PUBLIC ADVOCATES OFFICE DATA REQUEST:
CALADVOCATES-SDGE-2023WMP-10
SDG&E RESPONSE

Date Received: April 10, 2023
Date Submitted: April 19, 2023

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.

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QUESTION 1

SDG&E states on p. 2 of its 2023 WMP regarding its Drone Investigation, Assessment and Repair (DIAR) Program,

The program was successful in identifying additional risks that were not visible utilizing ground-based inspections… To continue to capture the enhanced risk reduction realized through the DIAR Program on a more permanent basis, risk modeling will be incorporated to identify the top 15 percent of HFTD structures by risk and drone inspections will be performed on those assets each year.

a) Please describe the additional risks SDG&E identified through the DIAR program that were not identifiable from ground-based inspections.

b) Are there risks commonly identified through ground-based inspections that are not generally visible utilizing drone-based inspections? Please describe.

c) When does SDG&E plan on permanently implementing risk modeling within the DIAR program over the 2023-2025 WMP cycle?

RESPONSE 1

a) In general, the drone inspections and imagery collected allowed inspectors to identify the following issues:
   1) Issues visible only from above such as hollowed out pole tops, tracking on crossarms, transformer corrosion (visible only on the lids), and loose hardware that was blocked from view if looking up.
   2) Smaller issues harder to see with the naked eye or with binoculars, such as frayed wire or small chips in insulators, that are more easily visible with high resolution imagery than can be enhanced on the computer screen.
   3) Issues on poles that are more difficult to access because of terrain or topography.

b) Some issues that are more commonly identified by ground-based inspections versus drone inspections include: damaged or loose guy wire, damaged or unsecured conduit, clearance or loose wires associated with communications infrastructure, and buried anchor. With that said, the drone inspection program includes both a ground-based inspection and an aerial inspection. Inspection teams consist of a qualified inspector and

a drone pilot in an effort to capture issues identified better with a drone and those issues that are best observed from the ground.

c) SDG&E began permanently implementing risk modeling with the DIAR program in 2023 with inspections starting in February 2023 and continuing throughout the 2023-2025 WMP cycle.

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QUESTION 2

SDG&E states on p. 5 of its 2023 WMP, "The long-term outlook of the WiNGS-Planning portfolio shows the deployment of strategic undergrounding and covered conductor not only reduces current wildfire risk but also combats the increasing wildfire risk due to climate change."

a) How many miles of strategic undergrounding from 2019 through 2022 have been implemented based upon the recommendations provided by the WiNGs-Planning portfolio?

b) How many miles of covered conductor installation from 2019 through 2022 have been implemented based upon the recommendations provided by the WiNGs-Planning portfolio?

RESPONSE 2

SDG&E objects to the request on the grounds set forth in General Objections Nos. 5. Subject to and without waiving the foregoing objections, SDG&E responds as follows:

a) WiNGS scoped segment mitigations beginning in 2022. SDG&E performed 65 miles of strategic undergrounding in 2022.
b) WiNGS scoped segment mitigations beginning in 2022. SDG&E performed 61.2 miles of covered conductor in 2022.

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QUESTION 3

SDG&E states on p. 5 of its 2023 WMP, "Collaboration and testing have continued to improve SDG&E's understanding of covered conductor's ability to raise PSPS wind speed thresholds, which (although not finalized) are expected to increase to 55 to 60 miles per hour."

a) When does SDG&E plan on implementing the expected increase in PSPS wind speed thresholds for circuits with covered conductor?

b) How would the above-mentioned expected increase in PSPS wind speed thresholds affect the most frequently de-energized circuits' risk scores?

c) Would the above-mentioned expected increase in wind speed threshold be applicable on all circuits across SDG&E's entire service territory?

RESPONSE 3

SDG&E objects to the request on the grounds set forth in General Objections Nos. 9. Subject to and without waiving the foregoing objections, SDG&E responds as follows:

a) SDG&E expects to complete the first full segment of covered conductor in 2023. The ongoing lab testing and joint IOU collaboration will work to finalize the new wind speed threshold associated with fully covered segments when making PSPS decisions. As discussed in the response to Areas for Continued Improvement SDGE-22-11 in Appendix D of the 2023-2025 Wildfire Mitigation Plan, SDG&E expects to complete covered conductor testing and finalize this threshold by December 2023.

b) Within the WiNGS-Planning model, the effect of wind speed threshold increases in the risk modeling has a decreased effect on the Covered Conductor PSPS probabilities assessed for each weather station. Each circuit-segment has an associated weather station assigned to it. The PSPS probabilities are positively correlated with the PSPS LoRE and PSPS risk score.

c) Wind speed thresholds will only be increased on circuit segments that have been fully hardened with covered conductor. The wind speed threshold will apply across all fully covered conductor segments.

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QUESTION 4

SDG&E states on p. 10 of its 2023 WMP, "SDG&E will further advance implementation of new technologies such as Advanced Radio Frequency Sensors (ARFS) which officially kicked-off in mid-2022 after completing a 2-year demonstration."

a) Please describe the scope, goals, and analytical methods for the demonstration project noted above.

b) Please provide the results of SDG&E's findings after the 2-year demonstration referenced above.

c) Please provide any documents generated from the above-mentioned 2-year demonstration (e.g. reports, workpapers, etc.).

d) In 2022, how many Advanced Radio Frequency Sensors did SDG&E install in HFTD tier 2 areas?

e) In 2022, how many Advanced Radio Frequency Sensors did SDG&E install in HFTD tier 3 areas?

RESPONSE 4

a) SCOPE: Electrical equipment failures can cause significant damage, customer and employee safety impacts, high costs of repair, and extended outages to customers. Equipment failures, specifically located in the HFTD, can cause significant loss of life and property and should be avoided at all costs. Through years of research and development, SDG&E has developed, alongside its strategic vendor partnerships, ways to successfully detect what are known as incipient faults on the system with enough time to locate and potentially fix or replace equipment prior to it permanently failing. These incipient faults occur on failing pieces of equipment long before they fail violently and cause damage to the surrounding area. Recent advances in power quality, relaying, radio frequency, and other technologies have made it possible for utilities to identify and predict failures long before they occur.

   GOAL: The goal of the EFD Program (WMP.1195) is to utilize these technologies to detect and prevent significant equipment failures in the HFTD to address fire risk while also gaining the benefits of reducing customer forced outages.

   ANALYTICAL METHOD: Manual review of each paths detection energy plots to find signals indicating significant energy signals. This is followed by fielding of the location by a qualified electrical worker to identify damage to components that are generating the signals.

b) See attached file "Results" for damage description and photos of damage found.

i. Broken ceramic insulator found and replaced on C448 that was not identified during routine patrols.
ii. Burned insulator found and replaced at Warners Substation on stepdown to circuit 211.
iii. Multiple wire splices with internal partial discharge on C211 found and replaced.
iv. Damaged insulator leaking to crossarm on C211 found and replaced.
v. Bird nest on buck pole C211 found and removed.
vi. Bird-caged jumper on C211 found and replaced.
vii. Damaged conductor on C211, loose (not broken) strand, deemed no structural damage by QEW.
viii. Bird-caged conductor found on C211 that was not identified during routine patrols; deemed no structural damage by QEW.
ix. Animal damage to dead-end insulator on C211 found and replaced.
x. Multiple instances of cosmetic wire slap damage to conductor; deemed no structural damage by electric troubleshooter.

c) The final report for the 2-year demonstration is still in development. See attach file "Early Fault Detection Deployment Status."

d) In 2022, SDG&E installed 38 sensors in Tier 2.

e) In 2022, SDG&E installed 26 sensors in Tier 3.

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QUESTION 5

SDG&E states on p. 16 of its 2023 WMP regarding its WiNGS-Planning model,

The Wildfire Next Generation System Planning (WiNGS)-Planning model has incorporated additional inputs and refinements leading to a portfolio of approximately 1,500 miles of strategic undergrounding and 370 miles of covered conductor to be installed between 2022 and 2032. This portfolio will reduce the risk of wildfire by 83 percent…

a) Please identify the "additional inputs and refinements" referenced above that SDG&E incorporated into the WiNGS-Planning model.

b) Please describe how these above-mentioned "additional inputs and refinements" resulted in a portfolio of 1,500 miles of strategic undergrounding and 370 miles of covered conductor.

c) Please provide a year-by-year breakdown of the estimated reduction of wildfire risk from 2022 until 2032 due to the input and refinements referenced above.

RESPONSE 5

SDG&E objects to the request on the grounds set forth in General Objections Nos. 3 and 9. Subject to and without waiving the foregoing objections, SDG&E responds as follows:

a) Refinements and updates include updated circuit segment and segment attribute data. Updated MAVF weights per current attributes and updates to ignition rate reduction variable accuracies. The model was improved with a hardening granularity that increased from 2 to 4 states, and improved accuracy of data collected (pole-miles hardened, pole-miles unhardened vs. RFS miles-hardened, CC-miles-hardened, TH-miles-hardened, miles-unhardened). Inclusion of lifecycle savings assessment from vegetation management, asset inspections and PSPS activations.

b) The updates and refinements described optimize the model for more accurate risk-benefit assessment. The model is then run with the latest refreshed model features and data, resulting in an update to the output of the model for mitigation recommendation. This resulted in the updated mitigation mileage portfolio to most cost-effectively achieve the targeted risk reduction goals.

c)

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SDG&E Table 7-3: Wildfire Risk Reduction Projection

Mitigation	Total Risk Start 2023	Risk Mitigated 2023	% Risk Impact 2023	Total Risk Start 2024	Risk Mitigated 2024	% Risk Impact 2024	Total Risk Start 2025	Risk Mitigated 2024	% Risk Impact 2024	Total Risk End 2025
UG Wildfire Risk Mitigation	1531.6	12.6	0.82%	1481.7	30.7	2.07%	1431.2	49.5	3.46%	1372.8
CC Wildfire Risk Mitigation	1531.6	19.1	1.24%	1481.7	16.9	1.14%	1431.2	8.9	0.62%	1372.8

Note: Total Risk includes both undergrounding of electric lines and installation of covered conductor. Numbers are rounded to nearest tenth place and an additional coefficient factor of x10000 is applied to the scores for readability.

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QUESTION 6

Regarding SDG&E's Figure 6-7 WiNGS-Planning Calculation Schematic on p. 66 of its 2023 WMP:

a) Please describe in detail the review process that SDG&E SMEs undertake once the WiNGS-Planning has provided the mitigation recommendation for a specific circuit segment.

b) Has SDG&E encountered a situation where an SDG&E SME recommends a different mitigation measure for a circuit segment than what was recommended by the WiNGS-Planning portfolio?

c) If the answer to part (b) above is yes, please provide a narrative of how SDG&E determines what mitigation measure to move forward with in a scenario where SME and WiNGS-Planning recommendations conflict.

RESPONSE 6

a) Review the WiNGS-Planning mitigation recommendations by the SDG&E SMEs considers the following aspects and limitations of the model to ensure cost-effective and pragmatic mitigation plans are released to design and construction.

Wildfire Risk Rank
The WiNGS Planning model ranks the fire risk contribution of each segment relative to that of all other segments. This ranking reflects the fire risk contribution of the segment before the recommended mitigation has been implemented. Typically, those circuits and segments with the greatest wildfire risk will be fire hardened first.

Re-Hardening
Prior to the development of the WiNGS model and before the establishment of the Strategic Undergrounding Program (SUG), SDG&E established and administered traditional fire hardening programs. Typically, these programs replaced wood poles with steel and new conductors.
To limit both community disruptions and replacement of recently installed facilities, SDG&E has established re-hardening moratoriums. These re-hardening moratoriums influence the prioritization and schedule (i.e., the planned scope year) for implementing underground or covered conductor fire hardening mitigations for circuits or segments that were hardened through traditional programs. Segments subject to these moratoriums typically would not be worked until the moratorium has expired unless an exemption from leadership is received.

Public Safety Power Shutoff
To ensure that the selected fire risk mitigation does not miss an opportunity to mitigate PSPS risk, SDG&E SMEs look at both the likelihood and consequence of a PSPS event on the segment being hardened.

- The likelihood of a PSPS event for a given customer depends on the wind speeds and wind speed thresholds for the infrastructure (e.g., bare vs. covered conductor) both at and upstream of the segment that serves that customer.
- The consequence of a PSPS event is dependent on the expected event duration and the number of customers that would be impacted during a PSPS event.

ESH and Meteorology review the recommended mitigations as well as wind speed data and infrastructure both at the segment in question and upstream to understand the PSPS risk after the mitigation has been implemented.

Efficiencies

There are efficiencies in the scoping process that can reduce the burden on downstream resources and reduce costs. For example, limiting scope to geographically proximate segments can reduce:

- Travel time for survey teams who are responsible for fielding the fire hardening scope.
- Mobilization/demobilization for construction crews and make better use of existing laydown yards.
- Cutover coordination

Constructability

Difficult terrain or environmental constraints may impede the completion of undergrounding projects. In those cases, pivots to CC OH are evaluated. This pivot from the WiNGS-Planning model may limit the risk reduction achieved for a particular segment. In these cases, SDG&E will determine if other mitigations (on this segment or elsewhere in the system) are necessary to achieve risk reduction targets.

Covered conductor projects typically follow existing OH routes and easements, thereby limiting constructability issues.

Construction Standards

SDG&E reviews recommended mitigations to ensure alignment with existing construction standards. For example, installation of covered conductor within an Extra Heavy (Ice) Loading District requires a deviation request in accordance with Overhead Construction Standards. The necessary design changes may significantly increase the cost of the project. Where an underground route is available, SDG&E will consider a pivot to undergrounding in place of covered conducted in these extra heavy loading districts.

b) SDG&E has encountered limited situations in which the SDG&E SME recommends a different mitigation measure. These situations are isolated to constructability concerns or instances where the recommended mitigation would deviate from construction standards.

c) In instances where constructability concerns were not captured by the model, updated cost information that reflects these concerns is fed back into the model to determine if the mitigation recommended by WiNGS-Planning would change. If the recommended

mitigation does not change (i.e., the risk-spend efficiency thresholds are still met), then the mitigation proceeds as originally recommended by the model. If the risk-spend efficiency thresholds are no longer met, then the updated mitigation is incorporated into the wildfire mitigation scoping plans.

In those instances where deviations from construction standards are identified, construction standards take precedent. If construction standards limit the risk reduction achieved for a particular segment, SDG&E will determine if other mitigations (on this segment or elsewhere in the system) are necessary to achieve risk reduction targets.

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QUESTION 7

SDG&E states on p. 111 of its 2023 WMP regarding Identification of Mitigation Initiatives,

In the early phases of SDG&E's wildfire mitigation efforts and prior to the use of WiNGS-Planning, SDG&E's overhead bare conductor hardening programs focused on targeted only the spans identified as containing certain high-risk assets (e.g., bare conductor, aged wood poles). These programs were aimed at reducing the highest level of risk, focused specifically on the replacement of the identified high-risk assets, and did not address entire segments. Therefore, most circuit segments were left only partially hardened in the top risk areas.

a) What is the total number of circuit miles that SDG&E has identified as being only partially hardened and where SDG&E needs to complete re-hardening work?

b) Please disaggregate your response to part (a) by HFTD tier.

c) Please provide a list of all the Circuit IDs that fall in the category described in part (a) above.

d) Please describe how SDG&E intends to maintain operational flexibility while hardening the circuit miles referenced in your answer to part (c).

e) When does SDG&E plan on starting to replace the above-mentioned circuit miles identified as needing re-hardening work?

f) Of the projected 84 miles of strategic undergrounding for 2023, how many miles fall under the category of SDG&E's re-hardening strategy referenced in the quote above?

g) Please provide SDG&E's costs projections for replacing existing hardened circuits during the 2023-2025 WMP cycle.

h) What is SDG&E's current estimate of the cost per circuit-mile for the projects identified in your response to part (f) of this question?

i) Please provide any workpapers that SDG&E used to develop the cost estimates addressed in parts (g) and (h) of this question.

j) Does SDG&E plan on completing system hardening work on entire circuit segments, as part of its re-hardening strategy referenced in the quote above?

RESPONSE 7

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Date Received: April 10, 2023
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SDG&E objects to the request on the grounds set forth in General Objections Nos. 3 and 9. Subject to and without waiving the foregoing objections, SDG&E responds as follows:

a) The total miles of partially hardened circuit segments within the current WMP cycle is: 651.5365666

b) Tier 2 partially hardened miles: 232.6886847. Tier 3 partially hardened miles: 418.8478819

c) The list of circuits that will experience re-hardening within the current WMP cycle is: 1030-989R, 220-288R, 220-294R, 220-298R, 222-1370R, 222-1401R, 222-1433R, 222-1441R, 222-1503, 222-2013R, 358-682F, 445-19R, 445-24R, 445-894R, 73-643R, 79-785, 972-8, CB 222, CB 73, CB OK1, 1021-25R, 1215-12R, 1215-28R, 157-204R, 176-197F, 176-200F, 176-41R, 211-279R, 212-638R, 212-739R, 215-38R, 217-837R, 221-782R, 230-133AE, 233-123R, 350-2192R, 350-2196R, 350-2201R, 441-23R, 441-27R, 441-30R, 444-43R, 520-1045R, 520-10R, 520-1489R, 520-35R, 520-45, 521-14R, 78-782R, 971-1973R, 974-23R, 974-35R, CB 971, 1233-252R, 237-2R

d) SDG&E will continue to operate the distribution system consistent with any limitations attributable to existing field conditions. As re-hardening work proceeds, the limitations may be lessened or totally removed, thereby allowing SDG&E greater operational flexibility.

e) In general, SDG&E will only re-harden these circuit miles after 5-years (at the earliest) after the energization date for traditionally hardened segments. In instances where covered conductor will be removed and conductor moved underground, this work will not occur until at least 7-years after energization of the covered conductor spans. Exceptions to these re-hardening moratoriums are possible, but are limited. An exception is approved only if the efficiencies and risk benefits of the project outweigh costs associated with re-hardening.

f) For the 2023 strategic undergrounding projects, SDG&E made significant efforts to avoid re-hardening any traditional hardening segments. This minimized the total number of re-hardening miles in 2023. Re-hardening was only permitted if the benefits of such a project, including efficiencies gained from working in geographically proximate locations and PSPS risk reduction, outweighed the drawbacks of re-hardening (i.e., cost, community disturbance, etc.). 24.71SUG miles will be re-hardened in 2023.

g) SDG&E's costs projections for replacing existing hardened circuits during the 2023-2025 WMP cycle are 122,752,500 in total. Undergrounding comprises 109,642,500 of the total cost and covered conductor comprises 13,110,000 of the total cost.

h) Strategic Undergrounding cost: 2,475,000 per mile, Covered Conductor: 1,000,000 per mile

i) Please see attachment "DR_Cal Advocates_10_Q7.xlsx."

j) SDG&E plans to harden entire circuit segments consistent with the output of the WiNGS Planning Model, which makes mitigation recommendations for all segments within an entire circuit.

QUESTION 8

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SDG&E states on p. 116 of its 2023 WMP regarding its WiNGS-Planning model,

The WiNGS-Planning Model makes one of three recommendations to mitigate risk for each circuit segment with overhead exposure in the HFTD: 1) strategic undergrounding of electric lines, 2) installation of covered conductor, 3) no strategic undergrounding or covered conductor mitigation.

a) Does SDG&E have a review process in place when the WiNGS-Planning model makes the recommendation of "no strategic undergrounding or covered conductor mitigation?

b) If the answer to part (a) above is yes, please describe in detail what the review process entails and the steps that SDG&E takes to verify that no mitigation is required for the circuit segment.

c) Does SDG&E perform other alternative mitigation measures on circuit segments when the WiNGS-Planning model recommends "no strategic undergrounding or covered conductor mitigation" as referenced above?

d) If the answer to part (c) above is yes, please describe what mitigation measures SDG&E considers in such instances.

RESPONSE 8

a) In instances where the mitigation for a circuit segment is inconsistent with other segments on the circuit (i.e., the WiNGS Planning Model recommends covered conductor or no mitigation within a circuit where other segments will be moved underground), SDG&E reviews the model inputs to determine the factor that drove the mitigation recommendation. After re-validating these inputs and seeking input from SMEs, pivots to the recommended mitigation are evaluated.
b) See answer to Question 6 regarding the SME review.
c) Yes SDG&E performs alternative mitigation measures on circuit segments for which WiNGS planning recommends no strategic undergrounding or covered conductor mitigation. These programs aim to reduce ignition risks for these remaining Overhead Distribution facilities. See answer to part d.
d) The following mitigation measures are deployed on circuit segments where no mitigation is recommended by the WiNGS-Planning Model.
    1. Advanced Protection Program – This program aims to prevent and mitigate the risks of fire incidents, create higher visibility and situational awareness in fire-prone areas, and allow for the implementation of new relay standards in locations where protection coordination is difficult due to lower fault currents attributed to high impedance faults. SDG&E's advanced protection program is designed to reduce the risk of transmission or distribution risk events leading to an ignition.
    2. Expulsion Fuse Replacement. The fuse replacement program replaces existing expulsion fuses that operate as described above with new more fire safe expulsion

fuses that are approved by CAL FIRE and reduce the discharge expelled into the atmosphere, reducing the chance of a fuse operation leading to an ignition

3. Lightning Arrestor: SDG&E plans to replace existing arrestors in strategic locations within the HFTD with CAL FIRE approved lightning arrestors.. The CAL FIRE approved device comes with an external device that operates prior to the arrestor overloading, dramatically reducing the potential of becoming an ignition source
4. Hot Line Clamps. SDG&E has identified high risk connectors known as "hotline clamps" which are a potential weak connection that can fail during a fault on the system, resulting in a wire down event. This wire down event can lead to an energized wire on the ground or coming into contact with a foreign object, thus becoming an ignition source. DG&E is focusing this initiative on the HFTD portion of its service territory.
5. Drone inspections. See Section 8.1.3.7 of 2023WMP.
6. Vegetation Management. See Section 8.2 of 2023 WMP

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QUESTION 9

SDG&E states on p. 122 of its 2023 WMP regarding its WiNGS-Planning model,

Based on these overall Wildfire and PSPS risk estimates derived from the WiNGS-Planning 3.0 model and targeted mileage scope per year, SDG&E estimates a reduction of approximately 80 percent of wildfire risk from the start of 2022 through the end of 2032. This is not including PSPS risk, probability of a PSPS occurring on a segment, and the estimation for climate change impacts to risk reduction.

a) How did SDG&E calculate the above-mentioned "estimated reduction of approximately 80 percent of wildfire risk from the start of 2022 through the end of 2032"?

b) Does SDG&E currently have an estimate of how many circuit miles will need to be hardened to achieve the planned reduction of 80 percent of wildfire risk referenced above?

c) Has SDG&E calculated the *minimum* number of targeted circuit mileage that needs to be hardened to achieve the reduction of approximately 80 percent of wildfire risk referenced above?

d) If the answer to part (c) above is yes, what is the minimum number of circuit miles of hardening needed to achieve the reduction of 80 percent of wildfire risk?

e) Has SDG&E analyzed what percentage of risk reduction would be sufficient for its system to be deemed safe?

f) If the answer to part (e) above is yes, please describe the findings of your analysis.

g) As a long-term goal, what is the minimum percentage of risk reduction (from the level at the beginning of 2023) that SDG&E considers necessary?

RESPONSE 9

SDG&E objects to the request on the grounds set forth in General Objections Nos. 1, 2, 3, 5, 7, and and 9. Subject to and without waiving the foregoing objections, SDG&E responds as follows:

a) SDG&E prepared its analysis of various wildfire mitigation scenarios while developing its first three-year Wildfire Mitigation Plan in response to the catastrophic wildfires of 2017-2018 and the passage of SB 901 and AB 1054. Based upon the data available at the time and its analysis, SDG&E ultimately opted for a risk mitigation and hardening strategy that reflected the inflection point between maximizing potential risk reduction while avoiding estimated exponential cost increases. SDG&E's wildfire mitigation efforts are continually reassessed based upon revisions

to regulatory requirements, realized cost efficiencies and new technologies, and stakeholder input through the wildfire mitigation plan process. Based on available information, SDG&E continues to pursue an overall approximate 80% reduction of wildfire risk through infrastructure hardening to promote community safety, increase reliability, and mitigate against PSPS impacts.

b) The estimated mileage to reach 80% wildfire risk mitigation is 1,500 miles of undergrounding and 370 miles of covered conductor.

c) Please reference response B

d) Please reference response B. WiNGS-Planning optimizes the mitigation selection for wildfire risk reduction based on risk spend efficiency methodology summarized in WMP.

e) SDG&E strives to have zero catastrophic wildfires associated with electric utility infrastructure. As previously noted and described in its WMP submission, SDG&E has focused on an 80% risk reduction through its grid hardening efforts to reasonably balance risk mitigation and cost. This risk mitigation may be supplemented by other risk mitigations, including but not limited to resiliency programs, vegetation management, grid operations protocols, and asset inspections as described in SDG&E's WMP submission.

f) N/A

g) Please reference response e.

QUESTION 10

SDG&E states on p. 155 of its 2023 WMP regarding the Strategic Undergrounding Program,

Installations in the HFTD remain challenging due to difficult terrain, environmental constraints, permitting timelines, and acquisition of easements and land rights. Facilitating productive engagement with stakeholders in the telecommunication field will help streamline resources and obtain more support for undergrounding efforts.

a) Please explain why SDG&E is not considering covered conductors for the areas identified in the quote above.

b) Do covered conductor installations face the same challenges as those identified above?

c) In 2021-2022, have there been instances where SDG&E planned a strategic undergrounding project, but found undergrounding to be infeasible due to the challenges described in the quote

above, and therefore switched to installing covered conductor? Please explain your response, including the decision-making process to switch to installing covered conductor or not.

d) Please identify an example of such a project in part (c) and provide a narrative of the decision-making process.

RESPONSE 10

SDG&E objects to the request on the grounds set forth in General Objections Nos. 2 and 3. Subject to and without waiving the foregoing objections, SDG&E responds as follows:

a) If WiNGS Planning recommends undergrounding, the segments are scoped with that mitigation effort. However, if a viable route is not identified or other limitations outside of SDG&E's control are found, installing covered conductor is considered.

b) Yes, installation of covered conductor can face the same challenges.

c) Yes, all of the challenges stated continue to persist. There have been instances where SDG&E switched plans from undergrounding to installing covered conductor due to community opposition where residents refused to give SDG&E easements unless the telecommunication, in this case AT&T, committed to undergrounding its overhead facilities with SDG&E's Strategic Undergrounding project. SDG&E had reached out to AT&T multiple times with their management and leadership of the community to address the issue as well as met with the community planning group and community leaders that SDG&E cannot force another utility to underground but has done what it can. AT&T does not have the same urgency to underground in relation to wildfire safety and informed SDG&E that they do not have a financial mechanism to support the undergrounding efforts in the back country at this time.

d) The community of Sherilton Valley on C79 is an example of an undergrounding project where SDG&E switched to installing covered conductor due to the reason explained in part c above. C79 is one of the most frequently deenergized circuits due to PSPS. SDG&E evaluated feasibility of covered conductor as an alternative hardening mitigation and determined that it is feasible and will require 3-4 easements to support hardening the line to advance wildfire safety and reduce the PSPS impacts during adverse weather conditions.

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SDG&E RESPONSE

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QUESTION 11

SDG&E states on p. 405 of its 2023 WMP regarding undergrounding of its frequently de-energized circuits,

To date, SDG&E has completed 68.16 miles of undergrounding and plans to underground 178.02 miles by 2025 and 393.1 miles by 2032. Two of the fifteen frequently de-energized circuits will be completely undergrounded within 10 years.

a) Please identify by circuit ID (according to Table 9-2: Frequently De-energized circuits in Appendix F) which two of the fifteen frequently de-energized circuits will be completely undergrounded within 10 years as referenced above?

b) Please explain SDG&E's decision-making process, in choosing the above-mentioned two circuits that will be completely undergrounded first within 10 years.

c) Does SDG&E have a ranking or schedule of when its frequently de-energized circuits will be completely hardened?

d) If the answer to part (c) above is no, how will SDG&E determine which frequently de-energized circuits to complete next?

e) For the above-mentioned two frequently de-energized circuits that will be completed within 10 years, what is the total circuit mile length that will be undergrounded?

f) How many customers receive service on the two circuits identified above?

g) Does SDG&E have an estimate for the annual number of customer minutes of service interruption that will be avoided as a result of undergrounding the two circuits discussed above?

h) How does SDG&E plan to mitigate PSPS impacts on the above-mentioned remaining 13 frequently de-energized circuits?

i) Does SDG&E plan to completely underground or otherwise harden the above-mentioned remaining 13 frequently de-energized circuits? If so, what is SDG&E's planned timeline for this work?

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SDG&E RESPONSE

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RESPONSE 11

a) As mentioned in the column "Measure taken, or planned to be taken, to reduce the need for an impact of future PSPS of circuit" of Table 9-2: Frequently De-energized Circuits in Appendix F of the 2023-2025 Wildfire Mitigation Plan, circuits 358 and 909 are in scope to be completely undergrounded by 2032 and 2026, respectively.

b) The decision-making process for prioritizing and implementing mitigation initiatives for these circuits and all other circuits is described in Section 7.1.4.2.4 of the 2023-2025 WMP.

c) SDG&E has developed preliminary work schedules that are reflected in the column "Measure taken, or planned to be taken, to reduce the need for an impact of future PSPS of circuit" of Table 9-2: Frequently De-energized Circuits in Appendix F of the 2023-2025 Wildfire Mitigation Plan. Construction schedules beyond 2025 will be developed based on the risk ranking of the segment, and in consideration of permitting, customer, and other challenges detailed elsewhere in the WMP.

d) The decision-making process for prioritizing and implementing mitigation initiatives for these circuits and all other circuits is described in Section 7.1.4.2.4 of the 2023-2025 WMP. This includes outputs from the WiNGS-Planning model.

e) As mentioned in the column "Measure taken, or planned to be taken, to reduce the need for an impact of future PSPS of circuit" of Table 9-2: Frequently De-energized Circuits in Appendix F of the 2023-2025 Wildfire Mitigation Plan, the total circuit mile length that will be undergrounded is 21.9 miles for circuit 358 and 35 miles for circuit 909. Once all undergrounding work is completed, the total circuit mile length is estimated to be 36.5 miles for circuit 358 and 37 miles for circuit 909.

f) As mentioned in the column "Number of Customers Served by Circuit" of Table 9-2: Frequently De-energized Circuits in Appendix F of the 2023-2025 Wildfire Mitigation Plan, circuit 358 currently serves 1,153 customers and circuit 909 currently serves 423 customers.

g) No, SDG&E does not have an estimate for the annual number of customer minutes of service interruption that will be avoided at a circuit level. However, SDG&E anticipates that the PSPS risk will be eliminated once all undergrounding work is completed and that the annual number of customer minutes of service interruption due to PSPS will be zero for circuits 358 and 909.

h) In addition to the hardening and impact mitigation efforts listed in the column "Measure taken, or planned to be taken, to reduce the need for an impact of future PSPS of circuit" of Table 9-2: Frequently De-energized Circuits in Appendix F of the 2023-2025 Wildfire Mitigation Plan, SDG&E will continue to target customers on the frequently de-energized circuits for our backup resiliency programs (Standby Power Program, Generator Grant Program, and Generator Assistance Program). The Emergency Backup Generator Program is a reserve of backup batteries established specifically for expedited delivery during active PSPS events, which come pre-charged and can be delivered within 1-4 hours of eligible requests. Also available to the public during a PSPS event are SDG&E's Community Resource Centers (CRCs), where customers impacted by active PSPS events can receive additional resiliency items and services (device charging, water/ice, snacks, AFN Go Kits, real-time event updates and information, wi-fi access, restrooms, etc). Additionally, mobile battery solutions are, and will continue to be, deployed to create temporary microgrid solutions to support communities as well as CRCs. Specifically for the AFN community impacted by PSPS de-energizations, SDG&E partners with the San Diego Food Bank, Feeding America, Meals on Wheels and other local food partners to provide food resources, Facilitating Access to Coordinated Transportation (FACT) to provide accessible transportation, The Salvation Army to provide no-cost hotel stays, and other service programs to perform in-home wellness checks. SDG&E also partners with 211 San Diego and 211 Orange County to connect individuals with services directly provided by partners contracted with SDG&E, as well as more than 1,000 regional Community Business Organizations (CBOs) who provide services. These services are available to all customers experiencing a PSPS de-energization and are not specific to the remaining 13 frequently de-energized circuits. For more detailed information on services provided to mitigate PSPS impacts, please see the AFN Plan in Appendix G of SDG&E's 2023-2025 Wildfire Mitigation Plan.

i) SDG&E will underground, install covered conductor, or retain traditionally hardened infrastructure on these frequently de-energized circuits in accordance with the recommendations in WiNGS-Planning and consistent with SME review. The hardening plans are described in in the column "Measure taken, or planned to be taken, to reduce the need for an impact of future PSPS of circuit" of Table 9-2: Frequently De-energized Circuits in Appendix F of the 2023-2025 Wildfire Mitigation Plan

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SDG&E RESPONSE

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QUESTION 12

Referring to the column titled "Measure taken, or planned to be taken, to reduce the need for and impact of future PSPS of circuit," within OEIS Table 9-2: Frequently De-energized circuits and the values SDG&E presents as "miles in scope to be completed by 2025 and 2032":

a) Are the reported values the total length of the circuit segment or the minimum length needed to be undergrounded for SDG&E to reduce the need of a future PSPS event along the circuit segment?

b) How did SDG&E determine the miles in scope for each circuit?

RESPONSE 12

a) The reported values are the total underground mileage planned for the circuit. Through these undergrounding efforts, the need for future PSPS is reduced by eliminating overhead exposure where wind speeds are often high.

b) The miles are recommended by the WiNGS-Planning Model, using a cost-benefit approach to select circuit-segments for mitigations prioritization.

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SDG&E RESPONSE

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END OF REQUEST