**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

## I. GENERAL OBJECTIONS

1. SDG&E objects generally to each request to the extent that it seeks information protected by the attorney-client privilege, the attorney work product doctrine, or any other applicable privilege or evidentiary doctrine. No information protected by such privileges will be knowingly disclosed.

2. SDG&E objects generally to each request that is overly broad and unduly burdensome. As part of this objection, SDG&E objects to discovery requests that seek "all documents" or "each and every document" and similarly worded requests on the grounds that such requests are unreasonably cumulative and duplicative, fail to identify with specificity the information or material sought, and create an unreasonable burden compared to the likelihood of such requests leading to the discovery of admissible evidence. Notwithstanding this objection, SDG&E will produce all relevant, non-privileged information not otherwise objected to that it is able to locate after reasonable inquiry.

3. SDG&E objects generally to each request to the extent that the request is vague, unintelligible, or fails to identify with sufficient particularity the information or documents requested and, thus, is not susceptible to response at this time.

4. SDG&E objects generally to each request that: (1) asks for a legal conclusion to be drawn or legal research to be conducted on the grounds that such requests are not designed to elicit facts and, thus, violate the principles underlying discovery; (2) requires SDG&E to do legal research or perform additional analyses to respond to the request; or (3) seeks access to counsel's legal research, analyses or theories.

5. SDG&E objects generally to each request to the extent it seeks information or documents that are not reasonably calculated to lead to the discovery of admissible evidence.

6. SDG&E objects generally to each request to the extent that it is unreasonably duplicative or cumulative of other requests.

7. SDG&E objects generally to each request to the extent that it would require SDG&E to search its files for matters of public record such as filings, testimony, transcripts, decisions, orders, reports or other information, whether available in the public domain or through FERC or CPUC sources.

8. SDG&E objects generally to each request to the extent that it seeks information or documents that are not in the possession, custody or control of SDG&E.

9. SDG&E objects generally to each request to the extent that the request would impose an

undue burden on SDG&E by requiring it to perform studies, analyses or calculations or to create documents that do not currently exist.

10. SDG&E objects generally to each request that calls for information that contains trade secrets, is privileged or otherwise entitled to confidential protection by reference to statutory protection. SDG&E objects to providing such information absent an appropriate protective order.

## II. EXPRESS RESERVATIONS

1. No response, objection, limitation or lack thereof, set forth in these responses and objections shall be deemed an admission or representation by SDG&E as to the existence or nonexistence of the requested information or that any such information is relevant or admissible.

2. SDG&E reserves the right to modify or supplement its responses and objections to each request, and the provision of any information pursuant to any request is not a waiver of that right.

3. SDG&E reserves the right to rely, at any time, upon subsequently discovered information.

4. These responses are made solely for the purpose of this proceeding and for no other purpose.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

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## III. RESPONSES

## QUESTION 1

**Regarding asset inspection QA/QC results:**

a. Provide the QA/QC results for asset inspections broken down by inspection type completed in 2019, 2020, and 2021. This should include:
   i. Percentage of inspections with infractions found
   ii. Number of infractions found.
   iii. List of lessons learned from infractions and associated changes made to inspections moving forward.

## RESPONSE 1

i. and ii.

| Overhead Detailed Inspections | 2019 | 2020 | 2021 |
|---|---|---|---|
| Total Audits Performed | 490 | 466 | 425 |
| Total Original Infractions Found | 53 | 34 | 29 |
| % of Inspections with Original Infractions | 10.82% | 7.30% | 6.82% |
| Additional Infractions Found | 15 | 8 | 4 |
| % QA/QC Findings | 3% | 1.7% | 0.1% |

iii.

SDG&E utilizes the lessons learned from QA/QC to provide both positive and constructive feedback to inspectors. Generally, the results have not demonstrated trends with overall inspection quality the need to modify the inspection program, rather the results have been related to specific inspector performance. Inspectors

## QUESTION 2

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**SDG&E RESPONSE**

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**Regarding SDG&E's lifecycle cost analysis:**
In Section 7.3.8.1 "Allocation methodology development and application" (p. 321), SDG&E describes enhancements and progress made in 2021 with its WiNGS-Planning model to include "Initiated lifecycle cost analysis and developed preliminary approach for incorporating it into RSE calculations" (p. 323) and enhancement planned for 2022 to include "Incorporate lifecycle cost analysis into WiNGS-Planning" (p. 323).

a. Describe the scope of SDG&E's lifecycle cost analysis.
   i. What percentage of mitigation activities undergo lifecycle cost analysis?

b. List the individual components of lifecycle cost analysis for each mitigation activity as granularly as possible.
c. Explain the expected timeline to incorporate lifecycle cost analysis into WiNGS-Planning.
d. Discuss how the incorporation of lifecycle cost has affected the RSE scores of mitigation activities.

**RESPONSE 2**

a. In 2021, SDG&E initiated lifecycle cost analysis to identify costs avoided through undergrounding a segment. In its preliminary stages, SDG&E is first looking at the vegetation-related costs avoided when a segment(s) is undergrounded, rendering some mitigation activities (e.g., tree trimming, pole brushing) no longer necessary. SDG&E also anticipates analyzing avoided costs associated with asset inspections and PSPS events. SDG&E will incorporate these avoided costs into its WiNGS-Planning model to provide a more comprehensive assessment of the total costs related to installing and maintaining an overhead or underground system. With more refined and accurate total costs, the RSE calculations in the WiNGS-Planning model will also improve as the segment-level RSEs are a calculation of risk reduction multiplied by lifetime benefits divided by the total cost.
   i. At this early stage of analysis, it is not yet clear the percentage of mitigation activities that will undergo this avoided cost review

b. SDG&E's lifecycle cost analysis currently focuses on vegetation management activities. The activities include pre-inspections for trees and poles, tree trimming and tree removals, pole brushing, and audits for both tree and pole activities. Analysis is based on geospatial queries that tie inventory tree and pole units with associated segments; historical costs associated with each activity are converted to estimated unit cost for trees or poles. The estimated cost of each activity by segment is the product of unit cost and

unit count. Lastly, the total cost by segments is aggregated from all types of activities listed above.

c. SDG&E continues to update WiNGS-Planning iteratively as updated data becomes available. SDG&E anticipates incorporating vegetation management avoided costs into the WiNGS-Planning model sometime in 2022; asset management and PSPS avoided cost analysis will continue through 2022.

d. The initial WiNGS-Planning update with estimated avoided costs related to vegetation management activities is anticipated to be included later in 2022; therefore, segment-level RSEs for mitigations in WiNGS-Planning are not currently affected by lifecycle cost analysis.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
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## QUESTION 3

**Regarding the 500 poles cleared to 50-foot radius:**
In the 2022 WMP workshop, SDG&E briefly touched on the removal of "dead or dying fine fuels at ground level within a 50-foot radius" of 500 poles in the HFTD.

a. Discuss how these 500 poles are chosen for the 50 ft radius.

b. Is SDG&E considering alternative mitigation measures (i.e., ones that would negate the need for the 50 ft)?
   i. If so, what are those mitigation measures?
   ii. If not, why not?

## RESPONSE 3

a. The population of poles selected for the fuels modification activity of thinning vegetation to a 50-foot radius was determined using the following criteria:

- Poles that located within the HFTD and/or the State Responsibility Area
- Poles that are subject to the brushing requirement of Public Resources Code 4292
- Integration of CRI (>5) and WRRM (>0.5) output to indicate priority level
- Poles with a relatively low environmental impact and mitigation
- Subject to the approval of the property owner

b. SDG&E is considering the use of alternative fuels management treatment activities such as fire retardant.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
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## QUESTION 4

**Regarding SDG&E's target shortfall on pole brushing:**

a. Please provide an explanation for SDG&E's program target shortfall for "perform pole brushing" in 2021 (the target in 2021 was 35,500 poles brushed while the performance in 2021 was 35,102, per Table 5-2, p. 156).

## RESPONSE 4

The basis for the 2021 pole brushing target was the actual number of poles brushed in 2020. The shortfall for the target number of poles brushed in 2021 was due to poles that no longer required brushing due to equipment changes and exempt field conditions.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
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## QUESTION 5

**Regarding SDG&E's 2022 pole brushing target:**
In Table 5-2 (p. 156), SDG&E's "perform pole brushing" target for 2022 is 35,000 poles. In Section 7.3.5.20 "Vegetation management to achieve clearances around electric lines and equipment" (p. 302) and in Attachment B, Table 12, cell AU91, SDG&E's pole brushing target is 34,000.

a. Which pole brushing target for 2022 is correct?

## RESPONSE 5

The correct target for pole brushing for 2022 is 34,000.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

## QUESTION 6

**Regarding the number 12,500 in Attachment B, Table 12, cell AU80:**
In Attachment B, Table 12, cell AU80 (Section 7.3.5.9 "Other discretionary inspections of vegetation around distribution electric lines and equipment") the number "12,500" appears. SDG&E did not indicate the unit.

a. Is cell AU80 supposed to match the target in Table 5-2 "Perform enhanced inspections, patrols and trimming" of 12,824 trees (p. 156)?
i. If so, which number is correct?
ii. If not, to what does 12,500 refer?

## RESPONSE 6

a. Yes, cell AU80 is supposed to match the target in Table 5-2 and Table 5-2 is supposed to reflect 12,500 trees.
   i. Cell AU80 is the correct target. The correct number is 12,500 and the unit is trees.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

## QUESTION 7

**Regarding inventory vegetation:**

**As of January 1, 2022:**

b. How many inventory trees does SDG&E have in the HFTD?

c. How many inventory bamboo does SDG&E have in its service territory?

d. How many inventory Century plants does SDG&E have in its service territory?

## RESPONSE 7

a. As of March 18, 2022, 246,312 (units) trees in HFTD (Tier 2 and Tier 3) are recorded in SDG&E's tree database.

b. As of March 18, 2022, 6,532 (units) bamboo are recorded in SDG&E's service territory.

c. As of March 18, 2022, 29,888 (units) Century plants are recorded in SDG&E's service territory.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

## QUESTION 8

**Regarding contractor training and performance metrics:**
In Section 7.3.5.14 "Recruiting and training of vegetation management personnel" (p. 294), SDG&E states "SDG&E measures the success of contractor training and performance through metrics such as the number of customer complaints, outages, audit findings, claims, notice of violations, ignitions, and safety incidents."

a. Please provide a full list of SDG&E's contractor training and performance metrics. Be sure to include the unit of analysis.

## RESPONSE 8

SDG&E measures the success of contractor training and performance through the following metrics.

- The presence of a contractor's internal training manual
- Annually scheduled training modules (hazard tree training, customer service, environmental, fire prevention)
- Contractor certifications (ISA; Line Clearance Qualified Arborist)
- SDG&E internal safety observation program (# OSHA-reportables; risk level observations)
- ISNet rating (contractor score/grade)
- Third-party audits (units at the asset level for work quality and compliance)
- Tree contractor-caused outages/ignitions (# of outages/ignitions/year)
- Contractor-associated claims (# of claims/year)
- Notice of violation (NOV) issued from local, state, or federal governmental agency

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

## QUESTION 9

**Regarding QA/QC vegetation management inspection results:**

a. Provide the QA/QC results for vegetation management inspections broken down inspection type for inspections completed in 2019, 2020, and 2021. This should include:

i. Percentage of inspections with infractions found (e.g., under-trimming, over-trimming, missed hazard tree, improper clean-up, etc.)
ii. Percentage of (i) which required remediation (e.g., re-inspection, additional trimming, removal of a tree).
iii. List of lessons learned from infractions and associated changes made to inspections moving forward.

## RESPONSE 9

The table below represents the percentage of infractions in years 2019, 2020, and 2021 associated with the pre-inspection activity based on the third-party audit findings. Infractions are remediated during the audit activity.

i. See table below
ii. See table below

| **Inspection Findings** | **2019** | **2020** | **2021** |
|---|---|---|---|
| **Infractions Rate** | **1.0%** | **1.8%** | **3.0%** |
| **Remediation Rate** | **1.0%** | **1.8%** | **3.0%** |

iii. Some of the lessons learned from the pre-inspection infractions include:

- Multi-perspective observations are critical in determining tree clearance.
- Site-specific conditions are important factors for determining tree growth rates.
- Work activity history is an informative tool for determining whether work is required.
- Internal contractor field observations and auditing improve work performance.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

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**Date Submitted: March 21, 2022**

## QUESTION 10

**Regarding pre-inspectors for vegetation management:**

a. What percentage of pre-inspectors are contractors and what percentage are SDG&E employees?

b. Has SDG&E found a difference in performance between contractor and SDG&E employee pre-inspectors?
    i. If so, please describe the observed difference in performance.

c. Please provide relevant metrics, including number of audit findings, broken down by type of inspector (contractor v. SDG&E employee) to show any differences between contractor and SDG&E employee pre-inspector performance.

## RESPONSE 10

a. One hundred percent of the vegetation management Pre-inspectors are contractors.

b. N/A

c. N/A

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

## QUESTION 11

**Regarding the Desktop Feasibility Study for Grid Hardening:**

In Figure 7-4 "Grid Hardening Flowchart" (p. 211), one of the steps of SDG&E's grid hardening decision tree is the Desktop Feasibility Study.

a. Describe the Desktop Feasibility Study process and how the Future Scope App is used in the study.

b. Explain the scoring system used in the Desktop Feasibility Study.

   i. List the inputs to the Desktop Feasibility Study and describe the relative weighting of the inputs and how the weightings are determined.

## RESPONSE 11

a. WiNGS output is a recommendation backed by analysis, but there may be situations where the recommendation will have challenges related to feasibility, which is analyzed by the engineering team. The Future Scope App allows us to assess difficult or questionable routing – desktop reviews provide limited information, if there is something the design team needs to field verify or do more research on (such as land ownership) a note is made in the resulting documentation. We are able to indicate land or permit constraints as well as standards considerations such as loading districts. Identifying road moratoriums and previously hardened facilities will help in determining the schedule for construction. Additionally, the future scope app will allow us to assess connectivity and identify operational opportunities. The future scope app houses all the inputs for the desktop feasibility study in geospatial layers containing project data, land, and environmental information. It allows us to create geospatial scoping documentation to kick off the design process. Additional inputs are incorporated as needed based on feedback from internal stakeholder teams (planning, district, system protection, etc).

Examples:

- Identifying road moratoriums and previously hardened facilities will help in determining the schedule for construction.
- Identification of rivers and streams can be used to determining routing to avoid HDD or bridge attachments when possible
- Links to google earth with images of existing facilities help to determine constructability (location of down guys for transitioning from bare to covered conductor, etc)

b. GIS layers in the Future Scope App, existing project and program data, and comments from our stakeholder teams contribute to the desktop feasibility study. This process informs design teams to be able to prepare for items such as permits required, recurring problems, lands constraints – anything the designer would need to know kicking off the job. The app outputs project maps, pole lists, and geospatial files which are our Design Input Transmittals. Specifically for land and environmental, there is a feasibility scale produced after the Design Input Transmittal. That is the Environmental Scorecard which ranks the circuits/sections against each other based on land and environmental factors.

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

## QUESTION 12

**Regarding falling conductor protection:**

a. Provide the number of circuit miles that have the falling conductor protection installed, including year of installation, whether it is distribution or transmission, and percentage of miles in Tier 2 and Tier 3.

b. Provide the target number of circuit miles planned for installation of falling conductor protection for 2022, 2023, and 2024, including year of installation, whether it is distribution or transmission, and percentage of miles in Tier 2 and Tier 3, insofar as information is available.

## RESPONSE 12

SDGE objects to the Question on the grounds set forth in General Objections Nos. 2 and 3. Subject to the foregoing objections, SDG&E responds as follows.

a. No Transmission falling conductor has been commissioned yet. SDG&E plans to commission its first transmission line with falling conductor enabled before Q3 of 2022.

The distribution circuits with falling conductor protection both constructed and commissioned include the following circuits. The percentages shown in the table below are the percent miles of the circuit in Tier 3, percent in Tier 2, or percent in non-HFTD.

| Circuit | Year Enabled | Tier 3 Miles | Tier 2 Miles | Non-HFTD miles |
|---|---|---|---|---|
| 520 | 2015 | 9.8 (8.9%) | 100.8 (91.1%) | 0 |
| 170 | 2017 | 0 | 0 | 52.2 |
| 171 | 2017 | 0 | 0 | 45.9 |
| 172 | 2017 | 0 | 0 | 58.4 |
| 971 | 2019 | 52.2 (69.4%) | 23 (30.6%) | 0 |
| 972 | 2019 | 19 (29.6%) | 45.2 (70.4%) | 0 |
| 215 | 2022 | 3.7 (12.2%) | 26.6 (87.8%) | 0 |
| 217 | 2022 | 33 (39.1%) | 51.3(60.9%) | 0 |

**THE OFFICE OF ENERGY AND INFRASTRUCTURE SAFETY:**
**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

**Date Received: March 16, 2022**
**Date Submitted: March 21, 2022**

b. The forecasted distribution circuits for falling conductor protection are listed below. The percentages shown in the table below are the percent miles of the circuit in Tier 3, percent in Tier 2, or percent in non-HFTD

| Circuit | Year Forecasted | Tier 3 Miles | Tier 2 Miles | Non-HFTD miles |
|---|---|---|---|---|
| C350 | 2022 | 1.3 (1.1%) | 122.4 (98.9%) | 0 |
| C211 | 2022 | 1.4 (2.7%) | 50.5 (97.3%) | 0 |
| C908 | 2022 | 0.6 (0.6%) | 94.4 (98.2%) | 1.1 (1.2%) |
| C73 | 2022 | 57.4 (100%) | 0 | 0 |
| C230 | 2022 | 0 | 73.4 (100%) | 0 |
| C212 | 2023 | 19.6 (17.1%) | 94.9 (82.8%) | 0.1 (0.1%) |
| C176 | 2023 | 53.3 (61.9%) | 29.7 (34.5%) | 3.1 (3.6%) |
| C222 | 2023 | 132.2 (100%) | 0 | 0 |
| 239 | 2023 | 27.3 (66.3%) | 13.9 (33.7%) | 0 |
| 249 | 2023 | 21.6 (100%) | 0 | 0 |
| 1233 | 2023 | 28.3 (100%) | 0 | 0 |
| RB1 | 2023 | 17.2 (100%) | 0 | 0 |
| 78 | 2023 | 15 (100%) | 0 | 0 |
| 79 | 2024 | 80.6 (100%) | 0 | 0 |
| 521 | 2024 | 38.5 (45.3%) | 46.5 (54.7%) | 0 |
| 236 | 2024 | 29 (52.9%) | 25.8 (47.1%) | 0 |

| | | | | |
|---|---|---|---|---|
| 973 | 2024 | 52 (98.1%) | 0.9 (1.7%) | 0.1 (0.2%) |
| 448 | 2024 | 88.8 (99.8%) | 0 | 0.2 (0.2%) |
| 449 | 2024 | 28.2 (100%) | 0 | 0 |
| 67 | 2024 | 48.2 (100%) | 0 | 0 |
| 221 | 2024 | 42.9 (45.1%) | 12.2 (12.8%) | 40 (42.1%) |

The forecasted transmission lines for falling conductor protection are listed below:

| Trans. Line | Year Forecasted | Tier 3 Miles | Tier 2 Miles | Non-HFTD miles |
|---|---|---|---|---|
| 629 | 2022 | 23.7 (100%) | 0 | 0 |
| 6931 | 2023 | 0.1 (1.7%) | 5.9 (98.3%) | 0 |
| 624 | 2024 | 0 | 0 | 4.8 (100%) |

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**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

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**Date Submitted: March 21, 2022**

## QUESTION 13

**Regarding the sensitive/fast protection settings discussed in Section 7.3.6.2 "Protective equipment and device settings" of SDG&E's 2022 WMP Update (p. 307):**

a. In Response 3 to OEIS-SDGE-2022-004, SDG&E stated that 56.4% of all field devices have the capability to enable these protection settings. Does SDG&E intend to replace other equipment to include such capabilities? If so, provide SDG&E's plan for replacements

b. What reliability analysis has SDG&E performed as it relates to enabling such protection settings? Provide any supporting calculations and documentation.

## RESPONSE 13

a. SDG&E is not replacing field devices to specifically add Sensitive Relay Profile (SRP) capabilities at this time. Any new devices installed to sectionalize HFTD overhead infrastructure will have SRP capabilities. There are an additional 124 devices installed and awaiting final commissioning to enable SRP. Once these are completed, 63.3% of all field devices will have the capability to enable SRP. Most circuits in the HFTD have at least one device with SRP capability.

b. No reliability analysis has been performed as to the incremental impacts from using sensitive relay profiles. An efficacy study as the effectiveness of SRP in preventing fire ignitions was performed and results are provided in SDG&E's 2022 WMP Update Section 4.4.2.5. As part of this study, SDG&E found that 80 risk events occurred due to devices with SRP enabled in the six-year period between 2015 and 2020. During this same period SDG&E had a total of 6,270 risk events on the system. Because SDG&E only applies SRP at times of PSPS activations or Extreme FPI, SRP risk events accounted for approximately 1.3% of all risk events.

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**OEIS-SDGE-2022-005**
**SDG&E RESPONSE**

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**END OF REQUEST**