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OEIS DATA REQUEST: OEIS-P-WMP_2025-SDGE-06
SDG&E RESPONSE

Date Received: 05-20-2025
Date Submitted: 05-23-2025

I. GENERAL OBJECTIONS

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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

Regarding Injuries/Fatalities Conversion:

Page 53 of SDG&E's 2026-2028 Base WMP, "OEIS Table 5-4: Summary of Risk Models," notes that SDG&E uses "number of acres burned conversion factors to estimate the number of serious injuries and fatalities from customers impacted." However, page 38 of SDG&E's 2026-2028 Base WMP, "SDGE Table 5-4: Attributes for Wildfire Consequence," notes that SDG&E uses a fatalities per structure destroyed factor.

> a. Clarify if the injuries/fatalities conversion is based on acres burned (per OEIS Table 5-4) or structures destroyed (per SDGE Table 5-4). Explain the differences between the factors in each table.

RESPONSE 1

The data presented in OEIS Table 5-4 is incorrect and should be revised to align with the information provided in SDG&E's Table 5-4. In previous versions, Technosylva outputs included only estimates of acres burned and structures impacted. However, the latest model output now provides estimates for both acres burned and structures destroyed. Estimates of structures destroyed are used to estimate the number of serious injuries and fatalities.

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QUESTION 2

Regarding Monte Carlo Simulations:

On page 46 of SDG&E's 2026-2028 Base WMP, SDG&E notes that Monte Carlo simulations are used to assess risk outcomes on the grid. On page 3 of "Appendix D: Areas for Continued Improvement," SDG&E describes the intent of the Monte Carlo simulations, but methods are not provided in "Appendix B: Supporting Documentation for Risk Methodology and Assessment."

> a. Provide a detailed description of the methodology and framework for Monte Carlo simulations used within SDG&E's risk modeling. Include any documentation, procedures, and policies which describe the methods.

RESPONSE 2

For a detailed description of the Monte Carlo simulation methodology used in SDG&E's Wildfire and PSPS risk modeling framework, please see the 2025 Risk Assessment and Mitigation Phase (RAMP), SDGE-4 Wildfire and PSPS, Section III: "Pre-Mitigation Risk Value", starting on page 16.

This section outlines the structure, assumptions, and implementation of Monte Carlo simulations as applied to SDG&E's risk assessment processes. The document includes relevant methodological details and supports the statements made in the 2026–2028 Base WMP and its appendices.
The full document is publicly available at the following link:

https://www.sdge.com/sites/default/files/regulatory/SDG%26E%20-Risk-4%20Wildfire%20%26%20PSPS_0.pdf

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QUESTION 3

Regarding WiNGS-Ops Consequence Risk Metrics:

On page 47 of SDG&E's 2026-2028 Base WMP, SDG&E notes that the WiNGS-Ops visualization platform displays the worst-case estimates of acres burned.

    a. Is the only consequence risk metric for WiNGS-Ops acres burned?
        i. If yes, discuss why other consequence risk metrics are not used.
        ii. If not, provide a list of other consequence risk metrics used.
    b. Provide a detailed description of how the safety, reliability, and financial attributes for consequence are displayed and analyzed for operations.

RESPONSE 3

    a. No, users of the WiNGS-Ops visualization platform have the ability to toggle between estimates of acres burned and buildings destroyed. While SDG&E receives additional estimates from Technosylva that are stored in SDG&E's database, only these two metrics are displayed in the platform. Additionally, users can select and view estimates from different times across multiple days to visualize consequence estimates at different points in time.
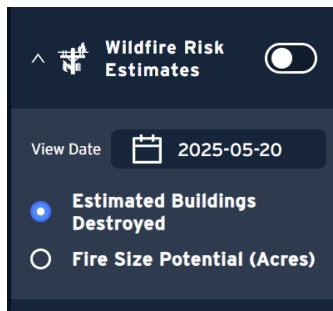
    b. Currently, Safety, Reliability, and Financial consequence estimates are not displayed or utilized in operational decision-making during PSPS activations under extreme fire weather conditions. However, an overall risk score, based on the now-obsolete MAVF, is still presented. SDG&E anticipates transitioning WiNGS-Ops to incorporate monetized values by the end of Q3 2025.

    Operational decisions involve an assessment by a cross-functional team of SMEs (including Meteorology, Electric Commodity Liaisons, Risk Analytics, Emergency Management, Electric Operations, and others) through the analysis of dynamic information, such as detailed meteorological forecasts, real-time observed weather conditions, local fuel conditions, situational awareness, and the following risk modeling outputs from WiNGS-

Ops. The following details how information that allows for the assessment of potential wildfire consequences is currently displayed in WiNGS-Ops and reviewed during a PSPS event, as detailed in processes like those outlined in Section 2 of SDG&E's PSPS Post-Event Reports[1].

- **Dynamic Risk Modeling Outputs:**
  - o Information from the WiNGS-Ops tool provides evolving wildfire and PSPS risk estimates. It is important to note that WiNGS-Ops operates based on a set of defined enterprise and event-specific assumptions (as mentioned in Section 2.4 of the Post-Event Report), which are continuously reviewed and refined. Wildfire risk is calculated based on forecasted weather conditions.
  - o The wildfire consequence estimates incorporate the outputs of Technosylva Fire-Sight, which takes into account weather variables, advanced fuel layers, and an 8-hour unsuppressed fire spread model and provides detailed insights into potential fire behavior, spread, and impact under the forecasted weather conditions.

For more information around how Safety, Reliability, and Financial attributes are considered in SDG&E's risk analysis framework, see Section 5.2.2.2.1 of SDG&E's 2026-2028 Wildfire Mitigation Base Plan.

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[1] Utility Company PSPS Reports: Post-Event, Post-Season and Pre-Season

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QUESTION 4

Regarding Technical Documentation for Risk Models:

a. On page 49 of SDG&E's 2026-2028 Base WMP, SDG&E mentions the "statistical and machine learning models detailed in Appendix B," but Appendix B lacks documentation on these models. Provide technical documentation for the statistical and machine learning models used for Wings-Planning and Wings-Ops models.

b. On page 61 and 62 of SDG&E's 2026-2028 Base WMP, SDG&E mentions usage of Amazon Web Services (AWS). Provide technical documentation showing how and where SDG&E uses AWS in its statistical and machine learning models used for Wings-Planning and Wings-Ops.

RESPONSE 4

a. Refer to "Appendix B Table – Detailed Model Documentation_5_23_25" excel spreadsheet with detailed information about the models.

b. Amazon Web Services (AWS) is used at each layer of the data science lifecycle outside of the initial business problem identification.

For Data Collection, WiNGS Ops and WiNGS planning both leverage SDGE's internal AWS based data mesh. In this system distributed AWS accounts generate data through Athena / DataZone the WMP teams can discover, gather, and consume data for each model. This system is used in conjunction with flat files and other data sources to form the inputs to both models. After collecting from external sources, data is then stored in S3 within AWS.

For Data Cleaning and Preparation programming languages like Python, along with domain-specific programming languages like SQL are used to clean and prepare data. These preparations leverage AWS resources like Glue, and Sagemaker processing jobs to efficiently deliver clean data for EDA. This step is done as a hybrid approach leveraging both AWS resources and local development.

For Exploratory Data Analysis (EDA), Sagemaker studio is used to consume cleaned data and create model features. Additionally, the Modeling step also leverages the Sagemaker Model Registry and various additional Sagemaker features. These two steps are also done as a hybrid approach leveraging both AWS resources and local development

For Deployment and Monitoring this is done through 3 AWS accounts separated into development, quality assurance, and production. Automated testing is performed using dbt, glue failure

notifications, and additional monitoring. These steps are done purely through AWS although some monitoring is done in external BI tools like Microsoft's Power BI

Our front end for both WiNGS Ops and Wings Planning also leverages AWS. We deliver each model as an S3 single-page website (or S3 static website). We use additional AWS services like route53, cognito user groups, and API gateways for traffic, access, and data delivery.

See attached document titled "OEIS-P-WMP_2025-SDGE-06_Q4_WINGS.pdf." Pade 2 is related to Wings Ops. Slide 3 is related to WiNGS Planning. Slide 3 is related to WiNGS Front-End.

Date Received: 05-20-2025
Date Submitted: 05-23-2025

QUESTION 5

Regarding Design Scenarios:

a. On page 49 of SDG&E's 2026-2028 Base WMP, SDG&E mentions that it uses a 2-year history for historical weather and fuel data. Describe why a longer weather history is not used. Include any supporting analysis and documentation showing how and why SDG&E chose to use a 2-year history.

b. Page 50 of SDG&E's 2026-2028 Base WMP, "OEIS Table 5-2: Summary of Design Scenarios," mentions the "WV1" scenario ID.

> i. Specify if this WV1 scenario ID is intended to address "Weather Condition 1" from the WMP Guidelines.

> ii. If it is not, discuss:
> > (1) Why SDG&E includes "WV1" as a design scenario.
>
> > (2) How "WV1" differs from "Weather Condition 1."
>
> > (3) How "Weather Condition 1" is otherwise captured within the design scenarios in OEIS Table 5-2, or why it is excluded.

RESPONSE 5

a. SDG&E's use of a 2-year historical period for weather and fuel data in its 2026–2028 Base WMP is primarily driven by computational constraints. The modeling and simulation processes that support wildfire mitigation planning, particularly those involving hourly wind gust estimates, fuel conditions, and fire behavior, are extremely resource-intensive. Extending the historical period would substantially increase the volume of data to be processed, resulting in longer runtimes and significantly higher computational demands. These limitations have constrained the development, validation, and refinement of risk models within the required timelines.

The two years selected for weather analysis were chosen as representative years because they reflect a range of fire weather conditions and fuel states that are representative of recent trends in SDG&E's service territory. These years include periods of elevated fire risk, including extreme wind events and dry fuel conditions, which are critical for evaluating the effectiveness of wildfire mitigation strategies.

The two selected years are also incorporated into a broader Monte Carlo simulation framework. To account for the natural variation in extreme weather conditions, SDG&E integrates weather conditions from those years with a set of 125 extreme fire weather days spanning 2013-2022. The conditions from these days are sampled in alignment with the historical average of approximately

16 high fire-risk days per year in SDG&E's service territory. This approach ensures that the model realistically reflects both the frequency and distribution of extreme weather events.

b.

i. Yes, Scenario ID WV1 models anticipated weather conditions within the service territory as defined by the "Weather Condition 1" scenario detailed from the WMP guidelines Section 5.3.1. Design Basis Scenarios, leveraging historical data from two representative years to inform ignition probability modeling results. While this approach captures short-term weather variability, longer-term and more extreme risk scenarios are incorporated through a Monte Carlo simulation. This probabilistic framework enables the assessment of a broader distribution of potential outcomes, including high-consequence events that extend beyond the range of historically observed weather conditions.

ii. N/A

Date Received: 05-20-2025
Date Submitted: 05-23-2025

QUESTION 6

Regarding AFN Scaling Factors:

Page 53 of SDG&E's 2026-2028 Base WMP, "OEIS Table 5-4: Summary of Risk Models," notes the input of "Scaling factors for AFN customer impacts."

a. Clarify if SDG&E uses scaling based on AFN for PSPS consequences only, or for wildfire consequences as well.

RESPONSE 6

AFN Customer scaling is applied only to PSPS Consequence calculations (safety attribute) and not for Wildfire Consequence. Wildfire Consequence simulations are performed by Technosylva and do not include population demographics, including but not limited to AFN customer types. Specific customer counts and type demographics is a data source tied to customer meters maintained by SDG&E.

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Date Submitted: 05-23-2025

QUESTION 7

Regarding Proposed Updates to the HFTD:

On page 59 of SDG&E's 2026-2028 Base WMP, SDG&E states: "To date, SDG&E has not suggested any adjustments to the HFTD. Recent modeling initiatives evaluated the wildfire risk of coastal canyons and the WUI for mitigation. Both efforts resulted in the exclusion of each proposed addition."

a. SDG&E also states that "The analysis found that wildfire risk associated with coastal canyons was lower than that associated with current HFTD segments." Provide a detailed description of the analysis performed, and associated documentation and conclusions demonstrating the lower wildfire risk, including any associated risk scores in comparison to those within the HFTD.

b. For analysis of the WUI, SDG&E also states that "While this layer may serve to prioritize the adjacent developed areas for fire infrastructure and suppression planning, it does not yield a usable layer for identifying areas where an energized wire down could spark a wildfire, or areas at heightened risk for ignition due to interference from vegetation."

i. Describe how this layer is used to prioritize fire infrastructure.

ii. Explain why this layer is not a "usable layer" for evaluating wildfire risk as described.

RESPONSE 7

a. In 2022, a preliminary analysis was conducted to compare existing High Fire-Threat District (HFTD) prioritized circuit segments with additional non-HFTD coastal canyon circuit segments. The objective was to better understand the relative wildfire risk at a circuit-segment level and to assess potential risk exposure beyond the currently designated HFTD boundaries.

This assessment focused on key wildfire risk indicators—namely, Wildfire Likelihood of Risk Event (WF LoRE), Wildfire Consequence of Risk Event (WF CoRE), and overall Wildfire Risk. These metrics were evaluated across all circuit segments in both groups, along with their respective statistical averages.

The findings revealed that while certain coastal canyon segments exhibited higher risk levels than some of the lower-risk HFTD segments, the average wildfire risk across coastal canyon segments was significantly lower than that of HFTD segments. Notably, the highest-risk coastal canyon segment still ranked below the top 200 riskiest segments within the HFTD.

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b.
i. The US Fire Administration defines the WUI as "the zone of transition between unoccupied land and human development." This can be used by local, state, and federal fire agencies to create strategy around their fire infrastructure and defense plans. Per CALFIRE (https://osfm.fire.ca.gov/what-we-do/code-development-and-analysis/wildland-hazards-and-building-codes) this zone may also have impact on building construction methods or defensible space requirements that are designed to prevent negative impacts from fires on communities that are adjacent to wildland fuels. The fire infrastructure referenced is that of the fire agencies and how they choose to utilize the information is outside of the utilities scope.

ii. The WUI map is designed to display zones between unoccupied land and human development mix. Even though some of the same variables may be used to develop the WUI and the HFTD the WUI is not designed to quantify the risk of an ignition from utility equipment. The HFTD is also not designed to address areas where urbanization has begun to mix with wildland fuels. For the HFTD the Independent Review Team utilized the Integrated Utility Threat Index Model to validate the risk associated with an ignition location (Process history: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M199/K508/199508442.PDF). During SDG&E's annual review of the HFTD, the WUI map and the associated variables are reviewed and discussed for potential changes to the HFTD. This process will continue to ensure the level of mitigation utilized by the utility to mitigate the risk of a large fire originating from equipment are addressed.

New information is regularly incorporated into the discussion of the HFTD shape, with the risk of ignition existing inside and outside of the HFTD (36% of SDG&E's CPUC reportable fires have been outside the HFTD). Based on the models (7a answer) and the process associated with the creation of the HFTD, SDG&E believes that the risks associated with ignitions within the HFTD (93% of acres associated with SDG&E ignitions have been within the HFTD) are in most cases greater than those of areas outside tiers 2 & 3, even if those areas fall into WUI.

Date Received: 05-20-2025
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QUESTION 8

Regarding Third-Party Risk Model Recommendations to Models:

Pages 62-66 of SDG&E's 2026-2028 Base WMP, "SDGE Table 5-8: WiNGS-Planning Third Party Recommendations," and "SDGE Table 5-9: WiNGS-Ops Risk Modeling Updates," show third-party recommendations for SDG&E's models.

   a. Multiple recommendations state that SDG&E's model documentation is lacking, with a 2026 target deadline to provide documentation. Explain what efforts have been made to start creating each documentation recommended.

   b. One recommendation states that a report that tracks compliance with OIR requirements would help prevent potential violations.

      i. Provide a copy of this report, if it has been created.

      ii. If such a report has not been created, discuss SDG&E's progress on creating this report.

RESPONSE 8

   a. The latest drafted technical documentation has been provided in response to QUESTION 4 above. This documentation will continue to be refined through 2026 as mentioned in SDGE Tables 5-8 and 5-9.
   b. A formalized report that tracks OIR requirements has not been developed yet. With a "low" severity level, this has been deferred and will continue to be explored through 2026. Alternatively, SDG&E does regularly track and roadmap risk modeling regulatory requirements stemming from the WMP, Maturity Model, ACIs, etc., which are included in OEIS Table 5-6: Utility Risk Assessment Improvement Plan.

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QUESTION 9

Regarding Climate Change:

a. Provide a detailed description and relevant supporting documentation on how climate change is currently accounted for in SDG&E's risk models.

RESPONSE 9

Currently, Climate Change is not accounted for in SDG&E's wildfire, PSPS, and PEDS risk models.

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END OF REQUEST