

ENERGY SAFETY DATA REQUEST: OEIS-SDGE-22-007

2022 WMP

SDG&E RESPONSE

Date Received: March 24, 2022

Date Submitted: March 29, 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.

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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.

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III. RESPONSES

QUESTION 1:

Regarding SDG&E's 500 poles cleared to 50-foot radius (OEIS-SDGE-22-005 Q03):

- a. Please explain the rationale behind choosing 50 feet as the radius in which SDG&E removes fuels around 500 poles, including any scientific or wildfire safety rationales behind the extent of clearance.
- b. Has SDG&E chosen a 50-foot clearance to protect its poles from being impacted (i.e., burned, damaged, or destroyed) by wildfire?
- c. Does SDG&E expect the poles to fail catastrophically and consequently generate sparks within the falling distance of the pole? i. If so, why does SDG&E expect its poles to fail (e.g., structural defects, storms, wind, wildfire, etc.)?
- d. Has SDG&E considered the environmental impacts of the 50-foot clearance distance? If so, what are environmental impacts, both positive and negative? (e.g., erosion, removal of invasive species, habitat fragmentation, water quality, etc.)

RESPONSE 1:

- a. SDG&E's rationale for choosing 50 feet as the radius for its fuels thinning activity around poles was based on the height of a power pole to mitigate an instance of catastrophic pole failure; to increase a buffer of thinned vegetation to reduce risk due to pole-mounted hardware failure that could cause ignition and propagate fire; and for the protection of poles from fire.
- b. Yes, but the main driver is really trying to ensure no wildfires are started from any equipment failure on the poles and including the poles.
- c. SDG&E does not expect its poles to fail catastrophically, however, the fuels thinning activity is intended to reduce risk associated with the possibility of such an event.
- d. SDG&E's Environmental Services Department performs a biological and cultural assessment of each work site to determine impacts to species, habitat, or resources, and provides environmental monitoring support if needed. Site-specific factors such as nesting birds, percentage of fuels thinning, erosion, habitat fragmentation, and water quality are all assessed. In addition, the fuels management activity is thinning of

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vegetation and not clearing of vegetation like it is for pole brushing but can include removing dead brush and non-native brush.

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QUESTION 2:

Regarding weather stations:

- a. How many of SDG&E's 220 weather stations have been upgraded to give readings at 10 to 30-second intervals?
- b. How many (in percentages) of SDG&E's weather stations are ground-based versus pole-mounted?
 - i. Are the fuel moisture sensors on ground-based weather stations?

RESPONSE 2:

- a. SDG&E has 221 weather station, instead of the stated 220. 215 stations of the 221 weather stations are programmed for 30 second reads.
- b. 97.3% (6 RAWs) are ground-based versus pole-mounted
 - i. Yes. Also present on 3 pole-mounted stations.

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QUESTION 3:

Regarding the integration of artificial intelligence forecasting system on 59 of the circuit segments in the highest fire risk areas:

SDG&E states in its 2022 WMP Update: “In 2021, SDG&E expanded upon the lessons learned in 2020 and integrated its artificial intelligence (AI) forecasting system across 190 weather stations” (p. 3).

- a. Has the number of circuit segments on which the artificial intelligence forecasting system is integrated changed? i. If so, please provide the number of high-risk circuit segments on which the artificial intelligence forecasting system is integrated.

RESPONSE 3:

SDG&E weather stations are associated with circuits on the distribution network. The circuit association is updated annually to capture any engineering changes and the addition of weather stations. As we increased the number of weather stations that had integrated the artificial intelligence forecasting system, the number of circuit segments also increased in parallel due to the association process. SDG&E currently has 114 weather stations in Tier 3 and 82 in Tier 2.

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QUESTION 4:

Regarding Distribution Fault Anticipation technology:

- a. Is SDG&E piloting Distribution Fault Anticipation (DFA) technology for incipient fault detection as part of its advanced protection program?
 - i. If so, please provide details on any progress SDG&E has made on this initiative.
 - ii. If not, please explain why only Early Fault Detection (EFD) is being used.

RESPONSE 4:

SDG&E is not piloting the specific Texas A&M University developed Distribution Fault Anticipation (DFA) technology for incipient fault detection as a part of the Advanced Protection Program (APP), although SDG&E has researched it. DFA requires utilities to install new meters / sensors on circuit positions in substations to gather high-fidelity data to perform the analytics necessary to detect potential incipient faults on the electric system.

Under its Early Fault Detection (EFD) pilot program, SDG&E realized early on that we could perform similar analytics as DFA performs by utilizing existing Power Quality (PQ) meters already installed within our substations to detect these incipient precursors without significant capital investment in new metering technology. PQ Meters employ the same or even higher-fidelity data sampling as DFA devices, which allow the company to perform detailed waveform analytics to detect and potentially locate incipient faults on the system. Leveraging existing Power Quality Meters and other data, such as remotely accessible protection relay records, has allowed SDG&E to detect precursors of failing electrical equipment such as underground tee connectors, underground cables, and overhead equipment with enough time to actively patrol field locations in an attempt to find and replace equipment before it fails.

SDG&E is also piloting another type of overhead sensor installed on the distribution system within the HFTD which utilizes Radio Frequency (RF) sensing technology to locate potential incipient faults so SDG&E can patrol and potentially locate. This technology was chosen specifically because it allows the incipient faults to be more precisely located on the system through the deployment of multiple sensors across our radial distribution network as opposed to the substation “nodal” sensing provided by DFA or PQ Meters.

SDG&E has had had success since these projects began, which shows promise in both detecting and locating failing equipment such as underground tee connectors and overhead equipment along with helping resolve undetermined momentary outages which otherwise may go unresolved due to the “self-healing” nature of some of these incipient faults which occur on the system.

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QUESTION 5:

Regarding camera installation:

SDG&E plans to deploy eight additional cameras for situational awareness in 2022.

- a. Is SDG&E planning on its camera network being complete by 2023?
 - i. If not, what is the total number of cameras SDG&E is planning to install in its territory?

RESPONSE 5:

SDG&E is a contributing member of the High Performance Wireless Research and Education Network (HPWREN), which feeds directly into the imagery made available through the AlertWildfire website. SDG&E does not own the camera network, so it is important to characterize the nature of our involvement as a contributing member rather than an owner. As an HPWREN member, SDG&E funds and identifies areas of focus that support broader community level situational awareness. Consequently, SDG&E may add a new site as the need arises. Weather and other external factors can damage cameras or shorten their lifespan, and in those instances SDG&E would need to replace the cameras sooner. The camera network does not have a target number of cameras established for the sake of completion but rather to ensure adequate coverage. At this point in time, the existing viewshed is adequate, but as other partner agencies (e.g. Local Fire agencies, Educational Institutions, etc.) identify new perspectives or potential gaps in coverage, new cameras may be added. In sum, SDG&E does not plan on completing the camera network by 2023 but plans to continuously evolve the program.

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QUESTION 6:

Regarding covered conductor maintenance and installation:

In Southern California Edison’s 2022 WMP Update, the utility states that “in high and medium vibration susceptibility areas, vibration can reduce the covered conductor’s useful life from 45 years to an average of 20 years if not addressed” and that “[i]n installing dampers minimizes equipment failure ignition drivers, such as damage or failure of the conductor, connector, and/or splice” (Section 7.3.3.3.3 “Vibration Damper Retrofit [SH-16],” p. 202).¹

- a. Is SDG&E including vibration dampers as part of its covered conductor installations? If so, provide the percentage of covered conductor installations that include vibration dampers, as well as a description of how SDG&E determined where to install vibration dampers.
- b. Has SDG&E done an analysis for determining what areas within its system would be susceptible to vibrations and potentially benefit from vibration dampers? If so, describe how SDG&E made such determinations, which areas are classified as potentially benefiting from vibration dampers, and what criteria or thresholds are used to determine if vibration dampers should be installed.
- c. If SDG&E is not currently including vibration dampers as part of its covered conductor installations, please explain whether SDG&E plans to do so in the future and what those plans are, including possible retrofits.

Provide a description of any lessons learned regarding vibration damper installation for covered conductor, whether they be from SCE, such as lessons shared by SCE or PG&E during the joint utility covered conductor effectiveness effort, or from broader industry experience, or SDG&E’s in-house research and experience.

RESPONSE 6:

- a. Yes, SDG&E is installing dampers as part of its covered conductor installations. Dampers are installed on all projects based on manufacturer recommendations and on conductor analysis using PLS-CADD.
- b. Yes, SDG&E analyzes all covered-conductor and bare-wire projects throughout the overhead electric system to assess conductor performance based on G.O.95 loading conditions to determine the type, quantity and location of damper devices to be installed on each project. Analysis is based on PLS-CADD line models using local known

¹ See the Southern California Edison 2022 WMP Update here: <https://www.sce.com/sites/default/files/custom-files/SCE%202022%20WMP%20Update.pdf> (accessed March 24, 2022).

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conditions, system conditions, and design data and recommendations from both damper and conductor manufacturers.

- c. SDG&E includes vibration dampers in its Overhead Construction Standards for bare and covered conductors.
- d. SDG&E Construction Standards use “piercing connector” line connector hardware rather than “stripping” the polymer jacket and using traditional bare-wire connection hardware. This design is intended to eliminate any potential contact between energized line components and non-system ground.

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QUESTION 7:

Regarding SDG&E’s “Joint IOU Response to Action Statement-Covered Conductor” (Attachment H):

This joint response states “[s]everal covered-conductor-specific failure modes exist that require operators to consider additional personnel training, augmented installation practices, and adoption of new mitigation strategies (e.g., additional lightning arrestors, conductor washing programs, etc.)” (ps. 7-8):

- a. What additional training has SDG&E implemented for personnel pertaining to these covered conductor failure modes? Please list all trainings, the frequency at which trainings are required to be taken, and which personnel are required to take the trainings. Include the trainings used to train personnel for inspections, maintenance, and installation of covered conductor.
- b. How has SDG&E augmented its installation practices to prevent these covered conductor failure modes?
- c. What new mitigation strategies has SDG&E adopted to prevent these covered conductor failure modes?

RESPONSE 7:

- a. SDG&E has performed roadshows to each of its operating districts with a trailer of properly installed examples of covered conductor installation. SDG&E has not, however, implemented training specifically for the failure modes of covered conductor.
- b. SDG&E utilizes insulated piercing connectors (IPCs) and tensioning clamps which are intended to eliminate contact between energized line components. These components do not require insulation covering to be skinned to make external connections. Skinning the covering off increases the risk of workmanship error without the proper tools and techniques. IPCs are also self-sealed to help prevent moisture intrusion and limit corrosion.
Installation of lightning arrestors is specified in the attached SDG&E construction standard, “OH1247 Surge(Lightning)Arresters Application.PDF”, in addition to approximately every 1500ft when there are spans on which equipment is not installed. SDG&E has not evaluated the effects of bird droppings related to the degradation of the polymer sheath; however, will continue to evaluate if this is a cause for concern as more covered conductor is installed in the coming years.

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- c. SDG&E has not adopted new mitigation strategies specific to covered conductor failure modes.

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END OF REQUEST