**TRANSMITTED VIA ELECTRONIC MAIL**

**DATA REQUEST**

**Request Date:** July 5, 2024

**Response Due:** July 15, 2024

**To:** Kyle Ferree

Kyle.Ferree@sce.com

Senior Advisor, wildfire & Public Safety

Southern California Edison (SCE)

**Originator:** Kristin Ralff Douglas

Kristin.RalffDouglas@energysafety.ca.gov

**Data Request Number**: Energy Safety-DR-EUP-24-04

**Subject:** Reliability Modeling and Hybrid Projects

**INSTRUCTIONS**

1. Provide all information in your possession, custody, or control, or the possession, custody, and/or control of your affiliates or agents, that is responsive to these data requests by the due date identified above.
2. Responses and documents may be produced and served electronically, but they shall be fully machine-readable and searchable.
3. If you have any questions about the meaning or scope of the data requests herein, direct such questions to the Energy Safety staff identified as the “Originator” of this request at your earliest opportunity.
   1. Lack of clarity on meaning or scope of requests, without prior request for clarification from the “Originator,” will not be a permissible reason for incomplete responses and will be regarded as non-compliance with the request.
4. Identify the personnel (employees, consultants, agents, etc.) who provided information responsive to each of the data requests below.  As used in this context herein, “identify” means to provide the full name, business address, and title of each employee, consultant, or agent who provided such information.
5. If you do not know the exact answer to any of the requests below, please so indicate and provide your best estimate.
6. Provide data in its original format (i.e., PDF, Excel, GIS shapefile, etc.), unless otherwise specified in the request.
7. Send your response to Kristin Ralff Douglas ([Kristin.RalffDouglas@energysafety.ca.gov](mailto:Kristin.RalffDouglas@energysafety.ca.gov)), and include a copy to:

[Simone.Brant@energysafety.ca.gov](mailto:simone.brant@energysafety.ca.gov), [Jeanne.Mckinney@energysafety.ca.gov](mailto:Jeanne.mckinney@energysafety.ca.gov), [electricalundergroundingplans@energysafety.ca.gov](mailto:electricalundergroundingplans@energysafety.ca.gov).

1. E-file a copy of the response on the Electrical Undergrounding Docket #2023-UPs.

**REQUEST**

**Q01. Please provide information requested as it pertains to Electrical Undergrounding Plan (EUP) reliability modeling.**

Below are several scenarios for a limited model of Outage Program Risk. For each scenario, please comment on the expected time it would take SCE to develop the model and any major concerns with using said model for EUP purposes. For each case, if there is a significant difference in the difficulty of performing the separate, collective, and ablation analyses, please specify which analyses are more difficult and why. If there is a difference at the system and portfolio level for any of the listed scenarios, please explain why. If there are any significant differences in the development of the PSPS (Public Safety Power Shutoff) and Fast Trip models and settings for any scenario, please indicate which cases and explain why.

1. A model that examines a mitigation on a single isolatable circuit segment at a time and computes likelihoods of PSPS/Fast Trip activation and the consequences of PSPS/Fast Trip activation to customers on that segment alone based purely on back casting historical data.
2. The same as (a) but using projected weather/climate factors.
3. A model that examines a single mitigated isolatable circuit segment at a time and computes likelihoods of PSPS/Fast Trip activation being called on that isolatable circuit segment and the consequences of PSPS/Fast Trip activation on that isolatable circuit segment and ‘downstream’ customers based purely on back casting historical data.
4. The same as (c) but using projected weather/climate factors.
5. Same as (a), but also includes likelihood of the segment being de-energized due to a PSPS/Fast Trip activation event on an upstream circuit segment.
6. Same as (e) but using projected weather/climate factors.
7. Same as (c), but also includes likelihood of the segment being de-energized due to an upstream PSPS/Fast Trip activation event.
8. Same as (g) but using projected weather/climate factors.
9. Same as (e) but also considering all other proposed EUP Projects.
10. Same as (f) but also considering all other proposed EUP Projects.
11. Same as (g) but also considering all other proposed EUP Projects.
12. Same as (h) but also considering all other proposed EUP Projects.
13. A model with similar levels of granularity, specificity, and accuracy as the WDRM (Wildfire Distribution Risk Model)
14. Is there a modeling gap between Scenario (l) and (m)? If so, please explain what factors or features are absent in scenario (l).

**Q02. Please provide information requested as applicable as it pertains to hybrid projects.**

1. In PG&E’s May 29th, 2024 comments on draft guidelines, PG&E described a “hybrid” approach or “hybrid distribution hardening” as “a circuit segment that is hardened using a combination of covered conductor, undergrounding, and/or line removal with remote grid” Please confirm whether or not SCE has similar recommended definitions or provide a corresponding SCE-specific definition with any changes.
2. Does SCE have a similar approach where a circuit segment is hardened using a combination of covered conductor, undergrounding, and/or line removal with remote grid?
3. In SCE’s aggregation of potential hybrid distribution hardening, is there a definitive list of alternative mitigations that could potentially be included in a designated percentage of non-undergrounding work?
4. Can SCE elaborate on how and why a circuit segment would become a hybrid distribution hardening project? Please explain the process of scoping a such a project and provide an example that illustrates how and why other mitigations were chosen over undergrounding.
   1. Is the reason for using an alternative mitigation always due to a better cost/risk performance, a physical limitation (such as a river crossing or granite), a combination of both, or some other factor? Please explain.
   2. Is there a distinction between how an alternative mitigation will be reported on the EUP if the alternative mitigation is included because of cost/risk performance versus a physical limitation?
5. Provide a .xlsx document that details undergrounding and “hybrid” projects from a recent workplan(s) covering at least 3 years of planned work. Provide the name of the planning document(s) and the years it covers. For each isolatable circuit segment included in the workplan(s) report information in the table below.

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| --- | --- | --- |
| **Field Name** | **Description** | **Unit/Datatype** |
| **Total Circuit Segment Miles** | Length of isolatable circuit segment before mitigation | Miles |
| **Total Constructed Miles** | Number of miles of new infrastructure to be energized | Miles |
| **Total Miles Undergrounded** | Number of miles of underground infrastructure to be energized | Miles |
| **Overhead Removed** | Number of miles of overhead line deenergized upon completion | Miles |
| **Covered Conductor Installed** | Number of miles of covered conductor to be installed | Miles |
| **Other Mitigations** | Provide brief description of other mitigation efforts or devices installed that are associated with this project | Text |
| **Justification for Alternative Mitigation** | Provide brief description for each hybrid project including the reason undergrounding is not used on entire circuit segment and alternative mitigations are chosen (e.g. better cost/risk performance, physical limitations, or any other reasons). | Text |
| **Other Mitigations Miles** | Add a field for each alternative mitigation to be used and indicate the number of miles of overhead line it will be applied to or replace | Miles |
| **Total Un-Mitigated Circuit-Miles on Circuit Segment** | Number of miles of original, un-mitigated, circuit segment line after completion of project | Miles |
| **Subprojects** | Number of total subprojects created within this Project. | Integer |
| **Underground Subprojects** | Number of undergrounding subprojects | Integer |
| **Covered Conductor Subprojects** | Number of covered conductor subprojects | Integer |
| **Other Mitigation Subprojects** | Add a field for each alternative mitigation to be used and indicate the number of subprojects associated with it | Integer |
| **Secondary Lines** | Will secondary distribution lines be undergrounded as part of this project? | Boolean |
| **Service Lines** | Will service lines be undergrounded as part of this project? | Boolean |
| **Fast Trip Settings** | Will Fast Trip settings be added to this circuit segment? | Boolean |
|  |  |  |

1. Provide a general cost comparison, per mile replaced, of each individual mitigation option (e.g. underground, covered conductor, other).
2. For the anticipated projects, how many isolatable circuit segments are typical on a given circuit?
3. Are there instances of planned projects in which only a portion of the circuit segment is undergrounded without required overhead hardening work or wildfire mitigation improvements on the remainder of the overhead section(s) of the circuit segment?
4. Provide specific details and examples on how seeking rate recovery through an alternate regulatory process, such as the GRC, for non-undergrounded portions would affect an undergrounding project. Is there a potential for construction delays, and if so, how long would these delays last? Are there scenarios where SCE would have to return to a circuit segment to construct overhead hardening portions separately?

**Q03. Please provide information requested as it pertains to SCE subprojects.**

1. Based on SCE’s February 13, 2024 DR-EUP-24-01 response, “sub-projects” are established in the Project Initiation Form (PIF) in the initiation phase of SCE’s Timeline of Undergrounding Work[[1]](#footnote-2). For the purposes of this program, is there a requirement that every subproject consists of line undergrounding or an alternative mitigation? Is it possible that a subproject would only include line maintenance, equipment replacement, or other line improvements that may not, by themselves, be considered a wildfire mitigation alternative?
2. Would all undergrounding work within a project, one isolatable circuit segment, be consolidated into a single subproject, or could there be multiple undergrounding subprojects within a single circuit segment?
3. Would a subproject always consist of one contiguous line segment, or could a subproject include multiple, disconnected sections? For example, could one subproject consist of covered conductor installation on miles 2-3, and miles 6-7 of a circuit segment?
4. In a subproject, which has a continuous section to be undergrounded, would it be likely (or even possible) that this continuous undergrounded section would be broken into subproject(s)? If so, is there a minimum or maximum length of the subproject?
5. In a “hybrid project,” which has discontinuous sections to be undergrounded, would each of the discontinuous undergrounded portions always be recorded as a separate subproject?
6. Would there be cases where “hybridprojects” would be created?  For example, could one subproject have 4 miles of undergrounding and 1 mile of covered conductor on a 10-mile circuit? Alternatively, would this hypothetical project be split into multiple subprojects based on mitigation type?
7. Provide details on how risk apportioning is handled for a project with multiple mitigation types. Is the apportionment assigned before or after normalization? Does SCE combine the risk reduction and reliability improvements for each mitigation separately from each other?  Can SCE provide normalized values per mile for each mitigation before blending into overall circuit segment values?
8. Does SCE anticipate any problems with reporting the subprojects with respect to the Cost-Benefit Analysis defined through CPUC proceeding R.20-07-013?

**Q04. Please provide information requested as it pertains to SCE project and sub-project IDs.**

1. Suppose an isolatable circuit segment currently has an undergrounding project planned for development on it. If this isolatable circuit segment is modified, for example by installation of a new device which splits it into multiple isolatable circuit segments, how does SCE track the ~~P~~roject which previously was slated for installation?
   1. Does the project become split into multiple new projects?
   2. Do the subprojects inside that isolatable circuit segment get renamed, redeveloped, reassigned, or otherwise changed?
   3. How would the above change if an Isolatable Circuit Segment was modified in some other substantial way, e.g. by new construction, removal of a recloser, or substantial restructuring of the Isolatable Circuit Segment?
2. Does completing an undergrounding project ever cause a change to the underlying Circuit Protection Zones, i.e. change the customers and/or general geographic area served by the Isolatable Circuit Segment, either by splitting the Circuit Protection Zone into multiple new Circuit Protection Zones or by otherwise changing the topology?
   1. If so, how frequently does this cause a change of this type, e.g. every time, most times, rarely, never? What factors affect the likelihood of this type of change?
   2. Do the answers to either of the questions in c1 change when we distinguish between fully undergrounding (100% UG), “hybrid” projects (>80% UG), and other projects (<80% UG)?

**END OF REQUEST**

1. Southern California Edison response to Energy Safety-DR-EUP-24-01, pp. 2. February 13, 2024. [↑](#footnote-ref-2)