or along the edge of the associated Project polygon, as described in C.4.2, unless an explanation for exceeding the boundaries is given, as described in C.1.14.
b) Changes to the ALIGNMENT_ID are determined by C.4.3, the current submission must match the ALIGNMENT_ID for each Subproject to the values in that table.

~~C.4.3~~C.4.5 Post-mitigation Conductor (Line Feature Class)

The ~~large electrical corporation~~Large Electrical Corporation must identify the alignment of new ~~underground~~mitigated conductor.

Table C.~~16. Underground Alignment~~.19. Post-mitigation Conductor GIS Data

Field Name	Field Description
~~PlanID~~utility_name	~~Unique value identifying~~Large Electrical Corporation abbreviation. Acceptable values are the ~~plan. Must match ID in plan.~~ following: • PG&E • SDG&E • SCE This field is required.
~~project_id~~	~~A unique value identifying the project. Must match ID used in Project Table. This field is required.~~
~~portfolio_id~~	~~Unique value identifying the portfolio. Must match Portfolio Table. This field is required.~~
~~segment~~subproject_id	Unique ID of ~~circuit segment~~the portion of overhead line to be mitigated in working on this Subproject. Must be a unique value that identifies this portion of the circuit and a traceable stable ID within the electrical corporation's operations/processes. ~~Primary Key for the feature class unless the electrical corporation does not uniquely identify segments with persistent IDs. This field is required if the electrical corporation has persistent stable IDs for circuit segments. A segment may be anything more granular than a circuit, including a~~

Field Name	Field Description
	~~single span.~~This field must also match the ID used in the Subproject Table. This field is required.
~~circuit_id~~	~~Unique ID for a specific circuit. Must be a traceable stable ID within the electrical corporation's operations/processes. Primary Key for the feature class if the electrical corporation does not uniquely identify segments with persistent IDs. This field is required.~~
~~line_class~~	~~Classification of line asset. Possible values:~~ ~~• Transmission~~ ~~• Primary Distribution~~ ~~• Secondary Distribution~~ ~~This field is required.~~
~~status_current~~	~~CPUC defined categories. Acceptable values are the following:~~ ~~• Scoping~~ ~~• Designing~~ ~~• Permitting~~ ~~• Ready for Construction~~ ~~• Construction~~ ~~• Completed~~ ~~This field is required.~~
~~status_change_date~~	~~The last date the record's status was changed. This field is required.~~
~~active~~	~~Is the portion of a project represented by the line planned for undergrounding? Acceptable values:~~ ~~• Yes~~ ~~• No~~ ~~This field is required.~~
~~abandoned_date~~new_alignment_id	~~Date the portion of a project represented by the line was abandoned. This field is required if the line segment is no longer planned for undergrounding.~~Integer representing the versioning of this Subproject. If the length or endpoints of this Subproject change in future Progress Reports, a new new_alignment_id will be used. After construction, this no longer updates, and represents the final post-mitigation line installed through this Subproject. This field is required.

~~C.4.4 Underground Asset Points (Point Feature Class)~~

~~The large electrical corporation must identify new underground installations of the following assets: capacitor banks, fuses, switches/reclosers, and transformers.~~

~~*Table C.17. Underground Asset Points GIS Data*~~

~~Field Name~~	~~Field Description~~
~~**plan_id**~~	~~**Unique value identifying the plan. Must match ID in plan. This field is required.**~~
project_id	A unique value identifying the project. Must match ID used in Project Table. This field is required.
plan_id	Unique value identifying the plan. Must match ID in plan. This field is required.
portfolio_id	Unique value identifying the current portfolio. Must match Portfolio Table. This field is required.
line_class	Class of line contained in Subproject planned for undergrounding. Possible values: • OH-P • OH-S • UG-P • UG-S This field is required.
circuit_id	Unique ID for the specific Circuit on which this Project was defined. Primary Key for the feature class if the electrical corporation does not uniquely identify segments with persistent IDs. This field is required.
circuit_segment_id	Unique ID for the specific Circuit Segment on which the Project was defined. This field is required.

Additional requirements for the Post-mitigation Conductor feature class are as follows:

a) Subprojects described in this feature class must serve roughly the same region and customers as the overhead conductor Subproject they are replacing. However, some variation in this is permitted. Additionally, the newly installed line is not required to fall entirely within the Project polygon feature.
b) A new ALIGNMENT_ID is issued for any change in the location of any endpoints of the Line GIS object, or any change in length.
c) The abbreviations in the "LINE_CLASS" variable represent the following: OH-P: Overhead Primary Distribution, OH-S: Overhead Secondary Distribution, UG-P: Underground Primary Distribution, UG-S: Underground Secondary Distribution.

C.4.6 Post-mitigation Assets (Point Feature Class)

The Large Electrical Corporation must identify new installations of the following assets: capacitor banks, fuses, switches/reclosers, transformers, and support structures .

Table C.20. Post-mitigation Assets GIS Data

Field Name	Field Description
utility_name	Large Electrical Corporation abbreviation. Acceptable values are the following: • PG&E • SDG&E • SCE This field is required.
subproject_id	Unique ID of the portion of overhead line to be mitigated in working on this Subproject. Must be a unique value that identifies this portion of the circuit and a traceable stable ID within the electrical corporation's operations/processes. This field must also match the ID used in the Subproject Table. This field is required.
historical_alignment_id	Integer representing the versioning of this Subproject. If the length or endpoints of this Subproject change in future Progress Reports, a new historical_alignment_id will be used. After construction, this reflects the post-construction assets that have been moved or installed. This field is required.
project_id	A unique value identifying the project. Must match ID used in Project Table. This field is required.
plan_id	Unique value identifying the plan. Must match ID in plan. This field is required.
portfolio_id	Unique value identifying the portfolio. Must match Portfolio Table. This field is required.
~~**asset_type**~~	~~Type of asset represented. Acceptable values:~~ ~~• Capacitor bank~~ ~~• Fuse~~ ~~• Switchgear~~ ~~• Transformer~~ ~~This field is required.~~
~~**segment**~~**circuit_id**	Unique ID ~~of circuit segment. Must be a unique value that identifies~~for the specific Circuit on which this ~~portion of the~~

Field Name	Field Description
	~~circuit and a traceable stable ID within the electrical corporation's operations/processes.~~Project was defined. Primary Key for the feature class ~~unless~~if the electrical corporation does not uniquely identify segments with persistent IDs. This field is required~~IF the electrical corporation has persistent stable IDs for circuit segments. A segment may be anything more granular than a circuit, including a single span.~~.
circuit_segment_id	Unique ID for ~~a~~the specific ~~circuit. Must be a traceable stable ID within the electrical corporation's operations/processes. Primary Key for~~Circuit Segment on which the ~~feature class if the electrical corporation does not uniquely identify segments with persistent IDs.~~Project was defined. This field is required.
~~**line_class**~~	~~Classification of line asset. Possible values:~~ ~~• Transmission~~ ~~• Primary Distribution~~ ~~• Secondary Distribution~~ ~~This field is required.~~
~~**status_current**~~	~~CPUC defined categories. Acceptable values are the following:~~ ~~• Scoping~~ ~~• Designing~~ ~~• Permitting~~ ~~• Ready for Construction~~ ~~• Construction~~ ~~• Completed~~ ~~This field is required.~~
~~**status_change_date**~~	~~The last date the record's status was changed. This field is required.~~
~~**active**~~**asset_type**	~~Is the~~Type of asset represented ~~by the point planned for undergrounding?~~. Acceptable values: ~~• Yes~~ ~~• No~~ • Capacitor bank • Fuse • Switchgear • Transformer • Support Structure This field is required.

Field Name	Field Description
~~**abandoned_date**~~	~~Date the portion of a project represented by the line was abandoned. This field is required if the line segment is no longer planned for undergrounding~~

~~Appendix D. Portfolio Coversheet~~

~~Narrative Justification~~

~~The large electrical corporation must provide a narrative explanation here pursuant~~Additional requirements for the Post-mitigation Assets feature class are as follows:

Changes to the ~~requirement in Section 2.8.6.1 of~~ALIGNMENT_ID are determined by C.4.5, the ~~EUP Guidelines~~

~~Key Decision-Making Metrics~~

~~The large electrical corporation~~current submission must ~~provide visualizations and tables here pursuant to the requirement in Sections 2.7.3 and 2.8.6.2 of~~match the ~~EUP Guidelines.~~

~~Project Variable Modifiers~~

~~The large electrical corporation must provide tables here pursuant~~ALIGNMENT_ID for each Subproject to the ~~requirement in Section 2.7.6 and 2.8.5.2 of the EUP Guidelines.~~

~~Portfolio Development~~

~~The large electrical corporation must provide visualizations and tables here pursuant to the requirement in Section 2.8.6.3 of the EUP Guidelines.~~

~~Appendix E. Project Reference Sheet~~

~~The large electrical corporation must complete Parts 1–3 of this Project Reference Sheet when Screen 3 is applied.~~

~~Part 1:~~

~~Identification and Context~~

~~The large electrical corporation must provide a narrative here pursuant to the requirement in Section 2.8.7.3 of the EUP Guidelines.~~

~~Table E.1. Example Project Identification Table~~

~~Circuit Segment ID~~	~~Project ID~~	~~Project Category~~	~~CPUC Risk Tranche~~	~~County~~
~~Feasibility Score by Project[1]~~	~~CPUC Risk Rank[2]~~	~~Overall Risk Score Rank~~	~~Ignition Consequence Rank~~	~~Outage Program Likelihood Rank~~
~~Customers Served~~	~~HFTD Tier~~	~~Wildfire Rebuild Area~~	~~Work Category Type~~	
			~~Targeted UG~~	

~~Narrative Explanation~~

~~The large electrical corporation must provide a narrative here pursuant to the requirement in Section 2.8.7.2 of the EUP Guidelines.~~

~~Other Utilities~~

~~The large electrical corporation must identify any third-parties pursuant to Section 2.8.7.2 of the EUP Guidelines.~~

~~Project Timeline~~

[1] ~~Optional: See CPUC 884 Guidelines~~

[2] ~~Optional: See CPUC 884 Guidelines~~

a) ~~In this section the large electrical corporation must include current information on the timeline for the project using a~~ values in that table. ~~An example table is below.~~

~~Table E.2. Example Project Timeline~~

~~Phase~~	~~Scoping~~	~~Designing~~	~~Permitting~~	~~Ready for Construction~~	~~Construction~~	~~Completed~~	~~Overhead Line Deenergized~~
~~Estimated Date~~							
~~Completed Date~~							

~~Part 2: Screen 2 (Project Information and Alternative Mitigation Comparison) Requirements~~

~~Screen 2 (Project information and Alternative Mitigation Comparison) requires a project comparison be completed for all projects pursuant to the requirement in Section 2.8.7.4 of the EUP Guidelines.~~

~~Below is an example Screen 2 Project Information Table.~~

~~Table E.3. Example Screen 2 Project Information Table~~

~~Basic Info~~	~~Project~~	~~Alternative 1~~	~~Alternative 2~~
~~Work Type~~	~~Undergrounding~~	~~Covered Conductor~~	~~Covered Conductor + Fast Trip~~
~~Safety Benefits~~			
~~Reliability Benefits~~			
~~Financial Benefits~~			
~~Risk Reduction~~			
~~Unit Cost Per Overhead Mile Deenergized~~			
~~Unit Cost Per Underground Mile Energized~~			

Basic Info	Project	Alternative 1	Alternative 2
Total Costs			
Cost-Benefit Ratio			

Part 3: Screen 3 (Project Risk Analysis) Requirements

Screen 3 (Project Risk Analysis) requires that if a project has completed Screen 2 (Project Information and Alternative Mitigation Comparison), and there is sufficient information to complete Screen 3 (Project Risk Analysis), the following information must be provided in a table format. Below is an example Screen 3 Comparative Risk Metrics Table.

Table E.4. Example Screen 3 Comparative Risk Metrics Table

Basic Info	Baseline	Project	Alternative 1	Alternative 2
Work Type	Baseline 1	Undergrounding	Covered Conductor + Fast Trip	Line Removal/Remote Grid
Fulfills Project-Level Standard?	N/A			
Cumulative Overall Utility Risk in year 60				
Cumulative Wildfire Risk in Year 60				
Cumulative Outage Program Risk in Year 60				
Mean Ignition Consequence in first 10 Years of Program				
Mean Outage Program Likelihood in first 10 years of Program				

Part 4: Additional Metrics

The large electrical corporation can complete Part 4 of the Project Reference Sheet at any time. In this section the large electrical corporation may include any other numerical evidence important to the understanding of the modeling of this project.

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A California Natural Resources Agency
www.energysafety.ca.gov

715 P Street, 20th Floor
Sacramento, CA 95814
916.902.6000