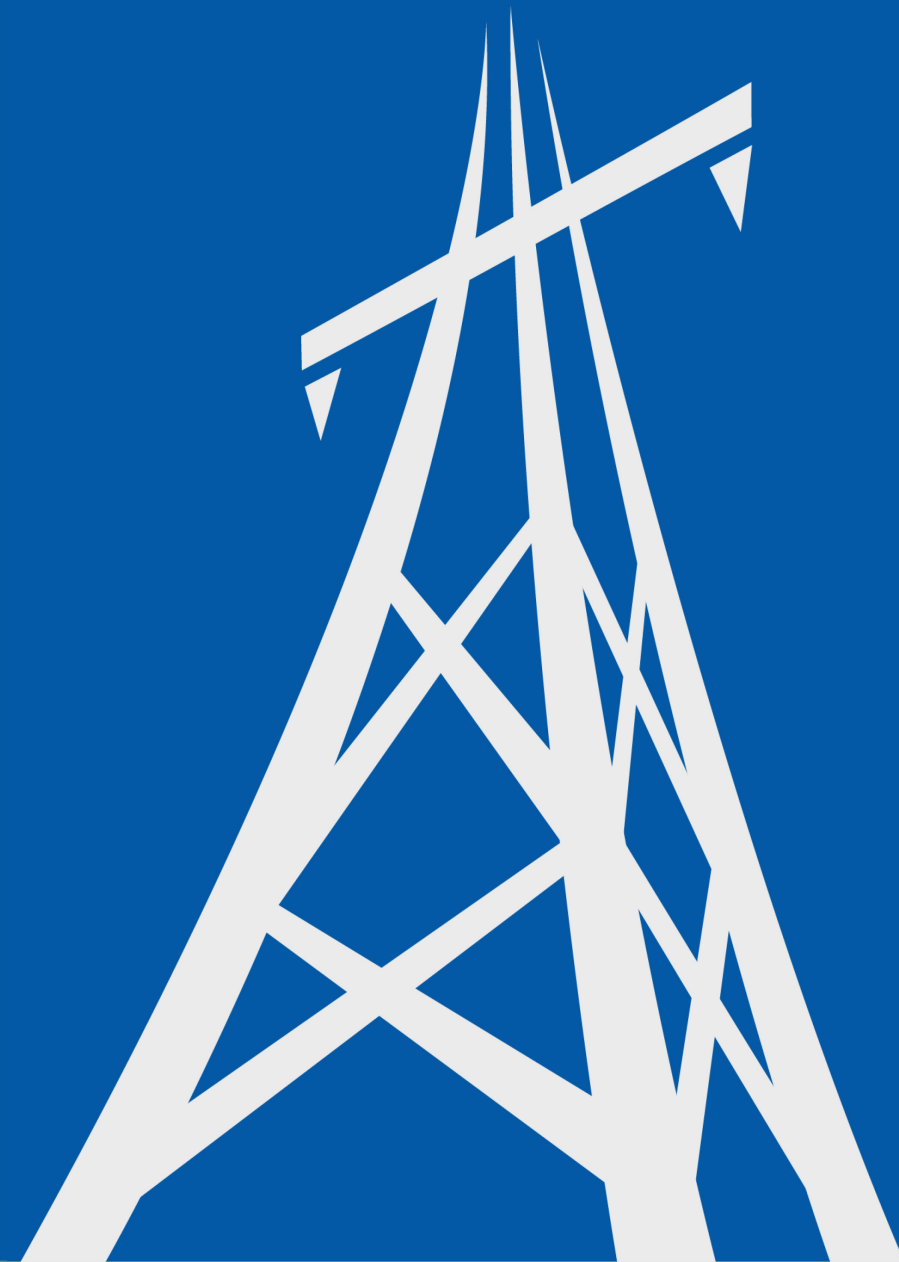
SB 884/EUP PUBLIC WORKSHOP

July 25, 2024



SAFETY MESSAGE

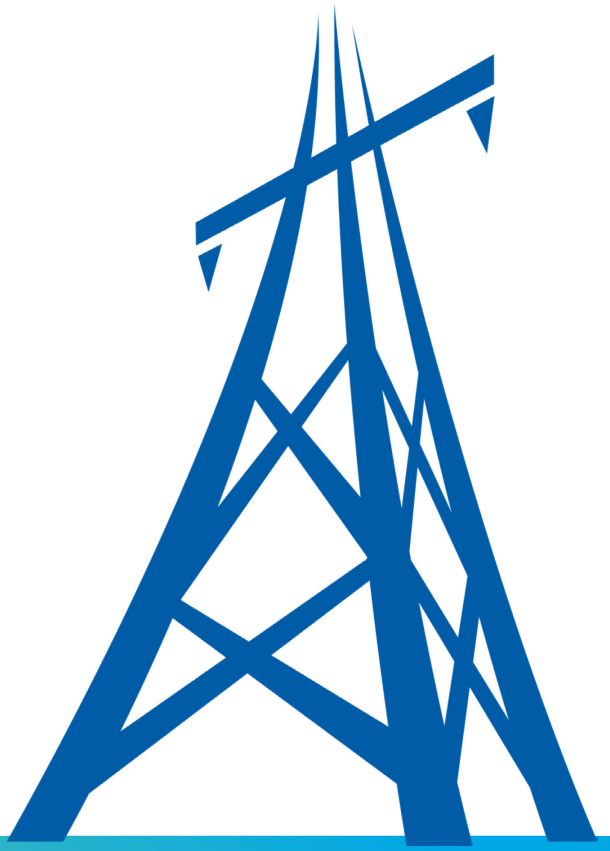
- Take care of your posture and sit in a comfortable position
- Take regular breaks to stretch, hydrate, and rest your eyes
- Know the emergency exits and procedures in your physical location should the need arise
- Be prepared for earthquakes
- Feel something say something and we will find a way to help

AGENDA

- Screens Overview
- Project Information Lists
- Objectives and Targets
- Hybrid Distribution Hardening
- Subprojects
- Separate, Collective, and Ablation Analyses
- Alternative Comparisons
- Project Reference Sheets
- Data Appendix
- Other Comments
- Questions

WORKSHOP OBJECTIVE

- Where are we?
  - Draft Guidelines issued; comments received
  - Some data requests were made
  - Next event will be release of the revised Draft Guidelines
  - And a second 30-day comment period
- Workshop Goal:
  - Get input from stakeholders about certain changes we're considering (we call these "Options")
  - Avoid extra work of a third 30-day comment period
- Workshop is for areas where we want additional input; not all comments need discussion today
- New Language in Blue
- Revised Language in Yellow



SCREENS OVERVIEW

SCREENS FLOWCHART

(1) Each Circuit Segment must include the Overall Utility Risk Score, Ignition Consequence Score, and Outage Program Reliability Score.

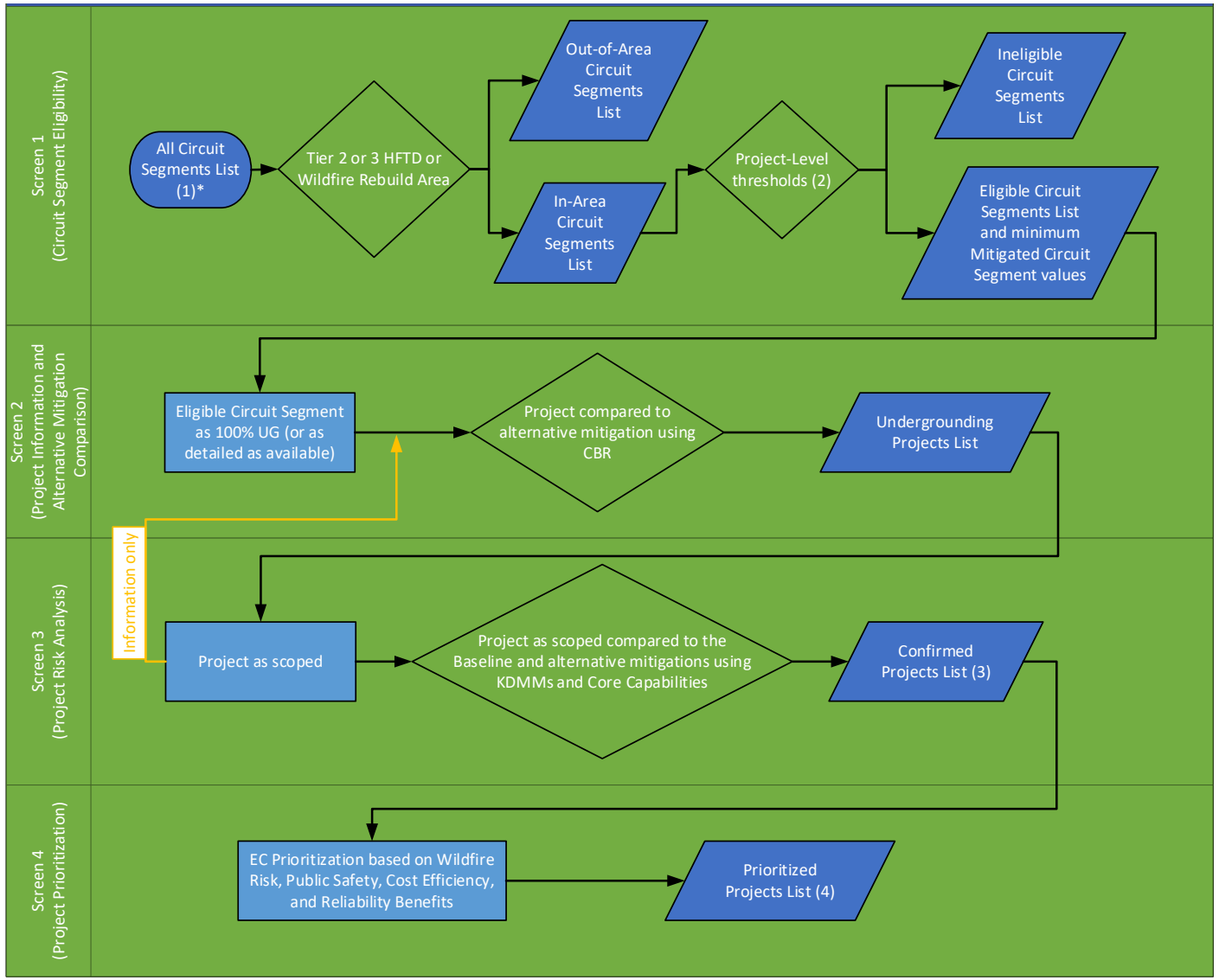
(2) A Circuit Segment qualifies as an Eligible Circuit Segment if it exceeds any of the High-Risk Threshold, Ignition Tail Risk Threshold, or High Frequency Outage Program Threshold.

(3) Once an Undergrounding Project is a Confirmed Project, it does not need to be removed from the program because of a change listed in (*).

(4) Must include at least 25 projects at the time of filing the EUP.

*In the event of changes to HFTD or rebuild areas, new Out-of-Area and In-Area Circuit Segment lists must be created. New In-Area Circuit Segments can then be considered under each of the screens.

Note: The Circuit Segment Information Lists include a list of Non-EUP Projects. However, the Non-EUP Project List is not intended to be part of the Project Acceptance Framework. Accordingly, the information required for Non-EUP projects is not as extensive as for projects included in the Project Acceptance Framework.



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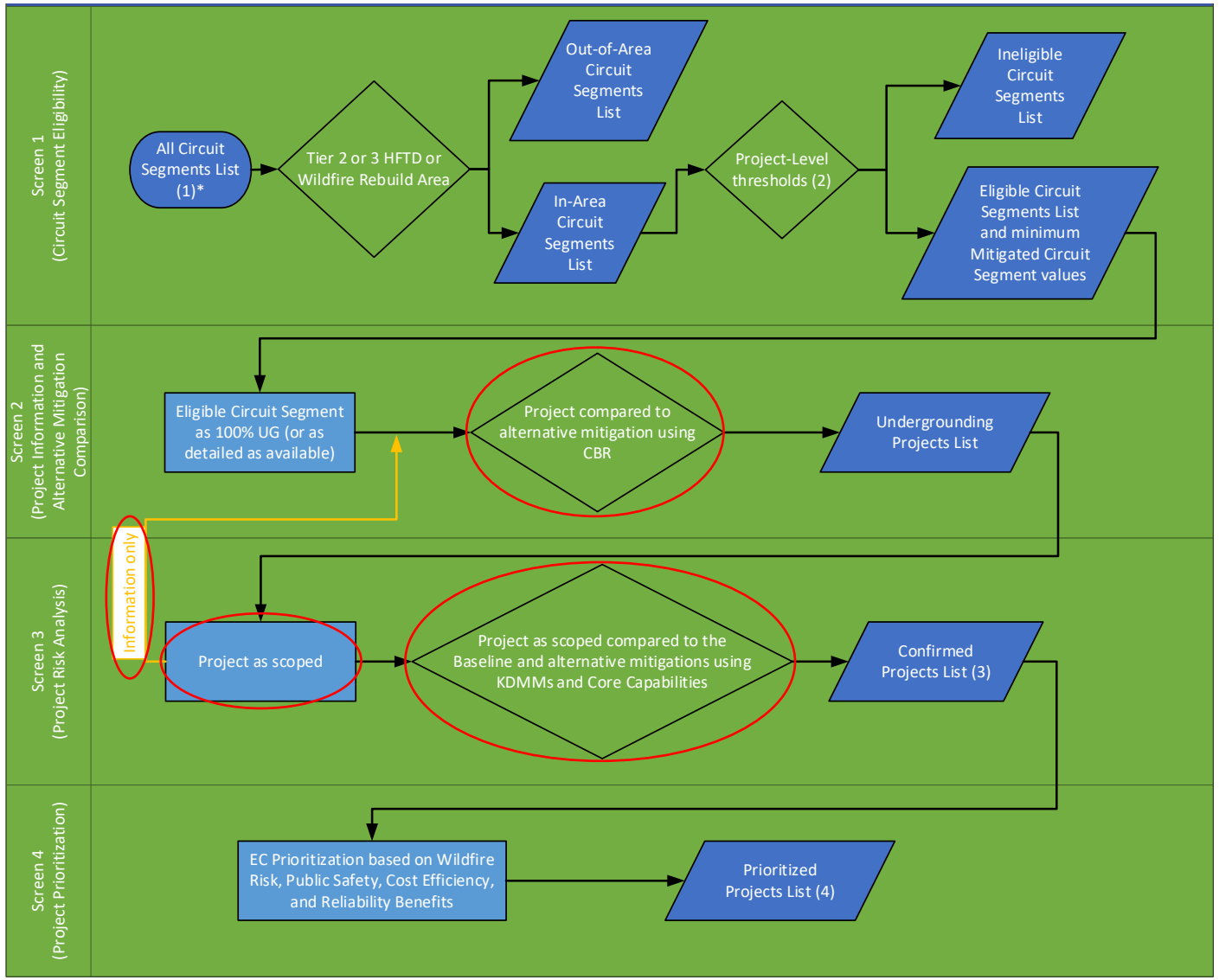
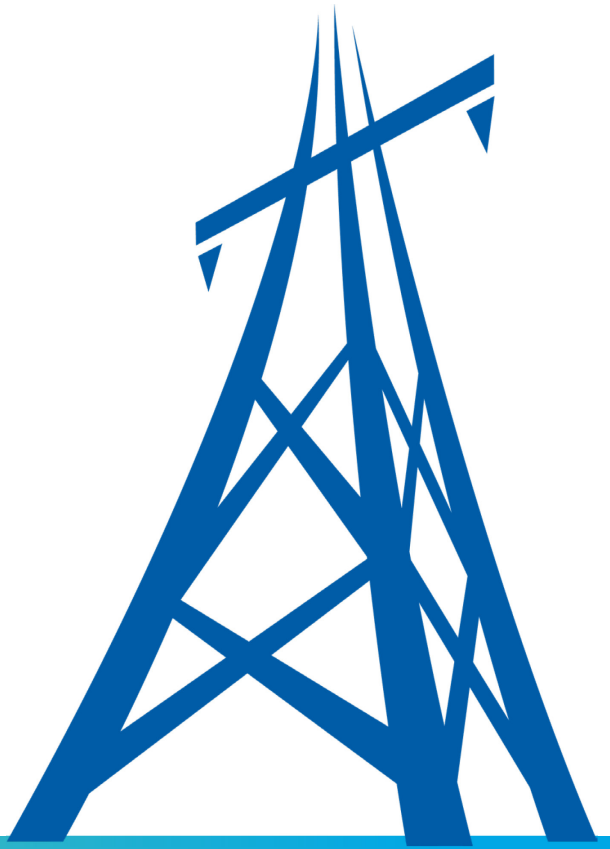



PROJECT
INFORMATION
LISTS

ACCESSIBILITY OF EUP PROJECT INFORMATION LISTS

- **Issue/Stakeholder comments:** Current structure is confusing and often duplicative
- **Proposed Option:**
  - Most of the Circuit Segment Information Lists will be submitted in one or two tables in Excel and stakeholders can use filters/sorting to run a report.
  - Improve consistency in how Guidelines ask for data and information.
  - Eliminate Project Reference Sheet but expand Project Index Table.
  - Clarify information required for Non-EUP Project List.
- **Questions for Stakeholders:**
  - Are there any concerns about making the majority (all?) of the lists available only through Excel (not a pdf list)?
  - Are there questions/confusion about instructions regarding EUP submission (see Appendix B) that we should discuss?




OBJECTIVES AND
TARGETS

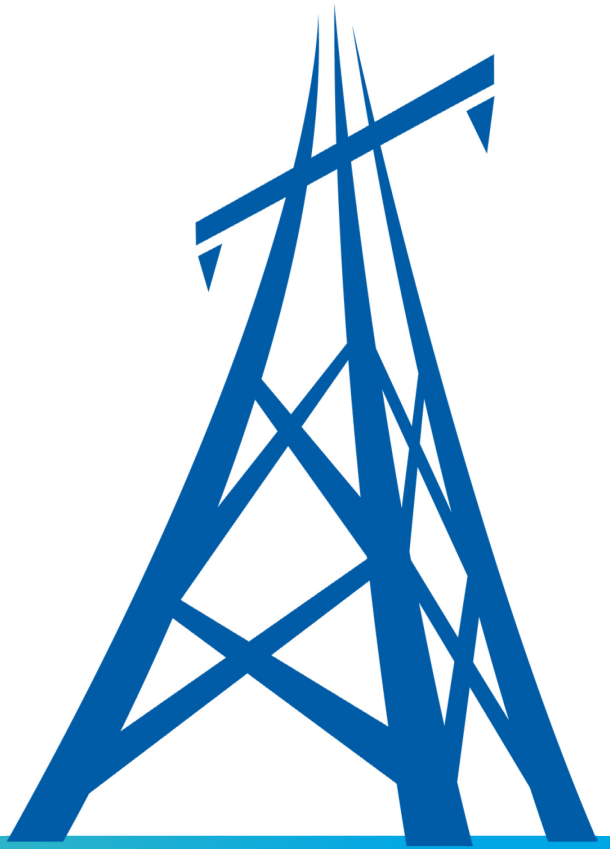
~~PORTFOLIO~~ PLAN MITIGATION OBJECTIVE

Issue/Stakeholder Comments:

- Confusion between Project-Level Standards, Portfolio-Level Standards **and** Portfolio Mitigation Objective **and** Portfolio Targets and Objectives
- Project-Level Standards often misinterpreted
- Subprojects have complicated how the EUP should "*assign credit*" for non-undergrounding mitigations

Option:

- Rename to Plan-level metrics as **Plan Mitigation Objective** and **Plan Targets** and remove Portfolio Objectives.
    - New list of necessary components (slide after next)
- Clarify difference between **Plan Mitigation Objective** and **Plan Targets** (see next slide)
- Clarify language for **Project-Level Standards** and **Portfolio-Level Standards**



SUCCESS CRITERIA, SIMPLIFIED

Criteria	Purpose	Measures	Measured-in
Plan Mitigation Objective (PMO)	Goal for the entire life of the program.	Entire Plan	KDMMs and targets as defined by the EC
Plan Targets	Ensure the timely development of projects and deployment of mitigations.	Plan as completed so far	Achieved Risk Reduction, Projects Initiated, and Miles Completed
Portfolio Standard	Minimum amount of Ignition Risk and/or Outage Program Risk reduction on an average per-mile basis.	Portfolio	Ignition Risk and Outage Program Risk
Project Standard	Ensure that a single project is worthwhile. Not every project must meet this, but any which does not fulfill this standard is required to have additional justification.	Project	High-Risk Circuit: Overall Risk HFOP: OP Likelihood WF tail risk: Ignition likelihood

COMPONENTS OF PLAN MITIGATION OBJECTIVE

Narrative Requirements (Section 2.3.1: Plan Mitigation Objective):

- Explanation of the basis of the Plan Mitigation Objective.
- The source for the risk and reliability scores used to set the Plan Mitigation Objective.
- [NEW] Minimum levels of Ignition Risk and Outage Program Risk reduction, on a per-mile basis, as set forth in the Portfolio-Level Standards
- Overview of the implementation approach for the EUP (e.g., to reduce risk on the highest risk Circuit Segments first, or to select the most feasible for undergrounding first) and an explanation of how the implementation approach will achieve the Plan Mitigation Objective.
- Overview of how the Project Acceptance Framework, Timelines, Workforce Development Plan, Costs and Benefits, and Non-Ratepayer Funding, Progress Report 0, Risk Modeling, and Reporting Metrics all support the Plan Mitigation Objective (see Sections 2.4 – 2.8 of these Guidelines).
- A concise summary and clear presentation of the metrics and standards for the Portfolio of Undergrounding Projects and supporting Project-Level metrics.
- [NEW] A summary of how projects with multiple subprojects, including non-EUP work, will be reported and how the amount of risk reduced by these projects will be counted toward the Plan Mitigation Objective as well as the Portfolio and Project Standards.
- Explanatory graphs and figures.
- Specific citations to any other EUP content that supports the Plan Mitigation Objective.

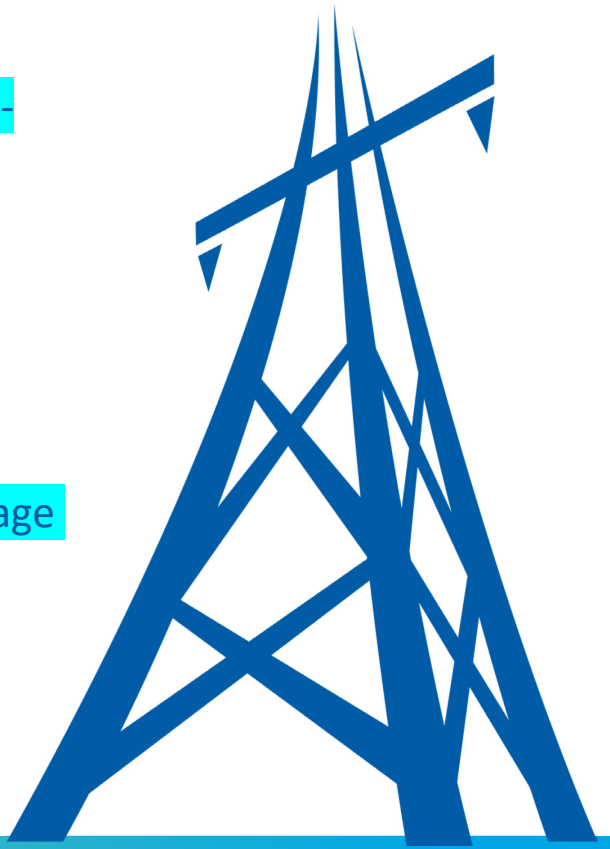
PLAN TARGETS

Suggested revised language for Section 2.3.2 (Plan Targets):

To track and evaluate progress toward the Plan Mitigation Objective, the EUP must also include specific Plan Targets. These targets will be used to track how the Portfolio of Projects develops over time and ensure that the LEC is on track to meet the Plan Mitigation Objective. The targets must consist of forward-looking, quantifiable measurements of work, measured at the Portfolio-Level and System-Level that will be used to assess progress toward the plan objectives.

Suggested requirements for the list of Plan Targets:

a. The targets must be specific, measurable, achievable, realistic, and timely outcomes for the EUP
b. Include annual and 5-year targets.
c. Include some targets based on total Overall Utility Risk Reduction.
d. Include some targets based solely on Ignition Risk Reduction and some based solely on Outage Program Risk.
e. Include targets measured by risk reduced per mile.
f. Include targets measured in number of miles of undergrounding completed.
g. Include targets measured in number of projects confirmed, scoped, and completed.




HYBRID
DISTRIBUTION
HARDENING

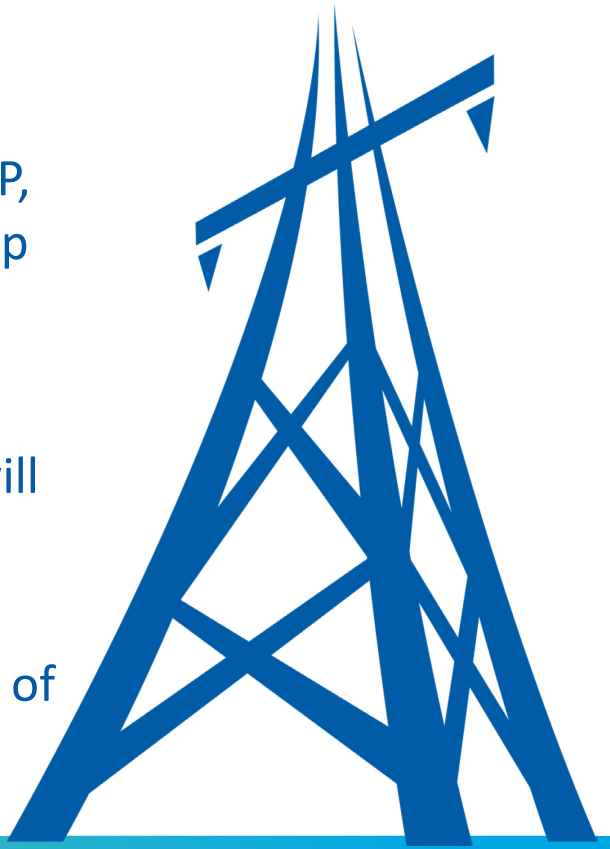
HYBRID DISTRIBUTION HARDENING

Issue/Stakeholder Comments:

- Circuit segments may require multiple mitigations.
- The amount of the non-undergrounded portion of a circuit segment will not be known until Screen 3 when the project is scoped by the EC.
- PG&E recommended including Hybrid Electric Distribution Hardening in the EUP, which was defined as a project that consists of at least 80% underground and up to 20% other mitigation.

Proposed Option:

- Revise Guidelines to address how a circuit segment with multiple mitigations will be evaluated and updated at both Screen 2 and Screen 3.
- Require non-undergrounding portions to be a separate subproject(s).
- Limit EUP program and funding to only include the work done in direct support of line undergrounding.




SUBPROJECTS

SUBPROJECTS

Issue:

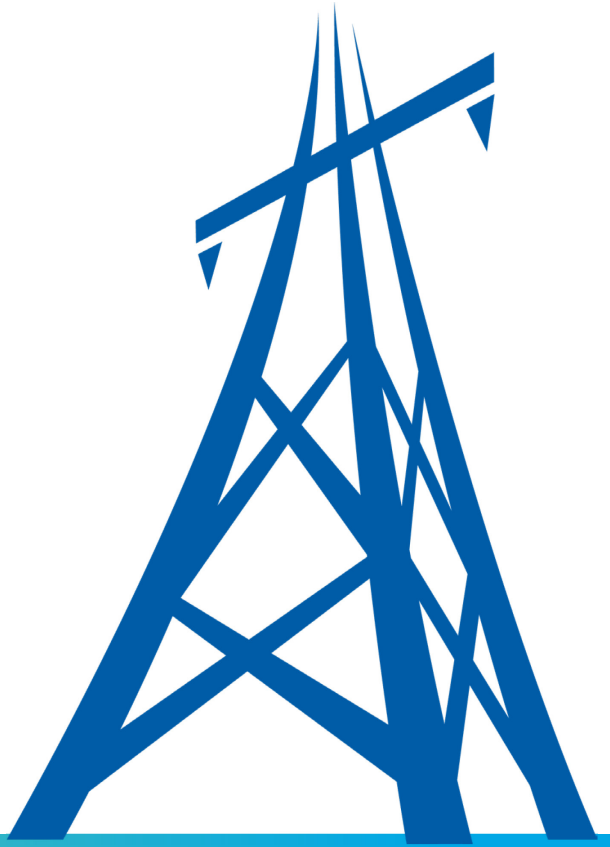
- Current guidelines do not specifically address how to handle projects that have portions completed at different times or use a combination of different mitigations.

Proposed Option:

- Define Subprojects as portions of a project and require ECs to split up projects into subprojects when they have different completion dates or use different mitigations.

Addressing issues with subprojects:

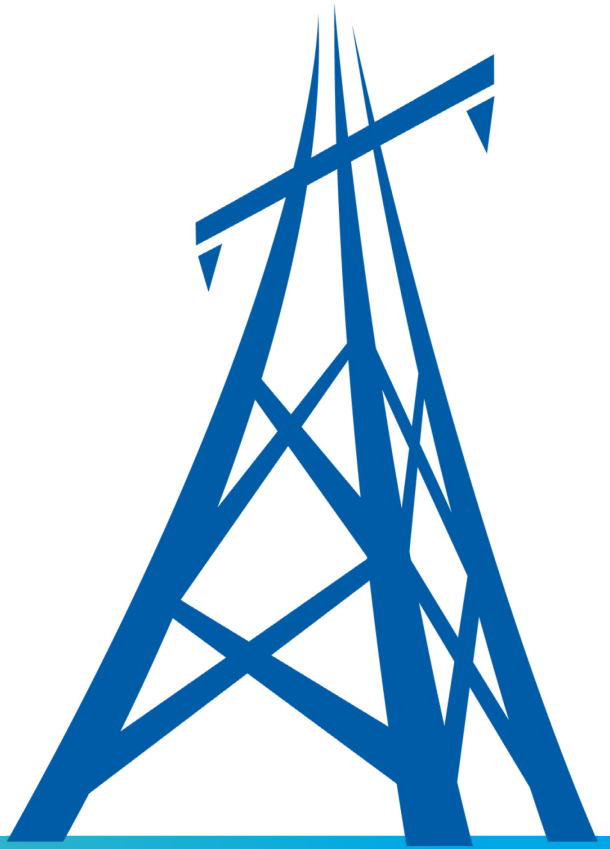
- Risk reduction with subprojects completed at different times
    - Ignition Risk may only be reduced in the modeling after an overhead line is deenergized and Outage Program Risk may only be reduced once the new line is energized
- Subprojects with different mitigation types
    - Entire project (undergrounding and non undergrounding subprojects) is considered in meeting the Project-Level Standard
    - Only undergrounding subprojects are counted for Plan Mitigation Objective (PMO)



SUBPROJECTS

Proposed changes to address subprojects and multiple mitigations:

- Add a new core capability to **Section 2.7.5 (Core Capabilities)** to address subprojects.
    - The core capability requires that the **EC** details its method for evaluating projects that are completed in stages and have multiple mitigations.
    - The **EC** must also demonstrate how it models the risk-reduction of the overall project and how that risk is allocated between different subprojects.
    - The **EC** must demonstrate a method to apportion the overall risk reduction by a project to the contribution from each mitigation type.
- Update the Project Status Table in Appendix C to collect subproject information.
- In Section **2.4.3 (Screen3: Project- Risk Analysis),** require the EC to describe their project scoping process in the Screen 3 Procedure outlining how subprojects are selected with regards to different construction timelines and mitigation strategies on a circuit segment.
- Include a required narrative to provide a justification on how/why non-UG subprojects were chosen in Section **2.4.3 (Screen3: Project- Risk Analysis)**



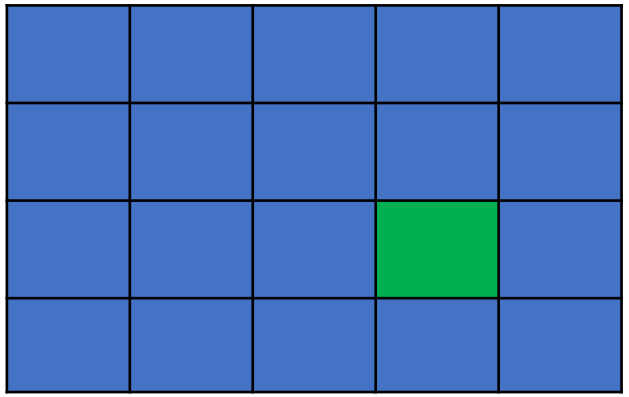
CORE CAPABILITIES OF RISK MODELING METHODOLOGY

1. Project Level Risk Analysis
2. Aggregate Risk Analysis
3. Ignition and Outage Risk as Separate and Collective Risks
4. Future Risks and Accumulation of Risk over Time
5. Accounting for Projects with Multiple Mitigations and Subprojects
6. Establishment of Baselines and Historical Calibrations
7. Comparisons with Alternative Mitigations

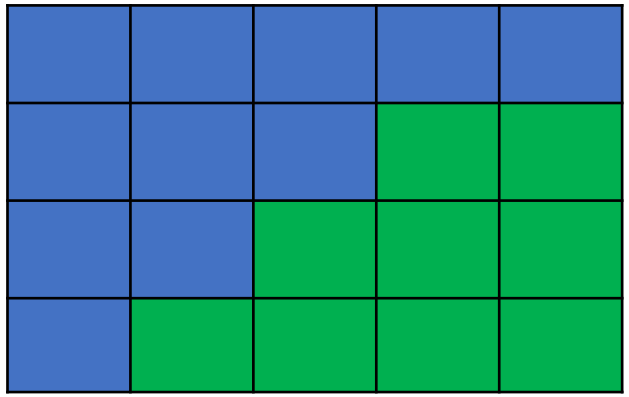
For each, we require a narrative section detailing how the capabilities are fulfilled along with Toy Problem examples to demonstrate the calculations


SEPARATE, COLLECTIVE, AND ABLATION ANALYSES

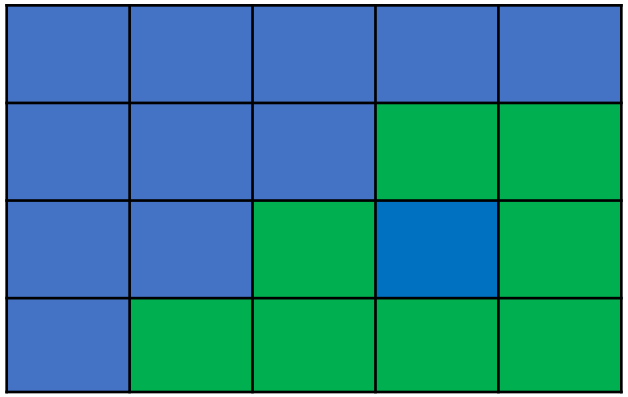
Separate = Single Project



Collective = Portfolio

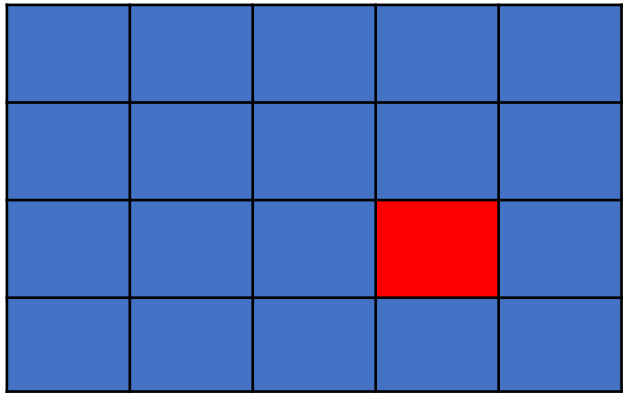


Ablation = Portfolio - Project

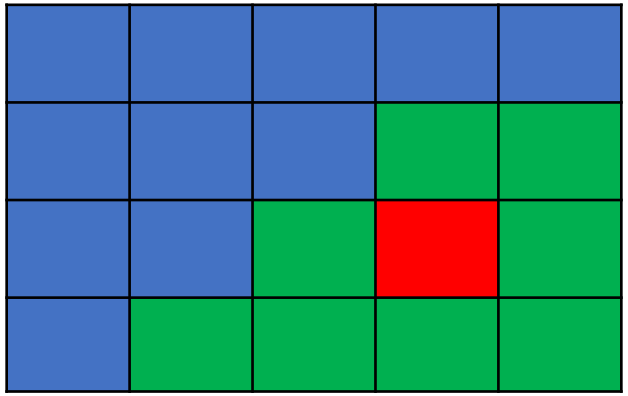


Alternative Mitigation Studies

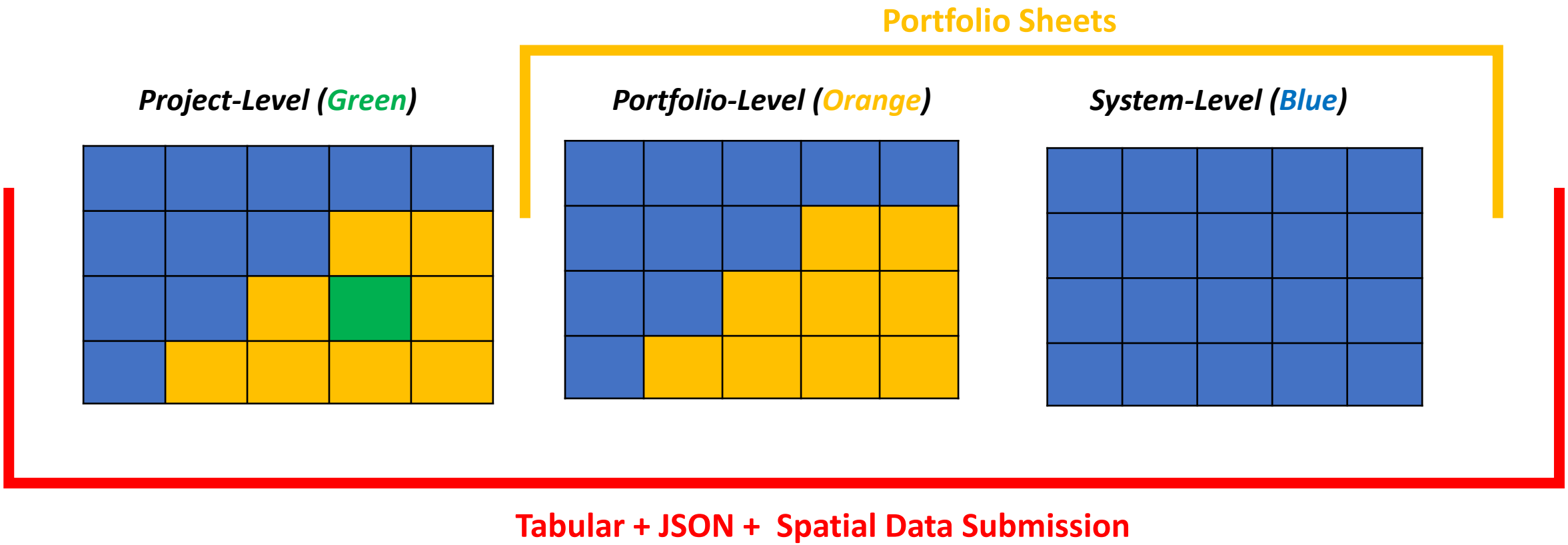
Separate Alternative = Single Alternative



Collective Alternative = Portfolio – Project + Alternative



The 3 levels of spatial accumulation:



REQUIRED ANALYSES

Issue/Stakeholder Comments: Some reservations about the number of required cases for project analyses.

- Unclear language around what projects are expected to have which analyses when
- Some comments sought to remove or delay reliability analyses

Options:

- **No major changes**
- Each analysis is still required for both Outage Program Risk and Ignition Risk
    - **ES** recognizes that ignition models are likely to be linear
- Clarify language to emphasize that only projects which have reached screen 3 need separate, collective and ablation studies

Proposed Requirements for Plan Submission:

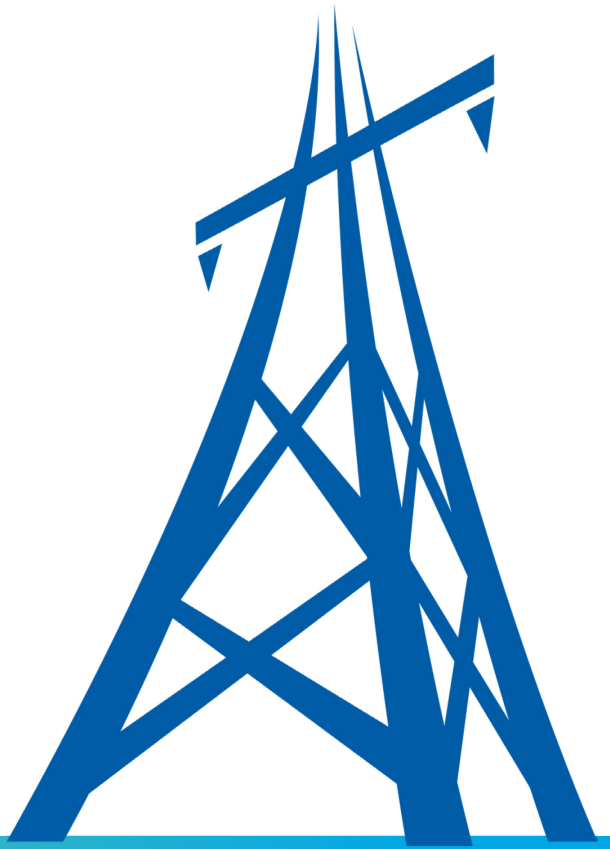
- Minimum of 25 total projects
- At least one circuit with multiple projects (if the EC is electing to use subprojects)
- *If the EUP includes or will include High Frequency Outage Program or Wildfire Tail Risk Circuits*:
    - **At least two project in each of categories used**
- *If the EUP includes or will include projects with multiple mitigation-type subprojects*
    - **At least three such projects (circuit segments)**


ALTERNATIVE
COMPARISONS

ALTERNATIVE MITIGATION COMPARISON

Stakeholder Comments/Issues

- Request for more prescriptive comparisons.
- Confusion about existing Guideline requirements.
- Concern that alternative mitigations should be compared on a per-dollar or per-risk-unit basis instead of a per-project comparison.



ALTERNATIVE MITIGATION COMPARISON

Proposed changes to required alternative mitigation comparisons:

- Remove requirement for only covered conductor comparison, and instead require covered conductor plus fast trip as one required alternative mitigation.
- Add requirement to include one additional combination of alternative mitigations that meet or exceed the Project Level Standard.

Proposed changes to process for circuit segments with multiple mitigations:

- In the Screen 3 comparisons, add the following two comparisons:
    - Only the Undergrounded portion of circuit segment, and;
    - The complete project as scoped with all mitigations.
- The Screen 2 comparison should then be updated, for informational purposes, once a circuit segment is scoped to have multiple mitigations.

Note: All work done on a circuit segment must be accounted for in the comparisons, even if that portion of the work is not to be funded through 884.

ALTERNATIVE MITIGATION COMPARISON

Existing Screen 2 Analyses

Project: 100% UG

Alternative Mitigations:

- 100% CC
- 100% CC + some type of Fast Trip system/settings
- Any other combinations of alternative mitigations that meet the Project-Level Standards--must be reported in their least expensive configuration.
- Any other combinations that the large electrical corporation wishes to report

Proposed Screen 2 Analyses

Project: 100% UG

Or *Updated* Project as Scoped : *X%* UG + *Y%* CC + other(s)

Required Project Comparisons

- 100% UG
- Undergrounding portion only: (*X%* UG)

Required Alternative Mitigation Comparisons:

- 100% CC + one or more Fast Trip system/settings
- One other combination of alternative mitigations that meet or exceed the Project-Level Standards.

Additional Comparisons

- Any other combinations that the large electrical corporation wishes to report (optional)

ALTERNATIVE MITIGATION COMPARISON

Existing Screen 3 Analyses

Project: 100% UG

Alternative Mitigations:

1. Baseline (unmitigated circuit risk)
2. 100% CC
3. 100% CC + some type of Fast Trip system/settings
4. Any other combinations of alternative mitigations that meet the Project-Level Standards must be reported in their least expensive configuration.
5. Any other combinations that the large electrical corporation wishes to report

Proposed Screen 3 Analyses

Project: 100% UG

Or **Project as Scoped**: *X%* UG + *Y%* CC + other(s)

Required Project Comparisons

- Baseline
- 100% UG
- Undergrounding portion only: (*X%* UG)

Required Alternative Mitigation Comparisons

- 100% CC + one or more fast trip system/settings
- One other combination of alternative mitigations that meet or exceed the Project-Level Standards.

Additional Comparisons

- Any other combinations that the large electrical corporation wishes to report (optional)


PROJECT
REFERENCE
SHEET

REMOVAL OF PROJECT REFERENCE SHEET

Issue/Stakeholder Comments: Several parties commented that the project-level reference sheets were onerous and unnecessary due to the extensive data collection

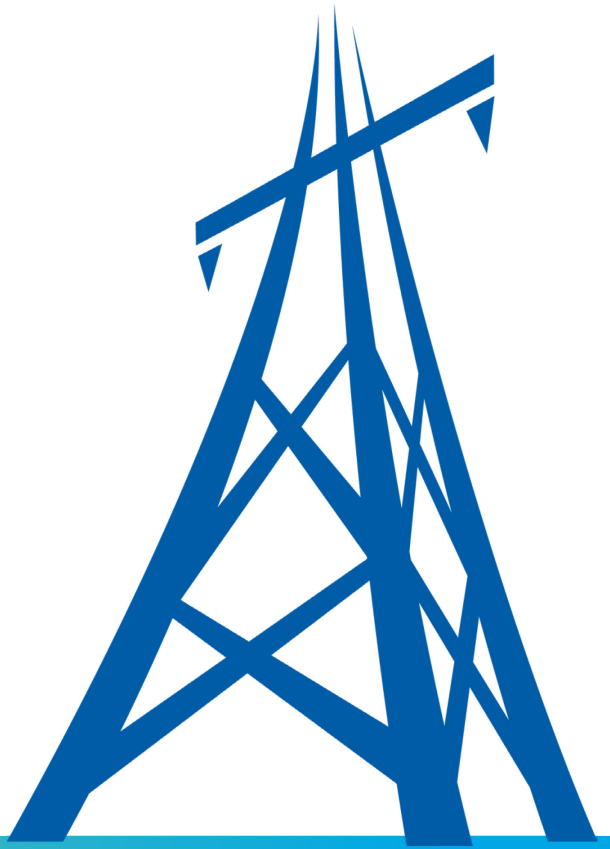
Option:

ES is considering removing this requirement and slightly expanding the **Project Index Table**

- All numerical data that would have appeared on these reference sheets will be collected thought the existing tabular data submission

Project-level narratives:

1. For all projects: *"Contain a short narrative section explaining: (i) the selection of the alternative mitigations for comparison for the specific Undergrounding Project; (ii) the selection of undergrounding as the preferred mitigation; and (iii) a timeline of the estimated completion dates."*
2. If the project includes subprojects that are not undergrounding: *"must contain an additional section justifying the heterogenous approach and explaining the funding source and timeline for the non-EUP subprojects"*
3. If the project does not meet the Project-Level standard: *"must contain an additional narrative section justifying the inclusion of this project in the portfolio"*




DATA
APPENDIX

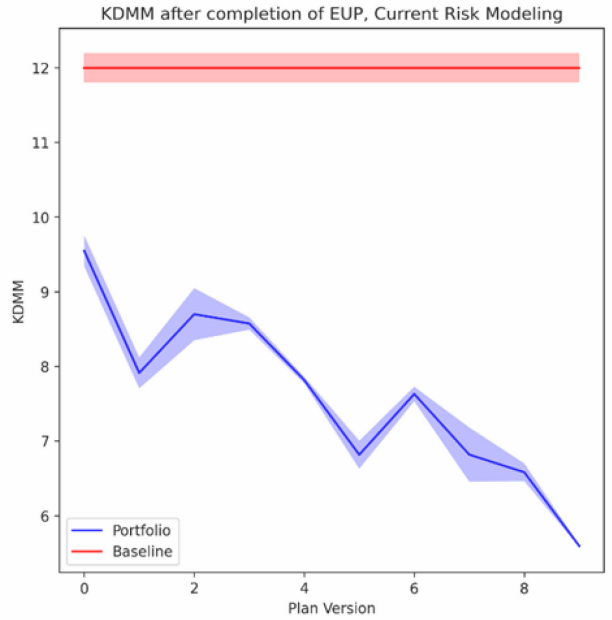
RISK MODEL BACKTESTING

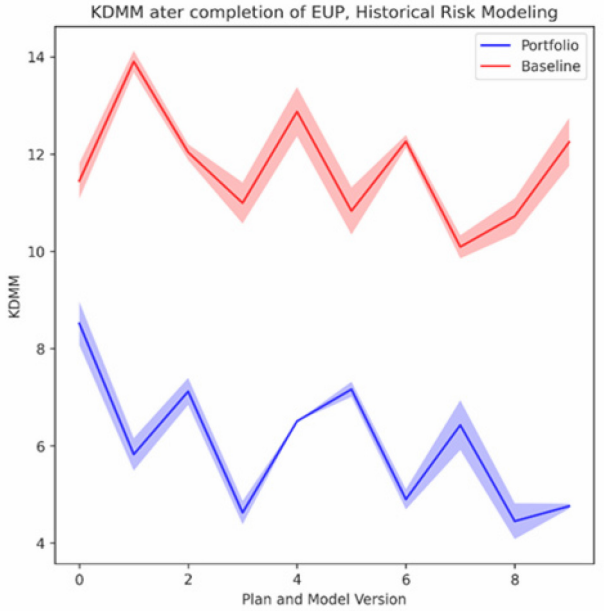
Issue: Backtesting of prior risk models was not directly tracked except as a figures (required in 2.8.6 Portfolio Coversheet)

Proposed Resolution:

This data will now additionally be collected in tabular form in a new Risk Model Backtesting Table.

To construct this table, in every progress report, the electrical corporation would be required to apply ALL prior risk models to current baseline, and current risk model to ALL prior baselines.





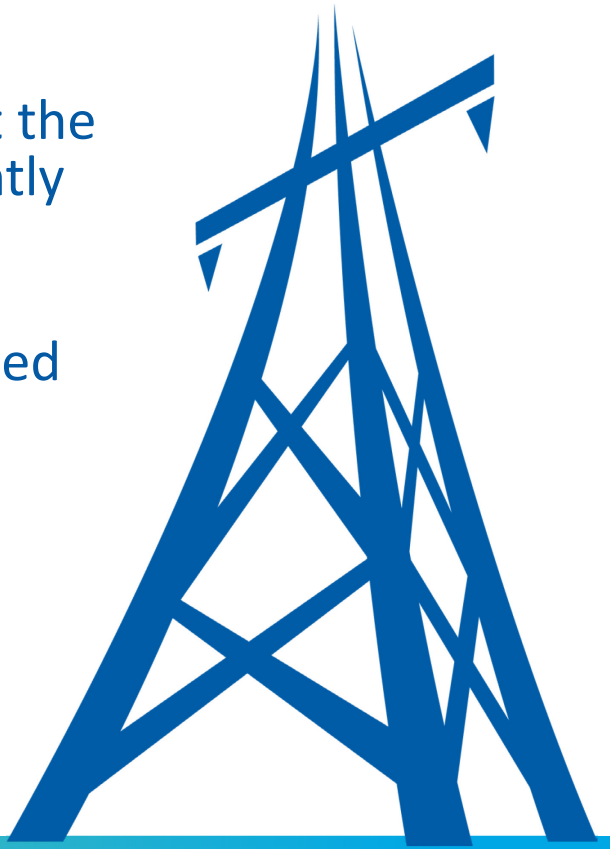
CIRCUIT SEGMENT CHANGELOG

Issue: Circuit Segments are not necessarily static. Their boundaries are defined by "reclosers" or other power shutoff devices on their endpoints. When undergrounding or any other work takes place, this equipment may be moved, removed, or added.

Proposed Resolution: Add a new "Circuit Segment Changelog" table to connect the old Circuit Segment ID(s) to the new one(s), as well as to the spatial data currently submitted through the WMP process.

Energy Safety proposes Circuit Segment IDs be unique, i.e., they cannot be reused to refer to different circuit segment just because the equipment of order of generation changes

Old Circuit Segment ID(s) → ***Change:*** *New Construction, Rename, Split, Merge, Other (see comment)* → *New Circuit Segment ID*

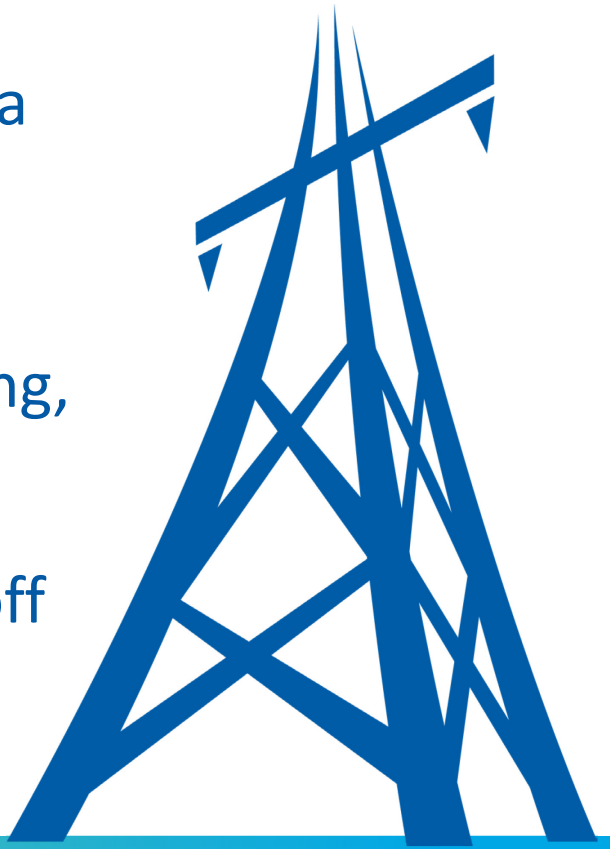


SUBPROJECT TRACKING

Issue: Mitigations are not carried out on the full Circuit Segment at once, the progress needs to be tracked at the Subproject level

Proposed Solution: Replace The “Constructed Projects” table with a “Subprojects” table. Energy Safety will collect information on:

- Where the subproject is (connect to geospatial data)?
- What kind of mitigation is being done (even if not undergrounding, so not getting 884 funding)?
- What stage construction it is in?
- What percentage of the total Circuit Segment risk will be taken off by this subproject?




QUESTIONS?

DATA DRIVEN
FORWARD-THINKING
INNOVATIVE
SAFETY FOCUSED

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A California Natural Resources Agency

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