

**OFFICE OF ENERGY INFRASTRUCTURE SAFETY DATA REQUEST:
OEIS-SDGE-2023WMP-04
SDG&E RESPONSE**

**Date Received: June 9, 2023
Date Submitted: June 14, 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

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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

Regarding SDG&E's Company Emergency and Disaster Preparedness Plan

Please provide SDG&E's Company Emergency and Disaster Preparedness Plan (CEADPP) either as a digital document or link to a website.

RESPONSE 1

SDG&E's latest Company Emergency and Disaster Preparedness Plan (CEADPP) is attached as "Q1.CEADPP-Rev 3-2023 updatePublic.pdf"

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QUESTION 2

Regarding Emergency Preparedness After Action Reports

Please provide all Emergency Preparedness After Action Reports related to wildfires and PSPS for 2021, 2022, and 2023 (if applicable), including any updates to Corrective Action Plan measures.

RESPONSE 2

Attached are the following documents:

- Q2.After Action Report_Improvement Plan_Border 32 Fire_FINAL.pdf
- Q2.After Action Report_Improvement Plan_PSPS 11.22.2021_FINAL.pdf
- Q2.Border 32 Corrective Actions.pdf
- Q2.PSPS 11-22-21 Corrective Actions..pdf

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QUESTION 3

Regarding Emergency Preparedness Key Personnel, Qualifications, and Training

On page 342 of its 2023-2025 WMP (Section 8.4.2.1.3 “Key Personnel, Qualifications, and Training”), SDG&E states, “a comprehensive training program has been implemented to support outage restoration, patrols, inspections, and maintenance...” Please provide the following details about this training program:

- a. A list of trainings included in this training program including the course provider and which Emergency Operations Center (EOC) positions are required to take each course.

RESPONSE 3

SDG&E provides the following courses internally:

Relief Electric Troubleshooter

Task #14 STUEM300 CMP Line Patrol Inspections
Task #15 Fire Calls ([LINK](#))
Task #046 Wildland Fire Prevention ([LINK](#))
Task #047 Public Safety Power Shutoff ([LINK](#))
SFUGN103 Wildland Fire Prevention & Safety

Electric Troubleshooter

STUEM300 CMP Line Patrol Inspections
ESCPS205 PSPS Patroller (VR)
ESCPS100 PSPS / Fire Training
SFUGN103 Wildland Fire Prevention & Safety

Relief Fault Finder

ESCPS100 PSPS / Fire Training
SFUGN103 Wildland Fire Prevention & Safety
ESP 113.1 reviewed and discussed in class

The following internal courses are required to obtain journeyman/linemen status, as applicable.

Course Code	Class Description
STULA100	Line Assistant Orientation
STUAP100	Apprentice Lineman Climbing
STUAP115	Apprentice Lineman Beginning Secondary
STUAP300	Apprentice Lineman U.G. Phase 1
STUAP120	Apprentice lineman Advanced Secondary
STUAP125	Apprentice Lineman Transformer Connection

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Course Code	Class Description
STUAP126	Apprentice Lineman Hot Stick
STUAP129	Apprentice Lineman 12kV Rubber Glove
STUAP125	Apprentice Lineman 4kV Rubber Glove
STUAP315	Apprentice Lineman UG Phase 3
STUEL320	U.G. CMP (initial)
STUEL310	O.H. CMP (initial)
STUEL115	Relief Fault Finder

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QUESTION 4

Regarding the Companywide Implementation of an Incident Command System

On page 343 of its 2023-2025 WMP (Section 8.4.2.1.8 “Improvements/Updates since the Last WMP Submission”), SDG&E states, “Enhancements to CEADPP made in 2022: [...] Updated the organization charts as **we continue to implement companywide [Incident Command System]**” (bold added).

- a. Please describe where SDG&E stands in its progress implementing a companywide Incident Command System (e.g., estimated percent of completion) and by what date (month and year) it expects to have completed implementing a companywide Incident Command System.
- b. Please clarify how these two statements relate to each other: a “comprehensive training program has been implemented” (p. 342); “we continue to implement companywide ICS” (p. 343).

RESPONSE 4

- a. Implementation of ICS is a continuous effort designed to capture a high attrition rate of emergency responders typically seen with career changes, retirements, and organizational changes. Currently, all onboarded EOC and field responders have been trained on the fundamentals of ICS and its application in a utility company, and ongoing training and mentorship is being provided to new and future team members. This continued effort is being led by the Training and Exercise Team in collaboration with the Operational Field and Emergency Readiness Team.
- b. SDG&E’s Emergency Management Training and Exercise Team, in collaboration with the Operational Field and Emergency Readiness Team, continue to support and facilitate robust ICS and responder training in compliance with external requirements and company needs. Training is a component of a functioning ICS structure but is not isolated as the sole element of success of ICS implementation. SDG&E will continue to support required and beneficial ICS training as part of ICS for the enterprise.

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QUESTION 5

Regarding the Verification Methods for 3- and 10-year Emergency Preparedness Objectives

Please describe in a narrative format (2-3 sentences) the verification method for the following 3- and 10-year objectives from OEIS Table 8-33 “Emergency Preparedness Initiative Objectives (3-year plan)” and OEIS Table 8-34 “Emergency Preparedness Initiative Objectives (10-year plan).”

Specify how the verification method will be used to verify that the objective is completed or implemented.

- a. From OEIS Table 8-33 “Emergency Preparedness Initiative Objectives (3-year plan)” (WMP p. 333)

Question part	Objectives for Three Years (2023–2025)	Method of Verification
(i)	Modernize and enhance workforce training in the areas of storm response, process, and documentation (collab with DOC-E and ERO)	Updated emergency response training curriculums; training records including completion rates
(ii)	Expand Emergency Management Operations by increasing staff dedicated to enhancing various emergency programs.	PSPS Coordination: Regulatory Compliance Each month a report ID produced for computer tests and dashboards are tested daily through automated smoke tests
(iii)	Continue participation [in] and support of Mutual Assistance Programs	Continuation of agreements and collaborative engagements with other IOUs
(iv)	Continue collaboration with 211 in San Diego and Orange County to support AFN customers	Regional working groups Tabletop exercise Participation PSPS Portal access and training
(v)	Enhance community outreach by incorporating effectiveness outreach survey feedback,	Annual customer research is used to improve and simplify

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	expanding Tribal and AFN campaigns, enhancing partnerships with Indian Councils, Community Based Organizations (CBOs), and local school districts	public-education messaging and outreach efforts with customers, AFN and tribal communities and CBOs.
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b. From OEIS Table 8-34 “Emergency Preparedness Initiative Objectives (10-year plan)” (WMP p. 335)

Question part	Objectives for Ten Years (2026–2032)	Method of Verification
(i)	Increase stakeholder engagement and use of simulations to stress-test all-hazards response plans	HSEEP-guided exercise planning practices, Integrated Preparedness Plan adherence, Hotwashes and AAR Participation
(ii)	Develop Training Environments to better simulate all hazards and allow for more realistic exercises and training.	HSEEP-guided exercise planning practices, Integrated Preparedness Plan adherence, Hotwashes and AAR Participation
(iii)	Establish more formalized review of operating procedures, benchmarking, and stakeholder engagement	Formalized review process, benchmarking, and engagement
(iv)	Enhance customer communication and ability to reach vulnerable populations during emergencies	AFN Self-Identification campaign
(v)	Enhance post event documentation and application of lessons learned to update plans and exercises.	Agendas: Bi-Weekly AFN Planning Meeting San Diego Regional PSPS Working Group Statewide AFN Advisory Council Reporting:

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		<p>PSPS Pre-Season Report</p> <p>Lessons Learned:</p> <p>Integration of findings/areas of improvement into PSPS exercises and EOC responder training.</p>
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RESPONSE 5

(a.i): Modernize and enhance workforce training in the areas of storm response, process, and documentation (collab with DOC-E and ERO)

After action reports are completed after each emergency event and reviewed to ensure emergency response training curriculums are adequate. Where there are areas for improvement, curriculums will be updated accordingly. SDG&E’s skills training center also proactively looks for opportunities to improve trainings utilizing technology, such as virtual reality.

(a.ii): Expand Emergency Management Operations by increasing staff dedicated to enhancing various emergency programs.

All IT related emergency management efforts are managed through IT in support of expanding Emergency Management Operations. Contract support has been obtained to manage and maintain all the computers in the EOC on an alternating (between primary and backup) monthly basis as we all and provide dedicated support for all EM staff to ensure the operational status of the assets. Daily tests are completed for all key dashboards used in making decisions in the EOC for events utilizing an automated test solution.

(a.iii): Continue participation [in] and support of Mutual Assistance Programs

Actively engaging in the continuation of agreements and collaborative efforts with other IOUs will ensure the continuation of participation in and support of mutual assistance programs. This engagement involves regularly reviewing and updating existing agreements (American Gas Association, California Utilities Emergency Association, Edison Electric Institute, Western Regional Mutual Assistance Group), fostering open communication channels with other IOUs statewide and regionally, and participating in mutual assistance deployments.

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(a.iv): Continue collaboration with 211 in San Diego and Orange County to support AFN customers

To further facilitate collaboration between 211 San Diego and Orange County as well as other AFN support partners, SDG&E convenes a regional working group, which is a collaborative and informative session bringing together CBO, local government, and utility representatives to share lessons learned and refine SDG&E's de-energization protocols. These de-energization protocols are put into practice alongside community partners with tabletop exercises which emphasize operational coordination, communication, public information and warning, and community resilience. The regional working group attendance is tracked, items discussed summarized and distributed to participants, and serves as a venue for relevant lessons learned from the exercise to be reviewed.

(a.v): Enhance community outreach by incorporating effectiveness outreach survey feedback, expanding Tribal and AFN campaigns, enhancing partnerships with Indian Councils, Community Based Organizations (CBOs), and local school districts:

Every year customer feedback is solicited about Wildfire Safety public education efforts using surveys. The feedback focuses on measuring recall and comprehension of communication tactics and messaging. The results of the feedback are then compared to the previous year's customer research to measure public education performance and is then used to improve communications for the following year.

For the second year, SDG&E conducted a focus group at the Annual Intertribal Long Term Recovery Foundation Resiliency Breakfast to get feedback on how SDG&E can continue to improve communication to connect support programs to tribal communities. Based on feedback received from the focus group discussions, SDG&E will provide presentations to the Tribal Fire Departments and incorporate cultural education on tribal knowledge and their relationship with fire at events and workshops. This year, SDG&E expanded their outreach by participating in the Southern Indian Health Council Healthy Family events. Additionally, Iipay Nation of Santa Ysabel is partnering with SDG&E to host a Wildfire Safety Fair in September.

SDG&E continues to expand its reach to individuals with AFN by adding CBOs to its Energy Solutions Partner network that reach key demographics. These partnerships are leveraged to share Wildfire Safety and Preparedness public-education messaging through monthly social media toolkits, events, and presentations. Through these CBOs, SDG&E consistently seeks recommendations on ways to enhance our outreach and education efforts through 1x1 touchpoints with a dedicated Outreach Advisor.

An annual survey is conducted of Critical Facility and Critical Infrastructure (CFCI) customers, including school districts, to measure their level of emergency preparedness and resiliency. The

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annual survey assesses and promotes public education regarding the importance of PSPS related emergency preparedness. School districts are given an opportunity to provide feedback regarding their PSPS emergency readiness and SDG&E's methods of outreach. Additionally, CFCI educational webinars are held in advance of wildfire season to prepare school customers for potential PSPS events. Lastly, school districts have an assigned account executive that works closely with the districts to ensure their preparedness.

(b.i): Increase stakeholder engagement and use of simulations to stress-test all-hazards response plans.

Training and Exercise in collaboration with appropriate subject matter experts from the enterprise develop multiple HSEEP-guided exercises of both discussion and operations-based categories throughout the year to exercise current response plans and standard operating procedures. Leading up to these exercises, Training and Exercise invites all public safety partners to collaborate either as observers, planners, evaluators, or players in the exercises in compatible HSEEP planning processes and does additional outreach to targeted partners when requested via appropriate channels. Following the exercises, partners are invited to participate in feedback sessions and to give written feedback for lessons learned and suggestions for changes with stakeholders following best practices for AARs, Hotwashes, and written feedback solicitation.

(b.ii): Develop Training Environments to better simulate all hazards and allow for more realistic exercises and training.

This is an ongoing goal supported most recently by the development of a training environment for a PSPS dashboard. As the Training and Exercise program continues to develop in maturity, it will continue to support best practices for adhering to HSEEP compatible training and exercise experiences in venues most appropriate to the needs of responders for targeted all hazard preparedness. Like stated above, SDG&E will continue to work with partners and stakeholders in development of these training experiences and opportunities and will continue to gather feedback in HSEEP compatible AARs, Hotwashes, and written feedback solicitation.

(b.iii): Establish more formalized review of operating procedures, benchmarking, and stakeholder engagement

We currently have a formal review process guided by California Public Utilities Commission regulation, under General Order 166 and California State Assembly Bill 1650. This requirement is an annual review / presentation of our Company Emergency and Disaster Preparedness Plan. This regulatory review is led by company subject matter experts and presented to company stakeholders, community stakeholders including tribal and access and functional needs

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communities (AFN), as well as public safety partners consisting of first responders and government leaders. In addition, per our internal plans and maintenance policy, if a change in organization or regulatory requirement occurs, the plan is updated immediately irrespective of review schedules.

(b.iv): Enhance customer communication and ability to reach vulnerable populations during emergencies. AFN Self-Identification campaign.

The AFN Self-Identification effort is used to help identify Access and Functional Needs customers and their needs in order to target this segment when needed. Annual mailings are also sent to these customers about resources that are available during a wildfire, Public Safety Power shutoff or other emergency situations.

(b.v): Enhance post event documentation and application of lessons learned to update plans and exercises.

Agendas: These meetings provide opportunities to review plans, lessons learned, and survey results to share information across service territories and strengthen IOU alignment on AFN service delivery. Post-season PSPS survey results are shared, AFN notification plans are reviewed, and feedback from our partners in attendance is collected and applied.

PSPS Pre-Season Report: PSPS Pre-Season Reports describe all the actions SDG&E has taken, or is taking, in preparation for potential PSPS events during the upcoming wildfire season. The reports specify lessons learned from past events, and how SDG&E is applying those lessons to their current preparations.

Lessons Learned: SDG&E's Emergency Management Training and Exercise Team, in collaboration with the Operational Field and Emergency Readiness Team, continue to support and facilitate the process of integrating lessons learned from identified corrective actions from HSEEP compatible post-event and post-exercise Hotwashes, AARs, and solicited feedback. After reviewing identified areas for improvement, Training and Exercise works with stakeholders and subject matter experts to incorporate the appropriate findings first into coverage in training curriculum and then into scenarios, expected actions, and events lists in exercises. Responses to expected actions are reviewed post-exercise and training to determine if additional training and support is needed to address areas needing improvements.

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QUESTION 6

Regarding the Progression of the Effectiveness of Enhanced Clearances Joint Study

Please provide an update on the following items and the expected completion date for each:

- a. Standardization of the data collection process for the cross-utility database of tree-caused risk events.
- b. Determination of where and in what form the database will exist.
- c. Have the data in a common format and available for queries.

RESPONSE 6

- a. The Joint Investor-Owned Utility (IOU) Study on Enhanced Vegetation Clearances for Wildfire Mitigation technical work started in November 2022 and is scheduled to be completed by June 2024. The work is being led by The Electric Power Research Institute (EPRI) who was contracted to perform the third-party verification and analysis associated with the study. The study is divided into four phases: Database Evaluation; Database Development; Data Analysis; and Discussion of Options. Currently, we are completing the first phase, Database Evaluation, which is scheduled to conclude by the end of June 2023. During the Database Evaluation phase, the research team at EPRI requested and evaluated a sample set of data from each IOU. The team also facilitated a set of in-person and remote immersive discussions with each IOU's respective subject matter experts in vegetation management to better understand what data is currently curated and to evaluate the level of quality and certainty of data contained in the individual IOUs' database fields. The purpose of the immersive discussions was to understand the current database structures used by each utility, the method of recording data, the type of historical records available, the definitions of specific tree-pruning activities, the differences in the outage management systems, confidence in the time-series of the different database fields, and other information that may vary from utility to utility.

Immersive discussions revealed significant differences between the databases from the three utilities. There were thousands of variables across the three different databases, only a subset of which were similar in terms of definition and methods of recording. The research team and IOU SMEs discussed the variables, and which might be the most instructive for understanding the effects of enhanced clearance on wildfire mitigation. Variables under discussion included definition of clearance levels/line clearances, timing of clearances, tree growth rates, event outages, trim codes, types of disturbances, weather at the time of the outage, distance to line of tree caused outage, definition of high fire risk area, date and time of tree caused outage, tree numbering system, tree species, ignition events, tree condition, and tree height, among other variables.

The current plan is to streamline the joint IOU database to include just over 25 variables. The IOUs will be given this request for 25 variables and desired time series, to be uploaded to the

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joint IOU database. In addition to the common data variables, EPRI will also obtain and utilize the large set of the original data variables to more fully understand the data from each utility. There are plans to conduct individual analyses as well as the combined analysis.

- b. The database will sit on the EPRI Data Science Platform. It is a secure platform located on the EPRI server that will be accessible to the joint IOUs for querying. EPRI is in the process of deciding the best database type and architecture to warehouse the data to meet the needs of the project and to permit the IOUs with easy access. Decisions on this are anticipated in late summer 2023.
- c. The data will be accepted for ingestion into the joint IOU database in many forms (.csv, Excel files, spatial formats). The Database Development will be the phase where the architecture of the database will be determined and refined. Then, the data will be included into the joint database. The database will include a joint data component as well as individualized databases for each IOU so that the IOU SMEs will be able to conduct separate, individual, and confidential analysis if they would like to further explore their processed data. The Database Development will have an initial phase lasting through August 2023, followed by a Data Analysis phase lasting through March 2024. The research team anticipates that the data will be available for queries by the research team and IOU SMEs by late 2023.

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QUESTION 7

Regarding the SDG&E Framework for PSPS Risk

The WMP Technical Guidelines for Section 7.1.4.1 “Identifying and Evaluating Mitigation Initiatives” (p.s. 63-64) and Section 7.1.4.2 “Mitigation Initiative Prioritization” (ps. 64-65) require a detailed discussion of likelihood, consequence, exposure potential and vulnerability for risk associated with Public Safety Power Shutoffs (PSPS). In order to help evaluators understand the calculations that produce a PSPS risk score, please provide the following information (in MS Excel format as applicable) on SDG&E’s PSPS-Likelihood (PSPS-L) and PSPS-Consequence (PSPS-C) models and also on how SDG&E calculates the impact of mitigation on PSPS risk:

- a. Provide details on the inputs to the PSPS-L model and calculation.
 - i. Explain how PSPS protocols, FPI, and any data from other models and/or risk frameworks are combined to produce the likelihood of a PSPS event. This may be explained using a schematic supported by a narrative explanation.
 - (1) In particular, explain how the historical backcast is used to predict future likelihood of a PSPS event.
 - ii. On page 69 of SDG&E’s 2023-2025 WMP, SDG&E states that the PSPS likelihood probability “represents the likelihood that wind speeds measured at the weather station closest to a segment will exceed a set wind speed threshold (e.g., 50 mph) in a year.” Is wind speed therefore the only determinant of PSPS likelihood?
 - iii. SDG&E adds in the same paragraph, “In order to determine the baseline PSPS risk, each segment utilizes the segment-specific probability and the maximum upstream probability.” Please provide a numerical example of how this works.
 - (1) Provide SDG&E’s definition of “upstream” in a narrative format.
- b. Provide details on the inputs to the PSPS-C model and calculation.
 - iv. Provide a schematic for the PSPS-C model, including process steps.
 - (1) Describe the output of the PSPS lookback, if used.
 - v. Does Customer Classification & Weighting affect the results?
 - (1) If so, please explain how.
- c. On page 66, SDG&E’s Figure 6-7 “WiNGS-Planning Calculation Schematic” indicates that mitigation impacts are applied to total risk (i.e., the inherent [pre-mitigation] risk score minus the mitigation impact equals the residual [post-mitigation] risk score). Does SDG&E look at the impact of mitigation on the risk components (e.g., wildfire and PSPS) specifically for PSPS risk (i.e., a calculation where the inherent [pre-mitigation] **PSPS** risk score minus the **PSPS** mitigation impact equals the residual [post-mitigation] **PSPS** risk score)?
 - vi. If yes, provide a table showing how the mitigation initiatives with the highest estimated risk reduction impact PSPS risk.

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RESPONSE 7

- a.
- i. PSPS LoRE is the likelihood of a PSPS given a probabilistic set of environmental conditions. PSPS LoRE is informed by a PSPS Probability Model, which determines the probability and rate that a circuit segment will experience a PSPS de-energization within a year based on historical data. For more information, reference attached document *Model Documentation WiNGS-Planning*, section 2.4.2.2 Intermediate Risk Components, subsections PSPS LoRE and section 2.4.2.4 Individual Models, subsection PSPS Probability Model for additional information on PSPS-L. For reference, also see schematic Figure 2: WiNGS-Planning Model Process Flow Diagram in attached document *Model Documentation WiNGS-Planning*.
 - ii. No, in addition to wind speed, High Fire Days and hardening status is also included. For more information, reference attached document *Model Documentation WiNGS-Planning*, section 2.4.2.2 Intermediate Risk Components, subsections PSPS LoRE and section 2.4.2.4 Individual Models, subsection PSPS Probability Model for additional information on PSPS-L.
 - iii. PSPS LoRE utilizes data from Meteorology subject matter expertise and is based on the probability that a segment or its upstream segments will experience a PSPS de-energization during a High Fire Day based on their assessed Alert Speed thresholds as well the historical average number of High Fire Days observed. PSPS LoRE can be expressed as the following equation:

$$\text{PSPS LoRE} = \text{Incremental Upstream PSPS Probability} \times \text{Annual Avg High Fire Days}$$

The Incremental Upstream PSPS Probability can be expressed as the following equation:

$$\text{Incremental Upstream PSPS Probability} = \text{Max}(\text{Select PSPS Probability} - \text{Maximum Upstream PSPS Probability}, 0)$$

Where the Select PSPS Probability is the probability of a select circuit-segment SCADA switch hitting its set alert speed threshold during a High Fire Day event and the Maximum Upstream PSPS Probability is the highest PSPS probability of a Circuit-Segment from a select Circuit-Segment up to its associated Circuit Breaker.

Numerical Example:
Given,

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Select PSPS Probability = 3%
Maximum Upstream PSPS Probability = 2%
Annual Avg High Fire Days = 16

Incremental Upstream PSPS Probability = Max(3% - 2%, 0%) = 1%

*PSPS LoRE = 1% * 16 = 0.16*

Upstream refers to the distribution network tracing of an asset (e.g. sectionalizing device) to its associated circuit breaker.

- b.
- iv. For detailed information on the calculation, reference section *Model Documentation WiNGS-Planning*, section 2.4.2.2 Intermediate Risk Components, subsection PPS CoRE.

$$\text{Total PPS CoRE} = \sum_{i=1}^3 \text{PPS CoRE}_i$$

For reference, also see schematic Figure 2: WiNGS-Planning Model Process Flow Diagram in attached document *Model Documentation WiNGS-Planning*.

Regarding the mentioned ‘PPS lookback’, this phrase is not immediately clear and would need further clarification to be answered.

- v. Yes, PPS CoRE takes into account the customers downstream of where a de-energization may occur. As the impact of a PPS de-energization is not the same for all customer types, a Customer Type Value Model within the PPS CoRE element is utilized to account for more granularity in the PPS consequence calculation. Based on subject matter expert assumptions, different weighting (or scaling factors) is applied to each customer type for the evaluation. For more information on this model and how the wind speed thresholds are incorporated in the PPS Probability Model, please reference attached document *Model Documentation WiNGS-Planning*, section 2.4.2.4 Individual Models, subsections Customer Type Value Model.
- c. Yes
- vi. For the mitigated hardening states assessed in the model, namely Undergrounding, Covered Conductor, and Traditionally Hardened, the wind alert speed threshold associated with a specific weather station is assessed within the PPS Probability Model to create an associated PPS Probability for each of the mitigated hardening states. For more information on this model and how the wind speed

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thresholds are incorporated in the PSPS Probability Model, please reference attached document *Model Documentation WiNGS-Planning*, section 2.4.2.4 Individual Models, subsections PSPS Probability Model.

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END OF REQUEST