WILDFIRE SAFETY DIVISION DATA REQUEST: WSD-SDGE-03
2021 WILDFIRE MITIGATION PLAN UPDATE
SDG&E RESPONSE

Date Received: March 12, 2021
Date Submitted: March 17, 2021

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.

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III. RESPONSES

QUESTION 1:

SDG&E's 2021 responses to two ignition risk questions on the Maturity Survey indicate de-maturation (from mostly automated to partially automated) since last year's survey: "A.II.b How automated is the ignition risk calculation tool?" and, "A.IV.b How automated is your ignition risk reduction impact assessment tool?"

1(a). The reason for this apparent de-maturation was given verbally in our March 10 call, provide an explanation in writing for the indicated decrease in automation and explain if the reason is different for these two questions about ignition risk.

1(b). Explain why SDG&E's 2021 Maturity Survey response to "A.III.d How automated is the ignition risk estimation process?" does not indicate de-maturation since 2020 (it stayed at "mostly automated").

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 1:
1a) With regard to survey questions that pertain to ignition risk estimation, specifically how automated is the ignition risk calculation tool (A.II.b) and how automated is the ignition risk reduction impact assessment tool (A.IV.b), SDG&E's reason for de-maturation from "Mostly (<50%)" to "Partially (<50%)" in the current year was due to our interpretation of the question rather than a change in process of ignition risk estimation. SDG&E's interpretation of automation is when data is automatically pulled from different sources and databases, it automatically flows through different models to automatically simulate results without any involvement and interpretation from the Subject Matter Experts. Based on our understanding of this definition, questions related to Capability 2, 3, and 4 fall in different categories.

Capability 2 (A.II.b) is focused on the likelihood of an ignition. SDG&E uses a combination of tools to assess ignition risk based on data, subject matter expert (SME) input, and ignition history. The tools used for assessment are automated, however, there is a need for manual effort upfront to gather the data, run it through the model, and lastly, it requires an SME for analysis of the outputs to make them meaningful. Based on this reasoning, the ignition risk estimation tool is partially automated. Capability 4 (A.IV.b) has a new element of risk modeling for PSPS risk reduction. However, very similar to capability 2, the tools are partially automated due to the manual process of gathering and interpreting the results.

1b) SDG&E's 2021 Maturity Survey response to "A.III.d How automated is the ignition risk estimation process?" does not indicate de-maturation since 2020 (it stayed at "mostly automated") is because the ignition risk estimation process has not changed.

Capability 3(A.III.d) is focused on consequences of an ignition. SDG&E primarily uses the WRRM-Ops model for modeling consequences of ignitions. The WRRM-Ops model is more advanced with regard to automation. SDG&E has installed software which automatically downloads output from weather models that are run by National Oceanic and Atmospheric Administration (NOAA). This data is then used in an automated process to run detailed weather forecasts and automatically sends fire weather conditions to our fire behavior modeling system (WRRM-Ops). This system then, in an automated process, simulates over 10 million virtual wildfires and send the potential consequence (fire size, structures, population) to multiple visualization platforms for SME analysis, resulting in the "mostly automated" definition with regards to the consequence related modeling.

QUESTION 2:

On page 220 of its 2021 WMP, SDG&E states: "While SDG&E's updated hardening strategies call for more covered conductor and strategic undergrounding, the added cost of redesigning those in flight bare conductor hardening projects to covered conductor or underground would have lowered the risk spend efficiency of those mitigations (for the inflight projects with additional redesign costs) below overhead hardening. Based on efficiency, more risk per dollar was reduced by completing the inflight traditional hardening programs when faced with redesign."

2(a). Provide the RSE for redesigning in-flight bare conductor hardening projects.

2(b). How many bare conductor hardening projects (by circuit mile) were identified to have possibly been fit for redesigning to covered conductor?

2(c). How many bare conductor hardening projects (by circuit mile) were identified to have possibly been fit for redesigning to strategic undergrounding?

2(d). How many inflight projects (by circuit mile) did not have redesign costs, and were those shifted to either covered conductor or strategic undergrounding projects?

2(e). Are there instances in which previously hardened circuits utilizing bare conductor hardening are going to be re-hardened utilizing covered conductor? If so, provide:

i. The number of circuit miles in which covered conductor projects will be replacing bare conductor hardened projects.

ii. The percentage of covered conductor projects that will be replacing bare conductor hardened projects.

iii. The percentage of bare conductor hardened projects completed that will be re-hardened using covered conductor.

2(f). Are there instances in which previously hardened circuits utilizing bare conductor hardening are going to be undergrounded? If so, provide:

i. The number of circuit miles in which strategic undergrounding projects will be replacing bare conductor hardened projects.

ii. The percentage of strategic undergrounding projects that will be replacing bare conductor hardened projects.

iii. The percentage of bare conductor hardened projects completed that will be undergrounded.

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 2:

2(a). In order to provide the RSE for redesigning in-flight bare conductor hardening projects, SDG&E separated out the remaining scope of work for 2021 – 2022 to exclude work that has been completed in 2020. The total scope of miles remaining for bare conductor hardening for 2021 and 2022 as shown in the 2021 WMP update is 105 miles. Costs may depend on which phase the projects are in; the cost increases the further a project is in its lifecycle due to level of effort to redesign the in-flight work. The cost can vary drastically and could result in additional costs due to the need to accelerate work to meet WMP targets by the end of 2022. For instance, some of the bare conductor work is already well into construction and it would be more costly and impactful to redesign to other types of hardening.

Additionally, redesigning could lead to significant impacts to schedule and costs because of the need to spend more time and resources in 2021 to redesign, in which case construction would be pushed to 2022. This will lead an increased amount of accelerated work in 2022 to complete all the system hardening work in the current plan as well as the 105 miles of bare conductor hardening carried over from 2021. Such delays also delay associated risk reductions while projects are put on hold and could result in cost increases due to acceleration pressures. There are also additional uncertainties around the ability to obtain easements, permits, and environmental releases in time to construct in 2022 for different scopes of work. Customers could potentially be subjected to extended construction durations for projects already in construction. In cases where the bare wire and new poles have already been installed, customers may even experience more outages to replace the newly installed bare wire and poles with new covered conductor.

The summary table below provides an overview of the analysis comparing the overall RSE of completing the 105 miles of bare conductor work to pivoting that work to covered conductor or undergrounding. As shown in the analysis, pivoting to undergrounding has a much lower RSE compared to maintaining the current plan and although pivoting to covered conductor does have a slightly higher RSE, it is not deemed sufficient for the amount of disruption and risk reduction delays it would cause.

	Bare Conductor (2021 – 2022)	**Covered Conductor (2021 – 2022)**	**Underground (2021 -2022)**
Overhead Miles	105	105	105
RSE	47	51	17

2(b). As stated in 2(a), there are many factors that go into moving forward with redesigning bare conductor work to covered conductor. In 2020, SDG&E reevaluated current bare conductor projects and began the redesign of 2 miles for 2020, 23 miles for 2021, and 17 miles for 2022. No further redesigns of bare conductor projects are expected in our 2021 and 2022 workplans. All planned work for 2021 and 2022 have been scoped and no further redesigns are anticipated.

2(c). At this time, SDG&E has not identified any bare conductor projects that would need to be redesigned to strategic undergrounding. SDG&E will continue to evaluate this in the future.

2(e).

i. At this time, SDG&E has not scoped any previously bare conductor hardened work for conversion to covered conductor. SDG&E will continue to evaluate this in the future as it updates its risk models and will provide updates accordingly.
ii. Same response as i.
iii. Same response as i.

2(f).

i. At this time, SDG&E has not scoped any previously bare conductor hardened work for undergrounding. SDG&E will continue to evaluate this in the future as it updates its risk models and will provide updates accordingly.
ii. Same as response in i.
iii. Same as response in i.

QUESTION 3:

How does SDG&E plan to minimize overlapping system hardening efforts when utilizing WiNGS model outcomes for circuit segments in which certain assets have already undergone system hardening upgrades?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 3:

There are two ways in which previous system hardening can affect how WiNGS considers risk. First, the fact that system hardening has been performed is used to estimate the reduced current risk levels on that segment. The risk on a segment is estimated to be lower than in an instance where segment had not been partially or completely hardened. The accuracy of how WiNGS computes these risk reductions will improve with time, but currently focuses on generalized risk reduction by changing from an unhardened line to a traditionally hardened line. Future versions of WiNGS will identify specific risk reductions at the asset level to inform the aggregated segment-level risk.

Second, SDG&E includes the level of hardening during the scoping of future projects. If a segment has previously undergone some level of hardening, the general approach is to target portions of the segments that have not been hardened while leaving the hardened portions as-is. However, in some instances, SDG&E plans to evaluate where the benefits of making exceptions to this approach outweigh the costs by evaluating the potential risk reduction that can be achieved by converting bare conductor hardening to covered conductor or undergrounding where feasible and appropriate.

QUESTION 4:

What is the timeline for implementing WiNGS as a prioritization tool for all wildfire initiatives within SDG&E's WMP? How has WiNGS been used to inform decision-making for medium- and long-term planning outside of system hardening?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 4:

WiNGS is not intended to be a tool for prioritizing all wildfire initiatives. Some initiatives such as risk assessment and mapping or data governance initiatives are considered foundational to supporting risk reduction but do not directly reduce the wildfire risk and thus cannot be prioritized in the model like other initiatives. Additionally, some initiatives are driven by compliance standards and thus cannot be treated the same way as other initiatives currently being evaluated in the model. An example of such an initiative is the CMP inspections program which is based on GO 165 requirements.

SDG&E continues to explore opportunities to expand the use of WiNGS to inform more initiatives. At this point, SDG&E uses WiNGS to inform system hardening initiatives as well as the deployment of generators through the Fixed Backup Power program. In 2021, SDG&E plans to explore a proof of concept for using WiNGS to evaluate vegetation management and microgrid initiatives. As SDG&E continues to refine its methodologies and captures lessons learned, it will explore further opportunities to expand the use of the model to other initiatives but there is no set timeline or number of initiatives to integrate at this point given how new the model is. Furthermore, as mentioned during the WMP workshops, SDG&E views WiNGS as a modular framework that allows for flexibility to develop and use more refined models to tackle specific risks outside of the model while also integrating them in WiNGS as components to the broader risk assessment. For example, while WiNGS provides an overall assessment of segment risks comprised of various risk drivers such as vegetation and asset-related risks, for purposes of prioritizing vegetation management, it may be more appropriate to use a model tailored to vegetation risks so that prioritization of those activities can be targeted to where the highest vegetation risk areas are—which can differ from the highest risk areas from an equipment standpoint.

As far as using WiNGS for medium and long-term planning outside of system hardening, SDG&E used WiNGS in 2020 to inform the deployment of generators in the FBP program in 2020 and will continue to utilize it as an input in the broader decision-making process for identifying candidate customers through that program.

QUESTION 5:

Provide a summary of the results of SDG&E's efficacy studies for grid hardening efforts and explain how results have affected SDG&E's deployment of system hardening efforts.

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 5:

In 2020, SDG&E performed three efficacy studies to measure the effectiveness of grid hardening programs at reducing wildfire risk. The table below provides the names of the studies completed in 2020 and the measured effectiveness:

2020 Efficacy Study	2020 Measured Effectiveness
Research study to understand the effectiveness of overhead distribution hardening at reducing the occurrence of overhead faults	47%
Research study to understand the effectiveness of overhead transmission hardening at reducing the occurrence of overhead faults	83%
Research study to measure the effectiveness of CAL FIRE approved expulsion fuses compared to other expulsion fuses at reducing ignitions due to normal fuse operation	100%*

* Due to small sample sizes, this study was not found to be statistically significant. SDG&E will continue to refresh this study annually to gain improved understanding of the mitigation's efficacy over time.

The results of these studies were communicated widely internally at SDG&E. In addition, the measured effectiveness rates for the impacted mitigations were leveraged for updated RSE calculations within SDG&E's 2021 WMP Update. The effectiveness rates for grid hardening have been integrated into the most recent WiNGS model and are used as reference points to estimate effectiveness of enhanced hardening such as deployment of covered conductor until more information can be gathered for updated effectiveness of covered conductor. This latest information is currently used to scope work that will be constructed in late 2022 and will inform the next WMP (2023 – 2025).

QUESTION 6:

For SDG&E's Generator Grant Program (GGP) for Medical Baseline customers (as described in Section 7.3.3.11.3):

6(a). What is the total number of Medical Baseline and AFN customers in the HFTD? What percentage of these customers are taking part in the Generator Grant Program?

6(b). Will the GGP be expanded to include all Medical Baseline customers in the HFTD, or will it continue to be limited to those who have experienced PSPS impacts in the past?

6(c). On the February 26 call, SDG&E indicated that this program provided money toward the purchase of approved generators and was not directly providing generators. However, WMP p. 208 says "1,409 portable battery units were delivered to customers between May and October 2020." The wording "units were delivered to customers" can be interpreted as being physically brought to the customers. WMP p. 210 describes the delivery of eight "charged GGP batteries to customers who called into the SDG&E Customer Care Centers or 2-1-1." Please clarify:

i. Does SDG&E count solar-charging batteries as generators for the program numbers?

ii. How many traditional engine-generators (not rebate coupons) were delivered to customers?

iii. How many solar charging batteries (not rebate coupons) were delivered to customers?

iv. How many of the battery/generator "units … delivered to customers" in 2020 were in fact units purchased with rebate coupons? (Do not include number of downloaded coupons, only redeemed coupons. A previous data request on this topic indicates approximately 1300 coupons were redeemed: please confirm the number.)

v. What is the power supply capacity of the GGP generators?

vi. Are the GGP batteries the same as the batteries that are distributed at Community Resource Centers?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 6:

6(a) As of March 2021, there are ~12,000 Medical Baseline (MBL) customers located in the HFTD and ~40,000 unique customers with access and functional needs. Since the GGP program was launched in 2019, ~1,500 MBL customers have received a battery backup unit equating to ~12% of all MBL customers in HFTD. In 2020, all MBL customers who had experienced a 2019 PSPS outage were offered a unit and SDG&E delivered generators to all interested customers, equating to 76% of those eligible in 2020.

6 (b) SDG&E will continue to expand GGP eligibility to customers in the HFTD in coming years, with a focus on Tier 3. In 2020, SDG&E utilized previous outage information to prioritize the MBL customers most likely to be impacted by a PSPS event. However, in 2021 SDG&E is expanding eligibility beyond those most likely to experience a PSPS event to also prioritize customers who are on Life Support, have self-identified as having a disability, or are low-income. SDG&E has increased its goal by about 40% over 2020 deliveries to a goal of delivering at least 2,000 units in 2021.

6(c) i. For the Generator Grant Program, all numbers reported are the solar-charging batteries, Goal Zero, model YETI 3000X.

6(c) ii. There were no traditional gas generators delivered in 2019 or 2020 on the GGP program. All backup generators were the solar-charging batteries described above. SDG&E also offered the Generator Assistance Program (GAP) in 2020 which offers rebates on gas generators to targeted customers in the HFTD. There were ~1,300 generators purchased by HFTD customers through the GAP program in 2020, which is an instant online rebate. These 1,300 are in addition to the 1,420 solar-charging batteries delivered through GGP.

6(c) iii. As explained above, all 1,420 solar-charging battery units were grants to customers at no cost to the customer. None of these were “rebates”.

6(c) iv. None of the solar-charging battery units delivered on GGP were rebates. For the GAP rebate program, ~1,300 generators were purchased by customers through eligible retail channels available to customers.

6(c) v. The Goal Zero YETI 3000x has a 3,032 Wh capacity.

6(c) vi. The SDG&E CRC’s do not distribute the solar-charging batteries available through the GGP program. The batteries are delivered directly to eligible customer homes.

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QUESTION 7:

SDG&E developed a methodology that utilizes 5-year average historical data in HFTD to estimate the risk reduced by inspection and maintenance programs.

7(a). This risk reduction estimation methodology is focused to the Tier 2 and Tier 3 HFTD. Are there plans to expand the methodology to include Tier 1 and non HFTD?

7(b). Were there any trends with the 5-year historical data, and if so, how are they incorporated into the methodology?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 7:

a) SDG&E's service territory is broken up into non-HFTD, HFTD Tier 2, and HFTD Tier 3. The 5-year average historical data is used to estimate the risk of wildfire within the service territory. There are no plans to expand this more broadly into the non-HFTD as the risk of ignitions becoming catastrophic wildfires in the non-HFTD is much smaller than within the HFTD. Therefore SDG&E's WMP Programs are mostly focused within the HFTD.
b) There were no obvious trends within the 5-year historical data. The ignitions do appear to correlate with the FPI but trying to predict the number of FPI days from year to year is difficult. Therefore, the five-year average was chosen to account for these fluctuations and provide the best prediction for future years.

QUESTION 8:

Under "Region Prioritization" (7.3.5.13 QA/QC of inspections): "These audits include a statistical analysis of a representative sample of all completed work... A minimum random sampling of 15% of completed work is audited to determine compliance with scoping requirements." (See WMP p. 279-280)

8(a). How does the utility define a "representative sample"?

8(b). What factored into the decision that 15% would be an appropriate representative sample (i.e., why not 20% or 10%?)?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 8:

8(a). Vegetation Management follows a standard approach to audit sampling of at least 10% of the population. A representative sample is derived randomly from the population of completed work for each activity. The audit is further randomized by including a sample portion of all crews who perform the work.

8(b). SDG&E considers a 15% percent sample sufficient to represent the total population of completed work to determine whether the contractor's work quality and performance is acceptable. Using a 15% sample helps ensure the population audited does not drop below 10 percent due to any field restrictions encountered.

QUESTION 9:

Provide the decision tree or flow chart, that is used to communicate with customers prior to regular vegetation work, enhanced vegetation work, and emergency work on their property. Is there a method of prioritization for the various communication platforms (e.g., door hangers, knocking on doors, calling customers, social media posts, emails, certified letters, etc.)? If so, please give details on the method of prioritization.

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE

For regular and enhanced vegetation work, notification is initiated during the pre-inspection activity. The inspector makes his or her presence known upon arriving at the property. Once inspection is complete the inspector will inform the customer of the specific work required on the property either in person or by door hanger. If any property access or notification protocols are required, the inspector records the information within the database for future visits. Such protocols may include contact information, gate codes, appointment requirements, etc. If emergency or priority work is required on the property, the inspector will attempt to notify the customer either in person, by door hanger or by phone. Vegetation Management utilizes different door hangers with messaging specific to the work type including routine trimming, hazard tree work, palm removals, equipment clearing, access request, etc.

Per the annual schedule, routine and enhanced tree work generally occurs 2-4 months following the pre-inspection activity. The tree contractors notify customers either by phone call or by US Mail. In addition, prior to accessing a property the tree crews review the property notes entered by the inspectors and follow any required protocols. Upon arrival, the tree crew announces their presence via a courtesy knock. If access is restricted by a locked gate or if an appointment is needed, notification is made via door hanger and/or phone call. For emergency/priority work the tree contractor attempts to notify in person or by phone call.

Vegetation Management communicates and engages customers via a webpage providing scope and definition of work activities and links with additional information. The webpage includes an interactive map that informs customers of the annual calendar schedule for tree trimming and pole brushing activities on their properties.

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QUESTION 10:

Regarding the data set SDG&E utilized for its 2021 Wildfire Risk Model:

10(a). Please confirm that SDG&E utilized outage data as a proxy for ignition data to train its models (as stated at the 2/22/21 Workshop). If this is not correct, please explain what data sets were utilized.

10(b). How many years of outage data did SDG&E utilize to train its models?

10(c). How many years of outage data did SDG&E utilize to test its models?

10(d). How many events did SDG&E utilize to train its models?

10(e). How many events did SDG&E utilize to test its models?

10(f). Regarding the outage data that SDG&E utilized:

i. Was it possible for SDG&E to determine the exact location of the issue leading to an outage for each outage event?

ii. If it was not possible for SDG&E to determine the exact location of the issue leading to an outage, did SDG&E utilize the outage event as part of the training data sets?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 10:

a) Assuming this is in reference to the WiNGS model presented at the workshop, SDG&E did not use outage data in the initial development of the model. Instead, SDG&E used ignition data to establish a baseline assessment of the potential wildfire risk across the segments in the model based on the unique characteristics of the segments that can make them more prone to failures than other segments (e.g. wind conditions, level of hardening, exposure to vegetation within tree-strike potential, etc.).
b) As mentioned above, SDG&E did not use outage data, it used ignition data dating from 2015 – 2019 to develop the model in 2020. The preliminary development of the model was not based on using machine learning approaches so there was no training vs testing dataset. In 2021, SDG&E will be developing machine learning models for different ignition types and will have more information to provide after that regarding training vs testing datasets.
c) See answer b above.
d) As mentioned above, the preliminary development of the model was not based on using machine learning approaches so there was no training vs testing dataset. In 2021, SDG&E will be developing machine learning models for different ignition types and will have more information to provide after that regarding training vs testing datasets. In the current version of the model, SDG&E used a total of 76 ignitions.
e) See answer d above.
f) As described above, SDG&E did not use outage data in the current version of the model. The preliminary development of the model was not based on using machine learning approaches so there was no training vs testing dataset. As more progress is made on further development of machine learning models, SDG&E will have a better idea of whether or not it is able to use location-specific outage information in its analysis.

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QUESTION 11:

Regarding SDG&E's decision to utilize outage data instead of ignition data in its 2021 Wildfire Risk Models:

11(a). Why did SDG&E choose to utilize outage data instead of ignition data?

11(b). Did SDG&E encounter any issues with utilizing outage data?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 11:

SDG&E did not use outage data in its WiNGS model. Please see responses to Question 10.

QUESTION 12:

At the 2/22/21 workshop, in response to participant questions, the IOUs indicated that for the Consequence Model, Technosylva provides options for using maximum, average, or 90% (P90) values for consequences and for wind speed. SDG&E indicated in the workshop that it uses the maximum consequence and maximum wind speed for long term planning. For the Technosylva Consequence Model:

12(a). Does SDG&E always use the maximum consequence for planning and mitigation work? If SDG&E does not always utilize the maximum consequence for planning and mitigation work, explain the circumstances and reasons for using other levels of consequence.

12(b). How are various aspects of the "consequence" weighted? Is this determined by Technosylva or by SDG&E?

12(c). Does SDG&E always use the maximum wind speed in the Technosylva Consequence Model? If SDG&E does not always utilize maximum wind speed in the Technosylva Consequence Model, explain the circumstances and reasons for using a different wind speed.

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 12:

12(a) At the 2/22/21 workshop, all IOUs discussed various data points used in their Technosylva models. Each utility has different contracts and outputs from Technosylva. Additionally, there are different applications of long-term planning models. For several years, system hardening used the average and max values from WRRM to help prioritize projects. In its earliest phase, WiNGS focused on the max value, but SDG&E understood that it continues to need more inputs, that are more refined. Future versions of WiNGS will utilize a type of profile approach that considers risk levels at each segment, given all environmental conditions the segment may encounter.

12(b) The first version of WiNGS model only uses the financial consequence from Technosylva. SDG&E's Risk Quantification Framework includes safety and reliability which are estimated using financial as a proxy along with calibration from other wildfire modeling. Future versions of WiNGS will utilize more data points from Technosylva or other wildfire behavior modeling.

12(c) In WiNGS, SDG&E does not use wind speeds from Technosylva. SDG&E uses its own meteorological data set to estimate peak, P95 and other wind conditions.

QUESTION 13:

At the 2/22/21 workshop, in response to participant questions, SDG&E indicated that it collects data after PSPS events on events that had the potential for ignition. Regarding this data, please explain in further detail:

13(a). How does SDG&E utilize this information?

13(b). Is this information incorporated into the modeling inputs currently? If so, how?

13(c). Does SDG&E plan to incorporate this data into modeling inputs in the future? If so, how?

13(d). How does SDG&E determine what events that occurred during a PSPS event had the potential for ignition?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 13:

13(a) This information is utilized to assist with prioritizing restoration activities when severe weather events subside. It is also evaluated further to determine if any trends occurred and the data provides awareness for operations on items to consider for future events.

13(b) At the present time, damage from PSPS is not being used for WiNGS modeling purposes but future updates to the model will incorporate it.

13(c) SDG&E is considering how best to use this data going forward, Generally, SDG&E wishes to incorporate all relevant data into its risk models. The subject of ignitions that occur during PSPS events is very important because those situations are indicative of potentially significant consequences. Another consideration is that the amount of PSPS that now occurs might tend to bias data one way or another, as MGRA noted in their workshop line of questions. Therefore, this is a topic that SDG&E wants to better understand before modifying existing models.

13(d) SDG&E believes that all new failures identified by certified and qualified electrical workers during the post patrol of the de-energized areas that are deemed as failure and requiring emergency repairs had potential for ignitions. SDG&E will take care in how it addresses events that had potential for ignition and utilize proper analysis around the likelihood of these events causing an ignition.

WILDFIRE SAFETY DIVISION DATA REQUEST: WSD-SDGE-03
2021 WILDFIRE MITIGATION PLAN UPDATE
SDG&E RESPONSE

Date Received: March 12, 2021
Date Submitted: March 17, 2021

QUESTION 14:

In SDG&E's 2021 WMP, it discusses its Covered Conductor Maintenance program not as a separate program, but as a part of its Asset Inspection Program (p. 194).

14(a). How did SDG&E calculate the RSE for its Covered Conductor Maintenance program?

14(b). How did SDG&E calculate the cost of the program separate from other asset inspections?

14(c). How did SDG&E calculate the risk reduction separate from other asset inspections?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 14:

14(a) SDG&E did not calculate RSE for Covered Conductor Maintenance separately. The way SDG&E conducts its maintenance programs is by inspecting each facility and all equipment on the facility, this includes conductors (both bare and covered), fuses, transformers, etc. As such, the RSEs provided for the Asset Inspection Programs include any maintenance that would be conducted on covered conductors.

14(b) See (a) above. SDG&E does not separate out costs of inspecting covered conductor.

14(c) See (a) above. SDG&E does not calculate risk reduction of covered conductor maintenance separately.

QUESTION 15:

In SDG&E's 2021 WMP, it discusses how its FiRM, PRiME, and WiSE models were components of its WRRM model (p. 82). SDG&E also states: "The original WRRM tool is no longer being updated." (p. 82).

15(a). Is SDG&E still updating its FiRM, PRiME, and WiSE tools?

15(b). Is SDG&E still utilizing its FiRM, PRiME, and WiSE tools?

15(c). If the answer to (a) or (b) is "no":

i. How is SDG&E identifying and targeting areas where Distribution wood poles could potentially be overloaded?

ii. How is SDG&E identifying and targeting areas where Distribution wood poles could potentially have health deterioration?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 15:

FiRM, PRiME and WiSE are not components of WRRM, nor are they 'tools'. They are hardening programs that leverage WRRM risk information to prioritize hardening activities. All three programs are consolidated under one program (Bare Conductor Hardening) in the latest WMP update. As such, SDG&E answers these questions based on discussions around the WRRM model.

15(a) In 2021, SDG&E plans to use the latest data from WRRM-Ops to update assessments conducted in the original WRRM model. A key component of the WRRM model that will be updated using WRRM-Ops data is the conditional impact analysis, which provides estimates for potential consequences of ignitions at specific locations across the system. Those updates will be incorporated into WiNGS to aid with further developments of the WiNGS model to continue to support system hardening initiatives. In addition to that and in lieu of the original failure rates calculated in WRRM, SDG&E will be developing machine learning probability of ignition models to inform the likelihood of ignition based on different assets and causes of ignitions. These updated models will leverage pole loading assessments as well as other factors that could

contribute to the wildfire risk. This information will be integrated into an updated version of the WiNGS model.

15(b) The remaining scope of work on bare conductor hardening in the current WMP is still based on the WRRM model and PRiME pole loading model that were used to scope FiRM, PRiME and WiSE. Future scope of work will be informed by WiNGS which will undergo more updates to incorporate prior asset-specific assessments.

15(c)- i: Past scoped work on the PRiME program included using intrusive inspection information along with pole loading properties to identify locations that could be overloaded. As the WiNGS model undergoes updates in 2021, updating pole risk information will be taken into account to re-assess probability of failures on an asset-basis and aggregate them to a segment level to continue the scoping of mitigations to reduce wildfire and PSPS risks.

15(c)- ii: SDG&E relies on its various inspection programs (CMP, HFTD Tier 3, intrusive pole inspections, and DIAR) to identify and target areas where Distribution wood poles could potentially have health deterioration.

QUESTION 16:

SDG&E states: "However, to evaluate an accurate pole utilization, more information is needed including line angles, down guy support, and relative wire tensions. Yet, this information is not available to incorporate into the PRiME model." (p. 87)

16(a). How does SDG&E evaluate pole-overutilization?

16(b). Does SDG&E re-evaluate pole loading after installing covered conductors or other new equipment installations that may be heavier than the equipment it is replacing?

OBJECTION:

SDG&E objects to this request on the grounds set forth in General Objection Nos. 2, 5, and 9. Subject to the foregoing objections, SDG&E responds as follows.

RESPONSE 16:

a) SDG&E evaluates pole-overutilization by performing pole loading calculations on poles where the structural loading has or will change. Pole loading calculations are performed in the design phase of the project to ensure that the new pole design will be compliant with G.O. 95 and SDG&E standards.
b) Yes, SDG&E performs pole loading calculations for all new covered conductor projects and most new equipment installations. For small, low structural impact replacements such as fuses, hot line clamps, and lighting arrestors, pole loading calculations are not performed.