Link to Discovery Responses: https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan-discovery-data-requests.page

Count	Party Name	Data Set	Data Request	Question No.	Question ID	Question Text	Responses	Requestor	Date Rec'd	Final Due Date	Date Sent	Links	Number of Atchs	NDA Required	WMP Section	Category	Subcategory
Pre-Discovery 01	CalPA	Set WMP-01	CalPA_Set WMP-01	1	CalPA_Set WMP-01_Q1	Please provide a copy of each WMP-related document, submission, or report you submit to the Office of Energy Infrastructure Safety (Energy Safety) in 2023 that is related to your WMP. Provide the copy to Cal Advocates within one business day of the document's submittal to Energy Safety. (If you have submitted the document to Energy Safety in 2023 prior to this data request, please provide a copy as soon as possible and no later than 10 business days from the issuance of this data request.) This request is limited to materials or documents that (1) are related to work plans, initiative targets, risk models, risk spend efficiency (RSE) calculations, or WMP change orders; and (2) are provided to Energy Safety to provide additional details or context concerning information or statements in your WMP (and any subsequent revisions or change orders affecting your WMP).	GENERAL OBJECTIONS TO THIS SET OF DATA REQUESTS PG&E objects to the instructions or definitions in the set of data requests entitled CalAdvocates-PGE-2023WMP-01 that purport to impose any obligations greater than those provided by the applicable rules and decisions of the Commission or and any other statutes, orders, rules, or laws limiting the regulatory authority and jurisdiction of the Commission. In particular, PG&E objects to the instruction that purports to place a burden on the responding party to reach out to the requesting party to clarify any unclear questions, definitions, or instructions. The duty to prepare precise and well written instructions, definitions, and requests is on the party seeking the information and cannot be shifted to the responding party. Additionally, PG&E objects to the instruction that PG&E must "[p]rovide the name and title of the responding individual" as burdensome and not reasonably calculated to lead to the discovery of admissible evidence. Our responses to data requests are not the product of a single individual but of numerous individuals working together from different departments of the company. If the requesting party wishes to contact PG&E with questions or concerns about a data request, it may do so by contacting the appropriate individuals in the Regulatory Relations or Law Department upon whom the request was served PG&E also objects to the following definitions: • The definitions of "[r]elate to" or "concern" which are overbroad and burdensome to the extent they request materials "mention, or be connected with, in any way" the subject of the data requests. • The definitions of the terms "document," "documents," and "documentary material," which include "correspondence" and "communications," making these terms overbroad, unduly burdensome, and not reasonably calculated to lead to the discovery of admissible evidence in this proceeding. • The definition of the phrase "state the basis," which is overbroad and burdensome to the extent it requests "every fact, statistic, inference, supposition, estimate, consideration, conclusion, study, report, and analysis…." ANSWER 001 In addition to all general objections, PG&E specifically objects to this request on the grounds that it is unduly burdensome. PG&E further objects to this request as the information requested is vague, ambiguous, and overbroad. Lastly, PG&E objects to this request on the grounds that it seeks to impose a continuing response obligation on the responding party. Continuing discovery obligations are not permitted under California law. Biles v. Exxon Mobil Corp., 124 Cal.App.4th 1315, 1328 (2004); Code Civ. Proc. § 2030.060(g). Notwithstanding and without waiving these objections, PG&E responds as follows. We will do our best to provide the requested information within the requested timeframe, or as soon as possible thereafter. However, please note that due to the timing and voluminous nature of our submissions to Energy Safety, it may not always be possible to provide the information sought within the requested timeframe. In these instances, we will provide the requested information as soon as it is reasonably possible. Additionally, with the exception of confidential and spatial data, please note that we post our WMP-related submissions on our website, www.pge.com/wildfiremitigationplan, on the same business day that the documents are provided to Energy Safety. Furthermore, all submissions to Energy Safety are also posted to the relevant docket on the Energy Safety website, https://efiling.energysafety.ca.gov/, and are nearly always publicly available within one business day of submission. Public email notifications of the availability of these documents are sent to all parties who subscribe to the service lists for those dockets.	Holly Wehrman	2/7/2023	2/14/2023	2/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_001.zip	0	N/A	N/A	N/A	N/A
Pre-Discovery 03	CalPA	Set WMP-01	CalPA_Set WMP-01	3	CalPA_Set WMP-01_Q3	Provide a copy of all documents or files that are referenced in your WMP Quarterly Data Reports and submitted to Energy Safety (including but not limited to all PDFs, spatial data files, non-spatial data files, and confidential attachments) on the same business day that the document is sent to Energy Safety.	In addition to all general objections, PG&E specifically objects to this request on the grounds that it is unduly burdensome. PG&E further objects to this request as the information requested is vague, ambiguous, and overbroad. Lastly, PG&E objects to this request on the grounds that it seeks to impose a continuing response obligation on the responding party. Continuing discovery obligations are not permitted under California law. Biles v. Exxon Mobil Corp., 124 Cal.App.4th 1315, 1328 (2004); Code Civ. Proc. § 2030.060(g). Notwithstanding and without waiving these objections, PG&E responds as follows. We will do our best to provide the requested information within the requested timeframe, or as soon as possible thereafter. However, please note that due to the timing and voluminous nature of our submissions to Energy Safety, it may not always be possible to provide the information sought within the requested timeframe. In these instances, we will provide the requested information as soon as it is reasonably possible. Additionally, with the exception of confidential and spatial data, please note that we post our WMP-related submissions on our website, www.pge.com/wildfiremitigationplan, on the same business day that the documents are provided to Energy Safety. Furthermore, all submissions to Energy Safety are also posted to the relevant docket on the Energy Safety website, https://efiling.energysafety.ca.gov/, and are nearly always publicly available within one business day of submission. Public email notifications of the availability of these documents are sent to all parties who subscribe to the service lists for those dockets.	Holly Wehrman	2/7/2023	2/14/2023	2/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_001.zip	0	N/A	N/A	N/A	N/A
Pre-Discovery 04	CalPA	Set WMP-01	CalPA_Set WMP-01	4	CalPA_Set WMP-01_Q4	Provide a copy to Cal Advocates of all your confidential responses to WMP discovery requests, on the same business day that you send the documents to the issuer of the discovery request. This includes: a) Confidential responses to WMP discovery requests issued by Energy Safety. b) Confidential responses to WMP discovery requests issued by other entities.	In addition to all general objections, PG&E specifically objects to this request on the grounds that it is unduly burdensome. PG&E further objects to this request as the information requested is vague, ambiguous, and overbroad. Lastly, PG&E objects to this request on the grounds that it seeks to impose a continuing response obligation on the responding party. Continuing discovery obligations are not permitted under California law. Biles v. Exxon Mobil Corp., 124 Cal.App.4th 1315, 1328 (2004); Code Civ. Proc. § 2030.060(g). Notwithstanding and without waiving these objections, PG&E responds as follows. We will do our best to provide the requested information within the requested timeframe, or as soon as possible thereafter. However, please note that due to the timing and voluminous nature of our submissions to Energy Safety, it may not always be possible to provide the information sought within the requested timeframe. In these instances, we will provide the requested information as soon as it is reasonably possible.	Holly Wehrman	2/7/2023	2/14/2023	2/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_001.zip	0	N/A	N/A	N/A	N/A
Pre-Discovery 02	CalPA	Set WMP-01	CalPA_Set WMP-01	2	CalPA_Set WMP-01_Q2	Please provide a copy of your WMP pre-submission within two business days of its submission to Energy Safety	Attachment "WMP-Discovery2023_DR_CalAdvocates_001-Q02Atch01CONF.pdf" is our WMP pre-submission to Energy Safety. Please note that this document is not our final WMP submission and may be subject to revision before the final WMP is submitted in March. Additionally, we have designated this entire submission as confidential to align with Energy Safety's pre-submission process and guidelines which stipulate that the pre submission documents are not to be made public.	Holly Wehrman	2/7/2023	2/15/2023	2/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_001.zip	1	N/A	N/A	N/A	N/A
Pre-Discovery 07	CalPA	Set WMP-02	CalPA_Set WMP-02	3	CalPA_Set WMP-02_Q3	Provide an Excel table of all defects in the year 2022 found by Energy Safety's Compliance Branch (as rows) that includes the following information in separate columns. a) Associated circuit name b) Defect type c) Description of defect d) WMP initiative (from your 2022 WMP update) associated with defect e) Date that the defect was identified f) Date that the defect was corrected g) If the defect has not yet been corrected as of the issuance date of this data request, a brief explanation h) Priority level of corresponding corrective tag i) Geographic latitude of defect in decimal degrees, truncated to seven decimal places j) Geographic longitude of defect in decimal degrees, truncated to seven decimal places	Please see attachment "WMP-Discovery2023_DR_CalAdvocates_002-Q03Atch01CONF.xlsx" for a list of all alleged defects identified in December 2021 by the Office of Energy Infrastructure Safety ("Energy Safety"). Please note these defects were issued as notification of defects in March 2022. Please note the following: • The data provided for "Defect type", "Description of defect," and "Date that the defect was identified" are all based on Energy Safety's inspection reports. • Not all corrective actions required Electric Corrective (EC) notifications (or "EC tags"). For example, while reviewing the alleged defects from Energy Safety, some work was addressed directly in the field (e.g., trimming of vegetation), and no EC tag was created. • This attachment contains confidential information	Holly Wehrman	2/7/2023	2/22/2023	2/22/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_002.zip	1	N/A	8.1.3	Asset Inspections	N/A
Pre-Discovery 05	CalPA	Set WMP-02	CalPA_Set WMP-02	1	CalPA_Set WMP-02_Q1	Please identify and provide a copy of all quality assurance or quality control (QA/QC) reports conducted by internal entities that were completed since January 1, 2022 and that examined any programs, initiatives, or strategies described in your 2022 WMP Update.	PG&E understands this question to refer to reports from our internal Quality Control, Quality Assurance, and Quality Verification programs as set forth below. System Inspections Department Please see the attachment below for the System Inspections QC Department's daily and weekly dashboards communicating Key Performance Indicators (KPIs) and analysis. • "WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch01CONF.pdf" Please note the above attachment contain confidential information. Electric Compliance Quality Management • GO 165 Inspections Please see attachment listed below for the Electric Compliance Quality Management Department's audits of GO 165 inspections. One Distribution and one Transmission system inspections audits were conducted in 2022. Please see attachments "WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch02CONF.pdf" and "WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch03CONF.pdf"; Please note the above attachments contain confidential information. • Vegetation Quality Verification (QV) The 2022 WMP submission for Vegetation QV is broken down to the following components: Distribution Reviews, Transmission Reviews, Vegetation Control Reviews, Enhanced Vegetation Management (EVM), and Break-In Audits. Please see the following reports for each of these components: o QVVM Work Log (attached as "xlsx") is a comprehensive log for all QV reviews completed in 2022 including a summary of findings for each review as well as a detailed report of those findings. o 2022 EVM Report, attached as "WMP Discovery2023_DR_CalAdvocates_002-Q001Atch05.pdf." • Vegetation Quality Assurance (QA) The 2022 WMP submission for Vegetation QA is broken down by "bundles." Final reports are available for bundles that have been completed to date. Please see the attached zip file for a total of 37 QA Report Packages: "WMP Discovery2023_DR_CalAdvocates_002-Q001Atch06CONF.zip"; Please note the above attachments in the Zip folder contain confidential information.	Holly Wehrman	2/7/2023	3/7/2023	3/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_002.zip	6	N/A	N/A	N/A	N/A
Pre-Discovery 06	CalPA	Set WMP-02	CalPA_Set WMP-02	2	CalPA_Set WMP-02_Q2	Please identify and provide a copy of all quality assurance or quality control (QA/QC) reports conducted by external entities that were completed since January 1, 2022 and that examined any programs, initiatives, or strategies described in your 2022 WMP Update. External entities include, but are not limited to, consultants, contractors, auditors, court-appointed monitors, and Independent Evaluators.	The PG&E Independent Safety Monitor Status Update Report, dated October 4, 2022, discusses programs and initiatives described in our 2022 WMP. Please find the document here: https://www.cpuc.ca.gov/-/media/cpuc-website/industries and topics/documents/pge/oversight-and-enforcement/ism-status-update-report-q3-2022.pdf.	Holly Wehrman	2/7/2023	3/7/2023	3/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_002.zip	1	N/A	N/A	N/A	N/A
Pre-Discovery 18	CalPA	Set WMP-04	CalPA_Set WMP-04	1	CalPA_Set WMP-04_Q1	For each WMP initiative for which you forecast capital expenditures in 2023 to be at least two times actual capital expenditures in 2022, please provide: a) The name of the initiative as it is identified in your 2023-2025 WMP b) The WMP Initiative number in Table 11 of your 2023-2025 WMP c) The name of the initiative as it is identified in your 2022 WMP Update d) The WMP Initiative number in Table 12 of your 2022 WMP Update e) An explanation for the projected increase.	a) 2023 WMP financials are mapped per WMP Initiative Activities as laid out in Table 11 from Energy Safety. As the 2023 WMP is a new cycle with new mapping of financials by activities that align with the 2023 WMP narrative, there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view. Below are the 2023 WMP activities and section numbers where 2023 capital forecast is at least two times compared to the 2022 recorded costs. • Customer support in wildfire and PSPS emergencies – section 8.4.6 • Traditional Overhead Hardening Transmission – 8.1.2.5 b) See the response to part a). c) N/A. As explained in response to part a), there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view of 2022 recorded costs. d) N/A, please refer to part c). e) Explanations for the projected increase are below: • Customer support in wildfire and PSPS emergencies – There was a minor cost adjustment/correction in the 2022 recorded costs which resulted in a credit/negative in the 2022 recorded costs as shown in Table 11. • Traditional Overhead Hardening Transmission – We look to complete 43 miles in 2023 as compared to 38 miles in 2022. In addition, the 2022 recorded costs reported in Table 11 are too low due to missing some costs. The 2022 recorded for this initiative should be $7.9M instead of $4.9M. We will correct this item in Table 11 pursuant to the 2023-2025 WMP Guidelines from Energy Safety.	Holly Wehrman	2/7/2023	3/7/2023	3/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_004.zip	0	N/A	Section 4.3	Proposed Expenditures	N/A
Pre-Discovery 19	CalPA	Set WMP-04	CalPA_Set WMP-04	2	CalPA_Set WMP-04_Q2	For each WMP initiative for which you forecast capital expenditures in 2024 to be at least two times actual capital expenditures in 2022, please provide: a) The name of the initiative as it is identified in your 2023-2025 WMP b) The WMP Initiative number in Table 11 of your 2023-2025 WMP c) The name of the initiative as it is identified in your 2022 WMP Update d) The WMP Initiative number in Table 12 of your 2022 WMP Update e) An explanation for the projected increase.	a) 2023 WMP financials are mapped per WMP Initiative Activities as laid out in Table 11 from Energy Safety. As the 2023 WMP is a new cycle with new mapping of financials by activities that align with the 2023 WMP narrative, there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view. Below are the 2023 WMP activities and section number where the 2024 capital forecast is at least two times compared to the 2022 recorded costs. • Customer support in wildfire and PSPS emergencies – section 8.4.6 b) See the response to part a). c) N/A. As explained in part a) there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view of 2022 recorded costs. d) N/A, please refer to the response to part c). e) Explanations for the projected increase are below: • Customer support in wildfire and PSPS emergencies – There was a minor cost adjustment/correction in the 2022 recorded costs which resulted in a credit/negative in the 2022 recorded costs as shown in Table 11.	Holly Wehrman	2/7/2023	3/7/2023	3/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_004.zip	0	N/A	Section 4.3	Proposed Expenditures	N/A
Pre-Discovery 20	CalPA	Set WMP-04	CalPA_Set WMP-04	3	CalPA_Set WMP-04_Q3	For each WMP initiative for which you forecast operating expenditures in 2023 to be at least two times actual operating expenditures in 2022, please provide: a) The name of the initiative as it is identified in your 2023-2025 WMP b) The WMP Initiative number in Table 11 of your 2023-2025 WMP c) The name of the initiative as it is identified in your 2022 WMP Update d) The WMP Initiative number in Table 12 of your 2022 WMP Update e) An explanation for the projected increase.	a) 2023 WMP financials are mapped per WMP Initiative Activities as laid out in Table 11 from Energy Safety. As the 2023 WMP is a new cycle with new mapping of financials by activities that align with the 2023 WMP narrative, there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view. Below are the 2023 WMP activities and section numbers where 2023 operating expense forecasts are at least two times compared to the 2022 recorded costs. • Other technologies and systems not listed above – section 8.1.2.12 • Environmental monitoring systems – 8.3.2 • Fall-in mitigation 8.2.3.4 b) See the response to part a). c) N/A. As explained in part a) there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view of 2022 recorded costs. d) N/A, please refer to the response to part c). e) Explanations for the projected increases are below: • Other technologies and systems not listed above – The 2022 recorded costs in Table 11 are too low due to missing some costs. The 2022 recorded costs need to be adjusted to pull in recorded costs for Substation animal abatement. We will correct this item in Table 11 pursuant to the 2023-2025 WMP Guidelines from Energy Safety. • Environmental monitoring systems – The forecast increase in 2023 is mainly driven by anticipated weather station maintenance work such as calibrations. • Fall-in mitigation – The forecast increase is due to implementing three new VM programs starting in 2023 that support fall-in mitigations (VM for Operational Mitigations, Tree Removal Inventory, Focused Tree Inspections). Please refer to the 2023 WMP narrative in section 8.2.3.4 for additional details.	Holly Wehrman	2/7/2023	3/7/2023	3/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_004.zip	0	N/A	Section 4.3	Proposed Expenditures	N/A

Pre-Discovery 21	CalPA	Set WMP-04	CalPA_Set WMP-04	4	CalPA_Set WMP-04_Q4	For each WMP initiative for which you forecast operating expenditures in 2024 to be at least two times actual operating expenditures in 2022, please provide: a) The name of the initiative as it is identified in your 2023-2025 WMP b) The WMP Initiative number in Table 11 of your 2023-2025 WMP c) The name of the initiative as it is identified in your 2022 WMP Update d) The WMP Initiative number in Table 12 of your 2022 WMP Update e) An explanation for the projected increase.	a) 2023 WMP financials are mapped per WMP Initiative Activities as laid out in Table 11 from Energy Safety. As the 2023 WMP is a new cycle with new mapping of financials by activities that align with the 2023 narrative, there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view. Below are the 2023 WMP activities and section numbers where 2024 operating expense forecasts are at least two times the 2022 recorded costs. • Other technologies and systems not listed above – section 8.1.2.12 • Microgrids – section 8.1.2.7 • Environmental monitoring systems – 8.3.2 • Fall-in mitigation 8.2.3.4 b) See the response to part a). c) N/A. As explained in part a), there is not an apples-to-apples re-mapping of costs back to the 2022 WMP view. Thus, the comparison can only be made using the 2023 WMP view of 2022 recorded costs. d) N/A. Please refer to the response to part c). e) Explanations for the projected increases are below: • Other technologies and systems not listed above – The 2022 recorded costs are too low by anticipated weather station maintenance work such as calibrations. • Fall-in mitigation – The forecast increase is due to implementing three new VM programs that support fall-in mitigations (VM for Operational Mitigations, Tree Removal Inventory, Focused Tree Inspections). Please refer to the narrative in section 8.2.3.4 of the 2023 WMP for more details due to missing some costs. The 2022 recorded costs need to be adjusted to pull in recorded costs for Substation animal abatement. We will correct this item in Table 11 pursuant to the 2023-2025 WMP Guidelines from Energy Safety. • Microgrids – The projected increase is based on forecast and anticipated projects put forward to the CPUC in PG&E's Microgrids Incentive Program Implementation Plan. The plan is currently awaiting a CPUC Decision. • Environmental monitoring systems – The forecast increase in 2023/2024 is mainly driven.	Holly Wehrman	2/7/2023	3/7/2023	3/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_004.zip	0	N/A	Section 4.3	Proposed Expenditures	N/A
Pre-Discovery 43	CPUC - SPD (Safety Policy Division)	001	CPUC - SPD (Safety Policy Division)_001	1	CPUC - SPD (Safety Policy Division)_001_Q1	REFCL Inquiries: •REFCL Pilot at Calistoga Circuit Segment ID 1102131531 oDescribe various active settings profiles. oDescribe how staged fault testing is planned to be conducted. oExplain how REFCL rides through momentary faults & when REFCL deenergizes line for permanent faults. •Substation Configuration – Describe any substation and/or circuit configuration issues to deploy REFCL •Availability of REFCL – Describe any known barriers to increasing deployment in CA •Explain which risk drivers per Table PG&E-7.1.4-1 REFCL mitigates. •Explain why REFCL is not preferred mitigation for broader deployment and confirm PG&E no longer plans to install REFCL at 2 substations per year per GRC filing.	a. i. The REFCL equipment installed in the substation protects all the primary lines on both Calistoga circuits. Three settings profiles allow for changing fault sensitivity and tripping behavior on the fly based on field conditions/risk. Setting 1 is for low risk with a three second delay before switching the neutral to solid grounding for line protection to clear the fault. Setting 2 is for medium risk with a three second fault ride through before directly tripping the faulted feeder circuit breaker for a sustained fault. Setting 3 is for high risk with no time delay and greatest fault sensitivity and tripping the faulted feeder circuit breaker. ii. Staged fault testing was performed in 2022 with preliminary data collected. A mobile high voltage resistor bank is momentarily connected to stage a fault on the circuit. Normally the system rides through the neutral shift with no service outage from the test. Due to greater line to ground voltages during the testing, the possibility of unplanned outage of line equipment failing is slightly increased. iii. All service transformers on REFCL circuits are connected line to line, so service voltage is maintained during the ground fault. If setting 1 or 2 is active, once a ground fault is detected, a three second time delay elapses before the fault confirmation is performed. If the fault confirmation determines that the fault vanished (momentary fault), then the neutral voltage is returned to normal with no service interruption. If the fault confirmation determines that it is a sustained fault, then the tripping is handled based on the active setting group described in 1ai. b. Due to equipment failures in the substation and on the line in the REFCL demonstration project, PG&E is still evaluating the technology and gaining operational experience with it. In order to deploy REFCL, the primary considerations for deployment are: • Substation voltage regulators: Replace wye-ground connected regulators with line-line connected regulators • Substation feeder breakers: High accuracy current transformers retrofitted • Substation secondary neutral: clearance of substation transformer bank and installation of grounding switch and cable connections to arc suppression coil • Substation physical space: Enough room within the substation for an 16 ft x 28 ft footprint per Ground Fault Neutralizer (GFN). Some substations may require 2 GFNs right away for deploying REFCL • Distribution circuits: 3-wire uni-grounded neutral only • Distribution circuits: Maximum of approximately 50 circuit miles of underground cable per transformer bank • Distribution circuits: Primary connected customers – requires large isolation transformer depending on complexity of customer-owned equipment • Distribution circuits: Long single phase underground cable causes increased neutral current and requires capacitive balancing units (CBUs) c. Each distribution circuit in California is unique. REFCL deployment needs to be evaluated on a circuit-by-circuit basis. Present lead time for certain types of substation equipment to support REFCL deployment exceeds 60 weeks. d. REFCL mitigates the following risk drivers from the table: • Vegetation contact, Equipment/Facility failure • Contact from object • Unknown • Other • Vandalism/Theft • Contamination • CC – seismic scenario	Wendy Al-Mukdad	2/23/2023	3/9/2023	3/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_001.zip	0	N/A	8.1.8.1.3	Grid Operations and Procedures	Settings of Other Emerging Technologies (e.g., Rapid Earth Fault Current Limiters)
Pre-Discovery 44	CPUC - SPD (Safety Policy Division)	001	CPUC - SPD (Safety Policy Division)_001	2	CPUC - SPD (Safety Policy Division)_001_Q2	EPSS & Supporting Technologies (DCD & Partial Voltage Detection) Inquiries: •Explain all activities planned to mitigate EPSS reliability impacts. oAre customer support programs (e.g., battery backup) distinct from or linked to those in place for PSPS implementation? •Explain Sensitive Ground Fault settings for EPSS enabled circuit segments. •Explain Downed Conductor Detection (DCD) technology and how it isolates high impedance faults with EPSS. oExplain DCD 2023-2025 Targets (i.e. 500, 400 & 250 protective device controllers or relays) and whether they will cover all HFTD and buffer EPSS circuits. Explain why says To Be Updated. oExplain how many DCD are currently installed including on top 5% risk circuit segments. •Explain Partial Voltage Detection using SmartMeters and how supplements DCD and EPSS.	a. The following incudes activities on-going and planned to mitigate EPSS reliability impacts: Enhanced Outage Review Team (ORT) process that includes additional review of circuit/Circuit Protection Zone (CPZ) performance that when multiple outages occur triggers a Multiple Outage Review (MORE) to drive additional actions if needed to reduce repeat outages going forward. • Continuing Proactive Vegetation Trimming on the Top 12 circuit segments that were identified last year based on number of outages experienced and a projected enablement of over 50% for the fire season. For 2023 we looked at CEMI (customers experiencing multiple outages) impacted customers and evaluated vegetation outages and identified 9 additional circuit protection zones to be added to this approach. • Continuing Extent of Condition assessment and trimming. When a vegetation related EPSS outage occurs the incident location and 5 spans in all directions is inspected by our vegetation management team to identify trimming opportunities to prevent an outage from occurring near the previous location reducing risk and improving reliability. • EPSS CEMI 8+ Targeted customers: 1. Vegetation clearing for CPZ's with multiple veg caused outages as covered above 2. Developing an animal mitigation strategy for animal interaction reduction due to high animal-caused outages when EPSS is enabled. • Fault Indicator Installations Proactively installing 1360 Fault Indicators on EPSS Circuits to expedite outage restoration and assist in finding the cause of outages to be addressed to prevent future unknown outages i. In general, customer support programs for EPSS are linked to those in place for PSPS implementation. In most cases, such as with PG&E's Portable Battery Program (PBP), Disability and Disaster Access and Resource Program (DDAR), and Generator and Battery Rebate Program (GBRP), the programs are the same; PG&E simply expanded eligibility criteria such that programs initially targeting PSPS customer outages now also include the most impacted EPSS customers. One notable exception is the new residential Fixed Power Solutions offering (aka, the Residential Storage Initiative or RSI), which was launched in late 2022. As a new offering, RSI was targeted at EPSS-impacted customers, which happen to overlap with areas historically impacted by PSPS events. b. The Sensitive Ground Fault (SGF) protective element, which was expanded to systemwide use in 2021 and 2022 on 3-wire circuits as a part of EPSS, is a low set non-directional ground overcurrent element typically set at 15A with a 15-20 second delay. Prior to 2021, SGF was in use in limited usage throughout the system. SGF is enabled year-round given the public safety benefit of detecting and isolating wire on ground faults. SGF is only implemented on reclosers and circuit breakers protecting 3-wire or phase-to-phase load connected downstream line sections. c. Down Conductor Detection (DCD) technology is an industry term used to describe different protective relay algorithms that are focused on detection and isolation of high impedance ground faults. The specific algorithm currently in deployment at PG&E is proprietary to the manufacturer and relay being used but at a high-level leverages high sensitivity ground current measurements, current rate of change detection, and harmonic signatures to provide the proper sensitivity and restraint –tripping only when necessary to clear a high impedance fault but not in response to normal fluctuations on the grid - required to detect conditions beyond the capability of traditional protective relay elements. i. DCD 2023-2025 targets are determined and prioritized according to the highest Wildfire Risk Composite Score that covers all High Fire Risk Area (HFRA) and EPSS Buffer Areas as well as capturing the most HFRA miles where existing or upgradable DCD controllers are available. The top 500 highest risk scores are targeted for 2023, followed by 400 next highest risk scores in 2024 and remaining balance in 2025. Targets in 2024-2025 are subject to change or updated due to future potential changes in conditions (e.g., strategy, scope, priority, new information/discoveries/technology)	Wendy Al-Mukdad	2/23/2023	3/9/2023	3/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_001.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
Pre-Discovery 45	CPUC - SPD (Safety Policy Division)	001	CPUC - SPD (Safety Policy Division)_001	3	CPUC - SPD (Safety Policy Division)_001_Q3	EPSS & REFCL Inquiries: •EPSS vs REFCL – Describe the major similarities and differences. oWhat are advantages and disadvantages? In terms of capability, sectionalization, safety, and reliability? •Phase-to-Ground Faults vs Complex (Multiphase) Faults – What is the risk profile of existing ignitions on PG&E's system and how does REFCL & EPSS mitigate these risks? •Combination of REFCL with EPSS & Other Mitigations – Explain how these could work together, and if PG&E has quantified combined risk-reduction benefits. •Explain the differences in fault energy for EPSS vs REFCL including for low and high impedance faults. oExplain why EPSS is preferred if REFCL fault energy is less than 10% of EPSS fault energy for low impedance faults. oExplain the effectiveness of DCD vs REFCL on high impedance faults	a. In concept, EPSS and REFCL are two very different approaches that share a common goal of attempting to reduce risk associated with ignitions on primary electric distribution systems. i. EPSS – advantages: • Can be implemented on mostly existing equipment and relays • Reduces incident fault energy across all types of faults (Three-phase, line-to-line, line-to-ground, etc.) • Reduces incident fault energy through fault clearing time reduction • Helps to reduce backfeed issues associated with 3-wire distribution system by prioritizing gang trip behavior versus single phase fuse operation • Incorporates various technologies for high impedance fault detection (Sensitive Ground Fault (SGF), Downed Conductor Detection (DCD), etc.) • Does not require extensive field high speed measurements or communication beyond traditional SCADA and remote access. (I.e. does not rely on synchrophasor technology) • Does not require changes to system grounding configuration or load connections to implement REFCL – advantages: • Potential for 90% ignition probability reduction for single line to ground faults (Victorian ignition testing). Considering all fault types, an overall ignition probability reduction can be calculated to approximately a 59% reduction. • Fault current limited to 1 Amp for single line to ground faults based on 2022 field testing • Greater sensitivity to high impedance faults (> 5k ohm fault resistance) • Lower short circuit forces for line equipment for ground faults EPSS – disadvantages: • Less capability to sectionalize the system during fault events as compared to traditional protective settings due to the minimal coordination time provided in which can result in lower reliability performance • Fault current is not limited - fault energy is reduced by faster clearing times -and remains a function of existing system configuration. Re-energization after a fault event requires disabling of EPSS to avoid inrush trips • Susceptible to trips associated with customer load inrush, CT error, capacitor bank switching, and other non-fault grid disturbances. REFCL – disadvantages: • No risk reduction for line-line faults or three-phase ground faults • Complicated to install and operate • Limits operational flexibility / switching for the distribution circuits • Fault location is more difficult • Increased line-ground voltage stress on equipment during fault • Requires tuning, stress testing, and some proactive equipment replacement b. PG&E will need to evaluate the occurrences of different types of faults at locations within HFRA to determine the risk profile of existing ignitions and risk mitigation for REFCL and EPSS. c	Wendy Al-Mukdad	2/23/2023	3/9/2023	3/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_001.zip	0	N/A	8.1.8.1	Grid Operations and Procedures	Equipment Settings to Reduce Wildfire Risk
Pre-Discovery 46	CPUC - SPD (Safety Policy Division)	001	CPUC - SPD (Safety Policy Division)_001	4	CPUC - SPD (Safety Policy Division)_001_Q4	General risk reduction inquiry: •What's PG&E's goal for long-term risk reduction, particularly reduction of likelihood of ignition and also reduction of consequences, for circuits in HFTDs that are not undergrounded?	PG&E's long term goal is to maximize risk reduction by undergrounding high wildfire risk locations. For locations that will not be undergrounded, we will continue to deploy our suite of Operational Mitigations and other System Resilience Mitigations. Operational Mitigations include programs such as EPSS, equipment maintenance and repair, vegetation management for operational mitigations, and PSPS. System Resilience Mitigations include programs such as covered conductor installation, transmission conductor replacement, line removal, and distribution and transmission HFTD and HFRA open tag reduction. We will also manage system risk through our Comprehensive Monitoring and Data Collection programs include detailed distribution and transmission asset inspection programs, vegetation inspection programs, and monitoring programs such as Distribution Fault Anticipation Installations, Early Fault Detection Sensors and our network of wildfire cameras and weather stations. A complete listing of PG&E's mitigation programs is included in Section 7.2.1. of PG&E's WMP. Table 7.4 in PG&E's WMP shows how we layer different mitigation programs at the circuit segment level to provide system protection and reduce risk. While Table 7.4 shows only PG&E's top risk circuit segments, we apply this approach across all the circuits in the HFTD and HFRA. PG&E will continue to explore new technologies to reduce the risk of ignitions and the consequences of wildfires and may incorporate new technologies into our mitigation portfolio.	Wendy Al-Mukdad	2/23/2023	3/9/2023	3/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_001.zip	0	N/A	7.2.1	Wildfire Mitigation Strategy Development	Overview of Mitigation Initiatives and Activities
Pre-Discovery 22	CalPA	Set WMP-05	CalPA_Set WMP-05	1	CalPA_Set WMP-05_Q1	In response to Data Request CalAdvocates-PGE-2022WMP-31 on September 8, 2022, PG&E provided information regarding its Wildfire Distribution Risk Model version 3 (WDRM v3). Please provide an updated response to questions 1-7 of the above-referenced data request, including any new or changed information since PG&E's original response. If the response to a question has not changed, please so indicate.	No changes have been made to WDRM v3 since the September 8, 2022 response.	Holly Wehrman	2/10/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_005.zip	0	N/A	2022 WMP Section 4.5	Model Metrics and Calculation Methodologies	WDRM v3
Pre-Discovery 23	CalPA	Set WMP-05	CalPA_Set WMP-05	2	CalPA_Set WMP-05_Q2	a) Have you identified transportation corridors within your service territory where falling or failing lines or poles could currently limit egress and/or ingress during an emergency? b) If the answer to part (a) is yes, please describe how you identify such transportation corridors. c) If available, please provide a geospatial data file that contains all current identified transportation corridors with ingress and egress hazards.	a) The potential of falling or failing lines or poles near identified transportation corridors is not currently reflected in our risk modeling. PG&E Public Safety Specialists with experience as career wildland firefighters have reviewed general egress and/or ingress concerns when evaluating circuits or circuit segments for potential system hardening work. b) Not applicable c) Not applicable	Holly Wehrman	2/10/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_005.zip	0	N/A	8.1.3	Asset Inspections	N/A
Pre-Discovery 24	CalPA	Set WMP-05	CalPA_Set WMP-05	3	CalPA_Set WMP-05_Q3	Please fill out the attached spreadsheet, CalAdvocates-PGE-2023WMP-05 Attachment 1, requesting information regarding your asset inspections in 2022.	Please see attachment "WMP-Discovery2023_DR_CalAdvocates_005-Q003Atch01.xlsx" for the requested information	Holly Wehrman	2/10/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_005.zip	1	N/A	8.1.3	Asset Inspections	Inspections completed in 2022
Pre-Discovery 25	CalPA	Set WMP-05	CalPA_Set WMP-05	4	CalPA_Set WMP-05_Q4	Please augment Table 13 of the non-spatial data tables in your WMP Quarterly Data Report for Q4 of 2022, which reports asset-related corrective notifications on electric circuits that were open at the end of the quarter, as follows. a. Add the following information in separate columns: i. Name of the associated circuit ii. ID number of the associated circuit iii. Geographic latitude in decimal degrees, truncated to seven decimal places iv. Geographic longitude in decimal degrees, truncated to seven decimal places v. Priority of the original notification, using PG&E's internal priority level codes vi. Object/damage code or other internal description of defect b. Please complete column b ("Equipment type") of Table 13. c. Please complete or explain why each of the below columns is not applicable: i. Column i ii. Column j iii. Column k iv. Column l	a-b. Please see attachments "WMP-Discovery2023_DR_CalAdvocates_005-Q004Atch01.xlsb" for the requested Distribution information and "WMP-Discovery2023_DR_CalAdvocates_005-Q004Atch02.xlsx" for the requested Transmission information. c. Please note that columns i, j, k, and l will not be available for Distribution and Transmission circuits until the 2023 Q1 Quarterly Data Report (QDR) because the data is not ready, and due to recent changes to the standard that resulted in a substantial reassessment of our notification data.	Holly Wehrman	2/10/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_005.zip	2	N/A	2022 Q4 QDR	P	tags

Pre-Discovery 08	CalPA	Set WMP-03	CalPA_Set WMP-03	1	CalPA_Set WMP-03_Q1	Provide an Excel table of all distribution circuits existing as of January 1, 2023 (as rows) that includes the following information in separate columns. a. Circuit name b. Circuit ID number c. Total circuit miles d. Circuit miles in Non-HFTD Areas e. Circuit miles in Other HFTD f. Circuit miles in HFTD Tier 2 g. Circuit miles in HFTD Tier 3 h. Circuit voltage i. Circuit SAIDI (System Average Interruption Duration Index) for 2021 j. Circuit SAIDI (System Average Interruption Duration Index) for 2022 k. Circuit SAIFI (System Average Interruption Frequency Index) for 2021 l. Circuit SAIFI (System Average Interruption Frequency Index) for 2022 m. Circuit MAIFI (Momentary Average Interruption Frequency Index) for 2021 n. Circuit MAIFI (Momentary Average Interruption Frequency Index) for 2022 o. Total customer-minutes of de-energization on the circuit due to PSPS events in 2021 (sum of customer-minutes across all PSPS events). p. Total customer-minutes of de-energization on the circuit due to PSPS events in 2022 (sum of customer-minutes across all PSPS events). q. Total customer-minutes of de-energization on the circuit due to fast-trip settings in 2021. r. Total customer-minutes of de-energization on the circuit due to fast-trip settings in 2022. s. Number of trees that were worked on for EVM in Non-HFTD in 2021 t. Number of trees that were worked on for EVM in Non-HFTD in 2022 u. Number of trees that were worked on for EVM in Other HFTD in 2021 v. Number of trees that were worked on for EVM in Other HFTD in 2022 w. Number of trees that were worked on for EVM in HFTD Tier 2 in 2021 x. Number of trees that were worked on for EVM in HFTD Tier 2 in 2022 y. Number of trees that were worked on for EVM in HFTD Tier 3 in 2021 z. Number of trees that were worked on for EVM in HFTD Tier 3 in 2022 aa. Miles of covered conductor installed in Non-HFTD in 2021 bb. Miles of covered conductor installed in Non-HFTD in 2022 cc. Miles of covered conductor installed in Other HFTD in 2021	PG&E is providing the requested distribution information at the circuit level in attachment "WMP-Discovery2023_DR_CalAdvocates_003-Q001Atch01.xlxs." Included in the table below are notes that document assumptions in the methodology for data collection. Where we have not included any notes, the data provided did not require adaptations or assumptions in answering the request. For purposes of this request, "Other HFTD" refers to Zone 1 areas. Asset data provided in response to this request was generated from PG&E's Geographic Information Systems (GIS) and presented in a spreadsheet format. PG&E's Electric Transmission GIS and Electric Distribution GIS mapping systems represent assets associated with construction work when that work has been received and mapped by electric GIS mapping technicians. Construction jobs that are partially complete or fully complete may be mapped in the GIS systems once construction "as built" information has been submitted and accepted by the GIS Mapping Department. Prior to being received by the GIS Mapping Department, completed job packages must undergo several processing steps including clerical review, processing, and paperwork scanning. Sometimes completed job packages require additional information from the field or post-estimating work. The processing steps take time to complete. Until a project is completed and mapped, detailed information remains in the design systems and paper job packages. Therefore, completed field work is not always reflected in the current GIS systems. Once data is mapped in PG&E's GIS systems, it can be formatted to meet the requirements of the Office of Energy Infrastructure Safety (Energy Safety) File Geodatabase schema and included in our GIS Data Standard submissions. Data Question Notes Circuit Information a-h Some circuits can have multiple voltages. Where this occurs, the Circuit Voltage in column g reflects the voltage of the majority of the circuit (based on circuit miles). Please note, Circuit IDs and Circuit Names representing idle circuits were not included in this response. SAIDI/SAIFI/MAIFI i-n All transmission, substation, and distribution level outages as of February 22, 2023 were used to quantify the metric results as measured at the individual distribution circuit level and include Major Event Days (as defined in the IEEE 1366 Standard). The denominator used for each calculation is based on the number of customers served by each circuit (based on the system confirmation at the end of 2022 and may not represent the same circuit configuration at the time of each contributing outage event). De-Energization o-r As previously stated in our PSPS Post Event De Energization reports submitted to the CPUC: "The information, times and figures referenced in this report are based on the best available information available at the time of this report's submission. The information, times and figures herein are subject to revision based on further analysis and validation." As such, we note that there are some minor updated revisions in the data included in this submission, as compared to the data that may have been previously reported in previous submissions immediately following the events, due to further data reconciliation and analysis having been performed in the time which has elapsed between this report and any other previous submissions. In some circumstances, PG&E may conclude a PSPS event before all customers are restored. For example, when there is an ongoing fire that prohibits PG&E from restoring customers or extensive weather-related damages that require extended outages while crews safely repair the area. The outage durations for these customers are not included in Questions 1o-p and Questions 2i-j, as we do not have restoration dates and times for those customers. For information on which circuits were not restored prior to concluding the PSPS, please see the "Time, Place, Duration, and Affected Customers" appendix section of the PSPS Post-Event Reports. Please note that the sum of PSPS customer outage durations is rounded up to the whole minute for each circuit to be consistent with data included in past data responses. This data request response will reference all outages associated with a PSPS event, including those which are either indirect effects of the PSPS event and are not direct de-energizations, or brief outages occurring as a result of microgrid switching, or temporary generation used	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	2	N/A	8.1.3	Asset Inspections	Distribution
Pre-Discovery 09	CalPA	Set WMP-03	CalPA_Set WMP-03	2	CalPA_Set WMP-03_Q2	Provide an Excel table of all transmission circuits existing as of January 1, 2023 (as rows) that includes the following information in separate columns. a. Circuit name b. Circuit ID number c. Total circuit miles d. Circuit miles in Non-HFTD Areas e. Circuit miles in Other HFTD f. Circuit miles in HFTD Tier 2 g. Circuit miles in HFTD Tier 3 h. Circuit voltage i. Total customer-minutes of de-energization on the circuit due to PSPS events in 2021 (sum of customer-minutes across all PSPS events). j. Total customer-minutes of de-energization on the circuit due to PSPS events in 2022 (sum of customer-minutes across all PSPS events). k. Total customer-minutes of de-energization on the circuit due to fast-trip settings in 2021. l. Total customer-minutes of de-energization on the circuit due to fast-trip settings in 2022. m. Number of support structures replaced in Non-HFTD in 2021 n. Number of support structures replaced in Non-HFTD in 2022 o. Number of support structures replaced in Other HFTD in 2021 p. Number of support structures replaced in Other HFTD in 2022 q. Number of support structures replaced in HFTD Tier 2 in 2021 r. Number of support structures replaced in HFTD Tier 2 in 2022 s. Number of support structures replaced in HFTD Tier 3 in 2021 t. Number of support structures replaced in HFTD Tier 3 in 2022 u. Miles of LiDAR inspection in Non-HFTD in 2021 v. Miles of LiDAR inspection in Non-HFTD in 2022 w. Miles of LiDAR inspection in Other HFTD in 2021 x. Miles of LiDAR inspection in Other HFTD in 2022 y. Miles of LiDAR inspection in HFTD Tier 2 in 2021 z. Miles of LiDAR inspection in HFTD Tier 2 in 2022 aa. Miles of LiDAR inspection in HFTD Tier 3 in 2021 bb. Miles of LiDAR inspection in HFTD Tier 3 in 2022 cc. Number of detailed aerial inspections in Non-HFTD in 2021	PG&E is providing the requested transmission information at the circuit level in the attachment named "WMP-Discovery2023_DR_CalAdvocates_003-Q001Atch01.xlxs." Included in the table below are notes that document assumptions in the methodology for data collection. Where we have not included any notes, the data provided did not require adaptations or assumptions in answering the request. For purposes of this request, "Other HFTD" refers to Zone 1 areas. Asset data provided in response to this request was generated from PG&E's Geographic Information Systems (GIS) and presented in a spreadsheet format. PG&E's Electric Transmission GIS and Electric Distribution GIS mapping systems represent assets associated with construction work when that work has been received and mapped by electric GIS mapping technicians. Construction jobs that are partially complete or fully complete may be mapped in the GIS systems once construction "as built" information has been submitted and accepted by the GIS Mapping Department. Prior to being received by the GIS Mapping Department, completed job packages must undergo several processing steps including clerical review, processing, and paperwork scanning. Sometimes completed job packages require additional information from the field or post-estimating work. The processing steps take time to complete. Until a project is completed and mapped, detailed information remains in the design systems and paper job packages. Therefore, completed field work is not always reflected in the current GIS systems. Once data is mapped in PG&E's GIS systems, it can be formatted to meet the requirements of the Office of Energy Infrastructure Safety (Energy Safety) File Geodatabase schema and included in our GIS Data Standard submissions. Data Question Notes Circuit Information a.-h Some circuits can have multiple voltages. Where this occurs the Circuit Voltage in column g reflects the voltage of the majority of the circuit (based on circuit miles). De-Energization i-l As previously stated in our PSPS Post Event De Energization reports submitted to the CPUC: "The information, times and figures referenced in this report are based on the best available information available at the time of this report's submission. The information, times and figures herein are subject to revision based on further analysis and validation." As such, we note that there are some minor updated revisions in the data included in this submission, as compared to the data that may have been previously reported in previous submissions immediately following the events, due to further data reconciliation and analysis having been performed in the time which has elapsed between this report and any other previous submissions. In some circumstances, PG&E may conclude a PSPS before all customers are restored. For example, when there is an ongoing fire that prohibits PG&E from restoring customers or extensive weather-related damages that require extended outages while crews safely repair the area. The outage durations for these customers are not included in Questions 1o-p and Questions 2i-j, as we do not have restoration dates and times. For information on which circuits were not restored prior to concluding the PSPS, please see the "Time, Place, Duration, and Affected Customers" appendix section of the PSPS Post-Event Reports. Note the sum of PSPS customer outage durations is rounded up to the whole minute for each circuit to be consistent with data included in past data responses. This data request will reference all outages associated with a PSPS event, including those which are either indirect effects of the PSPS event and are not direct de-energizations, or brief outages occurring as a result of microgrid switching or temporary generation used as part of PSPS mitigation solution. Most switching in a PSPS event to re-energize customers takes place, typically, between five minutes and one hour, and that re-energization occurring within four hours of de-energization or outages less than four hours, typically, can likely be attributed to switching	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	0	N/A	8.1.3	Asset Inspections	Transmission
Pre-Discovery 10	CalPA	Set WMP-03	CalPA_Set WMP-03	3	CalPA_Set WMP-03_Q3	Provide an Excel table of all distribution circuits existing as of January 1, 2022 (as rows) that were removed or decommissioned in 2022, either partially or entirely. This includes permanent removal, removal of overhead lines that were moved underground, or overhead lines that were decommissioned but not physically removed. Include the following information in separate columns. a. Circuit name b. Circuit ID number c. Circuit miles removed or decommissioned in Non-HFTD Areas d. Circuit miles removed or decommissioned in Other HFTD e. Circuit miles removed or decommissioned in HFTD Tier 2 f. Circuit miles removed or decommissioned in HFTD Tier 3 g. Reason(s) for removal or decommissioning	Attached is "WMP-Discovery2023_DR_CalAdvocates_003-Q003Atch01.xlsx", which provides information regarding removals of primary distribution lines in HFTD in 2022, which is the subset of the requested information available at this time. PG&E does not track line removals when relocating overhead to underground, removing secondary services, or removing lines in non-HFTD. Further, our GIS cannot be used to obtain this information retroactively because when mapping removals, the electric assets are removed from GIS. Below we provide additional information to clarify the data provided in the attachment in response to the request. a. Circuit name: See column C. b. Circuit ID number: See column D. c. Circuit miles removed or decommissioned in Non-HFTD Areas: N/A. As noted above, PG&E does not track line removals when relocating overhead to underground, removing secondary services, or removing lines in non-HFTD . d. Circuit miles removed or decommissioned in Other HFTD: N/A. PG&E does not track line removals when relocating overhead to underground, removing secondary services, or removing lines in non-HFTD. e. Circuit miles removed or decommissioned in HFTD Tier 2: Column E indicates if the project in the unique circuit segment is in either a Tier 2 and/or Tier 3 HFTD, and column G includes the associated circuit miles. f. Circuit miles removed or decommissioned in HFTD Tier 3: Column E indicates if the project in the unique circuit segment is in either a Tier 2 and/or Tier 3 HFTD, and column G includes the associated circuit miles. g. Reason(s) for removal or decommissioning: See Column F, which notes the name of one of three programs: (1) Fire Rebuild – Removal based on rebuilding in the aftermath of wildfires; (2) Idle Facilities – Unused facilities with no foreseeable future use; or (3) Base SH (System Hardening) – Removal based on the risk-informed criteria used in PG&E's System Hardening Program.	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	1	N/A	8.1.2	Grid Design and System Hardening	Work Performed in 2022
Pre-Discovery 11	CalPA	Set WMP-03	CalPA_Set WMP-03	4	CalPA_Set WMP-03_Q4	Provide an Excel table of all transmission circuits existing as of January 1, 2022 (as rows) that were removed or decommissioned in 2022, either partially or entirely. This includes permanent removal, removal of overhead lines that were moved underground, or overhead lines that were decommissioned but not physically removed. Includes the following information in separate columns. a. Circuit name b. Circuit ID number c. Circuit miles removed or decommissioned in Non-HFTD Areas d. Circuit miles removed or decommissioned in Other HFTD e. Circuit miles removed or decommissioned in HFTD Tier 2 f. Circuit miles removed or decommissioned in HFTD Tier 3 g. Reason(s) for removal or decommissioning	Please see "WMP-Discovery2023_DR_CalAdvocates_003-Q004Atch01.xlsx.	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	1	N/A	Grid Design and System Hardening	System Hardening	Work Performed in 2022
Pre-Discovery 12	CalPA	Set WMP-03	CalPA_Set WMP-03	5	CalPA_Set WMP-03_Q5	For each WMP initiative listed below, please state how the modeled Wildfire Risk Scores for each circuit or circuit-segment influenced where you performed work in 2022. a. EVM b. Covered conductor installation c. Undergrounding d. Distribution pole replacement e. Grid sectionalization f. Detailed inspections of distribution assets g. Detailed inspections of transmission assets h. Aerial inspections of distribution assets i. Aerial inspections of transmission assets j. LiDAR inspections of distribution assets k. LiDAR inspections of transmission assets	a. EVM work in 2022 was informed by a modification of the 2021 Wildfire Distribution Risk Model (WDRM). The refined output from the 2021 WDRM is referred to as the EVM Tree-Weighted Prioritization. The EVM Tree-Weighted Prioritization prioritized the high risk CPZs with the associated miles and estimated tree work to produce the 2022 EVM Scope of Work as described in the 2022 WMP Section 7.1.B. In 2022, the goals for the EVM program were: (1) to perform at least 80% of our 2022 EVM work on the highest 20% of the risk-ranked miles; and (2) to perform approximately 1,800 miles of EVM work by the end of the year. b. As described in the 2022 WMP Section 7.3.3.17.1 "System Hardening –Distribution," PG&E targeted the highest wildfire risk miles and applied various mitigations such as line removal, conversion from overhead to underground, application of remote grid alternatives, mitigation of exposure through relocation of overhead facilities, and in-place overhead system hardening (emphasis added). For 2022, the highest wildfire risk miles were separated into four categories: 1. The top 20 percent of circuit segments as defined by PG&E's 2021 WDRM v2 for System Hardening, 2. Fire and Major Emergency rebuild within HFTD, 3. PSPS mitigation projects; and 4. Locations identified by PG&E's Public Safety Specialist (PSS) team as presenting elevated wildfire risk. The primary approach used for selecting and prioritizing circuit segments for covered conductor installation was based on the 2021 WDRM v2. c. As described in the 2022 WMP Section 7.3.3.17.1 "System Hardening –Distribution," PG&E targeted the highest wildfire risk miles and applied various mitigations such as line removal, conversion from overhead to underground(emphasis added), application of remote grid alternatives, mitigation of exposure through relocation of overhead facilities, and in-place overhead system hardening. For 2022, the highest wildfire risk miles are separated into four categories: 1. The top 20 percent of circuit segments as defined by PG&E's 2021 WDRM v2 for System Hardening, 2. Fire and Major Emergency rebuild within HFTD, 3. PSPS mitigation projects; and 4. Locations identified by PG&E's Public Safety Specialist (PSS) team as presenting elevated wildfire risk. The primary approach used for selecting and prioritizing circuit segments for converting overhead to underground was based on the 2021 WDRM v2. As described in the 2022 WMP Section 7.3.3.17.6 "Butte County Rebuild Program," PG&E did not identify these circuit segments using a risk model. d. As described in the 2022 WMP Section 7.3.3.6, "Distribution Pole Replacement and Reinforcement, Including with Composite Poles," PG&E leveraged the Wildfire Distribution Risk Model (WRDM) v2 to determine what pole replacement work was performed in 2022. Pole replacements are driven primarily by asset condition, namely maintenance tags found through enhanced inspections and intrusive inspections (Pole Test and Treat). These tags are then prioritized using the WRDM, which considers both wildfire ignition likelihood and consequence. In addition, pole replacements were also prioritized based on CPUC commitments, self-reports and other regulatory conditions. e. For transmission and distribution grid sectionalization, Wildfire Risk scores were not factors in determining what grid sectionalizing work was performed. Sectionalizing device prioritization in 2022 was based on circuit HFTD location, likelihood of potential de-energization during future PSPS events (based on a study of 10-years of weather data), and/or potential customer impact. f. In 2022, wildfire risk scores were not factors in determining where work was performed for detailed ground inspections on distribution facilities. Detailed ground inspections were performed on all Tier 3 assets and roughly one-third of Tier 2 assets. This was the final third of a three-year program to inspect Tier 2 distribution	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	0	N/A	2022 WMP Section 7.1	Wildfire Mitigation Strategy Development	N/A
Pre-Discovery 13	CalPA	Set WMP-03	CalPA_Set WMP-03	6	CalPA_Set WMP-03_Q6	For each WMP initiative listed below, please state how the modeled Wildfire Risk Scores for each circuit or circuit-segment influenced how work in 2022 was sequenced. a. EVM b. Covered conductor installation c. Undergrounding d. Distribution pole replacement e. Grid sectionalization f. Detailed inspections of distribution assets g. Detailed inspections of transmission assets h. Aerial inspections of distribution assets i. Aerial inspections of transmission assets j. LiDAR inspections of distribution assets k. LiDAR inspections of transmission assets	a. The 2022 EVM Scope of Work was based on the prioritization from the 2021 list of circuit protection zones informed by the EVM Tree Weighed Prioritization barring external factors and leveraging efficiency of bundling where possible. b. The circuit segments selected for the installation of covered conductor in the System Hardening program were based on the highest wildfire risk criteria described in response to Question 5(b). To then sequence projects, PG&E assesses the dependencies and readiness of each project based on the stage of the work (e.g., designing/estimating, permit acquisition, construction) to appropriately schedule each individual project, as the development time for each project can vary widely. Once projects are in the construction phase, schedules can continue to evolve based on various factors that impact project execution, including unanticipated weather, material availability, and customer preference of timing of re-connection. c. The circuit segments selected for the installation of underground lines in the System Hardening program were based on the highest wildfire risk criteria described in response to Question 5(c). To then sequence projects, PG&E assesses the dependencies and readiness of each project in each stage of the work (e.g., designing/estimating, permit acquisition, land rights acquisition, construction) to appropriately schedule each individual project, as the development time for each project can vary widely. Once projects are in the construction phase, schedules can continue to evolve based on various factors that impact project execution including unanticipated weather, material availability, community limitations (e.g., for road closures), customer preference of timing of re-connection, discovery of hard rock, and/or detection of unmarked existing utility infrastructure. d. After the work for 2022 was prioritized based on the process described in Q005, the pole replacement sequencing was determined based on each pole's priority bucket, estimating and material readiness, and crew and clearance availability. Wildfire risk scores were not factors in determining sequencing after prioritization. e. For grid sectionalization, Wildfire Risk scores were not factors in determining how work was sequenced. f. In 2022, wildfire risk scores were not factors in how distribution ground inspections were sequenced. Inspections were sequenced based on field conditions including physical access, environmental restrictions, permitting constraints and customer refusals. g. In 2022, the overhead transmission assets in the work plan for inspection were each labeled with the average wildfire risk of their host circuit for consideration in inspection sequencing. Assets were typically grouped by line for execution efficiency. The sequence prioritization also considered operational field knowledge and constraints, including restricted physical access periods, to inform the schedule for completion. h. For overhead distribution aerial pilot inspections, wildfire risk scores for each circuit or circuit-segment did not influence how work in 2022 was sequenced. Sequencing was based on the scheduled ground inspection as well as operational field knowledge and constraints, including restricted physical access periods. i. In 2022, the overhead transmission assets in work plan for inspection were each labeled with the average wildfire risk of their host circuit for consideration in inspection sequencing. Assets were typically grouped by line for execution efficiency. The sequence prioritization also considered operational field knowledge and constraints, including restricted physical access periods, to inform the schedule for completion. j. PG&E does not have a stand-alone LiDAR distribution inspection program but collects LiDAR data on distribution to support various needs, including flight planning for aerial inspections and engineering analyses, such as pole loading calculations. PG&E did not use the wildfire risk model in 2022 to select locations or sequence LiDAR collection activities. k. PG&E does not use risk-informed prioritization for Transmission LiDAR inspections, rather, it inspects 100 percent of the system annually using LiDAR. The Transmission Routine NERC and Non-NERC Inspection cycle consists of a LiDAR inspection followed by a ground patrol based on LiDAR findings. The LiDAR inspection provides an inventory of potential vegetation for ground patrol, and the results of the ground patrol prescribe the forecasted tree work to comply with state and federal regulations	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	0	N/A	2022 WMP Section 7.1	Wildfire Mitigation Strategy Development	N/A

Pre-Discovery 14	CalPA	Set WMP-03	CalPA_Set WMP-03	7	CalPA_Set WMP-03_Q7	For each WMP initiative listed below, please state how the modeled Wildfire Risk Scores for each circuit or circuit-segment influence where you plan to perform work in 2023. a. EVM b. Covered conductor installation c. Undergrounding d. Distribution pole replacement e. Grid sectionalization f. Detailed inspections of distribution assets g. Detailed inspections of transmission assets h. Aerial inspections of distribution assets i. Aerial inspections of transmission assets j. LiDAR inspections of distribution assets k. LiDAR inspections of transmission assets	a. PG&E is not conducting EVM in 2023.. b. As described in the 2023 WMP Section 8.1.2.1 "Covered Conductor Installation –Distribution," PG&E's System Hardening program, which includes targeted CC installation, focuses on mitigating potential catastrophic wildfire risk caused by distribution overhead assets. The System Hardening Program applies various mitigations to circuit segments that have the highest wildfire risk. For 2023, the highest wildfire risk miles are identified using the following categories: 1. Top Risk Based on Wildfire Distribution Risk Models (WDRM): The primary approach for selecting system hardening miles used two risk prioritization methodologies: (1) top 20 percent circuit segments based on the 2021 WDRM v2 and (2) the Wildfire Feasibility Efficiency (WFE) ranked circuit segments based on the 2022 WDRM v3. Overhead hardening was selected where undergrounding was deemed infeasible for the WDRM v3 selection. 2. Fire Rebuilds: Rebuilding electric distribution lines within towns and communities in the aftermath of catastrophic wildfires. Overhead hardening Fire Rebuild work is identified through a decision tree to determine the type of rebuild (overhead hardening, undergrounding, or other solution) in areas that have been impacted by a wildfire and may include fire-impacted areas in both HFTD and non-HFTD; and 3. PG&E's Public Safety Specialist (PSS) Identified: Locations identified by PG&E's PSS team as presenting elevated wildfire risk, such as ingress/egress constraints and community risk factors. c. As described in the 2023 WMP Section 8.1.2.2 "Undergrounding of Electric Lines and/or Equipment – Distribution," The 2023-2026 undergrounding portfolio is focused on undergrounding lines in the highest risk areas, which include the following: 1. Top Risk-Ranked Circuit Segments Based on WDRMs: The primary approach for selecting miles used two risk prioritization methodologies: (1) Top 20 percent circuit segments based on the 2021 WDRM v2; and (2) the WFE-ranked circuit segments based on the 2022 WDRM v3 and considering undergrounding feasibility. Both approaches used to select undergrounding projects represent approximately 70 percent of our total wildfire risk. 2. Fire Rebuilds: Undergrounding electric distribution lines within towns and communities that are rebuilding in the aftermath of catastrophic wildfires. Undergrounding work in Fire Rebuild areas typically results from the use of a decision tree to determine the type of asset to rebuild and occurs in areas that have been impacted by an actual wildfire that may include fire-impacted areas in both HFTD and non-HFTD. 3. PSPS Mitigation Projects: Projects identified that would reduce PSPS customer impacts. 4. PG&E's PSS Identification: Locations identified by PG&E's PSS team as presenting elevated wildfire risk such as ingress/egress constraints and community risk factors. d. As described in the 2023 WMP Section 8.1.2.3, "Distribution Pole Replacements and Reinforcements," PG&E leveraged the Wildfire Distribution Risk Model (WRDM) v3 to determine what pole replacement work is planned to be performed in 2023. Pole replacements are driven primarily by asset condition, namely maintenance tags found through enhanced inspections and intrusive inspections (Pole Test and Treat). These tags are then prioritized using the WRDM, which considers both wildfire ignition likelihood and consequence. In addition, pole replacements are also prioritized based on CPUC commitments, self-reports or other regulatory conditions. Starting in 2023, PG&E began to bundle distribution pole replacements with non-pole maintenance tags to gain efficiencies and minimize customer impacts. The goal of bundling is to perform all of the corrective maintenance (pole and non-pole) on the line segment under one clearance e. For transmission line, there is no targeted work planned in 2023 for grid sectionalization. For distribution, the program was modified to install additional protective devices to mitigate reliability impacts associated with EPSS. Projects are based upon reliability risk rather than wildfire risk. f. In 2023, PG&E's detailed ground inspection plan is informed by wildfire risk and wildfire consequence as described in 2023 WMP Section 8.1.3.2.1. PG&E developed a frequency recommendation for each level of wildfire consequence; extreme and severe consequence plat maps will be inspected annually; high consequence plat maps	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	0	N/A	7.2	Wildfire Mitigation Strategy Development	Wildfire Mitigation Strategy
Pre-Discovery 15	CalPA	Set WMP-03	CalPA_Set WMP-03	8	CalPA_Set WMP-03_Q8	For each WMP initiative listed below, please state how the modeled Wildfire Risk Scores for each circuit or circuit-segment influence how work in 2023 will be sequenced. a. EVM b. Covered conductor installation c. Undergrounding d. Distribution pole replacement e. Grid sectionalization f. Detailed inspections of distribution assets g. Detailed inspections of transmission assets h. Aerial inspections of distribution assets i. Aerial inspections of transmission assets j. LiDAR inspections of distribution assets k. LiDAR inspections of transmission assets	a. PG&E is not conducting EVM in 2023. b. The circuit segments selected for the installation of covered conductor in the System Hardening program were based on the highest wildfire risk criteria described in response to Question 7(b). To then sequence projects, PG&E assesses the dependencies and readiness of each project based on the stage of the work (e.g., designing/estimating, permit acquisition, construction) to appropriately schedule each individual project, as the development time for each project can vary widely. Once projects are in the construction phase, schedules can continue to evolve based on various factors that impact project execution, including unanticipated weather, material availability, and customer preference of timing of re-connection. c. The circuit segments selected for the installation of underground lines in the System Hardening program were based on the highest wildfire risk criteria described in response to Question 7(c). To then sequence projects, PG&E assesses the dependencies and readiness of each project in each stage of the work (e.g., designing/estimating, permit acquisition, land rights acquisition, construction) to appropriately schedule each individual project, as the development time for each project can vary widely. Once projects are in the construction phase, schedules can continue to evolve based on various factors that impact project execution including unanticipated weather, material availability, community limitations (e.g., for road closures), customer preference of timing of re-connection, discovery of hard rock, and/or detection of unmarked existing utility infrastructure. d. After the work for 2023 is prioritized based on the process described in response to Q007 part d, the pole replacement sequencing is determined based on each pole's priority bucket, estimating and material readiness, and crew and clearance availability. e. For transmission line, there is no targeted work planned in 2023 for grid sectionalization. For distribution, the 2023 additional sectionalizing and protective device installation work is prioritized by highest reliability benefit and not wildfire risk. f. In 2023, PG&E's sequencing for the ground inspection plan is informed by wildfire consequence as described in 2023 WMP Section 8.1.3.2.1. Detailed inspection activities in HFTD and HFRA are scheduled such that extreme, severe, and high consequence plat maps will be completed by July 31. Medium consequence plat maps will be completed by October 1. Low consequence plat maps will be completed by December 31. Inspections are also sequenced based on field conditions including physical access, environmental restrictions, permitting constraints and customer refusals. g. In 2023, the overhead transmission assets in scope for inspection are each labeled with the average wildfire risk of their host circuit for consideration in inspection sequencing. Assets are typically grouped by line for execution efficiency. The sequence prioritization also considers operational field knowledge and constraints, including restricted physical access periods, to inform the schedule for completion. h. In 2023, PG&E's sequencing for the pilot aerial inspections is not directly based on wildfire risk score. However, in areas of overlap with detailed ground inspections, aerial inspections are scheduled to take place in the same time frame as the scheduled ground inspection, which is based on wildfire consequence. Sequencing is based on the scheduled ground inspection as well as operational field knowledge and constraints, including restricted physical access periods. i. In 2023, the overhead transmission assets in scope for inspection are each labeled with the average wildfire risk of their host circuit for consideration in inspection sequencing. Assets are typically grouped by line for execution efficiency. The sequence prioritization also considers operational field knowledge and constraints, including restricted physical access periods, to inform the schedule for completion. j. PG&E does not have a stand-alone LiDAR distribution inspection program but collects LiDAR data on distribution to support various needs, including flight planning for aerial inspections and engineering analyses, such as pole loading calculations. PG&E did not use the wildfire risk model in 2022 or 2023 to select locations or sequence LiDAR collection activities. k. PG&E does not use risk-informed prioritization for Transmission LiDAR inspections, rather, it inspects 100 percent of the system annually using LiDAR. The	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	0	N/A	7.2	Wildfire Mitigation Strategy Development	Wildfire Mitigation Strategy
Pre-Discovery 16	CalPA	Set WMP-03	CalPA_Set WMP-03	9	CalPA_Set WMP-03_Q9	For each WMP initiative listed below, please state how the modeled Wildfire Risk Scores for eachcircuit or circuit-segment influence where you plan to perform work in 2024. a. EVM b. Covered conductor installation c. Undergrounding d. Distribution pole replacement e. Grid sectionalization f. Detailed inspections of distribution assets g. Detailed inspections of transmission assets h. Aerial inspections of distribution assets i. Aerial inspections of transmission assets j. LiDAR inspections of distribution assets k. LiDAR inspections of transmission assets	a. PG&E is not conducting EVM in 2024. b. Please refer to the response to Question 7b, which also applies to 2024. c. Please refer to the response to Question 7c, which also applies to 2024. d. Please refer to the response to Question 7d, which also applies to 2024. e. For transmission line, there is no targeted work planned in 2024 for grid sectionalization. For distribution, there is no targeted work planned in 2024 for grid sectionalization as future work related to EPSS reliability will be incorporated into base reliability programs. f. In 2024, PG&E's detailed ground inspection plan will be informed by wildfire risk and wildfire consequence as described in 2023 WMP Section 8.1.3.2.1. PG&E developed a frequency recommendation for each level of wildfire consequence: extreme and severe consequence plat maps will be inspected annually; high consequence plat maps will be inspected every other year; and all other plat maps will be inspected once every three years. Structures that constitute the top 10 percent of wildfire risk but are not already included in a plat map that is being inspected by ground or aerial are also included in the 2024 ground inspection plan. g. In 2024, wildfire risk and wildfire consequence will inform the annual overhead detailed inspection scope at a structure level (in addition to other considerations such as inspection trends and a baseline frequency of every three years for HFTD/HFRA assets). Specifically, highest wildfire risk and wildfire consequence locations were included in the 2024 scope. h. In 2024, PG&E's distribution aerial inspection pilot will be informed by wildfire risk and wildfire consequence as described in 2023 WMP Section 8.1.3.2.1. For aerial inspections, PG&E used the same prioritization framework with the same plat map level designation that we used for detailed ground inspections and is described in Section 8.1.3.2.1. The specific structures and plat maps to be included for inspection in 2024 will depend on 2023 pilot results. i. In 2024, wildfire risk and wildfire consequence will inform the annual overhead detailed inspection scope at a structure level (in addition to other considerations such as inspection trends and a baseline frequency of every three years for HFTD/HFRA assets). Specifically, highest wildfire risk and wildfire consequence locations were included in the 2024 scope. j. PG&E does not have a stand-alone LiDAR distribution inspection program but collects LiDAR data on distribution to support various needs, including flight planning for aerial inspections and engineering analyses, such as pole loading calculations. PG&E did not use the wildfire risk model in 2022 or 2023 to select locations or sequence LiDAR collection activities k. PG&E does not use risk-informed prioritization for Transmission LiDAR inspections, rather, it inspects 100 percent of the system annually using LiDAR. The Transmission Routine NERC and Non-NERC Inspection cycle consists of a LiDAR inspection followed by a ground patrol based on LiDAR findings. The LiDAR inspection provides an inventory of potential vegetation for ground patrol, and the results of the ground patrol prescribe the forecasted tree work to comply with state and federal regulations.	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	0	N/A	7.2	Wildfire Mitigation Strategy Development	Wildfire Mitigation Strategy
Pre-Discovery 17	CalPA	Set WMP-03	CalPA_Set WMP-03	10	CalPA_Set WMP-03_Q10	For each WMP initiative listed below, please state how the modeled Wildfire Risk Scores for each circuit or circuit-segment influence how work in 2024 will be sequenced. a. EVM b. Covered conductor installation c. Undergrounding d. Distribution pole replacement e. Grid sectionalization f. Detailed inspections of distribution assets g. Detailed inspections of transmission assets h. Aerial inspections of distribution assets i. Aerial inspections of transmission assets j. LiDAR inspections of distribution assets k. LiDAR inspections of transmission assets	a. PG&E is not conducting EVM in 2024. b. Please refer to the response for Question 8b, which also applies to 2024. c. Please refer to the response for Question 8c, which also applies to 2024. d. Please refer to the response for Question 8d, which also applies to 2024. e. There is no targeted work planned in 2024 for grid sectionalization for both transmission or for distribution. f. In 2024, PG&E's sequencing for the ground inspection plan will be informed by wildfire consequence as described in 2023 WMP Section 8.1.3.2.1. Detailed inspection activities in HFTD and HFRA are scheduled such that extreme, severe, and high consequence plat maps will be completed by July 31. Medium consequence plat maps will be completed by October 1. Low consequence plat maps will be completed by December 31. Inspections are also sequenced based on field conditions including physical access, environmental restrictions, permitting constraints and customer refusals. g. In 2024, the overhead transmission assets in scope for inspection are each labeled with the average wildfire risk of their host circuit for consideration in inspection sequencing. Assets are typically grouped by line for execution efficiency. The sequence prioritization also considers operational field knowledge and constraints, including restricted physical access periods, to inform the schedule for completion. h. In 2024, PG&E's sequencing for the pilot aerial inspections will not be directly based on wildfire risk score. However, in areas of overlap with detailed ground inspections, aerial inspections are scheduled to take place in the same time frame as the scheduled ground inspection, which is based on wildfire consequence. Sequencing is based on the scheduled ground inspection as well as operational field knowledge and constraints, including restricted physical access periods. The specific structures and plat maps to be included for inspection in 2024 will depend on 2023 pilot results. i. In 2024, the overhead transmission assets in scope for inspection are each labeled with the average wildfire risk of their host circuit for consideration in inspection sequencing. Assets are typically grouped by line for execution efficiency. The sequence prioritization also considers operational field knowledge and constraints, including restricted physical access periods, to inform the schedule for completion. j. PG&E does not have a stand-alone LiDAR distribution inspection program but collects LiDAR data on distribution to support various needs, including flight planning for aerial inspections and engineering analyses, such as pole loading calculations. PG&E did not use the wildfire risk model in 2022 or 2023 to select locations or sequence LiDAR collection activities k. PG&E does not use risk-informed prioritization for Transmission LiDAR inspections, rather, it inspects 100 percent of the system annually using LiDAR. The Transmission Routine NERC and Non-NERC Inspection cycle consists of a LiDAR inspection followed by a ground patrol based on LiDAR findings. The LiDAR inspection provides an inventory of potential vegetation for ground patrol, and the results of the ground patrol prescribe the forecasted tree work to comply with state and federal regulations.	Holly Wehrman	2/7/2023	3/10/2023	3/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_003.zip	0	N/A	7.2	Wildfire Mitigation Strategy Development	Wildfire Mitigation Strategy
Pre-Discovery 47	Green Power Institute (GPI)	001	Green Power Institute (GPI)_001	1	Green Power Institute (GPI)_001_Q1	Please provide PG&E's Pre-submission 2023-2025 WMP Base Plan filed on February 13, 2023, with the OEIS per the 2023 WMP Guidelines and Schedule document. Including all attachments and associated supporting documents required for the Pre-submission 2023-2025 WMP Base Plan filing.	PG&E has designated the entire pre-submission as confidential to align with Energy Safety's pre-submission process and guidelines which stipulate that the pre-submission documents are not to be made public. In addition, the pre-submission contains contact information for individuals that is considered confidential. As noted in our correspondences to you on March 8th and March 10th, we can provide you with a copy of the pre-submission documents that were submitted upon execution of a non-disclosure agreement. Alternatively, we will be submitting our final 2023-2025 Wildfire Mitigation Plan (WMP) for public review on March 27, 2023 if you would prefer to wait for a copy of the completed WMP following Energy Safety's completeness check. Please feel free to reach out to us to discuss how you would prefer to move forward with this request.	Zoe Harrold	3/1/2023	3/14/2023	3/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/GPI_001.zip	0	N/A	All	All	All
Pre-Discovery 26	CalPA	Set WMP-06	CalPA_Set WMP-06	1	CalPA_Set WMP-06_Q1	Provide your workplan that describes where you will undertake EVM projects in 2023. This workplan should be in an Excel format, with circuit-segments as rows. Please include the following information in separate columns in the Excel spreadsheet at a minimum: a) Circuit name b) Circuit ID number c) Circuit-segment name d) Circuit-segment ID number e) EVM miles to be completed in 2023 f) Risk ranking(s) for the circuit segment	The EVM program concluded at the end of 2022. There is no EVM workplan for 2023	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	2023-2025 WMP 8.2.3	Vegetation Management	EVM
Pre-Discovery 27	CalPA	Set WMP-06	CalPA_Set WMP-06	2	CalPA_Set WMP-06_Q2	Provide your workplan that describes where you will undertake EVM projects in 2024. This workplan should be in an Excel format, with circuit-segments as rows. Please include the following information in separate columns in the Excel spreadsheet at a minimum: a) Circuit name b) Circuit ID number c) Circuit-segment name d) Circuit-segment ID number e) EVM miles to be completed in 2024 f) Risk ranking(s) for the circuit segment	The EVM program concluded at the end of 2022. There is no EVM workplan for 2024.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	2023-2025 WMP 8.2.3	Vegetation Management	EVM
Pre-Discovery 28	CalPA	Set WMP-06	CalPA_Set WMP-06	3	CalPA_Set WMP-06_Q3	In response to Data Request CalAdvocates-PGE-2022WMP-11, Question 2, March 3, 2022, PG&E provided its 2022 EVM workplan. Please provide an updated version of this workplan that lists the actual EVM mileage performed in each circuit-segment in 2022 as a new column. Rows should be added as needed to cover all circuit-segments where you performed EVM work in 2022 (even if those circuit-segments were not included in the original workplan)	Please see "WMP-Discovery2023_DR_CalAdvocates_006-Q003Atch01.xlsx" for actual 2022 EVM mileage data broken down by circuit segment. Column G on tab '2022 EVM Miles Planned' contains the number of miles planned for EVM work in 2022. Column G on tab '2022 EVM Miles Completed' contains the number of miles that were completed and work verified in 2022	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	1	N/A	2022 WMP 7.3.5.2	Vegetation Management and Inspections	Enhanced Vegetation Management
Pre-Discovery 29	CalPA	Set WMP-06	CalPA_Set WMP-06	4	CalPA_Set WMP-06_Q4	In response to Data Request CalAdvocates-PGE-2022WMP-16, Question 11, March 23, 2022, PG&E stated the following: "Through 2022, the EVM program includes strike trees evaluation and hazard trees mitigation, overhang clearing and radial clearance. Starting in 2023, Enhanced VM only includes overhang clearing." a) Is the statement above still accurate as of the date of this request? b) If the answer to part (a) is no, please update the above statement to reflect PG&E's vegetation management strategy for 2023. c) If the answer to part (a) is no, please update the above statement to reflect PG&E's vegetation management strategy for 2024.	a) To maximize reduction of wildfire risk effectively and efficiently, the Enhanced Vegetation Management (EVM) program concluded at the end of 2022. b) Three new VM programs will be incorporated into the 2023 workplan. These programs for VM are Focused Tree Inspections, VM for Operational Mitigations, and Tree Removal Inventory. • Focused Tree Inspections: We developed specific areas of focus (referred to as Areas of Concern (AOC)), primarily in the HFRA, where we will concentrate our efforts to inspect and address high-risk locations, such as those that have experienced higher volumes of vegetation damage during PSPS events, outages, and/or ignitions. • VM for Operational Mitigations: This program is intended to help reduce outages and potential ignitions using a risk informed, targeted plan to mitigate potential vegetation contacts based on historic vegetation caused outages on EPSS enabled circuits. We will initially focus on mitigating potential vegetation contacts in circuit protection zones that have experienced vegetation caused outages. Scope of work will be developed by using EPSS and historical outage data and vegetation failure from the WDRM v3 risk model. EPSS-enabled devices vegetation outages extent of condition inspections may generate additional tree work. • Tree Removal Inventory: This is a long-term program intended to systematically work down trees that were previously identified through EVM inspections. We will develop annual risk-ranked work plans and mitigate the highest risk-ranked areas first and will continue monitor the condition of these trees through our established inspection programs. c) The three programs identified above will continue in 2024. These combined three programs are also referred to as EVM Transitional programs.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	2022 WMP 7.3.5	Vegetation Management and Inspections	Program Costs

Pre-Discovery 30	CalPA	Set WMP-06	CalPA_Set WMP-06	5	CalPA_Set WMP-06_Q5	In response to Data Request CalAdvocates-PGE-2022WMP-15, Question 16, March 18, 2022, PG&E provided the following table, which shows spending on vegetation management programs in thousands of dollars (actual figures for 2019-2021 and forecast figures for 2022-2023): Please update this table as follows: a) Update the 2022 column to state actual spending in 2022. b) Update the 2023 column to show PG&E's current forecasts for 2023. c) Add a column that shows PG&E's current forecasts for 2024. d) Please add rows as necessary, if any changes in PG&E's vegetation management strategy have created new initiatives or categories of spending	Please see updated table below with 2022 Actuals, and our current forecasts for 2023 and 2024.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	Vegetation Management	N/A	N/A
Pre-Discovery 31	CalPA	Set WMP-06	CalPA_Set WMP-06	6	CalPA_Set WMP-06_Q6	Please provide a list of any incidents in 2022 where the actions of a VM contractor posed a safety risk to workers and/or the public. "Safety risk" here is defined as any occurrence on a worksite where the contractor's actions created a safety hazard for either workers or the general public. For each instance, please provide: a) The date you were informed of the safety issue b) The date that the original work that created the safety issue was performed c) Whether the safety issue concerned a transmission or distribution circuit d) The vegetation management initiative involved in the original work e) A brief description of the safety issue involved.	Please refer to Attachment "WMP-Discovery2023_DR_CalAdvocates_006-Q006Atch01CONF.xlsx" for a list of all contractors involved safety incidents that took place in 2022. This data includes, but is not limited to: • Contractor Name/ParentCo: The contractor/parent company involved in the incident. • IncDate: The date of the incident. • Date EN: The date the incident was formally reported and logged. • Division: The division where the incident took place. • Inc Types: The incident type (ie line strike) • Incident Description: A brief description of the incident. • Program: Description on which initiative a contractor was working on, on the date of incident. • Corrective Action: A description of the action(s) PG&E took to prevent recurrence. Please note, both Distribution and Transmission contractor incidents are included in the attachment. These records are pulled from the Enterprise Contractor Incident Records Tool (ECIRT) database. The ECIRT database incident recording process does not have a space for inputting Distribution or Transmission circuit information, therefore we are unable to provide that information on the spreadsheet because our system does not track the incidents that way	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	1	N/A	Vegetation Management	N/A	N/A
Pre-Discovery 32	CalPA	Set WMP-06	CalPA_Set WMP-06	7	CalPA_Set WMP-06_Q7	In response to Data Request CalAdvocates-PGE-2022WMP-14, Question 13, March 15, 2022, PG&E provided its 2022 system hardening workplan for the categories referred to in parts (a)-(d) below. Please provide an updated version of this workplan with additional columns to show the actual system hardening work performed in each circuit-segment in 2022 for each of these categories. Please add rows as needed to cover all circuit-segments where PG&E performed system hardening work in 2022 (even if those circuit-segments were not included in the original workplan). a) Installation of covered conductor b) Installation of underground conductor c) Removal of overhead conductor d) Removal of overhead conductor associated with remote grid work.	Note, for CalAdvocates-PGE-2022WMP-14, Question 13, the projects listed in the 2022 columns were only for projects that overlapped with 2021 completed miles. It did not represent a comprehensive list of 2022 projects. Similarly, the 2020 columns were only for projects that overlapped with 2021 completed miles. It did not represent a comprehensive list of 2020 projects. See "WMP-Discovery2023_DR_CalAdvocates_006-Q007Atch01CONF.xlsx." This file includes the 2022 system hardening completed work in the below columns: a. Installation of covered conductor: See column O b. Installation of underground conductor: See column P c. Removal of overhead conductor: See column Q. Note, this removal work is not associated with the lines removed from overhead for installation of underground projects. It is strictly overhead conductor completely de-energized and removed. d. Removal of overhead conductor associated with remote grid work: N/A. There are no removals from remote grid work in 2022. Since the installation of remote grid generating units work occurred late in 2022, the associated line removal of de-energized conductor will take place in 2023. Similar to the response to CalAdvocates-PGE-2022WMP-14, Question 13, the data includes project information from 2021 and 2023 only where projects overlap with those years. Thus, the 2021 and 2023 data is not comprehensive. Additionally, because this question is associated with the System Hardening workplan only, this data does not include undergrounding mileage associated with the Butte Rebuild.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	1	N/A	2022 WMP Section 7.3.3.17	Grid Design and System Hardening	System Hardening
Pre-Discovery 33	CalPA	Set WMP-06	CalPA_Set WMP-06	8	CalPA_Set WMP-06_Q8	Provide your workplan that describes where and when you will perform system hardening on distribution circuits in 2023. For projects that you expect to partially complete in 2023 (i.e., projects that started before 2023 and are expected to continue in 2023, or projects that are expected to be completed after 2023), please include the project and report the work that you forecast will actually be performed in calendar year 2023. For each project, include the following information in separate columns, at a minimum: a) Order number b) MAT code c) Program d) Circuit ID number e) Circuit-segment name or ID number (if the project affects more than one circuit-segment, please identify each one) f) Relevant wildfire risk score(s) from the wildfire risk model that you are using to estimate distribution risk in your 2023-2025 WMP filing g) The expected or actual start date of the project. h) The expected completion date of the project. i) Length (in circuit miles) of covered conductor to be installed in 2023. j) Length (in circuit miles) of underground conductor to be installed in 2023. k) Length (in circuit miles) of overhead conductor to be permanently removed in 2023 and replaced by underground conductor (note that this may differ slightly from the previous section due to differing overhead and underground routes). l) Length (in circuit miles) of overhead conductor to be permanently removed in 2023 and not replaced with covered conductor or undergrounded) m) Length (in circuit miles) of any other type of system hardening project to be installed in 2023 (if this is greater than zero, please describe the type of system hardening project).	Please see attachment "WMP-Discovery2023_DR_CalAdvocates_006-Q008Atch01CONF.xlsx." a. See columns A (order number), and B (order description) b. See column C c. See column D d. See columns E e. See column F f. See columns G, I and K Column G shows the Applicable Risk Model that was used for selecting the project and putting it into scope. Risk Rank scores, shown in Columns I and K, are based on the Wildfire Distribution Risk Model (WDRM) for Version 2 and Version 3, respectively. The Risk ranking outcomes are the results of the relevant risk model (e.g., WDRM v2, WDRM v3) where circuit segments are ranked on a 1 to N basis, where 1 is the highest risk circuit segment, and N is the lowest risk. g. See column L h. See column M i. See column Z j. See column AA k. N/A – PG&E does not track length (in circuit miles) of overhead conductor to be permanently removed and replaced by underground. l. See column AB m. N/A The data includes project information from prior to 2022 and 2022 where projects overlap with these years. Data is provided in the same file for 2024 that is responsive to Question Q009. Additionally, because this question is associated with the System Hardening workplan only, this data does not include undergrounding mileage associated with the Butte Rebuild.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	1	N/A	2023 WMP Section 8.1.2.5	System Hardening	N/A
Pre-Discovery 34	CalPA	Set WMP-06	CalPA_Set WMP-06	9	CalPA_Set WMP-06_Q9	Provide your workplan that describes where and when you will perform system hardening on distribution circuits in 2024. For projects that you expect to partially complete in 2024 (i.e., projects that are expected to start before 2024 and are expected to continue in 2024, or projects that are expected to be completed after 2024), please include the project and report the work that you forecast will actually be performed in calendar year 2024. For each project, include the following information in separate columns, at a minimum: a) Order number b) MAT code c) Program d) Circuit ID number e) Circuit-segment name or ID number (if the project affects more than one circuit-segment, please identify each one) f) Relevant wildfire risk score(s) from the wildfire risk model that you are using to estimate distribution risk in your 2023-2025 WMP filing g) The expected or actual start date of the project. h) The expected completion date of the project. i) Length (in circuit miles) of covered conductor to be installed in 2024. j) Length (in circuit miles) of underground conductor to be installed in 2024. k) Length (in circuit miles) of overhead conductor to be permanently removed in 2024 and replaced by underground conductor (note that this may differ slightly from the previous section due to differing overhead and underground routes). l) Length (in circuit miles) of overhead conductor to be permanently removed in 2024 and not replaced with covered conductor or undergrounded) m) Length (in circuit miles) of any other type of system hardening project to be installed in 2024 (if this is greater than zero, please describe the type of system hardening project).	Please see "WMP-Discovery2023_DR_CalAdvocates_006-Q008Atch01CONF.xlsx." a. See columns A (order number), and B (order description) b. See column C c. See column D d. See columns E e. See column F f. See columns G, I and K Column G shows the Applicable Risk Model that was used for selecting the project and putting it into scope. Risk Rank scores, shown in Columns I and K, are based on the Wildfire Distribution Risk Model (WDRM) for Version 2 and Version 3, respectively. The Risk ranking outcomes are the results of the relevant risk model (e.g., WDRM v2, WDRM v3) where circuit segments are ranked on a 1 to N basis, where 1 is the highest risk circuit segment, and N is the lowest risk. g. See column L h. See column M i. See column AD j. See column AE k. N/A – PG&E does not track length (in circuit miles) of overhead conductor to be permanently removed and replaced by underground. l. See column AF m. N/A The data includes project information from prior to 2022, 2022, and 2023 where projects overlap with these years. Data is provided in the same file for 2023 that is responsive to Question Q008. Additionally, because this question is associated with the System Hardening workplan only, this data does not include undergrounding mileage associated with the Butte Rebuild.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	2023 WMP Section 8.1.2.5	System Hardening	N/A
Pre-Discovery 35	CalPA	Set WMP-06	CalPA_Set WMP-06	10	CalPA_Set WMP-06_Q10	For each of your 2023-2025 WMP system hardening initiatives, please provide disaggregated information related to expenditures and circuit miles treated in the attached table, CalAdvocates-PGE-2023WMP-06 Attachment 1. Add columns as needed.	Please see details on the cost and mileage breakouts in attached file "WMP-Discovery2023_DR_CalAdvocates_006-Q010Atch01.xlsx.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	1	N/A	2023 WMP Section 4.3	Proposed Expenditures	System Hardening
Pre-Discovery 36	CalPA	Set WMP-06	CalPA_Set WMP-06	11	CalPA_Set WMP-06_Q11	Please provide a spreadsheet listing (as rows) each undergrounding project completed during the period of January 1, 2022, through December 31, 2022. For each project, please provide the following information (as columns): a) Project ID number or other identifier b) Circuit ID c) ID of each circuit segment that was entirely undergrounded in the project d) ID of each circuit segment that was partially undergrounded in the project e) County or counties where undergrounding took place f) Project start date g) Project completion date h) Total circuit-miles undergrounded i) Total miles of trenching required j) Total life-cycle electric costs5 of the project (i.e., costs attributed to your electric facilities), including costs for planning, design, permitting, and construction k) Total life-cycle costs of the project, including costs attributed to non-electric utilities, including costs for planning, design, permitting, and construction l) Whether this was a Rule 20 project6 (yes/no) m) Whether this was a WMP project (yes/no) n) Whether this was a post-wildfire rebuild project (yes/no) o) Whether you shared trenches for this project with any telecommunications utilities (yes/no) p) Whether you shared trenches for this project with gas facilities (yes/no).	See "WMP-Discovery2023_DR_CalAdvocates_006-Q011Atch01CONF.xlsx." a) Project ID number or other identifier – See columns A (order Number) and B (Order Description) b) Circuit ID – See column C c) ID of each circuit segment that was entirely undergrounded in the project – Our undergrounding projects are split into multiple phases within a given circuit protection zone (CPZ) shown in Column E. The undergrounding of complete CPZs is a multi-year effort that cannot be captured in the data shown for a single year. d) ID of each circuit segment that was partially undergrounded in the project – Per response to (c), our undergrounding projects are split into multiple phases within a given circuit protection zone (CPZ). By reviewing data solely from a single year, it is not possible to determine completion of an entire CPZ. e) County or counties where undergrounding took place – See column I f) Project start date – see column J g) Project completion date – See column K h) Total circuit-miles undergrounded – Column U i) Total miles of trenching required – This information is not tracked by PG&E. j) Total life-cycle electric costs4 of the project (i.e., costs attributed to your electric facilities), including costs for planning, design, permitting, and construction – See column X k) Total life-cycle costs of the project, including costs attributed to non-electric utilities, including costs for planning, design, permitting, and construction. – There is no non-electric utility work in the scope of system hardening undergrounding l) Whether this was a Rule 20 project5 (yes/no) – See column F m) Whether this was a WMP project (yes/no) – See column G n) Whether this was a post-wildfire rebuild project (yes/no) – See column H o) PG&E did not share trenches for any projects identified in "WMP-Discovery2023_DR_CalAdvocates_006-Q011Atch01CONF.xlsx p) Whether you shared trenches for this project with gas facilities (yes/no) – No. For system hardening, we do not share trenches with gas. The data includes project information from 2021 where projects overlap with 2022. Because this question is associated with the System Hardening workplan only, this data does not include undergrounding mileage associated with the Butte Rebuild. 3 Constructed in accordance with The CPUC's Electric Tariff Rule 20. 4 For the purposes of this question and the following question, "life-cycle costs" refers to the start-to-finish costs to complete the capital project, from planning to the end of construction. This does not include maintenance or operational costs after the underground infrastructure is complete and in use. 5 Constructed in accordance with The CPUC's Electric Tariff Rule 20	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
Pre-Discovery 37	CalPA	Set WMP-06	CalPA_Set WMP-06	12	CalPA_Set WMP-06_Q12	Please provide a geodatabase file with a polyline feature for each undergrounding project completed during the period of January 1, 2022 through December 31, 2022. In addition to the spatial location, please provide the following attributes for each project: a) Project ID number or other identifier, matching part (a) of the previous question b) Circuit ID c) Project completion date	See attachment "WMP-Discovery2023_DR_CalAdvocates_006-Q012Atch01CONF.zip." Please note that the data reflected in this GIS geospatial file will not match the data set from Q11 due to the process time lag between construction completion and being fully mapped in GIS.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
Pre-Discovery 38	CalPA	Set WMP-06	CalPA_Set WMP-06	13	CalPA_Set WMP-06_Q13	Identify any ignitions in 2022 associated with assets where you had an existing corrective notification at the time of the ignition. Please provide a spreadsheet listing each such ignition (as rows) with the following information in separate columns: a) Unique ignition ID b) Date of ignition c) Cause of ignition d) Type of asset associated with the ignition e) Acres burned f) Number of structures burned, if any g) Number of injuries associated with ignition, if any h) Asset ID of asset associated with ignition i) Circuit ID number of circuit associated with ignition j) Notification number(s) for the existing maintenance tag on the asset in question.	Please see the table below identifying 2022 CPUC reportable ignitions where the asset involved in the ignition was associated with an existing open corrective maintenance notification at the time of the event. Ignition ID Date of Ignition Suspected Cause Equipment Type Associated With Ignition Fire Size Structures Destroyed Injuries Asset ID Circuit ID Existing Maintenance Notifications 20220374 4/6/2022 Equipment Failure Conductor - Primary 0.26- 9.99 Acres 0 0 101894229 MESA 1103 121931783 20220613 5/17/2022 Equipment Failure Splice/ Clamp/ Connector 1 meter - <3 meters 0 0 102242348 SAN RAFAEL 1104 119372723	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	2022 WMP Section 7.3.4	Asset Management and Inspections	N/A

Pre-Discovery 39	CalPA	Set WMP-06	CalPA_Set WMP-06	14	CalPA_Set WMP-06_Q14	a) Has PG&E's Asset Failure Analysis Team causally connected any ignitions that occurred in 2022 to assets with existing asset or vegetation corrective notifications at the time of ignition? b) If the answer to part (a) is yes, please provide the following information on each such ignition: i. Unique ignition ID (matching the previous question) ii. Date of ignition iii. Cause(s) identified by the Asset Failure Analysis Team iv. The type of corrective notification that was linked to the ignition (i.e., the priority level and whether it related to asset management or vegetation management). v. Copies of associated reports or investigations performed by the Asset Failure Analysis Team.	a) Yes, please see below. b) Two ignitions have been identified that meet these criteria: Ignition ID Date of Ignition Cause Type of Corrective Notification Copies of Associated Reports 20221278 7/28/2022 The cause of this ignition is still being finalized. EC Notification 118429275 – Pole Replacement The report in question is still being finalized and can be provided upon completion. 20222013 11/16/2022 Broken crossarm EC Notification 123866774 – Crossarm replacement (later updated to pole replacement) The report in question is still being finalized and can be provided upon completion.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	2022 WMP 7.3.7	Data Governance	Asset Failure Analysis
Pre-Discovery 40	CalPA	Set WMP-06	CalPA_Set WMP-06	15	CalPA_Set WMP-06_Q15	Per PG&E's response to Data Request CalAdvocates-PGE-2022WMP-17, Question 13, March 24, 2022, PG&E's inspection strategy in 2022 was to complete detailed inspections on all assets in HFTD Tier 3 and Zone 1, and approximately one-third of assets in HFTD Tier 2. a) Please describe any changes to the above strategy for PG&E's detailed distribution inspections in 2023. b) Please describe any changes to the above strategy for PG&E's detailed transmission inspections in 2023. c) Please describe any changes to the above strategy for PG&E's detailed distribution inspections in 2024. d) Please describe any changes to the above strategy for PG&E's detailed transmission inspections in 2024.	a) Beginning in 2023, PG&E's detailed inspections of distribution structures in high fire areas will be informed by wildfire consequence as provided PG&E's Wildfire Distribution Risk Model v3. PG&E will complete a detailed inspection on each structure every one to three years. For additional details on this strategy, please refer to Section 8.1.3.2 of our 2023 WMP. This differs from our 2022 strategy where we inspected all of Tier 3 and one-third of Tier 2. b) There are no major changes in our strategy compared to last year. Transmission detailed inspections in 2023 are informed by predictive models of asset health and wildfire consequence. HFTD (Tier 3, Tier 2, and Zone 1) and HFRA structures have a baseline inspection frequency of once every three years. In addition to this baseline frequency, structures may be added to the detailed inspection scope annually based on the following considerations: • Wildfire Risk, which is informed by the asset health Transmission Composite Model V1 (TCM) annualized probability of failure and the Wildfire Consequence Model V3.4. • Other factors involving data not currently integrated into the Wildfire Transmission Risk Model V1 (ex: inspection result trends, historic fire locations etc.) For additional details on this strategy, please refer to Section 8.1.3.1 of our 2023 WMP. c) No major changes are anticipated to the detailed distribution ground inspections strategy in 2024. However, as PG&E's risk models and understanding of the distribution system continues to mature, we may adjust the strategy described above or establish additional criteria to define the structures for inspection each year. d) There is no major anticipated change to detailed inspection scoping strategy in 2024. However, the considerations or thresholds used to define the additional structures may vary each year as the risk models mature and the overall risk of the transmission system evolves.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	2022 WMP 7.3.4.1 and 7.3.4.14	Asset Management and Inspections	N/A
Pre-Discovery 41	CalPA	Set WMP-06	CalPA_Set WMP-06	16	CalPA_Set WMP-06_Q16	Regarding your PSPS circuit modeling capabilities: a) Please describe your present circuit modeling capabilities with regard to PSPS decision making ("PSPS circuit modeling capabilities"), including with what level of granularity they are able to determine how circuit hardening efforts or other changes to a line segment will affect PSPS thresholds. b) Please describe any improvements to the present PSPS circuit modeling capabilities that you expect to implement in 2023. c) Please describe any improvements to the present PSPS circuit modeling capabilities that you expect to implement in 2024. d) Please describe the expected state of your PSPS circuit modeling capabilities at the conclusion of the 2023-2025 WMP cycle	a) For all questions below, PG&E understands circuit modeling to mean the level of granularity at which a utility can model the configuration of its electrical assets and de-energize them as such. PG&E models and de-energizes circuits utilizing all switching devices on the system that do not pose ignition risks. The effects of hardening and other changes to lines will be accounted for by our IPW model which uses machine learning to quantify past outages and ignitions and uses those as a basis for ignition and outage potential going forward which feeds into our PSPS modeling. Thus, any improvements to the system or changes would be incorporated as their historical performance changes. b) As mentioned, PG&E models circuits at the most granular level for de-energization taking into account all devices on the system that do not pose an ignition risk. c) As mentioned, PG&E models circuits at the most granular level for de-energization taking into account all devices on the system that do not pose an ignition risk. d) As mentioned, PG&E models circuits at the most granular level for de-energization taking into account all devices on the system that do not pose an ignition risk	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	0	N/A	PSPS	N/A	N/A
Pre-Discovery 42	CalPA	Set WMP-06	CalPA_Set WMP-06	17	CalPA_Set WMP-06_Q17	a) Have you developed Public Safety Power Shutoff (PSPS) risk scores at the circuit-segment level? b) Have you developed Enhanced Powerline Safety Settings (EPSS) risk scores at the circuit segment level? c) If the answer to either parts (a) or (b) is yes, please provide a geodatabase file containing, as line features, the most recent spatial data for all circuit segments for which you have modeled PSPS or EPSS risk scores. Include the following attributes for each circuit segment: i. Circuit Identification Number ii. Circuit Name iii. Circuit Segment Identification Number iv. Circuit segment-level PSPS Risk Score (if applicable) v. Circuit segment-level EPSS Risk Score (if applicable). d) If the answer to either parts (a) or (b) is yes, please provide a spreadsheet that lists (as rows) each circuit-segment for which you have modeled PSPS or EPSS risk scores. Include the following attributes for each circuit segment: i. Circuit Identification Number ii. Circuit Name iii. Circuit Segment Identification Number iv. Circuit segment-level PSPS Risk Score (if applicable) v. Circuit segment-level EPSS Risk Score (if applicable) e) If the answer to part (a) is no, does PG&E intend to develop PSPS risk scores for circuit segments? f) If the answer to part (b) is no, does PG&E intend to develop EPSS risk scores for circuit segments?	a) Yes. This is cited in Section 6.2.1, figure 6.2.1-3. b) No. c) Please see "WMP-Discovery2023_DR_CalAdvocates_006-Q017Atch01CONF.zip" which is a geodatabase file containing the circuit segments along with PSPS risk values and Circuit Segment names. Due to the different circuit segment vintages approximately 400 of the circuit segments are not mapped. d) Yes, please see "WMP-Discovery2023_DR_CalAdvocates_006-Q017Atch02CONF.xlsx" which provides the circuit segment PSPS risk values. e) Not applicable. f) PG&E produces an annual reliability study of EPSS outage activity, which informs reliability mitigation actions. Furthermore, PG&E is exploring incorporating this data into an "EPSS reliability risk" score for circuit segments.	Holly Wehrman	2/10/2023	3/29/2023	3/29/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_006.zip	2	N/A	PSPS/EPSS	N/A	N/A
1	CalPA	Set WMP-07	CalPA_Set WMP-07	1	CalPA_Set WMP-07_Q1	In the review of PG&E's WDRM v3 by Energy & Environmental Economics, Inc. ("E3 Review"), the authors note: "There were also several refreshes to PG&E asset data, now current to 2022-01- 01, and inclusion of updated internally sourced meteorology datasets." 3 a) Please confirm that no asset data collected after January 1, 2022 was used in the WDRM v3. b) If asset data collected after January 1, 2022 was used in PG&E's WDRM v3, please specify the date(s) on which any such data was collected. c) Please confirm that "asset data" in parts a) and b) is geospatial (GIS) data from the operational system of record. If not, please state the origin of the asset data.	a) All distribution asset data utilized in the Wildfire Distribution Risk Model (WDRM) v3 were extracted from PG&E's EDGIS system on January 1, 2022, with the exception of the transformer data which was extracted from EDGIS on February 2, 2022. b) See answer to part a. c) See answer to part a.	Joshua Borkowski	3/27/2023	3/30/2023	3/30/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_007.zip	0	N/A	6.2	Risk Methodology and Assessment	Risk Analysis Framework
2	CalPA	Set WMP-07	CalPA_Set WMP-07	2	CalPA_Set WMP-07_Q2	Page 15 of the E3 Review includes a list of components included in the WDRM v3. 4 a) Please confirm the date that the WDRM v3 was finalized. b) If the final list of components is different than what is listed in the E3 review, please provide an updated and accurate list of components that are used as inputs in PG&E's WDRM v3. c) For any inputs included in your response to Question 2(b) that do not appear on Page 15 of the E3 review, please provide the latest date on which each input was updated. d) If any dates given in response to Question 2(c) are different from those given in question 1(b), please explain why they are different.	a) The Wildfire Distribution Risk Model (WDRM) v3 was finalized by approval at the Wildfire Risk Governance Steering Committee (WRGSC) on April 13, 2022. b) The 8 asset groups listed on page 15 of the E3 Review are included in the WDRM v3 but are grouped into the sub-models listed in Figure 5 Sub-model Predictive Performance Measures on page 21 of the E3 Review document. Not applicable, please see response to 2b. d) Not applicable, please see response to 2c.	Joshua Borkowski	3/27/2023	3/30/2023	3/30/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_007.zip	0	N/A	6.2	Risk Methodology and Assessment	Risk Analysis Framework
3	CalPA	Set WMP-07	CalPA_Set WMP-07	3	CalPA_Set WMP-07_Q3	a) Please confirm the date that the WRDM v4 was finalized. If it has not been finalized, please provide an estimateddate on which it will be finalized. b) Please provide a current list of components that are used as inputs in v4 of the WDRM model. c) Please state the date of PG&E asset data used in v4 of the WDRM model. If there are multiple dates, include the most recent date for any asset data used in the model, and any date(s) on which the data used in the model was collected. d) Please confirm that "asset data" in part c) is geospatial (GIS) data from the operational system of record. If not, please state the origin(s) of the asset data.	a) The Wildfire Distribution Risk Model (WDRM) v4 has not been finalized. Model review and approval is scheduled for Q2 2023. b) The list of equipment components in the WDRM v4 has not been finalized at this time. c) The asset data for the WDRM v4 was extracted from PG&E's EDGIS on January 1, 2023. d) Please see the response to 3c.	Joshua Borkowski	3/27/2023	3/30/2023	3/30/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_007.zip	0	N/A	6.2	Risk Methodology and Assessment	Risk Analysis Framework
68	CPUC - SPD (Safety Policy Division)	002	CPUC - SPD (Safety Policy Division)_002	1	CPUC - SPD (Safety Policy Division)_002_Q1	Provide Attachment 2023-03-27_PGE_2023_WMP _R0_Appendix D ACI PG&E-22-16_Atch01_CONF (PG&E's 2023-2026 Undergrounding Workplan).	The CONFIDENTIAL attachment is being provided pursuant to the confidentiality declaration "DRU11407.003_Confidentiality Declaration.pdf". As requested, please see attachment "2023-03-27_PGE_2023_WMP_R0_Appendix D ACI PG&E-22-16_Atch01_CONF.xlsx" attached.	Kevin Miller	4/4/2023	4/5/2023	4/4/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_002.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-16 – Progress and Updates on Undergrounding and Risk Prioritization
13	CalPA	Set WMP-08	CalPA_Set WMP-08	1	CalPA_Set WMP-08_Q1	PG&E's WMP states: The EVM Program concluded at the end of 2022. PG&E will continue to strengthen our other existing VM programs. PG&E is transitioning the maintenance of enhanced clearances that were achieved in EVM to Routine VM patrols. We established routine maintenance requirements for electric distribution circuits where EVM scope clearances have been performed (in HFTD designated areas) and passed by work verification.4 a) Please describe how PG&E intends to strengthen its other existing VM programs as stated above. b) Does PG&E intend to achieve 'enhanced clearances' in areas where they have not already been achieved through EVM, or is PG&E only intending to maintain existing enhanced clearances? c) If PG&E will pursue the achievement of enhanced clearances in new locations, please provide PG&E's strategy and methodology for the following: i. Deciding which circuits and/or locations need enhanced clearances ii. Deciding which trees to trim in a given project location iii. Deciding the desired clearance distances iv. Setting the schedule and sequence of enhanced clearance projects d) If PG&E only intends to maintain existing enhanced clearances, please explain why.	a) 1) PG&E is extending the minimum clearance recommendations of 12 feet in HFTD (per G.O. 95 Rule 35, Appendix E) to 12 feet within HFRA. 2) There is an anticipated increase of tree removals vs trims as it is the first course of action recommended at time of listing per the Distribution Vegetation Inspection Procedure (DRIP). Funding has been provided to account for increased removals. 3) There are tighter controls through reports and monitoring of work completion timelines. b) PG&E will maintain clearances where EVM work occurred. PG&E will also be prescribing a minimum radial clearance of 12 feet throughout the system within HFTD and HFRA. Two new programs, Vegetation Management for Operational Mitigation (VMOM) and Focused Tree Inspection, are likely to result in individual trees that warrant enhanced clearance where EVM was not implemented. These programs inform clearances based on available outage data and trends, as well as site and tree specific conditions. While not called out as a uniform scope, clearances in portions of these targeted circuit segments may have similarities to EVM. c) 1) Adopting the recommendation of 12 feet minimum clearance (in HFTD/HFRA), at time of trim 2) Deciding which locations need enhanced clearance through VMOM execution and FTI Pilots. i. Based on specific AOC outage analysis of species and failure types when available. ii. Based on analysis of outage data and trends by AOC. Additionally, any tree which is within MDR, will be within the MDR before next work completion cycle or is showing signs of imminent failure before next work completion cycle. iii. Minimum of 12 feet of clearance or enough clearance to mitigate potential impacts to facilities if tree (whole or portion of) failure were to occur. iv. PG&E prioritizes enhanced clearance projects according to the Wildfire Distribution Risk Model (WDRM) and attempts to complete work in order of highest to lowest risk whenever possible, however, operational factors including but not limited to access issues due to snow or weather, environmental limited operating periods, and agency restrictions among others may lead to a lower ranked project being completed ahead of a higher ranked project. d) PG&E will maintain existing enhanced clearances as well as establishing new clearances starting at a minimum of 12 feet.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.6	Vegetation Management and Inspections	Discontinued Programs
14	CalPA	Set WMP-08	CalPA_Set WMP-08	2	CalPA_Set WMP-08_Q2	Regarding the new "Tree Removal Inventory Program" described in section 8.2.2.2.4 of PG&E's WMP, PG&E states: This is a new transitional program for 2023 stemming from the conclusion of the EVM program. This program is intended to work down trees previously identified. PG&E estimates that our EVM inventory included more than 300,000 trees at the end of 2022. Under the Tree Removal Inventory program, we remove or re-inspect trees identified in the EVM program. Based on this on-going re-inspection and evaluation work, we will develop annual risk-ranked work plans and mitigate the highest risk-ranked circuit segments or CPZs first. We plan to address all trees in the inventory in a multi-year program.5 a) Please explain what is meant by the term "transitional" in the first sentence. b) Does PG&E intend to identify new trees for the sort of work identified in this inventory? c) If the answer to part (b) is yes, please provide PG&E's methodology and strategy for doing so. d) If the answer to part (b) is no, please explain why. e) If the answer to part (b) is no, please explain how PG&E intends to achieve comparable risk reduction outcomes to those previously provided by its EVM program. f) What is the nature of the abovementioned "on-going re-inspection and evaluation work"? g) Please state the frequency of the "on-going reinspection and evaluation work". h) How many years will the abovementioned "multi-year program" last? i) After the "multi-year program" ends, will PG&E cease to have a tree inventory? j) If the answer to part (i) is yes, please explain how PG&E intends to address vegetation in high-risk areas going forward. k) If the answer to part (i) is no, please explain how the tree inventory will be maintained and used going forward. l) When it is stated that "PG&E estimates that our EVM inventory included more than 300,000 trees at the end of 2022," please explain why this number is an estimate rather than a precise number.	a) For this program the use of 'Transitional' represents the program transition from EVM to our new Tree Inventory Program, which will focus on working down the risk associated with the remaining 385K. These units were identified under EVM guidelines and will be over a period of time based on resolution of constraints or other factors that hindered completion of work. b) Yes, but not under the Tree Removal Inventory Program, which is focused on removing risk from previously listed trees with a removal prescription as part of the EVM program. Two new programs, Vegetation for Operational Mitigations (VMOM) and Focus Tree Inspections (FTI) will identify new trees for the sort of work identified in this inventory. Additionally, if any priority trees are discovered while completing the TRI scope of work, they would be listed for work consistent with all other VM programs. c) 1) For VMOM, PG&E utilized VM EPSS-enabled outage data, historical VM outage data, and customer outage impact data. 2) For FTI, Areas of Concern (AOCs) were identified through a cross-functional effort utilizing county-based regional reviews to create polygons which are geographic areas. Initial polygon development utilized WDRMv3 consequence scores, Public Safety Specialist circuit-based evaluations, expertise, 30-year lookback of meteorology data, and analysis, identified PSPS Lookback Polygons, PSPS Vegetation Damage locations, vegetation caused ignition data, and vegetation caused outage data. The process is intended to be performed annually to identify where trends, models, or emerging available data indicated higher likelihood of tree caused damage or outages. d) N/A e) N/A f) The on-going re-inspection and evaluation work will focus on the remaining 209K trees that were identified for removal at the conclusion of EVM that had a TAT result other than ABATE. g) The 2023 Tree Inventory Program scope of work is targeting the re-inspection of approximately 28K trees that had a TAT result other than ABATE. Once re-inspected if it is determined that a tree does not need removal the tree will be inspected annually going forward during the Routine Maintenance and Second Patrol inspections. h) The program is planned to last 9 years. i) No. All of PG&E's various Vegetation Management programs have and will continue to manage inventories of trees, however, the Tree Removal Inventory program is scoped to specifically address trees in the inventory of the discontinued EVM program within 9 years and is currently not planned to continue beyond this time frame. j) See answers to b) and c). k) The Tree Removal Inventory Program is intended to remove risk from previously identified EVM trees over a period of 9 years and there will be no new EVM trees added to the EVM Tree Removal Inventory. l) Due to removal and re-inspection being completed, as well as external factors that can impact our inventory, we are only able to provide an estimated inventory forecast and not a precise number.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
15	CalPA	Set WMP-08	CalPA_Set WMP-08	3	CalPA_Set WMP-08_Q3	Regarding the new "VM for Operational Mitigations" described in section 8.2.2.2.3 of PG&E's WMP, PG&E states: This is a new transitional program for 2023 stemming from the conclusion of the EVM program. This program is intended to help reduce outages and potential ignitions using a risk-informed, targeted plan to mitigate potential vegetation contacts based on historic vegetation outages on EPSS-enabled circuits. PG&E will initially focus on mitigating potential vegetation contacts in CPZs that have experienced vegetation caused outages. Scope of Work will be developed by using EPSS and historical outage data and vegetation failure from the WDRM v3 risk model. EPSS-enabled devices vegetation outages extent of condition inspections may generate additional tree work. a) Please explain what is meant by the term "transitional" in the first sentence. b) Please explain what is meant by the sentence "EPSS-enabled devices vegetation outages extent of condition inspections may generate additional tree work." c) When will PG&E develop initial the scope of work for this program? d) How frequently will PG&E update the scope of work for this program (e.g., annually or quarterly)? e) Please explain PG&E's methodology for developing the scope of work for this program. f) Please explain how PG&E will use EPSS data to contribute to the scope of work for this program. g) Please explain how PG&E will use historical outage data to contribute to the scope of work for this program. h) Please explain how PG&E will use "vegetation failure from the WDRM v3 risk model" to contribute to the scope of work for this program.	a) Our wildfire mitigation capabilities have continued to evolve and mature since 2019. With the conclusion of Enhanced Vegetation Management (EVM) at the end of 2022, we continue to evolve our Vegetation Management program. The use of 'transitional' for this program represents the evolution of the Vegetation Management program through the introduction of a new program, Vegetation Management for Operational Mitigations (VMOM) program, which is intended to reduce the impacts of more frequent outages caused by the increased sensitivity of EPSS enabled devices. b) As part of this program an extent of condition inspection is conducted when the cause of an EPSS enabled outage is determined to be vegetation related. An extent of condition inspection evaluates five spans in all directions from the location of the outage looking for additional trees that may pose a similar risk as the tree that caused the outage. The sentence 'EPSS-enabled devices vegetation outages extent of condition inspections may generate addition tree work' is related to any additional trees that may be identified under this inspection. c) The 2023 VMOM Scope of work has been developed and approved on February 23, 2023. d) PG&E will develop the scope of work on an annual or as needed basis which will bepresented for consideration, review, and approval through our Wildfire Risk Governance Steering Committee. e) PG&E utilized VM EPSS-enabled outage data, historical VM outage data, and customer outage impact data. f) PG&E will utilize EPSS Outages Extent of Condition (EOC) patrols to identify and generate additional tree work throughout the year. Additionally, EPSS outage data will be utilized in the scope of work development for the following year. g) PG&E utilized historical vegetation caused outage data as well as EPSS enabled outage data provided by the EPSS PMO team to refine our CPZ targets for the VMOM program. h) The Wildfire Data Risk Model (WDRM) v3 was utilized to prioritize 9 CPZs for the VMOM program.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.3	Vegetation Management and Inspections	VM for Operational Mitigations

16	CalPA	Set WMP-08	CalPA_Set WMP-08	4	CalPA_Set WMP-08_Q4	Regarding the new "Focused Tree Inspections" described in section 8.2.2.2.5 of PG&E's WMP, PG&E states: This is a new transitional program for 2023 stemming from the conclusion of the EVM program. PG&E is developing AOCs to better focus VM efforts to address high risk areas that have experienced higher volumes of vegetation damage during PSPS events, outages, and/or ignitions. We have conducted a county-by-county review with regional SMEs and used this information to develop polygons where focused vegetation inspections can be evaluated to determine appropriate counties to prioritize pilot(s). Focused Tree Inspection plans will be piloted in at least one area. The pilot will develop and implement guidelines that inform inspections. a) Please explain what is meant by the word "transitional" in the first sentence. b) Does "AOCs" stand for "Areas of Concern" in this instance? If not, then please define it. c) Please describe PG&E's methodology for developing the abovementioned polygons. d) How does PG&E determine where focused vegetation inspections can be evaluated? e) How does PG&E determine which counties are appropriate to prioritize for pilots? f) How will PG&E determine in which county or counties to execute a pilot or pilots? g) Please describe the following aspects of the pilot or pilots: i. Scope of work ii. Budget iii. Duration iv. Goals and objectives v. Success metrics h) Please describe the following regarding the guidelines that PG&E will develop based on the pilot(s), as mentioned above: i. The expected content of the guidelines ii. How PG&E expects the guidelines to inform inspections iii. When PG&E expects to develop such guidelines i) Please describe the steps that PG&E expects a "focused tree inspection" to include. j) Please compare the planned "focused tree inspections" to the tree inspections previously performed as part of PG&E's EVM program. Describe the similarities and differences. k) What metrics and criteria will PG&E use to determine whether a tree passes or fails a "focused tree inspection"?	a) Similar to TRI and VMOM programs, the Focus Tree Inspection (FTI) program has been developed following the conclusion of EVM in 2022. For this program "Transitional" is used to recognize similar targeted efforts to reduce risk formerly associated with EVM that go beyond compliance mandated clearances. All three programs are intended to further reduce vegetation related outages and ignitions. The FTI program was built in response to RN-22-09 which compelled benchmarking the use of predictive and risk modeling in VM with SCE and SDG&E. As a result, PG&E has developed data and SME informed "Areas of Concern" (AOC) to pilot enhanced targeted inspections where the analysis indicates increased risk of vegetation failures in high-risk areas. Similar to EVM, the piloting of this program has been prioritized using information from the Wildfire Distribution Risk Model (WDRM). Pilots will begin in Q2 2023 in four AOC. The results and learnings from the pilots will inform the development and monitoring of a broader program as a transitional measure intended to reduce VM outages. b) Yes c) AOCs were identified through a cross-functional effort utilizing county-based regional reviews to create polygons which are geographic areas. Initial polygon development utilized Public Safety Specialist circuit-based evaluations, 30-year lookback of meteorology data, PSPS Lookback Polygons, PSPS Vegetation Damage locations, vegetation caused ignition data, and vegetation caused outage data. The process is intended to be performed annually to identify where trends, models, or emerging available data indicate higher likelihood of tree caused damage or outages. d) The FTI program will be piloted in four regional AOCs beginning in Q2 2023. These regional pilot areas and the resulting inspections will be evaluated and monitored to inform refinements to the program prior to larger-scale implementation. The program will rely upon ongoing evaluation to refine AOC areas and inspection scope based on these evaluations predominately informed by outage analysis. e) Pilot AOCs are prioritized using WDRMv3. The four pilot AOCs selected for 2023 incorporated additional reviews from the VM Execution Operational Team to select appropriate regional areas to inform the programs development. f) Please refer to response e). Butte, Calaveras, El Dorado, and Napa counties were selected for regional pilots. g) Please describe the following aspects of the pilot or pilots: i. Scope of Work: Complete a focused tree inspection pilot project of ~300 OH line miles in 2023 to calibrate processes and optimize efficiencies. Inspections will utilize Tree Risk Assessment Qualification (TRAQ) Certified Arborists. Tree mitigations will be determined as necessary based on site and individual tree conditions. Pilots will begin in Q2 2023 and are intended to inform detailed SOW during the regional implementations. SOW will be standardized during the pilot phase and is subject to regional variations. ii. Budget: The current budget for Enhanced Vegetation Management programs is ~$245M, with ~$83M allocated to the Focused Tree Inspection. These numbers are subject to change as we continue to refine the scope of the new programs. iii. Duration: Pilots and regional execution experience will determine duration of projects. The program development is intended to result in larger scale implementation following the pilots. Factors such as snow, precipitation, or other storm related barriers to access pilot areas may influence the duration of pilots. iv. Goals and Objectives: Complete regional pilots in alignment with RN-22-09 commitments to inform more comprehensive program development through 2023. v. Success Metrics: Short-term success will ensure inspection quality through 100% QC using TRAQ-qualified arborists post-inspection. Long-term success will be evaluated/determined by reduction in vegetation caused outages or ignitions within AOC between inspection cycles. h) Please describe the following regarding the guidelines that PG&E will develop based on the pilot(s), as mentioned above: i. The expected content of the guidelines: Initial guidance will be developed to support regional pilots. While inspection tools and data collection are expected to be	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
17	CalPA	Set WMP-08	CalPA_Set WMP-08	5	CalPA_Set WMP-08_Q5	PG&E states on p. 539 of its WMP: PG&E is restructuring our VM Program starting in 2023. Based on recent data and analysis, the risk reduction of the EVM Program is less than the risk reduction from the EPSS program that was introduced in 2021.8 a) Please describe the abovementioned "data and analysis" that shows that "the risk reduction of the EVM program is less than the risk reduction from the EPSS program". b) Please provide any available workpapers, reports, or other documents that support the statement quoted above.	a) PG&E introduced the comparison of risk reduction and Risk Spend Efficiency (RSE) of EPSS vs EVM in the 2022 WMP and 2023 GRC Supplemental Filing in February 2022. This comparison is described in the 2023 GRC, Exhibit 3 Chapter 4 page 3-2 through 3-7. The updated wildfire mitigation strategy is summarized in Table 3-4 on page 3-39, as the risk reduction relative to spend between EVM and EPSS is substantially in EPSS's favor. b) Please reference the following workpapers: • 2022 WMP o 2022 WMP Data Table 12 - '2022-02-25_PGE_2022_WMP Update_R0_Section 7.3.a_Atch01', initiative 7.3.5.15 and 7.3.6.8 o EVM RSE Workpaper - '2022-02-25_PGE_2022_WMP-Update_R0_Section 7.3.a_Atch06-R1' o EPSS RSE Workpaper - '2022-02-25_PGE_2022_WMP-Update_R0_Section 7.3.a_Atch07' • 2023 GRC Supplemental Filing o ED_001 – 'EO-WLDFR-3_RSE Input File.xlsm' 8 PG&E's WMP, p. 539	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.3.4	Vegetation Management and Inspections	Fall-In Mitigation
18	CalPA	Set WMP-08	CalPA_Set WMP-08	6	CalPA_Set WMP-08_Q6	PG&E states on p. 539 of its WMP: Additional Operational Mitigations such as PVD and DCD will also help to mitigate risk previously prescribed to EVM. As a result, PG&E concluded the EVM Program at the end of 2022. a) Does "PVD" stand for "Partial Voltage Detection" in this instance? Please define if not. b) Does "DCD" stand for "Downed Conductor Detection" in this instance? Please define if not. c) How has PG&E determined that PVD will help to mitigate risk that PG&E previously sought to mitigate with EVM? d) Which particular risks will PVD help mitigate that PG&E previously sought to mitigate with EVM? e) Please provide any available documentation and analysis showing that PVD will help to mitigate risks that PG&E previously sought to mitigate with EVM. f) How has PG&E determined that DCD will help to mitigate risk that PG&E previously sought to mitigate with EVM? g) Which particular risks will DCD help mitigate that PG&E previously sought to mitigate with EVM? h) Please provide any available documentation and analysis showing that DCD will help to mitigate risks that PG&E previously sought to mitigate with EVM.	a) Yes, "PVD" refers to Partial Voltage Detection. b) Yes, "DCD" refers to Downed Conductor Detection. c) Partial Voltage Detection (and subsequent force outs of the nearest upstream SCADA capable device) are part of a "defense in depth" strategy that supplements the already highly effective baseline Enhanced Powerline Safety Settings (EPSS). In particular, Partial Voltage Force Out actions and DCD both mitigate high impedance faults, which are very difficult to detect for traditional protection schemes. In 2022, 36 Partial Voltage detections and Force Outs occurred. In 11 of 36 force outs, hazards were identified that could have caused an ignition. These hazards included wire down and/or vegetation contact. d) As indicated in response c, PVD is a mitigation measure for high impedance faults, which can occur when vegetation contacts a powerline or a downed conductor. PVD is also able to provide detection for transformer backfeed high impedance faults. e) PVD increases the ability to mitigate high impedance fault conditions, which can occur following vegetation contact with a powerline. These benefits have the potential to add extra protection or complement EPSS. PG&E determined that EPSS mitigates risk which PG&E previously sought to mitigate with EVM and sees PVD as part of a defense and depth strategy to supplement EPSS. PG&E did not separately compare PVD to EVM. f) DCD is part of a "defense in depth" protection strategy that will become an added component of the already highly effective EPSS. DCD mitigates high impedance ground faults, which are very difficult to detect for traditional protection schemes. DCD detects and de-energizes faults as low as 1 amp primary ground current and trips in 1 second as compared to the existing Sensitive Ground Fault detection, which trips at a minimum of 15 amps, typically in 15 seconds. PG&E has performed lab testing which has shown DCD is able to detect and de-energize downed conductors reducing ignition risk where installed. g) DCD is an automated protection element that is expected to mitigate high impedance ground faults. h) DCD also increases the ability to mitigate high impedance ground fault conditions, which can occur following vegetation contact with a powerline. These benefits have the potential to add extra protection or complement EPSS. PG&E determined that EPSS mitigates risk which PG&E previously sought to mitigate with EVM and sees DCD as part of a defense and depth strategy to supplement EPSS. PG&E did not separately compare DCD to EVM.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.3.4	Vegetation Management and Inspections	Fall-In Mitigation
19	CalPA	Set WMP-08	CalPA_Set WMP-08	7	CalPA_Set WMP-08_Q7	On pp. 314-316 of PG&E's WMP, PG&E divides its operational mitigations into four different groups. Group 2 includes "Inspections and maintenance programs where we exceed compliance requirements until permanent mitigations are deployed and/or we implement new technologies so that we no longer need to exceed compliance requirements." For the following Group 2 mitigations, please state the criteria by which PG&E will determine that it no longer needs to exceed compliance requirements, and state the basis for such a determination: a) Equipment Maintenance and Repair b) Pole Clearing Program c) Utility Defensible Space Program d) Wood Management e) Substation Defensible Space f) Focused Tree Inspections g) Transmission Integrated VM h) Emergency Response VM	PG&E does not currently have specific criteria for the listed mitigations, though certain permanent mitigations (e.g. distribution undergrounding) may reduce risk to a point where exceeding compliance is no longer needed. Continued analysis of ignitions, inspection finds, technology implementation results, etc. will inform the level of interim mitigation needed. We will continue to implement the Group 2 mitigations based on risk or benefit information.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	7.2.3	Wildfire Mitigation Strategy Development	Interim Mitigation Initiatives
20	CalPA	Set WMP-08	CalPA_Set WMP-08	8	CalPA_Set WMP-08_Q8	On pp. 314-316 of PG&E's WMP, PG&E divides its operational mitigations into four different groups. Group 2 includes "Inspections and maintenance programs where we exceed compliance requirements until permanent mitigations are deployed and/or we implement new technologies so that we no longer need to exceed compliance requirements." For each of the following Group 2 mitigations, please state whether PG&E intends to discontinue the program/initiative once permanent mitigations are deployed or new technologies are implemented: a) Equipment Maintenance and Repair b) Pole Clearing Program c) Utility Defensible Space Program d) Wood Management e) Substation Defensible Space f) Focused Tree Inspections g) Transmission Integrated VM h) Emergency Response VM	At this time PG&E does not intend to discontinue any of the programs/initiatives listed in Group 2 mitigation. The programs/initiatives are designed and implemented to ensure that PG&E maintains compliance with state and federal regulations, as well as mitigate portions of the system that may be exposed to wildfire risk that cannot be managed through our control programs pending the implementation of System Resilience mitigations. In the future, for programs/initiatives that exceed compliance, PG&E may determine to stay at compliance requirements based on risk or benefit information.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	7.2.3	Wildfire Mitigation Strategy Development	Interim Mitigation Initiatives
21	CalPA	Set WMP-08	CalPA_Set WMP-08	9	CalPA_Set WMP-08_Q9	Regarding the new "Tree Removal Inventory Program" described in section 8.2.2.2.4 of PG&E's WMP, PG&E states: "PG&E estimates that our EVM inventory included more than 300,000 trees at the end of 2022." Table 8-14, PG&E's VM Targets, p. 502, states that PG&E will remove approximately 60,000 trees identified from the legacy EVM program through the end of 2025.11 a) Are the 60,000 trees "identified from the legacy EVM program" a subset of the trees in PG&E's EVM inventory? b) If the answer to part (a) is yes, how will PG&E mitigate the risk posed by the approximately 240,000 trees from the EVM inventory that will not be removed during the period from 2023-2025? c) If the answer to part (a) is no, please explain the difference between the 60,000 trees to be addressed through 2025, and the more than 300,000 trees in the EVM inventory.	a) Yes, the 60K trees come from the group of approximately 385K EVM trees remaining. We plan to work down the risk associated with the 385K trees starting with 15K trees in 2023, 20K trees in 2024, and 25K trees in 2025, which results in 60K trees being worked through 2025. b) PG&E has operational mitigations including EPSS enablement in place. Additionally, PG&E conducts and will continue to conduct annual Routine and Second Patrol of these areas and address any Priority 1 or 2 hazardous tree conditions accordingly. c) N/A 10 PG&E's WMP, p. 528. 11 15,000 trees in 2023, 20,000 trees in 2024, and 25,000 trees in 2025.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
22	CalPA	Set WMP-08	CalPA_Set WMP-08	10	CalPA_Set WMP-08_Q10	Per Table 8-12, Vegetation Management Implementation Objectives, PG&E's Focused Tree nspection Program is currently under development. By the end of 2025, PG&E plans to "Fully implement AOC cross-functional team to implement guidelines across all AOCs." Given that PG&E's EVM program has been discontinued, and that its Focused Tree Inspection Program has not yet been fully developed, how will PG&E assess the risk of tree fall-ins during the period from 2023-2025?	PG&E will continue to assess the risk of tree fall-ins during the period from 2023-2025 through the Distribution Routine and Second Patrol programs accordingly. The identification of hazardous or other emergent priority trees is embedded into all VM tree trimming and mitigation programs, as well as the resulting work verification and quality programs. In addition to the Focused Tree Inspection Program, PG&E has also introduced the Tree Removal Inventory (TRI) and Vegetation Management for Operational Mitigation programs which will also be implemented to assess the risk of tree fall-ins during the same period in targeted portions of the service territory.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
23	CalPA	Set WMP-08	CalPA_Set WMP-08	11	CalPA_Set WMP-08_Q11	Table 8-14, PG&E's VM Targets, states that PG&E will collect LiDAR data on its Transmission System (17,500 circuit miles). Table 5-2, Electrical Infrastructure, states that PG&E has a total of 18,111 circuit miles of overhead transmission lines. a) Does PG&E plan to not collect LiDAR data on approximately 600 overhead circuit miles of transmission? b) If the answer to part (a) is yes, please explain why. c) If the answer to part (a) is no, please explain why Table 8-14 shows a LiDAR target that is smaller than the size of PG&E's overhead transmission system.	a) No, PG&E will collect LiDAR data on all overhead Transmission circuit miles. b) N/A c) The difference between LiDAR Transmission inspections mapped on ETGIS and our LiDAR vendor's data is due largely to parallel circuits and some geometry differences; miles are confirmed against circuit location and length from the LiDAR data. It is common to see a difference between ETGIS and LiDAR survey data. When our LiDAR vendor indicates their completed miles on 100% of PG&E Transmission circuit miles, we use the ETGIS miles. PG&E continues to use ETGIS values as this is our asset data.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.1.1	Vegetation Management and Inspections	Routine Transmission NERC and Non-NERC
24	CalPA	Set WMP-08	CalPA_Set WMP-08	12	CalPA_Set WMP-08_Q12	Table 8-14, PG&E's VM Targets, states that "Each of the 3 programs (Routine Distribution, Routine Transmission and Pole Clearing) must achieve a 95% quality verification audit results pass rate." Please describe the actions PG&E will take during the 2023-2025 period if a program does not achieve a 95% pass rate on quality verification audits.	Should a program fall below a 95% pass rate, catch back plans will be developed in partnership with VM execution to mitigate for specific cause of deficient rate.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
25	CalPA	Set WMP-08	CalPA_Set WMP-08	13	CalPA_Set WMP-08_Q13	Table 8-18-1, Vegetation Management QV Program, lists the following audit pass results for 2022 VM work: Distribution: 91.3% Transmission: 94.2% Vegetation Control Pole Clearing: 90.3% a) Please describe any actions PG&E has taken or plans to take to improve the Distribution VM audit results pass rate from 91.3% in 2022 to 95% in 2023. Please include the timeline for completing those actions. b) Please describe any actions PG&E has taken or plans to take to improve the Transmission VM audit results pass rate from 94.2% in 2022 to 95% in 2023. Please include the timeline for completing those actions. c) Please describe any actions PG&E has taken or plans to take to improve the Pole Clearing VM audit results pass rate from 90.3% in 2022 to 95% in 2023. Please include the timeline for completing those actions.	a) Improved quality verticals have been established for 2023, allowing for greater insight into overall VM work product throughput and risk identification/mitigation. Clear definitions of acceptance criteria, sampling methodology, population eligibility, and pass rate calculations were established and communicated across the VM organization prior to beginning 2023 audits. b) Improved quality verticals have been established for 2023, allowing for greater insight into overall VM work product throughput and risk identification/mitigation. Clear definitions of acceptance criteria, sampling methodology, population eligibility, and pass rate calculations were established and communicated across the VM organization prior to beginning 2023 audits. c) Improved quality verticals have been established for 2023, allowing for greater insight into overall VM work product throughput and risk identification/mitigation. Clear definitions of acceptance criteria, sampling methodology, population eligibility, and pass rate calculations were established and communicated across the VM organization prior to beginning 2023 audits	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.5.1	Vegetation Management and Inspections	Quality Assurance and Quality Verification
26	CalPA	Set WMP-08	CalPA_Set WMP-08	14	CalPA_Set WMP-08_Q14	Regarding the "Distribution Second Patrol" described in section 8.2.2.2.2 of PG&E's WMP, PG&E states: "PG&E has implemented a plan to complete the identified dead/dying tree work within 180 days for HFTD areas and within 365 days for non-HFTD areas." a) What specific steps, actions, or measures are included in the plan noted in the quote above – in other words, what specific steps is PG&E taking to ensure that dead/dying tree work will be completed within the stated timeframes? b) How did PG&E determine that 180 days was an appropriate and prudent timeframe for completing dead/dying tree work in HFTD areas? c) Does PG&E plan to complete identified dead/dying tree work within 180 days in HFTD areas for its Distribution Routine Patrol (section 8.2.2.2.1)? d) If the answer to part (c) is no, please explain why not. e) What is PG&E's expected time to complete dead/dying tree work identified during its Distribution Routine Patrol?	a) To ensure that dead/dying tree work is completed with 180 days in HFTD and 365 days in non-HFTD, PG&E VM has developed a process to report out in Daily Operating Reviews and Weekly Operating reviews at multiple functional levels -including VM leadership and VM execution - the status of dead and dying trees and their timelines and timeliness status. This measure ensures visibility and accountability at the regional level. b) In addition to managing to complete work between Routine and Second Patrol work-cycles, the timeframe to complete dead/dying tree work within HFTD areas was based on GO 95 Rule 18 priority level 2, for corrective actions of conditions within Tier 3 to be completed within 6 months (180 days) of identification. c) Yes, PG&E does plan to address identified dead/dying trees in the stated timeframes in HFTD and non-HFTD in Distribution Routine Patrol. d) N/A. See c. above. e) The timeframe to complete dead/dying tree work identified during Distribution Routine Patrol is 180 days in HFTD and 365 days in non-HFTD	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.2.2	Vegetation Management and Inspections	Distribution Second Patrol
27	CalPA	Set WMP-08	CalPA_Set WMP-08	15	CalPA_Set WMP-08_Q15	Regarding the "Defensible Space Inspection" described in section 8.2.2.3.1 of PG&E's WMP, PG&E states: "Landowner related issues continue to prevent PG&E from achieving 100 percent defensible space completion status at locations where substation defensible space zones extend into privately owned property." a) Where substation defensible space zones extend into privately owned property, what is PG&E's process for completing defensible space inspections? b) What actions does PG&E plan to take during the 2023-2025 WMP period to address landowner related issues in order to achieve the highest possible defensible space completion status?	a) When defensible space zones extend onto private property, outreach to such landowners is made in advance to obtain permission to enter and conduct inspection. If access is granted, the inspection is executed with fuel reduction and PRC 4291 compliance prescription determined. If access is denied and found to be without applicable easements, other land rights or valid entry agreements, the inspection record will reflect a "refusal" and documented for future reference as PG&E does not have the right to conduct defensible space inspections on property not owned by the Company. b) Annual defensible space inspections do serve as an opportunity to re-engage prior refusal landowners. Changes of ownership, changes in landowner opinion, new local agency defensible space ordinances or code often support reversal in status.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.2.3.1	Vegetation Management and Inspections	Defensible Space Inspection

28	CalPA	Set WMP-08	CalPA_Set WMP-08	16	CalPA_Set WMP-08_Q16	Regarding "Wood and Slash Management" described in section 8.2.3.2 of PG&E's WMP, PG&E states: "Chips are left on site or removed off site based on owner preferences." PG&E further states that "Wood Management is a voluntary program in which property owners must opt in to participate." a) If PG&E is unable to contact a landowner, how does it manage wood chips? b) How does PG&E ensure that landowners are aware of the opt-in Wood Management program? c) How does PG&E record landowner opt-ins to the Wood Management program? d) Once a landowner opts into the Wood Management program, how quickly does the program become effective? E.g., could a landowner opt-in while VM work is being performed? e) How does PG&E inform VM contractors of the landowner's Wood Management preference? f) Does the Wood Management opt-in remain valid indefinitely or must landowners renew their preferences on a regular basis? g) If a landowner has complaints regarding wood and slash management by PG&E VM employees or contractors, what is the process for receiving, recording, and responding to such complaints?	a) If PG&E is unable to contact a landowner regarding their preference for wood chips, crews will remove the wood chips when safe to do so. If access does not allow for chipping and wood chip removal, crews will lop and scatter debris on site in accordance with applicable regulations. b) There are multiple real-time opportunities for landowners to request wood management. PG&E field personnel attempt to engage with landowners in-person about tree work and wood management preferences at the time of inspections, tree work and post-tree work verification. Field personnel may also leave door hangers or other informational materials if landowners are unavailable. Following active emergency response efforts where landowners may not be present, we initiate regional post-event outreach. This may include letters, door hangers, interactive voice messages and/or press releases. Information is also available at pge.com. c) Our dedicated customer team is equipped to receive, record, and process all landowner opt-ins for wildfire and EVM wood management through our internal customer relationship management database. This includes opt-ins that come through field personnel. d) Yes, landowner wood management preferences are effective immediately. We work as quickly and efficiently as possible to manage and haul accessible wood without compromising public safety, access or environmental and cultural resources. As each property is different, we collaborate with the landowner to find an optimal solution. The timeline for wood management is dependent on landowner permission, ground conditions, and the ability for our crews to safely access the wood. Wood management may also be subject to permitting requirements. Landowners can opt into the Wood Management program at any time before, during or after tree work is conducted. Field personnel as well as our dedicated customer team can work directly with landowners to record their wood management preferences through our internal customer management database in person, by phone or by email. e) Landowner wood management preferences are indicated to operations personnel through our work management platform. f) Wood management preferences apply to an instance of tree work activity on a property. If new tree work is prescribed, we would coordinate with the landowner on their preferences again as preferences may vary by tree species, size or specific location. We are always looking for opportunities to continuously improve our Wood Management program, including new methods for recording landowner preferences. g) Wood management escalations are primarily received, recorded and responded to by our dedicated customer team through our internal system and case management process.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.3.2	Vegetation Management and Inspections	Wood and Slash Management
29	CalPA	Set WMP-08	CalPA_Set WMP-08	17	CalPA_Set WMP-08_Q17	Regarding "High-Risk Species" described in section 8.2.3.6 of PG&E's WMP, PG&E states: "There are no governing standards for high-risk species." a) Does PG&E plan to develop governing standards for high-risk species? b) If the answer to part (a) is yes, when does PG&E expect to complete development of such standards? c) If the answer to part (a) is no, please explain why not.	a) For Routine and Second Patrol, PG&E does not currently have standards qspecific to high-risk species. Trees identified during these inspection cycles that require mitigation per PRC4293 and GO95 Rule 35 are expected to be identified and listed for work regardless of species. A new program, Focused Tree Inspection (FTI) is being piloted starting in Q2 2023 and will incorporate regional outage analysis informed by tree caused outages within Areas of Concern (AOC) developed in Q4 2022. These pilots are expected to analyze area specific vegetation related outages within the AOC polygons in advance of FTI. When detailed outage data is available, this analysis will indicate vegetation caused outage trends that include species and failure types. The experience and findings during execution of these pilots may inform development of program specific guidance that relates to regional high-risk species. PG&E will then determine which programs are best suited to incorporate species specific guidance due to anticipated regional variation. b) Development of any standards related to high-risk species is still being determined and contingent upon completion of FTI pilots in 2023. A determination will be made specific to that program as its guidance is formalized following the pilots. c) Not applicable	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.3.6	Vegetation Management and Inspections	High-Risk Species
30	CalPA	Set WMP-08	CalPA_Set WMP-08	18	CalPA_Set WMP-08_Q18	PG&E's WMP states, in Table 8-18-3, VM Field QC Metrics Report, that pass rates are "not a WMP target" for 2023-2025. Please explain why PG&E has not set target pass rates for VM Field QC for 2023-2025.	The Quality Management team has aligned on setting target pass rates at 88% for Field Quality Control Active Observation Programs for the following core vegetation management programs: Routine Distribution, Second Patrol Distribution, Vegetation Control, and Routine Transmission.	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	0	N/A	8.2.5.2	Vegetation Management and Inspections	Quality Control
31	CalPA	Set WMP-08	CalPA_Set WMP-08	19	CalPA_Set WMP-08_Q19	Table 8-19, Priority 1/Priority 2 and Second Patrol Trees Categorized By Age, shows 296 priority 1 or 2 trees that were inspected more than 180 days prior to February 28, 2023. Please provide a table with the following additional information for these 296 trees: a) The exact number of days since the last inspection, as of February 28, 2023 b) The current priority level of the tree c) The type of the most recent inspection d) The HFTD tier where the tree is located e) PG&E's expected remediation date for the tree.	The data for the 296 P1/P2/Second Patrol trees can be found on "WMP-Discovery2023_DR_CalAdvocates_008-Q019Atch01.xlsx" For the 3 Priority 1/Priority 2 Trees out of the set of 296, please refer to tab 'P2 Data'. a) Please see 'Age' in 'Column I' on tab 'P2 Data' for the age in days since the last inspection as of February 28, 2022. b) Please see 'Priority' in 'Column E' on tab 'P2 Data' for the priority level. • If vegetation is determined to be an immediate risk to PG&E facilities, described as a Priority 1 Condition, the condition will be mitigated within 24 hours of identification as long as conditions are safe for the tree crew to proceed with work. • Vegetation identified as pending Priority 2 work within the RFW area will be reviewed and mitigated as outlined in the VM Priority Tag Procedure (TD-7102P-17). c) Please see 'dtInspDate' in 'Column D' on tab 'P2 Data' for the Inspection date. d) Please see 'iHFTDTier' 'Column H' on tab 'P2 Data' for the HFTD Tier. e) We do not have a source for tracking planned worked date for individual trees and are unable to provide the data at this time. For the 293 trees out of the set of 296, please refer to tab 'TM Data'. Please note, the quantity of trees that correspond to the 'TreeRecsID' can be located on 'Column L' of the 'TM Data' tab in attachment. a) Please see 'Age' in 'Column J' on tab 'TM Data' for the age in days since the last inspection as of February 28, 2022. b) Please see 'Priority' in 'Column F' on tab 'TM Data' for the priority level. • 'Routine' classification is normal compliance work prioritized to be complete during the normal work cycle. • 'Expanded' classification is work that needs to be completed as part of reliability. • 'Accelerated' classification are trees that are out of compliance and need to be worked before the next work cycle occurs. c) Please see 'dtInspDate' in 'Column D' on tab 'TM Data' for the last inspection date as of February 28, 2022. d) Please see 'iHFTDTier' in 'Column K' on tab 'TM Data' for the HFTD tier. e) We do not have a source for tracking planned worked date for individual trees and are unable to provide the data at this time	Holly Wehrman	3/30/2023	4/5/2023	4/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_008.zip	1	N/A	8.2.6	Vegetation Management and Inspections	Open Work Orders
32	CalPA	Set WMP-09	CalPA_Set WMP-09	1	CalPA_Set WMP-09_Q1	P. 10 of PG&E's WMP states, "We have completed certain programs and removed some less impactful targets from the 2023 WMP." a) Please list the "less impactful" targets that were removed from the 2023 WMP. b) For each target in part (a), please explain how PG&E determined that the target was "less impactful."	a) The targets that were included in the 2022 WMP but not included in the 2023 WMP are identified below. Please note that we do not necessarily consider each of these to be "less impactful" in all situations. Instead, they are more properly described as not being the best choice for our wildfire mitigation portfolio at this particular point in time. • Weather Station Installation and Optimization – PG&E did not include a target for weather station installation in the 2023-2025 WMP because our weather station network is nearing full maturity with more than 1,400 weather stations installed. We will continue to evaluate the need for additional stations. • High-Definition Camera Installations – PG&E has sponsored over 600 cameras covering 90 percent of the HFTD tier 2 and tier 3 areas and, given this saturation, we are not currently planning to install new cameras at this time. • Early Fault Detection Installations - PG&E does not have a 2023 Target for EFD installations. We plan to develop and implement processes and procedures to analyze EFD alarms, conduct field investigations and track mitigation activities to effectively use EFD technology prior to deploying additional sensors. • Distribution Sectionalizing Devices - PG&E has completed our transmission and distribution PSPS line sectionalizing programs. Because there is limited incremental benefit to installing additional switches, we are not including these mitigation initiatives in this WMP. • Temporary Distribution Microgrids - No additional temporary distribution microgrids will be built in 2023. The program will close after improvement projects on existing sites are completed. PG&E may develop other distribution microgrids supported by temporary or permanent generation through other programs such as the Community Microgrid Enablement Program and Microgrid Incentive Program. • Remote Grid – PG&E is continuing to develop Remote Grids as an alternative to, or in conjunction with, system hardening or other mitigation efforts. Even though we do not have a quantitative target for remote grids installed, they will continue to be part of our wildfire mitigation portfolio. • Enhanced Vegetation Management (EVM) – PG&E's EVM program concluded at the end of 2022. • EPSS Reliability Improvements – This initiative was a target in PG&E's 2022 WMP. In our 2023 WMP this target becomes an objective (GM-07) through which we will update our EPSS reliability study annually. • Community Engagement Meetings – In the 2023 WMP Community Engagement Meetings transitions from a target to 3-year and 10-year objectives (C0-01 and C0-03). b) Please see the response to part (a), which includes the requested information.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	1	Executive Summary & Overview	N/A
33	CalPA	Set WMP-09	CalPA_Set WMP-09	2	CalPA_Set WMP-09_Q2	P. 107 of PG&E's WMP states, "Increased temperatures can cause electric equipment to age more quickly which will increase the need for more frequent asset replacements. Higher temperatures may cause equipment to fail resulting in customer outages." a) What steps has PG&E taken to mitigate the increased risk of asset failure anticipated from rising temperatures? b) What steps does PG&E plan to take during the 2023-2025 WMP period to mitigate the increased risk of asset failure anticipated from rising temperatures?	PG&E notes that this statement is included in the 2023-2025 WMP as a general observation about the sensitivity of certain electric assets to prevailing temperatures that exceed equipment design specifications. It does not constitute a thorough evaluation of the vulnerability (meaning, the exposure of an asset to a specific climate hazard as well as an asset's sensitivity to that climate hazard) of a given asset or of the grid as a whole. PG&E will file its first Climate Vulnerability Assessment pursuant to CPUC Decision 20-08-046 in May 2024.4 In addition to the answers provided below, the 2022 Climate Strategy Report contains a significant amount of detail on the Company's climate mitigation and adaptation activities.5 a) PG&E has substantial existing adaptive capacity to manage the increased risk of asset failure driven by heat-related climate hazards and is taking the following steps to mitigate this risk: 1) PG&E routinely monitors, maintains, and replaces heat-sensitive electric equipment as part of the company's core mission to deliver safe, clean, affordable, reliable energy. 2) PG&E has developed a predictive transformer failure model to better target existing transformer replacement efforts. 3) PG&E is currently reviewing electric design standards to ensure that they account for projections of future heat conditions. This will ensure that equipment at the end of its useful life will be replaced with equipment designed to be resilient to prevailing future conditions. 4) In addition to the above, PG&E's Climate Resilience Team provides relevant climate projection data to PG&E's Enterprise and Operational Risk Management group for incorporation into the bowtie models that are the foundation of the Risk Assessment and Mitigation Phase (RAMP) filing. Climate data is integrated into risk bowtie models to the extent that climate projection data can be translated into near-term frequencies while maintaining statistical validity (climate projections cannot and should not be used to "predict" weather events in a given future year). Please see PG&E's 2020 RAMP filing for more information about the treatment of the climate change cross cutting risk factor. b) In the 2023-2025 period, PG&E will continue to manage the risk of asset failure utilizing existing capabilities as mentioned above, including advancing the quantitative Risk Assessment and Mitigation Phase filing which is focused on quantifying the probability and consequences of asset failure and identifying cost-effective mitigations. Climate projections provide directional guidance as to changes in the average frequency and severity of climate hazards over decades and cannot and should not be used to predict the occurrence of specific weather events in a given year or even sub-decadal multi-year period. In other words, climate projections centered on the year 2022 versus 2025 will show similar conditions on average. This does not preclude that extreme or acute heat events could occur between 2023 and 2025. In addition to the elements of adaptive capacity mentioned above, PG&E also maintains a robust Emergency Preparedness and Response function to maintain safety and reliability when acute environmental conditions occur. 4 See https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/climate-change. 5 See https://www.pge.com/pge_global/common/pdfs/about-pge/environment/what-we-are-doing/pge-climate-goals/PGE-Climate-Strategy-Report.pdf	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	5.3.4.2	Overview of the Service Territory	Climate Change Phenomena and Trends
34	CalPA	Set WMP-09	CalPA_Set WMP-09	3	CalPA_Set WMP-09_Q3	P. 598 of PG&E's WMP states: In 2022 we continued our assessment through the Electric Program Investment Charge 3.45, "Automated Fire Detection from Wildfire Alert Cameras," program. Through our assessment period we determined that AI detection on camera will improve our detection system and in 2023 we will select a vendor to install AI detection on our cameras. a) How did PG&E determine that AI detection would improve its detection system? b) Please quantify the extent to which PG&E anticipates AI detection will improve PG&E's detection system. c) Please provide any available studies, analyses or reports to support your statements in response to parts (a) and (b). d) As of the beginning of 2023, how much has PG&E spent on the Electric Program Investment Charge 3.45, "Automated Fire Detection from Wildfire Alert Cameras," program? e) How much does PG&E forecast spending on the Electric Program Investment Charge 3.45, "Automated Fire Detection from Wildfire Alert Cameras," program in each of the years 2023, 2024, and 2025? f) When is the earliest date that PG&E expects to realize benefits from automated fire detection?	a) PG&E ran a pilot of AI technology in 2021 to determine the efficacy of this new technology to assist with the detection and notification of new ignitions. In 2022 a project was launched under the Electric Program Investment Charge 3.45 in which multiple potential vendors participated to prove out the ability of the AI technology to continuously monitor the feeds from the wildfire cameras installed in PG&E service territory and provide alerts to both PG&E and responding agency partners in order to reduce response time to detected ignitions. During the EPIC project, PG&E's team determined that AI would enable both PG&E and First Responders to receive notifications of ignitions detected on installed wildfire cameras. The decision was made to pursue AI implementation on all PG&E sponsored cameras in 2023. It is important to note that CAL FIRE, SCE, and SDG&E are all sponsoring AI implementation on their sponsored cameras in 2023. The ability for the over 1,000 wildfire cameras installed across the state to be continuously monitored with rapid alerting for responding agencies is seen as a major step forward in the detection and response to wildfire ignitions. b) AI detection will enable more rapid notification of responding agencies to new fire ignitions. Early results have shown between 2 and 30 minutes are saved when utilizing automated detection technology (AI). The anticipated improvement across the entire state is that responding agencies will become aware of new ignitions more quickly than relying on the public notifications that have been utilized to this point (i.e., calling 9-1-1). c) Please refer to attachment WMP-Discovery2023_DR_CalAdvocates_009-Q003_Atch01 which contains a comparative analysis illustrating instances when the AI detection times were faster than the 9-1-1 calls (IRWIN Discovery Time). d) As of the beginning of 2023, PG&E spent $1,043,000 on the Electric Program Investment Charge 3.45, "Automated Fire Detection from Wildfire Alert Cameras" program. e) The EPIC project has ended and there will be no additional spend on this going forward. The cost to implement AI on the PG&E sponsored cameras will be carried within the Wildfire Camera program budget. This is expected to be approximately $1,600,000 in 2023 with incremental increases going forward. CAL FIRE, SCE, and SDG&E will also be supporting AI on their sponsored cameras at the same cost per camera. f) PG&E expects to realize benefits from automated fire detection as early as June 2023.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	1	N/A	8.3.4.2	Situational Awareness and Forecasting	Ignition Detection Systems
35	CalPA	Set WMP-09	CalPA_Set WMP-09	4	CalPA_Set WMP-09_Q4	P. 174 of PG&E's WMP states, "The results of the PSPS Consequence Model are then calibrated to PG&E's Enterprise Risk Model's MAVF Risk Score for PSPS." For each component in PG&E's MAVF, explain how the results of the PSPS Consequence Model are calibrated to the MAVF.	PG&E's PSPS MAVF Risk Score includes safety, reliability, and financial components. The combination of the components results in a total MAVF Risk Score for PSPS. For Safety, PG&E uses the combination of 50% PG&E PSPS data and 50% US-industry widespread unplanned outage data. Based on blending of the two datasets, PG&E arrives at a Serious Injury or Fatality (SIF) / million Customer Minutes Interrupted (CMI). Details are shown in "WMP-Discovery2023_DR_CalAdvocates_009-Q004Atch01.pptx." For Reliability, PG&E uses the CMI estimates from the historical back-cast for each lookback event. Details are shown in "WMP-Discovery2023_DR_CalAdvocates_009-Q004Atch02.xlsx." For Financial, PG&E uses the historical cost of executing PSPS events and estimates a fixed cost of executing a PSPS and a cost per customer through linear regression. Details are shown in "WMP-Discovery2023_DR_CalAdvocates_009-Q004Atch03.xlsx." PG&E's PSPS consequence model is based off the back-cast of potential PSPS events since 2010 at the customer level. For each customer, the model provides an expected number of CMI based on the PSPS frequency and duration. However, the CMI outputted is not directly converted to MAVF. This is because of the non-linear scaling of the MAVF (1 event with very high CMI impact is not the same as many events with small CMI impacts). As such, PG&E calibrates the PSPS Consequence Model to the Enterprise MAVF risk score by proportionally allocating the percent contribution of each customer CMI of the total times the total MAVF Risk Score. Additionally, PG&E includes a critical customer weighting, for example, a medical baseline customer has a weighting of 2, so the CMI associated with that customer would be equivalently double that of a regular customer. As an example: The Overall MAVF Risk Score is 100 Customer 1 (medical baseline) experiences 10 CMI Customer 2 (regular) experiences 30 CMI Customer 1's equivalent CMI is 10 CMI * 2 weighting = 20 CMI Customer 2's equivalent CMI is 30 CMI * 1 weighting = 30 CMI Customer 1's MAVF = 100 * (20)/(20+30) = 40 MAVF Customer 2's MAVF = 100 * (30)/(20+30) = 60 MAVF	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	3	N/A	6.2.2.3	Risk Methodology and Assessment	Risk and Risk Components Calculation
36	CalPA	Set WMP-09	CalPA_Set WMP-09	5	CalPA_Set WMP-09_Q5	P. 161 of PG&E's WMP discusses Group G, Above-Grade Hardware, in the context of PG&E's WTRM. Group G has two sub-groups. PG&E states, "Sub-Group 1 consists of components where the life cycle closely aligns with that of the structure. These include the hanger plate and bolts." a) Does the WTRM apply the same hazards and threats to all components within a grouping? Please explain your answer. b) Does PG&E's grouping within the WTRM account for any hazards that may be unique to a subset of hardware within a group? Please explain your answer. c) Hanger plates may be subject to wear such as "keyholing" that the main structure may not experience. How does PG&E account for this potential difference in life cycle between hanger plates and the structure? d) Which group within the WTRM includes c-hooks? e) Please explain your justification for your answer to part (d).	a) Yes, the same hazard and threats are applied to all components within a grouping. Grouping a set of components is based on the following considerations: 1. Similar asset lifecycle; 2. Sensitivity to similar threats and hazards; and 3. Similar Asset Management strategy. b) As a starting point, the WTRM assumes that all components have been designed to the minimum design wind loads and are equally susceptible to the threats affecting the component group. As more data is collected on individual components, the model framework will be used to select the most vulnerable component for a given hazard. For example, if thicker hanger plates than required by minimum design wind loads have been installed on a structure, it may be determined that another component in the above grade hardware grouping has a higher probability of failure during high winds. In that case, the most vulnerable component would then represent the component grouping probability of failure. c) The WTRM incorporates the differences between hanger plates and the structure by modelling the threats and hazards that apply to each of them in different models. For hanger plates, inspection data (in this case, any observed wear or "keyholing") is incorporated by decreasing the expected "strength" which increases the failure likelihood of that component. The structure itself has different and unique threats that are modeled separately from the C-hook and hanger plate. d) C-hooks are included in the Above Grade Hardware group. e) C-hooks are considered to be in the Above Grade Hardware group because they have the most in common with hardware in terms of materials, general size, location on the structure, and degradation mechanisms.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	6.2.2.1	Risk Methodology and Assessment	Risk and Risk Components Calculation

37	CalPA	Set WMP-09	CalPA_Set WMP-09	6	CalPA_Set WMP-09_Q6	P. 193 of PG&E's WMP states, "top-risk areas are defined as the areas corresponding to those 100 x 100 m pixels that intersect PG&E overhead electrical infrastructure locations and that are in the upper 20th percentile based on WDRM v3 risk scores." a) By "upper 20th percentile," does PG&E mean the 80th through 100th percentiles, as percentiles are conventionally defined (in other words, the highest quintile of risk scores)? b) In the above statement, does "upper 20th percentile" refer to all WDRM v3 risk scores (which encompass most of PG&E's service territory), or a subset (for example, the upper 20th percentile of those WDRM v3 risk scores located within HFTD)? Please explain your answer. c) How many circuit-miles are included in the "upper 20th percentile" as this term is used in PG&E's WMP?	a) Yes, by "upper 20th percentile" PG&E means the 80th through 100th percentiles; i.e., the highest quintile of risk scores. b) The "upper 20th percentile" refers to a subset of WDRM v3 risk scores. The "top risk" areas were identified using the following process: (1) PG&E service territory was spatially divided into a grid of square, 100 m x 100 m pixels; (2) for each pixel intersecting PG&E overhead electrical distribution infrastructure (1,455,233 pixels), the WDRM v3 was used to produce a risk score (range: 0 [least risk] - 0.2338641435 [greatest risk]); and (3) those 20 percent of risk-scored pixels (289,046 pixels) with the greatest risk scores (range: 0.0006426839 - 0.2338641435) were designated as "top-risk" areas. c) The number of overhead distribution circuit miles included in the "upper 20th percentile" is 16,262 miles (from a total of approximately 81,000 overhead distribution circuit miles).	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	6.4.1.2	Risk Methodology and Assessment	Top Risk Areas Within the HFRA
38	CalPA	Set WMP-09	CalPA_Set WMP-09	7	CalPA_Set WMP-09_Q7	P. 73 of PG&E's WMP states, "We created a species-specific stress index model for PG&E tree health and mortality." a) What is PG&E's species-specific stress index model for tree health and mortality? b) How does PG&E utilize its species-specific stress index model for tree health and mortality? c) Please describe the data inputs to this model. d) Please describe the outputs of this model.	a) A species-specific stress index model for tree health and mortality uses information related to temperature, precipitation, evapotranspiration, and other environmental trends to evaluate issues impacting tree health and mortality. b) PG&E has not yet received the information from its vendor needed to develop the stress index model but expects to receive it shortly. Once the information is received, PG&E will perform additional analysis in order to test the feasibility of creating a species-specific model. PG&E has corrected this information in its April 6, 2023 WMP errata. c) PG&E has not yet created the model, as described in response to subpart (b). d) PG&E has not yet created the model, as described in response to subpart (b).	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	4.4	Overview of WMP	Risk-Informed Framework
40	CalPA	Set WMP-09	CalPA_Set WMP-09	9	CalPA_Set WMP-09_Q9	P. 526 of PG&E's WMP states, "The primary target for secondary patrols is HFTD and HFRA but exceptions and additional areas are included to appropriately address vegetation associated risks." P. 267 states, "Beginning in 2023, PG&E will use the annual review of AOC, that we committed to doing in RN_PG&E-22-09, to identify areas subject to Second Patrols." a) Is there a difference between "secondary patrols" and "Second Patrols" in the two passages quoted above? If so, please explain the difference(s). b) In 2022, did PG&E's secondary patrol cover the entire HFTD? Please explain your answer. c) In 2023, will PG&E's secondary patrol cover the entire HFTD? Please explain your answer. d) Is PG&E planning to cover fewer circuit miles with second patrols in 2023 than were covered in 2022? Please explain your answer.	a) In the paragraph on page 526 outlined above, the term "secondary patrols" is used synonymously with the use of "Second Patrols" and both terms refer to Second Patrol. "In accord with regulatory requirements and/or PG&E VM Second Patrol Procedure (TD-7102P-23), the VM Second Patrol program performs scheduled patrols approximately six months offset from the routine patrol on overhead primary and secondary distribution facilities. The primary target for secondary patrols is HFTD and HFRA but exceptions and additional areas are included to appropriately address vegetation associated risks." In the paragraph on page 267, the term "Second Patrols" also refers to Second Patrol. b) Yes, in 2022 PG&E's second patrol covered the entire HFTD area, with the exception of those areas that were impacted due to various constraints. PG&E can be constrained by environmental delays, individual customer issues, permitting delays/restrictions or operational holds, weather conditions, active wildfire, and accessibility of the area where system inspections have been identified. If the constrained work is compliance related, we work through our VM processes to resolve the roadblock and execute the work. This would include everything from securing a permit to rescheduling work timing due to field conditions. c) Yes, in 2023 PG&E's second patrol will cover the entire HFTD area with the exception of those areas that may be impacted due to various constraints. PG&E can be constrained by environmental delays, individual customer issues, permitting delays/restrictions or operational holds, weather conditions, active wildfire, and accessibility of the area where system inspections have been identified. If the constrained work is compliance related, we work through our VM processes to resolve the roadblock and execute the work. This would include everything from securing a permit to rescheduling work timing due to field conditions. d) Second Patrol areas for 2023 will be the same as 2022 but will be evaluated for potential modifications starting in 2024.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	8.2.2.2.2	Vegetation Management and Inspections	Distribution Second Patrol
41	CalPA	Set WMP-09	CalPA_Set WMP-09	10	CalPA_Set WMP-09_Q10	P. 342 of PG&E's WMP states, "In July 2021, PG&E launched a multi-year program to underground 10,000 distribution circuit miles in high wildfire risk areas." a) Since the July 2021 announcement of its 10,000 mile undergrounding program, has PG&E performed any studies to determine whether the planned scope of 10,000 circuit miles should be revised? b) Please provide any available studies, analyses, reports, or workpapers pertinent to your answer to part (a). c) If the answer to part (a) is no, please explain why not. d) Does PG&E plan to perform any studies or analyses during the 2023-2025 WMP period to determine whether 10,000 circuit miles is still the appropriate scope to target for undergrounding? e) If the answer to part (d) is yes, please describe the planned scope and timing of such studies. f) If the answer to part (d) is no, please explain why not.	a) Yes. PG&E determined that undergrounding approximately 10,000 miles will reduce approximately 70 percent of risk in the HFTD. We initially used the output from our Wildfire Distribution Risk Model (WDRM) version 2 to first identify the 10,000 miles. We then subsequently validated that this was the correct number of miles after the July 2021 announcement using the output from our updated WDRM v3. b) Please see the attachment "WMP-Discovery2023_DR_CalAdvocates_009-Q010Atch01.xlsx" for the requested information on the WDRM v2 analysis. Based on the WDRM v2, the top 20% risk-ranked circuit segments are represented by 727 circuit segments. Shown in cell K730:M730, the cumulative overhead miles areapproximately 8,762 with a cumulative risk reduction of approximately 75%. Please see attachment "WMP-Discovery2023_DR_CalAdvocates_009-Q010Atch02.xlsx" for the requested information on the WDRM v3 analysis. Based on WDRM v3, PG&E's 10,000 underground circuit miles is represented by approximately 8,100 overhead miles, which is also equal to approximately 75% risk reduction. c) Not applicable, please see the response to subparts (a) and (b) above. d) PG&E's undergrounding plan will continue to evolve based on changing risk. We plan to update our risk model annually. We will continue to review the information in our updated models which will contribute to our thinking/understanding of the risk and the scope of the work. Additionally, we will outline our future plans in more detail in our SB884 filing which we plan to file later in 2023. e) Yes, please see the response to subpart (d). f) Not applicable, please see the responses to subparts (d) and (e).	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	2	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
42	CalPA	Set WMP-09	CalPA_Set WMP-09	11	CalPA_Set WMP-09_Q11	P. 969 of PG&E's WMP states, "on average, it takes 1.25 UG install miles to replace 1 OH mile. However, at times, this multiplier can be 2-3 times greater." Does PG&E's target of 10,000 miles of undergrounding refer to the number of OH circuit-miles to be moved underground, or the number of underground circuit-miles to be installed?	The 10,000 mile target refers to the number of miles of underground conductor and aligned with the assumption of removing approximately 8,100 overhead circuit miles.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-34 – Revise Process of Prioritizing Wildfire Mitigations
43	CalPA	Set WMP-09	CalPA_Set WMP-09	12	CalPA_Set WMP-09_Q12	a) What is PG&E's current forecast cost per circuit-mile for undergrounding projects completed in the second half of 2025? b) Please provide workpapers to support your answer to part (a).	a) PG&E did not provide a forecast cost per circuit miles for undergrounding projects completed specifically in the second half of 2025 in its WMP. However, PG&E did provide a target unit cost (cost per circuit mile) by year for undergrounding projects through our 2023 GRC Reply Brief (A. 21-06-021): [IMAGE OF TABLE 4-11: SYSTEM HARDENING UNDERGROUND - PG&E'S ORIGINAL AND JUSTUSTED AVERAGE UNIT COST FORECAST(a) ($MILLIONS)] b) PG&E's unit cost forecast is a target value based on a strategy to reduce unit costs over time that is not based on a specific calculation.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
44	CalPA	Set WMP-09	CalPA_Set WMP-09	13	CalPA_Set WMP-09_Q13	a) What is PG&E's forecast RSE for undergrounding completed in the second half of 2025? b) Please provide workpapers to support your answers to part (a).	a) PG&E does not forecast an RSE for undergrounding projects planned to be completed specifically in the second half of 2025 in its WMP. However, in the 2023 GRC, PG&E provided an RSE of 5.4 in 2025 for underground system hardening (A. 21-06-021, Exhibit PG&E-4, Chapter 3, p. 3-6, Table 3-1). b) Please see attachment "WMP-Discovery2023_DR_CalAdvocates_009-Q013Atch01.xlsm" for the requested information (on the "RSE Results" tab, cell J12 for the 2025 Undergrounding RSE with supporting data on the other tabs). Comprehensively, inputs to support the RSE Results tab are based on the following tabs to compute the RSE: • 1-Program Exposure – Identifies the number of Overhead miles replaced worked per year across the tranches of the Wildfire Risk. • 2-Program Cost – Identifies the programmatic costs per year • 3- Eff- Freq Programs – Identifies the programmatic effectiveness by driver and subdriver for each mitigation.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
45	CalPA	Set WMP-09	CalPA_Set WMP-09	14	CalPA_Set WMP-09_Q14	a) What is PG&E's current forecast cost per circuit-mile for covered conductor projects completed in the second half of 2025? b) Please provide workpapers to support your answer to part (a).	a) PG&E does not forecast costs per circuit-mile for covered conductor projects in its WMP. However, PG&E did provide a unit cost of $1.678 million per mile for overhead hardening in 2025 in its 2023 GRC (A. 21-06-021, Exhibit PG&E-4, Workpaper 4-28, line 18). b) Please see attachment "WMP-Discovery2023_DR_CalAdvocates_009-Q014Atch01.pdf" for the requested information.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	1	N/A	8.1.2.5	Grid Design and System Hardening	Traditional Overhead Hardening –Transmission Conductor and Distribution
46	CalPA	Set WMP-09	CalPA_Set WMP-09	15	CalPA_Set WMP-09_Q15	a) What is PG&E's forecast RSE for covered conductor system hardening completed in the second half of 2025? b) Please provide workpapers to support your answers to part (a). Question 16	a) PG&E does not forecast an RSE for covered conductor system hardening for the second half of 2025 in its WMP. However, in the 2023 GRC, PG&E provided an RSE of 5.8 in 2025 for overhead system hardening (A. 21-06-021, Exhibit PG&E-4, Chapter 3, p. 3-6, Table 3-1). b) Please see attachment "WMP-Discovery2023_DR_CalAdvocates_009-Q013Atch01.xlsm" for the requested information.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	0	N/A	8.1.2.5	Grid Design and System Hardening	Traditional Overhead Hardening –Transmission Conductor and Distribution
47	CalPA	Set WMP-09	CalPA_Set WMP-09	16	CalPA_Set WMP-09_Q16	In response to data request CalAdvocates-PGE-2023WMP-03, question 7c, PG&E states, "The primary approach for selecting miles used two risk prioritization methodologies: (1) Top 20 percent circuit segments based on the 2021 WDRM v2; and (2) the [Wildfire Feasibility Efficiency (WFE)]-ranked circuit segments based on the 2022 WDRM v3 and considering undergrounding feasibility." Provide an Excel table of the WFE-ranked circuit segments based on the 2022 WDRM v3, as described above. For each circuit segment, provide the following attributes as columns: a) Circuit name b) Circuit ID number c) Circuit segment name d) WDRM v3 risk score e) Feasibility factor f) WFE score as defined on p. 969 of PG&E's WMP g) WFE ranking	Please see attachment "WMP-Discovery2023_DR_CalAdvocates_009-Q016Atch01_CONF.xlsx" for the requested information from data request CalAvocates PGE-2023WMP-03, question 7c (projects identified for possible undergrounding in the 2023-2026 timeframe). Please see column M that shows the applicable risk model used for scoping the project (WDRM v2, WDRM v3). a) Please see column N of the attachment. b) Please see column O of the attachment. c) Please see columns P and S of the attachment. d) Please see column ADof the attachment. e) Please see column W of the attachment. f) Please see column AE of the attachment. g) Please see column AF of the attachment.	Holly Wehrman	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	1	N/A	7.2	Wildfire Mitigation Strategy Development	Wildfire Mitigation Strategy
63	TURN	001	TURN_001	1	TURN_001_Q1	1. Regarding ACI PG&E-22-34, which found that "PG&E's current process of prioritizing wildfire mitigations assigns a high priority to undergrounding and does not demonstrate adequate weight to risk model outputs or RSE estimates" and which detailed the showing that PG&E must make in this WMP to show the required progress: a. Does PG&E's 2023-2025 WMP or supporting documentation provide a comparison of the RSEs (either at a tranche level or more aggregated level) for undergrounding compared to the RSEs of alternative mitigation techniques, such as covered conductor? i. If so, please provide the relevant citations, identifying the specific content that provides this information by page number and specific paragraphs, tables or figures (i.e., not just a multi-range page citation). ii. If so, please describe what PG&E believes those RSE comparisons demonstrate. b. Referring to the third bullet under "Required Progress" on page 968 of PG&E's WMP, does PG&E's 2023-2025 WMP explain how PG&E incorporates RSE estimates and risk model outputs that compare undergrounding with alternative mitigation techniques, such as covered conductor, at a project level early in the decision-making process, to allow PG&E to adjust the scope and pace of PG&E's undergrounding program as necessary based on the analyses performed? i. If so, please provide the relevant citations, identifying the specific content that provides this information by page number and specific paragraphs, tables or figures (i.e., not just a multi-range page citation). ii. Whether or not this information is provided in PG&E's 2023-2025 WMP, please state whether, and if so, how PG&E incorporates RSE estimates and risk model outputs that compare undergrounding with alternative mitigation techniques, such as covered conductor, at a project level early in the decision-making process. Please provide all documents showing that this comparison of RSE estimates and risk model outputs is included in PG&E's decision-making process. c. Please explain whether and, if so, how PG&E's quantitative analysis takes into account the PSPS risk for a particular location when deciding whether to undertake an undergrounding project or an alternative mitigation technique in 3 that location. For example, all other things being equal, does undergrounding fare worse in the quantitative analysis for a location deemed to have no or low PSPS risk compared to a location deemed to have high PSPS risk, and, if so, how is this difference in PSPS risk reflected in the quantitative analysis? Please provide all documents showing how PSPS risk is included in PG&E's decision-making process for whether undergrounding or another mitigation technique is used for a particular location. d. The first paragraph on page 969 states: "For instance, on average, it takes 1.25 UG install miles to replace 1 OH mile." i. Please explain how this average was calculated, including an identification of the undergrounding projects (identified by date and location) on which the calculation was based. ii. Please provide all supporting data for this statement, in Excel workbook format.	a) No, PG&E's 2023-2025 WMP does not provide a comparison of the RSEs for undergrounding compared to the RSEs of alternative mitigations. However, this information, RSEs at the tranche and aggregated level for wildfire mitigations including undergrounding, is provided in PG&E's 2023 General Rate Case – in response to Energy Division data request ED_001. b) Yes, the 2023 WMP explains how PG&E performs this analysis. PG&E evaluated the outputs from its Wildfire Distribution Risk Models (WDRM) to determine the highest risk miles in its service territory. The primary approach for selecting system hardening miles used two risk prioritization methodologies: (1) the top 20 percent of circuit segments based on the 2021 WDRM v2; and (2) the Wildfire Feasibility Efficiency (WFE) ranked circuit segments based on the 2022 WDRM v3. PG&E uses the Simplified Wildfire RSE (SWRSE) or WFE in evaluating undergrounding projects. The SWRSE includes the components of the RSE,including wildfire risk and cost. In executing the system hardening program, PG&E first uses a scoping criterion that identifies the highest risk areas, and then selects the appropriate risk mitigation approach for that circuit which may include undergrounding, remote grid installation, line removal, or overhead hardening (depending on the local circumstances). Since late 2021, PG&E has prioritized undergrounding as the preferred approach to reduce the most system risk. Once a circuit is selected for undergrounding, PG&E evaluates each proposed circuit segment quantitatively and qualitatively to mitigate the maximum amount of risk and evaluate feasibility and executability. i. Please see Section 8.1.2.1, page 339, Overview of the Activity and Section 8.1.2.2, p. 342-343, Overview of the Activity for the requested information. ii. PG&E does not have documentation comparing different mitigation alternatives at the project level. PG&E uses the Simplified Wildfire RSE (SWRSE) or Wildfire Feasibility Efficiency (WFE) in evaluating undergrounding projects. The SWRSE includes the components of the RSE including wildfire risk and cost. PG&E uses the SWRSE to identify where it can most efficiently reduce risk given the terrain feasibility at a particular location. c) We currently do not use the PSPS risk in our quantitative decision-making when deciding whether to undertake an undergrounding project or an alternative mitigation. However, when evaluating potential undergrounding locations, PG&E considers project locations that would reduce PSPS customer impacts and may adjust project scope to further address PSPS impacts. d) i. The original estimated conversion of overhead to underground mileage was based on subject matter expertise. We currently do not track at scale the overhead miles removed and replaced through undergrounding. Based on a manual review of 19 projects completed in 2022, we removed approximately 12.7 overhead miles and replaced them with 16.3 underground miles. Based on this subset of data, which is generally consistent with our overall portfolio, the conversion factor from overhead to underground is 1.3. ii. Please see attachment 'WMP-Discovery2023_DR_TURN_001-Q001_Atch01' for the requested information. e) i. No, the SWRSE measure helps PG&E to evaluate construction feasibility of undergrounding projects. ii. Not applicable, please see the response to subpart (i) above.	Tom Long	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_001.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-34 – Revise Process of Prioritizing Wildfire Mitigations
64	TURN	002	TURN_002	1	TURN_002_Q1	Please provide the attachment to the response to CalAdvocates-PG&E-2023WMP-06-007, which PG&E has labeled as confidential	Please see attachment "WMP-Discovery2023_DR_TURN_002-Q001Atch01CONF.xlsx" for the requested information.	Tom Long	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_002.zip	1	Yes	8.2.3	Vegetation Management and Inspections	Vegetation and Fuels Management
65	TURN	002	TURN_002	2	TURN_002_Q2	Please provide the attachment to the response to CalAdvocates-PG&E-2023WMP-06-008, which PG&E has labeled as confidential.	Please see attachment "WMP-Discovery2023_DR_TURN_002-Q002Atch01CONF.xlsx" for the requested information.	Tom Long	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_002.zip	1	Yes	8.2.3	Vegetation Management and Inspections	Vegetation and Fuels Management
66	TURN	002	TURN_002	3	TURN_002_Q3	Please provide the attachment to the response to CalAdvocates-PG&E-2023WMP-06-009, which PG&E has labeled as confidential.	The attachment to CalAdvocates-PG&E-2023WMP-06-009 was identical to the attachment provided for CalAdvocates-PG&E-2023WMP-06-008, so please refer to the attachment sent with Answer 002 of this data request response.	Tom Long	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_002.zip	0	N/A	2022 WMP Section 7.3.5.2	Vegetation Management and Inspections	Enhanced Vegetation Management
67	TURN	002	TURN_002	4	TURN_002_Q4	Please provide the 2023-2026 Undergrounding Workplan referenced on page 911 of PG&E's WMP and in footnote 209, which indicates that PG&E has labeled the Workplan confidential.	Please see "WMP-Discovery2023_DR_TURN_002-Q004Atch01_CONF.xlsx" for the requested information.	Tom Long	4/4/2023	4/7/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_002.zip	1	Yes	Appendix D	Areas for Continued Improvement	ACI PG&E-22-16 – Progress and Updates on Undergrounding and Risk Prioritization
69	OEIS	001	OEIS_001	1	OEIS_001_Q1	Regarding PG&E's Tree Assessment Tool (TAT) Considering PG&E has discontinued its Enhanced Vegetation Management (EVM) program: a. How is PG&E using and planning to use its TAT? b. What inspection programs, if any, listed in Section 8.2.2 will use the TAT? c. If PG&E is not using its TAT, why has it discontinued its use?	a) The TAT was developed for the EVM program. The TAT will no longer be utilized as the EVM program concluded at the end of 2022. There are no current plans to utilize TAT to support other VM programs. b) No inspection programs listed in Section 8.2.2 of the 2023-2025 WMP plan to utilize the TAT at this time. Please see the response to part (a) of this question. c) The approach to tree inspections intends to follow the American National Standards Institute (ANSI) A-300 tree risk assessment standard per our field conditions and individual tree mitigation needs.	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	8.2.2	Vegetation Management and Inspections	Vegetation Management Inspections

70	OEIS	001	OEIS_001	2	OEIS_001_Q2	Regarding PG&E's Targeted Tree Species (TTS) Study and its Tree Assessment Tool (TAT) On page 784 of its 2022 WMP Update, PG&E states "The results of our Targeted Tree Species study in conjunction with improving the Tree Assessment Tool (TAT) will allow PG&E to more accurately identify and mitigate trees at elevated risk of failure, providing better visibility into risk." On page 579 of its 2023-2025 WMP, PG&E states "We have evaluated the recommendations in the final [Targeted Tree Species] report and continue to analyze them and consider our go-forward actions." a. Since the Target Tree Species study was completed on March 31, 2022, what actions has PG&E taken and will take to implement the nine recommendations? Respond specifically to each of the nine recommendations. b. What improvements have been and will be made to the TAT in response to these recommendations and generally (i.e., not in response to these recommendations)? c. If PG&E is not using or planning to use its TAT, did PG&E make changes/improvements to the TAT before it decided to end its use? If so, what were those changes/improvements?	a) Nine recommendations were provided to PG&E in the final report of the Targeted Tree Species Study that was completed in March 2022. PG&E has considered these recommendations and has taken action where we deemed appropriate. Below are the actions taken specific to each of the nine recommendations. Recommendation 1: Implement a rule set, harmonized with O&I procedures, for TAT to record at species level, with only specified genus allowed as aggregates. Adopt definitions presented in OEIS Geographic Information Systems Data Standard, DRAFT Version 2.2 in Section 3.4.3 Ignition (Feature Class), Page 71. Action Taken: An updated tree species list has been created that aggregates species at the genus level where appropriate. The updated tree species list is currently in process of being updated within One VM. Recommendation 2: Outage and/or ignition investigations should record accurate (dual-phase GPS) positions and be assigned to an EVM circuit segment that correlates to geo-rectified and spatially conflated PG&E EDGIS digital twin vector data. Similar to PG&E Transmission VM, where possible, associate the O&I tree with a LiDAR tree segmentation ID to further improve tree locational accuracy, and future tracking. Action Taken: Current electronic devices are able to capture accurate GPS positions due to technological improvements. Recommendation 3: Track TAT abatement species compositions and compare to outage and ignition species distributions. Note potential over-/under-abatements. Over time, this can serve as a programmatic KPI. Action Taken: Analysis for abatement species compositions compared to outage and ignition species distributions has been completed. Recommendation 4: Harmonize Outage and Ignition (O&I) data with TAT data parameters. • Fill out all O&I data fields • To the best extent possible, perform a retroactive TAT analysis on future O&I trees • Where possible, associate the O&I tree with a LiDAR tree segmentation ID Action Taken: We have developed an updated outage and ignition investigation form that incorporates data parameters that will allow for increased data analytics. The updated form is in process of being digitized which will improve data consistency. Recommendation 5: Increase green tree abatement rates for trees with no obvious defects. Consider scored abatements that add LiDAR metrics for overstrike distance, fall pathways to assets, tree position slope to alignment, and canopy exposure to wind. Action Taken: The Revised weighting of observable defects was incorporated into the TAT update. Recommendation 6: Use EPA Level III Ecoregions to aggregate Regional Species Fire Risk Rating scores. Use multiple years of data. Update annually. Action Taken: The TAT update utilizes the recommended ecoregions. Recommendation 7: Replace existing wind model scoring methods with a wind-event-driven representation that captures where wind-driven outages and ignitions are more likely, using either model proposed. The "Simple Wind Score Model" will result in more net abatements and may be more conservative. PG&E meteorology data should also be considered as the data have higher temporal and spatial resolution and are used across several important PG&E programs. Action Taken: The TAT Update replaced the wind scoring with the recommended substitute. Recommendation 8: Add H:DBH as a scored parameter for selected species. Action Taken: The TAT update added HT:DBH as a scored parameter. Recommendation 9: Create a species-specific stress index model for PG&E tree health and mortality. Employ the PG&E climate database and external environmental models to evaluate temperature, precipitation, evapotranspiration, and other environmental trends to evaluate relationships affecting TAT trees health and	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	8.2.3.6	Vegetation Management and Inspections	High-Risk Species
71	OEIS	001	OEIS_001	3	OEIS_001_Q3	Regarding PG&E's Focused Tree Inspections pilot a. Describe the current state of development for the pilot area, PG&E's Areas of Concern (AOC), and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529) and the expected timeline for operationalization. b. Detail the criteria PG&E has and is using to develop the pilot area, PG&E's Areas of Concern (AOC), and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529). c. What standards, processes, procedures, and tools are vegetation management personnel using/will use to perform tree risk assessments for this pilot? d. Will PG&E be using its One VM Tool for recordkeeping for this pilot? If not, what system will PG&E use for recording keeping for this pilot? e. Where is PG&E conducting its Focused Tree Inspections pilot? If PG&E has not yet begun its pilot, where will PG&E be conducting its Focused Tree Inspections pilot? f. How many circuit miles are in scope for the pilot? g. Was the pilot area previously in-scope for Enhanced Vegetation Management (EVM)? h. For each Circuit Protection Zone (CPZ) in the pilot area provide the: i. CPZ name. ii. Tree Weighted Risk Score from PG&E's most recent version of its EVM Tree-Weighted Prioritization List. iii. Tree Weighted Rank from PG&E's most recent version of its EVM Tree-Weighted Prioritization List. iv. Risk Tranche i. Does PG&E have a plan to continue its Focused Tree Inspections assuming the pilot is a success? If so, detail those plans, including how many circuit miles PG&E plans to inspect under this program in 2023 and 2024. j. Provide a GIS layer of the pilot area, PG&E's Areas of Concern (AOC),1 and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529). As applicable, provide the following attributes for each polygon: i. Number of overhead circuit miles within the polygon ii. Overall Utility Risk iii. Ignition Risk iv. PSPS Risk v. Contact from Vegetation Likelihood of Ignition	a) Four regional AOCs totaling 300 miles have been identified for the FTI Pilot, one in each of the following counties: Butte, Calaveras, El Dorado, and Napa. Pilot operationalization will begin in Q2 2023. b) AOCs were identified through a cross-functional effort utilizing county-based regional reviews to create polygons. Initial polygon development utilized Public Safety Specialist circuit-based evaluations, 30-year lookback of meteorology data, PSPS Lookback Polygons, PSPS Vegetation Damage locations, vegetation caused ignition data, and vegetation caused outage data. The completed AOC polygons were further analyzed against WDRMv3 model. This analysis supported the prioritization of AOC polygons which were selected as regional pilots. To bring value to overall future guidance and execution, the pilots need to capture regional variations and piloting only in highest risk AOC polygons would not support the significant learningsexpected of the pilot. c) The approach to tree inspections pilots intends to follow the American National Standards Institute (ANSI) A-300 tree risk assessment standard per field conditions and individual tree mitigation needs. In addition, inspections will utilize ISA TRAQ Certified Arborists and supporting checklist for tree assessments. d) The pilot plans to use OneVM for execution. Business requirements to import the CPZ and/or targeted circuit segments in AOC polygons are under development as of 3-31-2023. We expect to standardize the data collection system for the pilot in April 2023. e) The FTI program will be piloted in four regional AOCs (Butte, Calaveras, El Dorado, and Napa Counties) beginning in Q2 2023. f) The FTI Pilot will consist of 300 miles within AOCs. g) Yes all circuit segments in HFTD were subject to annual EVM plans as prioritized by WDRM models. FTI program pilots are targeted in HFTD areas. Portions of FTI circuit segments have been subject to EVM mitigation in prior years and trees will be inspected consistent with the portions that were not previously mitigated with EVM. h) i. See attachment "WMP-Discovery2023_DR_OEIS_001-Q003_Atch001" for CPZ names and associated tranches."ii. See response to j) for WDRMv3 scores per AOCs. Development and prioritization of Areas of Concern polygons that define the pilot areas for the FTI program used WDRM v3. WDRM v3 improved upon v2 by taking individual event driver inputs into consideration separately and allowing them to be composited for the appropriate mitigation program. This was combined with effectiveness measurements to provide more detailed views of EVM mitigation. There was no tree weighting factor applied as was applied in v2, as the different modes of vegetation failure were incorporated into the individual model outputs for the vegetation models. WDRM v3 generated a trunk failure, branch failure, and other vegetation failure model output. iii. See response to j) for WDRM v3 scores per AOCs. Development and prioritization of Areas of Concern polygons that define the pilot areas for the FTI program used WDRM v3. WDRM v3 improved upon v2 by taking individual event driver inputs into consideration separately and allowing them to be composited for the appropriate mitigation program. This was combined with effectiveness measurements to provide more detailed views of EVM mitigation. There was no tree weighting factor applied as was applied in v2, as the different modes of vegetation failure were incorporated into the individual model outputs for the vegetation models. WDRM v3 generated a trunk failure, branch failure, and other vegetation failure model output. iv. See attachment "WMP-Discovery2023_DR_OEIS_001-Q003Atch01.xlsx" for CPZ names and associated tranches. i) Yes, we plan to inspect up to 3000 miles from Tranche 1 and Tranche 2 AOCs by the end of 2024. j) i. Please see WMP-Discovery2023_DR_OEIS_001-Q003Atch02.zip" and "WMP-Discovery2023_DR_OEIS_001-Q003Atch03.xlsx" for a breakdown of the total overhead circuit miles per AOC. ii. AOC development methodology was specific to prioritizing work for Vegetation Management to reduce tree caused outages and ignitions. Overall Utility Risk analysis	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	3	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
72	OEIS	001	OEIS_001	4	OEIS_001_Q4	Regarding PG&E's Tree Removal Inventory On page, 528, PG&E states that is will "remove, or re-inspect trees identified in the EVM program." a. How does PG&E decide whether a tree should be 1) simply abated based on the existing risk assessment or 2) re-inspected/assessed prior to abatement? b. What standards, processes, procedures, and tools are vegetation management personnel using/will use to perform tree risk assessments for this program?	a) 1) Trees in the inventory with a TAT result of 'Abate' will abated based on the existing risk assessment. 2) All trees in the inventory with either no TAT result or a TAT result other than 'ABATE' are to be re-assessed by a Tree Risk Assessment Qualification (TRAQ) inspector to determine if abatement is appropriate. The inspection will determine our action based on tree condition and strike potential. b) The approach to tree inspections intends to follow the American National Standards Institute (ANSI) A-300 tree risk assessment standard per field conditions and individual tree mitigation needs. Inspectors re-assessing these trees will be required to possess a Tree Risk Assessment Qualification (TRAQ) through the International Society of Arboriculture (ISA), which is the same organization that certifies arborists. The result of the TRAQ assessment will be documented in the Vegetation Point record for the tree.	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
73	OEIS	001	OEIS_001	5	OEIS_001_Q5	Regarding Wood Management On page 536, PG&E says that its wood management program addresses large wood generated by PG&E's VM activities including post-fire work activities and wood generated by the EVM Program. a. Considering the EVM program has been discontinued, does the wood management program: i. Address large wood generated from the EVM program that has not already addressed? ii. Address large wood generated from PG&E's Tree Removal Inventory program, a remnant of the EVM program? b. How is large wood addressed when generated by other VM programs, including Distribution Routine/Second Patrol, VM for Operational Mitigations, and Focused Tree Inspections? c. When debris and/or large wood generated from PG&E's VM activities are left on site, what standards, protocols, processes, and procedures does PG&E use to ensure the debris and large wood are placed in a manner that does not: i. Block or hinder ingress or egress. ii. Infringe on PRC 4291 defensible space clearance. iii. Impede watercourses and drainages. iv. Conflict with property owner's interests. v. Otherwise create a hazard.	a) i. Yes. We will uphold commitments to manage wood generated by Enhanced Vegetation Management (EVM) tree work for customers who requested this service. ii. We will continue to fulfill wood management commitments that have been made to customers. b) PG&E offers wood management for our wildfire response and EVM programs. For all programs, wood greater than four inches in diameter is left in a safe position on site as it is legally the property of the landowner. As safety is PG&E's foremost core value, if wood poses a safety risk or environmental, cultural or access concern, crews will address the wood accordingly in coordination with tree work. c) Please see "WMP-Discovery2023_DR_OEIS_001-Q005Atch01.pdf" for PG&E's Wood Management procedure. i. Our crews are directed to ensure roadways are clear of tree debris or wood at the time of tree work. If wood poses an access concern, crews will address the wood accordingly in coordination with tree work. ii. Our Vegetation Management program is designed to ensure public safety and regulatory compliance. If customers have questions resulting from our work, they can reach out to our dedicated customer teams for support and resolution. iii. If wood poses an environmental concern, crews will address the wood in accordance with PG&E Best Management Practices implemented at the time of tree work. iv. As each property is different, we collaborate with the customer to find an optimal solution for the completion of our work on their property. v. At the time of all tree work, crews will either chip and spread, lop and scatter or remove wood debris that is smaller than four inches in diameter. Additionally, in alignment with PG&E's stand that everyone and everything is always safe, crews will address any large wood that poses a potential safety hazard at the time of tree work.	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	1	N/A	8.2.3.2	Vegetation Management and Inspections	Wood and Slash Management
74	OEIS	001	OEIS_001	6	OEIS_001_Q6	Regarding Enhanced Clearances On page 537, PG&E says it "complies with Appendix E of GO 95," then goes on to describe the recommended minimum clearances set forth in Appendix E of GO 95. a. In the HFTD, does PG&E obtain the recommended clearances "where practicable"? b. If (a) does not describe how PG&E implements the recommended, "enhanced" clearances, clarify how PG&E operationalizes the recommended clearances set forth in Appendix E of GO 95.	a. The minimum clearance at time of work on Enhanced Vegetation Management is 12 feet as recommended in Appendix E of GO 95. Routine maintenance of previously cleared EVM spans is also 12 feet. Routine maintenance of all other spans is prescribed 2-3 years of clearance. b. Routine maintenance directs an inspector to prescribe 2-3 years of clearance which allows the inspector to account for tree species, location, and other conditions that affect growth	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	8.2.3.3	Vegetation Management and Inspections	Clearance
75	OEIS	001	OEIS_001	7	OEIS_001_Q7	Regarding Appendix B Items That Are Currently Optional Or "By Request" Only Provide the following, which are outlined in the 2023-2025 Wildfire Mitigation Plan Technical Guidelines, Appendix B. If the data is tabular (formulas, tables, graphs, charts) provide it in MS Excel. If the data is text-heavy, provide the information in MS Word. a. Detailed Model Documentation for each model and sub-model discussed in PG&E's response to Section 6.1.2 Summary of Risk Models (Technical documentation should be presented according to ASTM E 1472 – Standard Guide for Documenting Computer Software for Fire Models.). i. Include a list of assumptions and known model limitations according to ASTM E 1895 –Standard Guide for Determining Uses and Limitations of Deterministic Fire Models. ii. Present verification and validation documentation according to the SFPE's Guidelines for Substantiating a Fire Model for a Given Application or ASTM E 1355 – Standard Guide for Evaluating the Predicting Capability of Deterministic Fire Models. At a minimum, the documentation must include:2 (1) Purpose of the model/problem identification, (2) Model version, (3) Theoretical foundation, (4) Mathematical foundation, (5) External dependencies, (6) Model substantiation, and (7) Sensitivity b. Model Substantiation:3 i. For each model, provide documentation of the following model substantiation studies: (1) Validation data, (2) Model verification, (3) Model validation, and (4) Model calibration c. Additional Models Supporting Risk Calculation:4 i. For each additional model that supports the risk calculations, provide weather analysis and fuel conditions. d. Calculation of Risk and Risk Components: Likelihood5 i. More detailed information on: (1) Ignition Likelihood, (2) Equipment Likelihood of Ignition, (3) Contact from Vegetation Likelihood of Ignition, (4) Contact from Object Likelihood of Ignition,	The requested information is provided in the following four documents: • "WMP-Discovery2023_DR_OEIS_001-Q007Atch01.pdf" • "WMP-Discovery2023_DR_OEIS_001-Q007Atch02CONF.pdf" • "WMP-Discovery2023_DR_OEIS_001-Q007Atch03CONF.pdf" • "WMP-Discovery2023_DR_OEIS_001-Q007Atch04CONF.pdf"	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	4	N/A	Appendix B	Supporting Documentation for Risk Methodology and Assessment Definitions	Detailed Model Documentation
77	OEIS	001	OEIS_001	9	OEIS_001_Q9	Regarding Portfolio Level Risk Analysis and Risk Spend Efficiency a. Provide an example of how risks are aggregated to a portfolio, and if and how interdependencies between the risks are explicitly captured in the portfolio. Response should be provided in Excel. Also include the level of organization for the portfolio (e.g., asset, geographical or business unit) b. Are tail-risks calculated on a portfolio of risks? If so, provide an example. c. Are probability distributions and interdependencies used as inputs to outputs for the bowties used in PG&E's WMP submission (see examples present in Appendix B)? If so, provide an example using the bowtie charts presented in PG&E's Appendix B submission. As appropriate, response should be provided in Excel. d. Provide an example of how risk spend efficiency (RSE) deals with interdependent risks, and mutually exclusive risks. As appropriate, response should be provided in Excel. e. Is RSE calculated for both average and tail? If so, provide an example. Response should be provided in Excel.	a) Based on the Wildfire Distribution Risk Model, which is based on circuit segments, circuit segments are aggregated to the enterprise wildfire risk model to calculate mitigation program benefits at the portfolio level. The tranches, in this case, are broken down by quintiles of likelihood of risk event (LoRE) and consequence of risk event (CoRE). Please see "WMP-Discovery2023_DR_OEIS_001-Q009Atch01.xlsm", which is PG&E's 2023-2026 wildfire bowtie used for the GRC,where we aggregated our distribution risk model to the LoRE and CoRE tranches to calculate risk at a portfolio level. This level of organization is based on the risk at the circuit protection zone level. b) Tail risks are captured as part of the enterprise risk assessment process and represented as probabilistic distributions of consequence. c) Yes, please see "WMP-Discovery2023_DR_OEIS_001-Q009Atch02.xlsm." The inputs listed in Tab 6-Conseq are the probability distributions that feed into the bowtie analysis, and its outputs are shown in "WMP-Discovery2023_DR_OEIS_001-Q009Atch01.xlsm referenced in response to part a). d) Risk Spend Efficiency for EPSS includes the risk reduction tied to the wildfire risk but is interdependent with the Distribution Overhead asset risk, which increases due to the reliability impacts EPSS causes. The RSE would capture both the risk reduction of wildfire and increased risk of asset failure and reliability. e) The RSE is calculated as a representation of average, but the consequence values are scaled in a non-linear fashion to capture the tail risk. In accordance with D.18-12-014, PG&E calculates an RSE using the expected value of the MAVF, i.e., the expected value of the distribution of consequences after they have been converted to Scaled Units by the Scaling Function. PG&E does not separately calculate an RSE based on tail statistics (e.g. tail average). Instead, PG&E's non-linear Scaling Function effectively amplifies the consequences of tail events such that the expected value of the MAVF will be higher compared to another risk which has the same average consequence in natural units but does not include similar tail events	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	2	N/A	7.1.4.1	Wildfire Mitigation Strategy Development	Identifying and Evaluating Mitigation
78	OEIS	001	OEIS_001	10	OEIS_001_Q10	Regarding Cost-Benefit within and Overall Decision-Making Framework a. If projects are justified based on a multi-attribute value functions/cost basis, what threshold or hurdle is used? b. How is the chance that a project exceeds the threshold computed? c. If projects are justified based on a multi-attribute value functions/cost basis, what threshold or hurdle is used?	a) We do not have a specific threshold to justify projects. b) While we don't calculate a specific threshold for executing mitigations, PG&E prioritizes higher MAVF/cost locations for executing projects. We also develop risk buydown curves and implement projects at the higher end of the curve. The higher end of the curve represents the higher MAVF/cost values. c) As described in response to subpart a), we do not have a specific threshold or cutoff to justify projects.	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	7.1.4.2	Wildfire Mitigation Strategy Development	Mitigation Initiative Prioritization
79	OEIS	001	OEIS_001	11	OEIS_001_Q11	Regarding PG&E's Response to ACI PG&E-22-10 PG&E describes an external study funded by California Energy Commission (CEC) grant EPC-18-026 to classify and identify areas with similar climate locations that already have weather stations, and areas with climate conditions that are not well measured by current stations. a. Provide the external party study which PG&E described and used to assess the statewide station similarity.	The weather optimization report was developed by a third party, Pyregence. Pyregence provided us with a draft copy of the report and instructed us not to distribute the document. Therefore, we would greatly appreciate Energy Safety's understanding in honoring this instruction. To this end, we recommend that Energy Safety contact the Pyregence team directly through the contact information provided below to obtain the draft report. This was the same process we used to obtain the report from Pyregence. Direct links to contacting Pyregence and the report home page are provided below. • https://pyregence.org/contact-us/ • https://pyregence.org/extreme-weather-and-wildfire-ct/weather-station-optimization-report	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22--10 Justification of Weather Station Network Density
81	OEIS	001	OEIS_001	13	OEIS_001_Q13	Regarding PG&E's Response to ACI PG&E-22-20 PG&E states that "Adding drones to the detailed GO 165 inspection slowed the inspection to roughly 20 to 25 poles per day, which is slower than both the stand-alone ground inspection as well as the image capture rate for both drone-only and helicopter-only" (page 920). a. Provide the daily inspection rates for stand-alone ground inspections, drone-only image capture, and helicopter-only capture.	Please see below for the requested information. Drone-only Heli-only Inspector + Drone Stand-alone GO 165 inspection Aerial Image capture (Structures/day/crew) 48 280.5* 20-25 N/A Inspection rate in field (structures/day/inspector) N/A N/A 20-25 25-30 Desktop Inspection rate (structures/day/inspector) 40-45 40-45 40-45 N/A *Note: the helicopter-only method can capture at a very rapid rate due to automatic image capture	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22--20 Asset Inspection Drone Program Pilot

82	OEIS	001	OEIS_001	14	OEIS_001_Q14	Regarding PG&E's Asset Management Upgrades On page 433, PG&E states that "PG&E has significantly advanced our data management practices and the quality of our asset inventory (Asset Registry) database over the last two years by applying the International Organization for Standardization (ISO) 55001 standards." a. Do the upgrades to PG&E's asset inventory database include the location of each piece of equipment (what pole it is attached to) for the distribution system, and also includes the equipment's manufacturer, model ID, and when the equipment was placed into service? i. If yes, how is this being done? ii. If no, explain why this is not the case? b. PG&E relies on inspection results for making decisions on whether equipment should be replaced. Does PG&E ever replace equipment proactively based on the equipment reaching its lifecycle end, as determined by the manufacture or industry standards? i. If yes, what equipment is being replaced for these reasons and why? ii. If no, why doesn't PG&E monitor and replace equipment at the end of its lifecycle? iii. Does PG&E have different decision-making policies when it comes to replacing equipment in the HFTDs as opposed to the rest of PG&E's territory? iv. Of the distribution equipment that utilities are required to report on (capacitors, conductors, connectors, fuses, splices, arrestors, reclosers, and transformers) what percentage is still operating in the HFTDs because the equipment has passed inspection but is being used beyond its predicted lifecycle? c. Does PG&E track the performance of different types of equipment by manufacture and model information? i. If yes, how does PG&E track this information and what decisions are made based on this data? ii. If no, explain why is equipment performance not being tracked?	a) Our asset inventory database (Asset Registry) does include attribute fields for location (lat/long and/or identification of support structure ID for attached equipment), manufacturer, model ID (as appropriate), and installation date. These are considered critical data elements (CDEs) and data governance and data quality metrics are being established to track the associated data quality. i. We collect required asset attributes as part of the As-Built process, according to process and engineering standards. This includes the attributes listed above. PG&E has also implemented an Asset Registry Data Quality (ARDQ) program to identify Critical Data Elements (CDEs) and related data quality for critical asset types. Currently this has been applied to 12 Transmission and Distribution overhead asset types on a risk prioritized basis. Attributes captured include installation date, location, manufacturer, and model ID (as appropriate). Data quality rules being measured include completeness. This provides identification of data gaps, including attributes such as installation date, which can then be targeted for remediation. A number of initiatives are underway to remediate known gaps, including the Transmission Asset Information Collection (AIC) program. The ARDQ program is being extended to include additional asset types on a risk prioritized basis. Refer to 2023 WMP sections 8.1.5 Asset Management and Inspection Enterprise System(s) and ACI PG&E-22-33 – Progress on Filling Asset Inventory Data Gaps for further details. ii. Not applicable, please see the response to subpart (i) above. b) We do not replace equipment solely based on manufacturer or industry standard lifecycle ages. There are many other factors that can influence service life of equipment, such as environment, maintenance, life extension application, etc. i) Not applicable, please see the response to subpart (b) above. ii) We replace equipment based on condition. Lifecycle is not solely determined by manufacturer or industry information, but also depends on other factors, as explained in subpart (b) above, which influence asset replacement need. iii) We do not have different inspection criteria for assessing condition of assets in HFTD or non-HFTD areas. However, assets located within HFTDs are typically inspected at a higher frequency to increase understanding on wildfire ignition risk. Results from these inspections may prompt replacement work within HFTD locations. HFTD replacement work may also be prioritized before non-HFTD replacement work (not including emergency replacement) based on risk prioritization. iv) We replace equipment based on condition. As such, PG&E does not have a predicted lifecycle for the general population of assets based on age and manufacturer information, as there are other factors that can influence service life. c) We track performance of equipment based on manufacturer and model information. i) When an asset fails in service, a causal review may be conducted. The results of the causal review will dictate the appropriate direction and depth of the failure analysis and may trigger an extent of condition assessment to identify other assets of the same manufacturer or type, so the newly understood risk can appropriately be mitigated. Understanding asset failure modes and drivers helps to inform decisions about proactive upgrade, repair or replacement that may be necessary to avoid repeated asset failure. ii) Not applicable, please see the response to subpart (i) above.	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	8.1.5	Asset Management and Inspection Enterprise System(s)	N/A
83	OEIS	001	OEIS_001	15	OEIS_001_Q15	Regarding PG&E's Enhanced Powerline Safety Settings (EPSS) Program a. On page 464, PG&E states "…also referred to as high impedance faults, we plan to engineer, program, and install the Downed Conductor Detection (DCD) algorithm on recloser controllers. We will also evaluate high impedance fault detection algorithms for circuit breakers in 2023 and beyond." Then on page 374, PG&E states that the DCD Utility Initiative will likely continue from 2023-2025. i. What is the prioritization process for deciding which circuits will receive the DCD algorithm? ii. Will the number of outages, due to EPSS de-energizations, be looked at to identify which circuits should receive the DCD algorithm first? b. In figure 8.1.8-4: CPUC REPORTABLE IGNITIONS IN HFTDS (page 468) PG&E shows that through December 31, 2022, there was a greater than 36 percent reduction in CPUC reportable ignitions in HFTD-areas compared to the overall 2018-2020 average. PG&E claims that this reduction is a direct result of enabling EPSS in HFTDs. i. Was this data adjusted for circuits that have been hardened with covered conductor or other mitigations? ii. Did PG&E associate the ignition data to each individual circuit that was enabled showing a direct connection to the result, or is this data an assumption that has been made by looking at the overall HFTD areas and the overall reportable ignitions? iii. Were weather and vegetation conditions factored into this data conclusion?	a) i) DCD algorithm installation was prioritized based on the addressable risk reduction from each DCD device using PG&E's WDRM v3 risk model and maximizing High Fire Risk Area (HFRA) electric distribution line mile coverage. Addressable risk reflects the devices and circuits that are capable of accepting the DCD algorithm. By the end of 2025, DCD is planned to be installed on approximately 21,000 HFRA miles. Circuit breakers and 4-wire circuits are not currently capable of receiving DCD. Mileage is subject to change due to undergrounding of overhead lines and additional grid configuration changes anticipated through 2025. a) ii) DCD is an enhancement to EPSS intended to identify low current, high‐impedance fault conditions in our high fire risk areas not currently fully mitigated by EPSS. As such, number of previous EPSS outages was not considered as part of the prioritization effort. b) i) On page 468 of the WMP we state that the 36% reduction in HFTD reportable ignitions was primarily driven by the effectiveness of the EPSS program. EPSS is understood to be the primary driver of this overall reduction given the scope and reach of the program. b) ii and iii) We determined the 2022 EPSS ignition reduction of 68% by comparing the CPUC reportable ignitions that occurred on primary distribution conductor in High Fire Threat Districts (HFTD) when EPSS was enabled with an annual average of ignitions on primary distribution conductor from 2018 – 2020, which was then weather-normalized to include only ignitions that occurred during conditions that met or exceeded EPSS enablement criteria.	Colin Lang	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
84	CalPA	Set WMP-11	CalPA_Set WMP-11	1	CalPA_Set WMP-11_Q1	PG&E's Test Year 2023 GRC rebuttal testimony (Ex. PG&E-17 on July 11, 2022) states the following: Q 123 Does PG&E have experience with REFCL? A 123 Yes. PG&E initiated a REFCL pilot project in 2018 at the Calistoga substation. After initial positive tests, the Calistoga REFCL pilot demonstration was stalled due to the failure of the substation REFCL equipment. In addition, PG&E had difficulty obtaining replacement equipment from various overseas suppliers due to supply chain issues and the ongoing COVID-19 pandemic. Thus, the REFCL technology could not be fully evaluated beyond the initial testing because of the equipment failure and supply chain issues. More recently, PG&E has made progress on its REFCL pilot project including completing the changes to the substation equipment after encountering equipment failures. PG&E has performed successful staged fault tests of the REFCL system and is in the process of reviewing the test data to evaluate REFCL's wildfire risk reduction for ground faults on distribution circuits. PG&E is looking at opportunities for REFCL deployments in its distribution substations to mitigate wildfire risk and evaluating combinations of REFCL with EPSS and other mitigations.4 Regarding the Calistoga REFCL pilot demonstration, a) Please break down PG&E's annual spending on the Calistoga REFCL pilot demonstration since the project initiation in 2018: b) Please break down PG&E's annual spending on Major Work Category (MWC) 49R since the project initiation in 2018: c) Where are the costs in subpart (c) of this question recorded? Please provide the specific name(s) of the accounts and subaccounts, if applicable. d) What is the recovery mechanism for the costs in subpart (c) of this question? e) In the above quote, PG&E states that "[m]ore recently, PG&E has made progress on its REFCL pilot project including completing the changes to the substation equipment after encountering equipment failures." Since 2018, how much has PG&E spent on "changes to the substation equipment" and any other equipment changes in order to test or deploy REFCL at the Calistoga substation?	PG&E objects to parts (a) through (e) of this request as beyond the scope of this proceeding. This question relates to PG&E's 2023 General Rate Case (GRC) proceeding and has no enunciated connection to PG&E's WMP proceeding. Furthermore, Cal Advocates concurrently served an identical data request on PG&E in the GRC proceeding and PG&E will provide a response to this request in that proceeding as it is the more appropriate venue.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
85	CalPA	Set WMP-11	CalPA_Set WMP-11	2	CalPA_Set WMP-11_Q2	Referring to PG&E's Electric Preliminary Statement Part FY (Tariff Sheet No. 52259-E), the Electric Program Investment Charge Balancing Account (EPICBA) has three subaccounts: The EPIC Program Administered by PG&E Subaccount tracks the actual program expenses to the authorized EPIC program budgets pursuant to D.12-05-037, D.20-08-042, and D.21-11-028 through December 31, 2030 or as authorized by the Commission. The EPIC Program Administered by California Energy Commission (CEC) Subaccount tracks the actual program expenses encumbered and remitted to the CEC and program administration expenses remitted to the CEC to the authorized budget pursuant to D.12-05-037, D.20-08-042, and D.21-11-028 through December 31, 2030 or as authorized by the Commission. The New Solar Home Partnership (NSHP) Program administered by the CEC Subaccount tracks the actual remittances to the CEC, or to program applicants, to the authorized NSHP Program budgets pursuant to D.16-06-006 encumbered by June 1, 2018 or spent by December 31, 2021.5 Please complete the following table by stating recorded costs (disaggregated into capital expenditures and O&M expenses) in the PG&E subaccount and CEC subaccount from 2018 to 2022	PG&E objects to this request as beyond the scope of this proceeding. This question relates to PG&E's 2023 General Rate Case (GRC) proceeding and has no enunciated connection to PG&E's WMP proceeding. Furthermore, Cal Advocates concurrently served an identical data request on PG&E in the GRC proceeding and PG&E will provide a response to this request in that proceeding as it is the more appropriate venue.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
86	CalPA	Set WMP-11	CalPA_Set WMP-11	3	CalPA_Set WMP-11_Q3	PG&E's 2022 WMP, Section 7.1.E, Attachment 1 (Attch_Q3.pdf) states the following regarding the project status of EPIC 3.15—Proactive Wires Down Mitigation Demonstration Project (Rapid Earth Fault Current Limiter) as of February 25, 2022: Evaluation of additional substations for suitability of additional REFCL installations has begun but is pending results and learnings of the initial EPIC project before design or field work starts on additional sites. After an initial screening process, 25 distribution substations with circuits in HFTDs are candidates for potential REFCL deployments.6 a) As of March 27, 2023, what is the status of PG&E's "[e]valuation of additional substations for suitability of additional REFCL installations"? b) Given the status in subpart (a) of this question, please fill in the following table: c) Given the status in subpart (a) of this question, what are PG&E's spending plans on: i. MWC 49R, and ii. the REFCL pilot? d) As of March 27, 2023, what conclusions or findings has PG&E reached based on its "evaluation of additional substations for suitability of additional REFCL installations"? e) Please provide the date(s) when PG&E started "design or field work on additional sites." f) Please identify each such site referred to in (e) and state the applicable dates for each. g) PG&E states that "25 distribution substations with circuits in HFTDs are candidates for potential REFCL deployments." As of March 27, 2023, how many of PG&E's distribution substations with circuits in HFTDs are currently candidates for potential REFCL deployments? h) For each of the candidate substations included in your response to part (e), please fill in the following table:	PG&E objects to the portions of this request relating to Major Work Category (MWC) 49R as beyond the scope of this proceeding. Notwithstanding and without waiving this objection, PG&E responds as follows: a. PG&E has not performed an evaluation of additional substations for suitability of additional REFCL installations since the previous list of 25 distribution substations. PG&E is still evaluating the technology in its demonstration project before making decisions about additional deployments. b. Given the ongoing evaluation described in response to subpart (a) above, our forecast as of 4/6/2023 is as follows: Year 2023 2024 2025 2026 Forecast Capital Expenditure for MWC 49R ($) $0 $0 $0 $0 Forecast O&M Expenses for MWC 49R ($) $0 $0 $0 $0 c. PG&E has no spending plans for MWC 49R in 2023 and limited spend to complete evaluation of the REFCL demonstration project under the EPIC budget. WMP-Discovery2023_DR_CalAdvocates_011-Q003 Page 3 d. REFCL is less suitable in substations which have a high percentage of underground cable circuit miles on the distribution circuits. Many of PG&E's substations serving three-wire circuits do not have physical space available for the REFCL equipment. Lastly, all the banks in the substation must have 3-wire distribution circuits. Mixing 4-wire distribution banks and 3-wire distribution banks in the same substation affects suitability of REFCL. e. PG&E has not started detailed design or capital work of additional sites for REFCL. f. Not applicable, as described in response to subpart (e) above. g. PG&E has not performed evaluation of additional substations for potential REFCL deployments, so this number is still 25. h. Not applicable, as described in response to subparts (e) and (f) above.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
87	CalPA	Set WMP-11	CalPA_Set WMP-11	4	CalPA_Set WMP-11_Q4	Referring to Exhibit PG&E-04, February 25, 2022, version, PG&E states the following regarding REFCL: Based on our initial testing and the successful implementation in Australia, PG&E has developed a short-term strategy to install REFCLs in HFTD areas. PG&E forecasts deploying REFCLs at an additional two substations each year, but these plans could change pending pilot results and integration with other enhanced automation and wildfire mitigation efforts described in this chapter. a) As mentioned above, PG&E "forecasts deploying REFCLs at an additional two substations each year, but these plans could change …" Have these plans changed? b) If your answer to part (a) is yes, please describe PG&E's current plans regarding the future deployment of REFCLs. c) Please identify the additional substations where PG&E plans on deploying REFCLs in: i. 2023, iii. ii.2024, iv. iii. 2025, and v. iv. 2026	a) Yes, our plans have changed over the past year from what was expressed in the quote cited above from our WMP. b) PG&E is not planning any REFCL deployments until after complete evaluation of the demonstration project and successful integration of the technology into normal operations. PG&E is evaluating its portfolio of wildfire risk mitigations. c) As described in response to subpart (b), no additional substations are planned for REFCL deployment at this time.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
88	CalPA	Set WMP-11	CalPA_Set WMP-11	5	CalPA_Set WMP-11_Q5	Referring to Exhibit PG&E-17, p. 4.3-6, Table 4.3-3, line 6, served on July 11, 2022: Line 6 of the above table indicates that PG&E forecasts the capital expenditures to be $17.331 million in 2023, $17.800 million in 2024, $18.280 million in 2025, and $18.774 million in 2026. Given the current status of PG&E's evaluation of additional substations for suitability and PG&E's plans for future deployment of REFCLs, as of March 27, 2023, please indicate any adjustment to the forecast capital expenditures by completing the table below:	Please see the table below for the requested information. Year 2023 2024 2025 2026 Forecast of MAT 49R as of July 11, 2022 $17.331MM $17.800MM $18.280MM $18.774MM Forecast of MAT 49R as of March 15, 2023 $0 $0 $0 $0	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
89	CalPA	Set WMP-11	CalPA_Set WMP-11	6	CalPA_Set WMP-11_Q6	In December 2021, PG&E presented at the EPIC Symposium. See Attch_Q6_EPIC_Presentation.pdf. The presentation slides state that: Rapid Earth Fault Current Limiter (REFCL) technology is an extension of resonant grounding at a distribution substation to neutralize ground fault current and pre[v]ent a spark. REFCL has been successfully deployed in Australia to reduce risk of fire from ground faults, but their substation designs are different from PG&E's. One type of REFCL is known as Ground Fault Neutralizer (GFN). REFCL could be applied to approx. 80% of PG&E HFTD distribution circuit miles (3-wire circuits). a) Is the statement quoted above accurate? b) If the answer to part (a) is no, please provide any needed corrections.	PG&E objects to this request as beyond the scope of this proceeding. Notwithstanding and without waiving this objection, PG&E responds as follows: a) Yes, this statement remains an accurate high-level description. b) Not applicable, as described in response to subpart (a).	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
90	CalPA	Set WMP-11	CalPA_Set WMP-11	7	CalPA_Set WMP-11_Q7	PG&E presents during the 2021 EPIC Symposium (Attch_Q6_EPIC_Presentation.pdf) that "REFCL could be applied to approx. 80% of PG&E HFTD distribution circuit miles (3-wire circuits)." However, PG&E's 2023 WMP, at page 275, states that:7 While PG&E is looking at opportunities for REFCL deployments in our distribution substations to mitigate wildfire risk and evaluating combinations of REFCL with EPSS and other mitigations, implementing it would require significant and costly changes to the grid. Instead of making costly changes to the grid, we are moving forward with more cost‐effective solutions such as DCD and Partial Voltage Detection. Why did PG&E state that "REFCL could be applied to approx. 80% of PG&E HFTD distribution circuit miles (3-wire circuits)" while stating that "implementing it would require significant and costly changes to the grid"?	This distinction is based on the fact that REFCL is not a plug-and-play technology and requires supporting construction and equipment changes in the substation and on the distribution circuits to function. This is different from DCD and Partial Voltage Detection, which are software-based features on existing hardware and require significantly less cost to implement.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter

91	CalPA	Set WMP-11	CalPA_Set WMP-11	8	CalPA_Set WMP-11_Q8	PG&E's 2023 WMP, at page 275, states that: "While PG&E is looking at opportunities for REFCL deployments in our distribution substations to mitigate wildfire risk and evaluating combinations of REFCL with EPSS and other mitigations, implementing it would require significant and costly changes to the grid." a) Please state the earliest date when PG&E reached the conclusion that "implementing [REFCL] would require significant and costly changes to the grid." b) Why did PG&E not foresee "significant and costly changes" earlier than the date provided in part (a) of this question? c) Please provide all available documentation, analyses, or studies evidencing PG&E's response to subpart (b) of this question. d) How did PG&E reach the conclusion that "implementing [REFCL] would require significant and costly changes to the grid"? e) State the basis of the conclusion that "implementing [REFCL] would require significant and costly changes to the grid". f) How did the Calistoga REFCL pilot demonstration contribute to or support the conclusion stated in the quotation above? g) Please provide all available documentation, analyses, or studies evidencing PG&E's response to parts (d) and (e) of this question. h) What "significant and cost changes to [PG&E's] grid" would REFCL require for its implementation? i) For each "change" to PG&E's grid, what is the cost estimate? j) What are the cost estimates for each "change to the grid" at the substation level? k) What are the cost estimates for each "change to the grid" on a per circuit-mile basis?	a) Implementing REFCL requires significant and costly changes to the grid relative to DCD and Partial Voltage detection. PG&E first understood the deployment cost of REFCL in early 2021. b) PG&E needed to complete the field construction of the demonstration project to determine the cost to deploy REFCL at a substation. c) Please refer to PG&E's Test Year 2023 GRC, Application 21-06-021, Exhibit PG&E-04 and Exhibit PG&E-17, which contain the requested information. d) PG&E reached this conclusion through experience gained from the Calistoga REFCL demonstration project. e) PG&E encountered distribution equipment failures during 2022 REFCL testing, indicating further costs to integrate REFCL technology. f) The Calistoga REFCL demonstration project unveiled integration challenges of REFCL technology corresponding to greater costs. g) Please see: Rilery, Roger and Jon Bernardo. "JA8648-0-0 REFCL Functional Performance Report." October 14, 2020. This document can be accessed through the following link: https://www.esv.vic.gov.au/sites/default/files/2022-12/REFCL-Functional-Performance-Review.pdf. Please refer to page 29 of this document. h) Some of the major costs of implementing this technology are identified below: • Replacing voltage regulators in closed delta; • Installing new, matched sets of feeder breaker current transformers (CTs); • Replacing bus potential transformers (PTs); • Replacing substation service transformer with line-line connection; • Isolating bank neutral bus and install neutral bus grounding recloser; • Modifications to 12 kV bus structure for new switches and reclosers; • Installing Ground Fault Neutralizers; • Upgrading station battery capacity; • Upgrading feeder breaker protection and automation package to current standard; • Grounding grid improvements based on grounding study; • Replacement of auto boosters with closed delta voltage regulator banks; • Replacement of open delta voltage regulators with closed delta; WMP-Discovery2023_DR_CalAdvocates_011-Q008 Page 3 • Replacement of line reclosers and controllers for sensitive earth fault detection; • Isolation transformer for primary connected customers; • Replacing three-phase fuse arrangements with FuseSavers; • Phase connection swaps for capacitive current balancing; and • Replacement of old, direct bury underground cable. i) Each change is dependent on the specific location and constructability. The previous cost forecasts for REFCL deployment in the 2022 WMP are approximate cost estimates for each REFCL deployment including supporting grid changes. j) The cost estimate varies from substation to substation but is on the order of $5,000,000 to $10,000,000 per installation. k) The cost estimate for REFCL distribution changes on a per circuit-mile basis and is difficult to quantify due to REFCL being installed in the substation and each distribution circuit being unique. A reasonable assumption would be a REFCL deployment protecting 100 circuit miles with a distribution construction cost of approximately	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
92	CalPA	Set WMP-11	CalPA_Set WMP-11	9	CalPA_Set WMP-11_Q9	At which substations, other than the Calistoga substation, has PG&E tested REFCL?	We have not tested REFCL at any substations other than the Calistoga substation.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
93	CalPA	Set WMP-11	CalPA_Set WMP-11	10	CalPA_Set WMP-11_Q10	Has PG&E done any benchmarking study on REFCL with Southern California Edison (SCE)?	Yes, PG&E REFCL project engineers regularly engage with Southern California Edison to benchmark our findings and share results and learnings. Of note, SCE has fewer circuit miles of existing underground cable at their REFCL demonstration site.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
94	CalPA	Set WMP-11	CalPA_Set WMP-11	11	CalPA_Set WMP-11_Q11	Has PG&E collaborated or exchanged with SCE on REFCL? If so, please detail the relevant activities.	Yes, PG&E regularly collaborates with SCE on REFCL and sharing data and information. This includes a monthly utility group call/meeting and sharing technical reports.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
95	CalPA	Set WMP-11	CalPA_Set WMP-11	12	CalPA_Set WMP-11_Q12	PG&E's 2023 WMP, at page 275, states that:8 Instead of making costly changes to the grid, we are moving forward with more cost-effective solutions such as DCD [Downed Conductor Detection] and Partial Voltage Detection. Regarding Downed Conductor Detection (DCD), a) What "changes to the grid" are required for PG&E to implement this technology? b) Is DCD viable on 3-wire systems, 4-wire systems, or both? c) Does PG&E have a cost estimate for the deployment of DCD? d) If the answer to part (c) is yes, please provide the cost estimate(s)	a) Depending on the existing recloser controller, DCD may not require a physical "change to the grid" or it may require the retrofitting of an existing line recloser controller. b) DCD is most compatible with 3-wire systems. Implementation on 4-wire is possible but may not achieve the benefits desired due to the higher settings thresholds that would be required. As a result, we are not currently installing DCD on 4-wire systems. c) Yes, please see the response to subpart (d) below. d) The cost estimate is as follows: $15.9 million in 2023; $13.1 million in 2024; and $8.4 million in 2025.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	7.2.1	Wildfire Mitigation Strategy Development	Overview of Mitigation Initiatives and Activities
96	CalPA	Set WMP-11	CalPA_Set WMP-11	13	CalPA_Set WMP-11_Q13	PG&E's 2023 WMP, at page 275, states that:9 "Instead of making costly changes to the grid, we are moving forward with more cost-effective solutions such as DCD and Partial Voltage Detection." Regarding Partial Voltage Detection (PVD), a) What "changes to the grid" are required for PG&E to implement this technology? b) Is PVD viable on 3-wire systems, 4-wire systems, or both? c) Does PG&E have a cost estimate for the deployment of PVD? d) If the answer to part (c) is yes, please provide the cost estimate(s)	a) Partial Voltage Detection (PVD) does not require a "change to the grid," the statement quoted above refers to how this makes PVD a cost-effective solution. b) PVD is viable on both 3-wire and 4-wire systems. c) No, as there is no cost to "deploy" PVD. d) Not applicable, please see the response to subpart (c) above.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	7.2.1	Wildfire Mitigation Strategy Development	Overview of Mitigation Initiatives and Activities
97	CalPA	Set WMP-11	CalPA_Set WMP-11	14	CalPA_Set WMP-11_Q14	Based on PG&E's evaluation of REFCLs: a) Please describe the significant changes to the grid required to implement REFCL technology, b) State PG&E's cost estimates for such changes, c) Describe the equipment installations required for such changes, and d) Describe the likely operational impacts resulting from the implementation of REFCLs on PG&E's system.	a) The significant changes to the grid required to implement REFCL are identified below: • Replacing voltage regulators in closed delta; • Installing new, matched sets of feeder breaker current transformers (CTs); • Replacing bus potential transformers (PTs); • Replacing substation service transformers with line-line connections; • Isolating the bank neutral bus and installing a neutral bus grounding recloser; • Modifying the 12 kV bus structure for new switches and recloser; • Installing Ground Fault Neutralizers; • Upgrading the station battery capacity; • Upgrading the feeder breaker protection and automation package to the current standard; • Grounding grid improvements based on grounding study; • The replacement of auto boosters with closed delta voltage regulator banks; • The replacement of open delta voltage regulators with closed delta; • The replacement of line reclosers and controllers for sensitive earth fault detection; • The isolation transformer for primary connected customers; • Replacing three-phase fuse arrangements with FuseSavers; • Phase connection swaps for capacitive current balancing; and • The replacement of old, direct bury underground cable. b) The total cost estimate for these changes varies but is in the range of $10,000,000 to $20,000,000. c) Please see the response to subpart (a) for the requested information. d) PG&E is still gaining operational experience with REFCL on its system through the demonstration project. One impact that has been identified at this time is that the known that fault location can be a challenge for such a system.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
98	CalPA	Set WMP-11	CalPA_Set WMP-11	15	CalPA_Set WMP-11_Q15	Please state the dates when PG&E finished evaluating the following: a) The significant changes to the grid required to implement REFCL technology, b) The cost estimates for such changes, c) The equipment installations required due to such changes, and d) The likely operational impacts resulting from the implementation of REFCL on PG&E's system	a) – d) We finished the evaluation of each item identified above in early 2021.	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
99	CalPA	Set WMP-11	CalPA_Set WMP-11	16	CalPA_Set WMP-11_Q16	Please provide all available documentation, studies, and analyses evidencing PG&E's conclusions on each of the following aspects of REFLC deployment: a) The significant changes to the grid required to implement REFCL technology, b) The cost estimates for such changes, c) The equipment installations required due to such changes, and d) The likely operational impacts resulting from the implementation of REFCL on PG&E's system.	a) Please see: Rilery, Roger and Jon Bernardo. "JA8648-0-0 REFCL Functional Performance Report." October 14, 2020. This document can be accessed at the following link: https://www.esv.vic.gov.au/sites/default/files/2022-12/REFCL-Functional-Performance-Review.pdf. Please see page 29 of this document for the requested information. b) Please refer to PG&E's Test Year 2023 GRC, Application 21-06-021, Exhibit PG&E-04 and Exhibit PG&E-17. c) Please see: Rilery, Roger and Jon Bernardo. "JA8648-0-0 REFCL Functional Performance Report," the same document as identified in response to subpart (a). d) Please see: Rilery, Roger and Jon Bernardo. "JA8648-0-0 REFCL Functional Performance Report," the same document as identified in response to subparts (a) and (c).	Pui-Wa Li	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_011.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
100	TURN	003	TURN_003	1	TURN_003_Q1	Please provide data in PG&E's possession that indicates the following: a. The SAIDI (System Average Interruption Duration Index) for the years 2018-2022 for underground distribution facilities; b. The MAIFI (Momentary Average Interruption Frequency Index) for the years 2018-2022 for underground distribution facilities; c. The SAIDI (System Average Interruption Duration Index) for the years 2018-2022 for overhead distribution facilities with covered conductor; d. The MAIFI (Momentary Average Interruption Frequency Index) for the years 2018-2022 for overhead distribution facilities with covered conductor; e. The SAIDI (System Average Interruption Duration Index) for the years 2018-2022 for overhead distribution facilities without covered conductor; f. The MAIFI (Momentary Average Interruption Frequency Index) for the years 2018-2022 for overhead distribution facilities without covered conductor	Please see the attachment "WMP-Discovery2023_DR_TURN_003-Q001Atch01.xlsx" for the requested information. Please note that PG&E does not capture covered/non covered conductor status in our current outage reporting, so SAIDI/MAIFI data for covered conductor equipment cannot be provided at this time.	Tom Long	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_003.zip	1	N/A	N/A	N/A	N/A
101	TURN	003	TURN_003	2	TURN_003_Q2	Please provide all reports or studies in PG&E's possession prepared from January 1, 2018 to the present that discuss the reliability of underground distribution facilities, overhead distribution facilities with covered conductor, or overhead distribution facilities without covered conductor, including but not limited to a discussion of SAIDI and MAIFI data.	PG&E publishes an annual reliability report which provides a detailed report on the system-wide reliability performance. Please see the following attachments for the requested information: • "WMP-Discovery2023_DR_TURN_003-Q002Atch01.pdf;" • "WMP-Discovery2023_DR_TURN_003-Q002Atch02.pdf;" • "WMP-Discovery2023_DR_TURN_003-Q002Atch03.pdf;" • "WMP-Discovery2023_DR_TURN_003-Q002Atch04.pdf;" and • "WMP-Discovery2023_DR_TURN_003-Q002Atch05." Additionally, we are in the process of finalizing a study that is planned to be completed by June 30, 2023. This study will assess the recorded reliability improvements at locations that have been undergrounded and/or have been hardened with covered conductor. It is important to also note that the focus of our overhead system hardening and undergrounding program to date has been primarily to drive wildfire mitigation.	Tom Long	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_003.zip	5	N/A	N/A	N/A	N/A
102	TURN	003	TURN_003	3	TURN_003_Q3	Regarding Table 7-3-2, p. 296, the bottom row re PSPS: a. Please confirm that the targets for reduced customer impacts in 2023, 2024 and 2025 are cumulative, i.e, that the 33,000 figure for 2024 includes the 15,000 reduced impacts for 2023, and so on. b. Please provide the supporting data for the estimates of reduced PSPS impacts in 2023 (15,000 customer events), 2024 (33,000 customer events), and 2025 (55,000 customer events). Provide the data in live Excel format if possible. c. The table states that the targeted reductions are "based on Wildfire mitigation projects including but not limited to MSO replacements and Underground miles . . .." For each of 2023, 2024 and 2025, please provide a breakdown of the reduced customer events by the mitigation measure to which PG&E attributes the reduced customer events, including but not limited to covered conductor installation. Explain how PG&E determined this breakdown. d. Provide equivalent data regarding reduced PSPS impacts for the years 2019 through 2022 and provide the supporting data for those figures in Live Excel format if possible. In addition, for each of these years, please provide a breakdown of the reduced customer events by the mitigation measure to which PG&E attributes the reduced customer events, including but not limited to covered conductor installation. Explain how PG&E determined this breakdown.	a) We can confirm that the targets for reduced customer impacts are cumulative for Initiative PS-07 in Table 7-3-2. Please see Table PG&E-22-35-1 (2023 WMP p. 973) for the breakout of incremental customers for each respective year. b) Please see attachment WMP-Discovery2023_DR_TURN_003-Q003Atch01 for supporting data for the estimates of reduced PSPS impacts in 2023-2025 for the five-year period, 2018-2022. c) For breakdown of reduced customer events by mitigation measures, please see Table PG&E-22-35-1 of our 2023 WMP, or attachment WMP Discovery2023_DR_TURN_003-Q003Atch01. In this attachment, column "Incremental Customers Mitigated" provides the number of annual customers mitigated and column "Cumulative Customers Mitigated" provides the cumulative figure for customer mitigations. For an explanation of how this calculation was performed, please see the response to ACI PG&E-22-35 on page 972 of our 2023 WMP. Covered conductor installation is not part of the mitigation measure calculation to reduced customers events. For Covered Conductor Effectiveness, please see the response to ACI PG&E-22-11. d) The PSPS impact reductions are for the five-year lookback periods of 2018-2022. Completion of undergrounding and Motorized Switch Operator (MSO) mitigation in each year from 2023-2025 will reduce the customer impact in the five-year look back period.	Tom Long	4/5/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_003.zip	1	N/A	9.1.5	Public Safety Power Shutoff	Performance Metrics Identified by the Electrical Corporation
48	CalPA	Set WMP-10	CalPA_Set WMP-10	1	CalPA_Set WMP-10_Q1	Table 8-3 on p. 332 of PG&E's WMP states that PG&E will make capable for Down Conductor Detection (DCD): • 500 devices in 2023, • 400 devices in 2024, and • 250 devices in 2025. a) Please explain the reasoning for the decreasing number of devices made capable for DCD from 2023-2025. b) Approximately how many circuit miles in the HFTD will be protected by DCD at the end of 2025?	a) DCD is capable of seeing from the device to "end of line", therefore we are able to provide DCD protection on most eligible High Fire Risk Area line miles by the end of 2023, then supplementing that coverage in 2024 and 2025, including in the EPSS Buffer area. The number of devices decrease in 2024 and 2025 because the line miles covered in 2024 and 2025, including EPSS Buffer area are less than the line coverage in eligible HFRA for 2023. b) We anticipate approximately 21,000 circuit miles in HFRA will be protected by DCD at the end of 2025.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.1.2	Grid Design, Operations, and Maintenance	Targets
49	CalPA	Set WMP-10	CalPA_Set WMP-10	2	CalPA_Set WMP-10_Q2	Table 8-5 on p. 336 of PG&E's WMP shows a forecast reduction in the number of EPSS events of one to two percent annually from 2022 to 2025. a) What factors does PG&E expect to contribute to the reduction in the number of EPSS events discussed above? b) Why is PG&E's forecast reduction in the number of EPSS events linear across the 2023-2025 period? c) Please provide any available workpapers that support PG&E's forecasts regarding the number of EPSS events annually in 2023-2025.	a) For 2023, factors contributing to the reduction in the number of EPSS related outages are based on actions to install additional Line Reclosers (LR) and Fuse Savers on the highest impacted protective zones to reduce the reliability impact. These will be installed in locations that are within the HFRA or protect equipment within the HFRA. The planned installs will provide reliability benefits on fuse tap lines within the scope of the EPSS program. PG&E will also undertake reliability mitigations intended to reduce outage frequency on those circuit protection zones (CPZs) that experienced the greatest number of outages while EPSS was enabled in 2022. This will include proactive vegetation management work incremental to existing vegetation management scope on CPZs that experienced vegetation caused outages in 2022. Reactive vegetation management work will also be conducted in-season, as needed based on escalated vegetation caused outages. Animal mitigation work will also be performed on CPZs that experienced avian or other animal contacts in 2022. b) With only one year of EPSS protection performance to review, we made a conservative estimate of the reliability improvement that could be realized based on the planned sectionalization and mitigation activities. c) PG&E does not have any applicable workpapers available.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.13	Grid Design, Operations, and Maintenance	Performance Metrics Identified by the Electrical Corporation
50	CalPA	Set WMP-10	CalPA_Set WMP-10	3	CalPA_Set WMP-10_Q3	a) Does PG&E forecast a change in the average duration of EPSS events during the 2023-2025 period? b) If the answer to part (a) is yes, provide the expected average duration of EPSS events for 2023, 2024, and 2025. c) If the answer to part (a) is no, explain why not. d) Please provide any available workpapers that support PG&Es' forecasts regarding the duration of EPSS events in 2023-2025.	a) Not at this time. b) N/A c) We require more operating experience before being able to accurately forecast reduction in average duration for EPSS outages. We have lowered the target of four hours to 210 minutes in 2023. d) PG&E does not have any applicable workpapers available.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.13	Grid Design, Operations, and Maintenance	Performance Metrics Identified by the Electrical Corporation

51	CalPA	Set WMP-10	CalPA_Set WMP-10	4	CalPA_Set WMP-10_Q4	P. 358 of PG&E's WMP states, with regard to DTS-FAST: A prototype field test installation was completed on a 115kv tower in Martinez and a wood pole in Santa Cruz in 2021. The valuable lessons learned have been updated to streamline designs, increase scalability, and reduce costs. In 2022, we filed a non-provisional patent application for DTS-FAST. For 2023, we have no field installation plans but will be working through the patent examination process. a) Please provide data on the results of the field test installation in Martinez. b) Other than working through the patent examination process, what steps does PG&E plan to take in 2023 to further develop DTS-FAST? c) When does PG&E expect to begin additional DTS-FAST installations? d) Through the end of 2022, how much has PG&E spent on DTS-FAST? e) What portion of your response to part (d) is related to the patent application and examination process? f) What are your forecast costs for DTS-FAST through the 2023-2025 period? g) What portion of your response to part (f) is related to the patent application and examination process?	a) DTS-FAST is an integrated system of sensors and technologies that are established and available on the market, working together to mitigate wildfire risk. Testing focused on validating sensor functionality in wildfire and utility user scenarios, encompassing functional testing, environmental testing, and long-term resilience testing. Learnings were immediately applied to optimize sensor configuration. Key learnings from the Martinez installation and testing include: • Sensors – we installed over 25 devices and tested their intended functionality for accuracy and reliability. These are the types of tests performed: o Reproducibility testing verifies the consistency and reliability of sensor measurements by repeating measurements multiple times and checking the results for consistency. This test criterion ensures that the sensing device provides consistent and reproducible measurements. o Sensitivity testing evaluates the sensors' ability to detect and respond to small changes or variations in input. This is achieved by varying the input parameters and verifying if the sensor's output changes accordingly. o Range testing evaluates the sensor's operating range by evaluating its performance across its specified range of operation. This involves testing the sensor at its minimum and maximum limits, as well as at different points within its operating range. o Stability tests evaluates the sensor's stability over time by monitoring its output for a prolonged period under normal operating conditions. This can help identify any drift or instability in sensor readings. o Environment played a major factor in the sensor's performance under different conditions that may affect its operation such as temperature, humidity, vibration, and electromagnetic interference. This can help ensure that the sensor is robust and reliable in real-world operating conditions. o Failure testing evaluates the sensor's response to failure conditions, such as sensor malfunction, signal loss, or power failure, and verify if the sensor's behavior is appropriate and safe during such scenarios. o The key takeaway is to test multiple brands of similar devices to verify vendor specifications on operating range and performance. During our testing, approximately 50% tested successfully. Keep in mind, none of these devices were intentionally developed to be installed on 115kV electric towers. We think most failed due to long exposure to high sustained EMF (Electro Magnetic Field) disturbances, or environmental conditions (i.e., temperature, humidity, dust, rain, fog, wind, vibration). Based on the exhaustive testing conducted before field installation (lab test environment) and after installation at Martinez, and the lessons learned from these results, it has been determined that relying solely on manufacturer specifications may not be sufficient – it is recommended to conduct retesting of the equipment based on the specific application requirements in the specific environment of install to ensure reliable performance. For example, a specific sensor manufacturer may specify an 800 feet detection range, but in our tower installation use case, the data shows 600 feet is the maximum functional operating distance before we get false alarms. Due to the disparity between the manufacturer's intended use case for their device and our use cases, it is imperative to conduct thorough testing to ascertain the functionality of the product in our wildfire applications. • Telecommunications – the Microwave network performed successfully, but was complex to install, configure, and operate. The wireless Field Area Network (FAN) did not perform reliably, and Cellular service was spotty and inconsistent. The lesson learned is to seek edge computing technologies that do not need constant high bandwidth telecommunications, and only transmit critical data, such as alarms. • Power – we installed a large power transformer to provide direct system power to the local control box and devices. The power is reliable, but the installation required tower structural modifications to be able to support the 800lb transformer, and additional electrical grounding upgrades. The lesson learned is to use low power devices that can be operated from a solar & battery power supply to eliminate the power transformer. b) The DTS-FAST team will continue to test recent technologies to expand sensor capabilities, increase system performance, reduce power consumption, reduce	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.2.6.2	Grid Design and System Hardening	Emerging Grid Hardening Technology Installations and Pilots
52	CalPA	Set WMP-10	CalPA_Set WMP-10	5	CalPA_Set WMP-10_Q5	P. 357 of PG&E's WMP states, "If deployed, DTS-FAST could have a significant impact on wildfire risk where deployed." a) Please quantify the phrase "a significant impact on wildfire risk" in the above quote. b) Please provide any workpapers or studies to support your answer to part (a).	a) Please quantify the phrase "a significant impact on wildfire risk" in the above quote. We do not have enough data to provide a precise quantification of the impact at this time. The deployed sensor system is designed to actively monitor the environment for potential wildfire risks. For instance, the sensors are capable of detecting vegetation that has fallen onto power lines or are leaning against it. When such an event is detected, the sensor will trigger an alarm at the location, allowing for operational decisions to be made such as de-energizing the line before a potential fire hazard arises. The key differentiator of this system is that it is deployed outside of the substation, directly in high fire threat areas, and could detect risks before any electrical fault has occurred. b) "Please provide any workpapers or studies to support your answer to part (a)." We do not have any workpapers or studies to provide. The sensor's detection speed is almost instantaneous or within one second and the actual delivery of the alarm message to operations is dependent on the fastest telecommunications service at the sensor site. In our lab, we detected falling vegetation against energized conductors within one second. Our field testing with good telecommunications service ranged from 4 to 8 seconds	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.2.6.1	Grid Design and System Hardening	Emerging Grid Hardening Technology Installations and Pilots
53	CalPA	Set WMP-10	CalPA_Set WMP-10	6	CalPA_Set WMP-10_Q6	P. 464 of PG&E's WMP states, "In 2022, we reduced the Customer Average Interruption Duration Index (CAIDI) and Customers Experiencing a Sustained Outage (CESO) for customers served by EPSS-capable lines when compared to data from the 2021 program pilot." a) Please provide the CAIDI value for all HFTD customers for each year from 2018-2022. b) Please provide the CESO value for all HFTD customers for each year from 2018-2022	Please see "WMP-Discovery2023_DR_CalAdvocates_010-Q006Atch01.xlsx."	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	1	N/A	8.1.8.1.1	Grid Operations and Procedures	Equipment Settings to Reduce Wildfire Risk
54	CalPA	Set WMP-10	CalPA_Set WMP-10	7	CalPA_Set WMP-10_Q7	P. 464 of PG&E's WMP states, "By the end of 2022, we responded to 89 percent of outages on EPSS-enabled lines within 60 minutes, responding on average within 42 minutes." The statement above refers to results achieved "by the end of 2022." What time period is this data drawn from? In other words, the 42-minute figure is an average of response times in what period of time?	The 42-minute figure is an average of the response time to all outages on EPSS-protected circuits in 2022 since EPSS Outage Response time tracking began. The timeframe covered is May 23, 2022 – December 31, 2022.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Equipment Settings to Reduce Wildfire Risk
55	CalPA	Set WMP-10	CalPA_Set WMP-10	8	CalPA_Set WMP-10_Q8	P. 464 of PG&E's WMP states, "By the end of 2022, we responded to 89 percent of outages on EPSS-enabled lines within 60 minutes, responding on average within 42 minutes." For all outages on EPSS-enabled lines in all of 2022, provide the following: a) Average response time b) 25th percentile response time c) Median (50th percentile) response time d) 75th percentile response time e) Longest response time	2022 EPSS OUTAGE RESPONSE AVERAGE RESPONSE TIME 25TH PERCENTILE RESPONSE TIME MEDIAN (50TH PERCENTILE) RESPONSE TIME 75TH PERCENTILE RESPONSE TIME LONGEST RESPONSE TIME 42 Minutes 27 Minutes 39 Minutes 52 Minutes 408 Minutes Note: Table values reflect available data since EPSS Outage Response time tracking began. The timeframe for tracking in 2022 was May 23, 2022 – December 31, 2022	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Equipment Settings to Reduce Wildfire Risk
56	CalPA	Set WMP-10	CalPA_Set WMP-10	9	CalPA_Set WMP-10_Q9	P. 464 of PG&E's WMP states, "By the end of 2022, we responded to 89 percent of outages on EPSS-enabled lines within 60 minutes, responding on average within 42 minutes." For the 11 percent of outages (noted in this quote) on EPSS-enabled lines that PG&E did not respond to within 60 minutes, provide the following: a) Average response time b) Longest response time.	2022 EPSS OUTAGE RESPONSE AVERAGE RESPONSE TIME FOR RESPONSES > 60 MINUTES LONGEST RESPONSE TIME 95 Minutes 408 Minutes Note: Table values reflect available data since EPSS Outage Response time tracking began. The timeframe for tracking in 2022 was May 23, 2022 – December 31, 2022	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Equipment Settings to Reduce Wildfire Risk
57	CalPA	Set WMP-10	CalPA_Set WMP-10	10	CalPA_Set WMP-10_Q10	P. 441 of PG&E's WMP states, "We plan to implement a QA [quality assurance] program for systems inspections." a) Please discuss the progress PG&E has made so far in implementing a QA program for systems inspections. b) When does PG&E expect to implement a QA program for systems inspections? c) Please describe the main features of the QA program that PG&E plans to implement. d) What are the probable limitations of the QA program that PG&E plans to implement?	a) The function that has been historically referred to as "quality verification" is in fact a component of the QA program for systems inspections and will be referred to as "QA" rather than "QV" moving forward. We have made significant progress on this work and the program has been implemented. b) The program has already been implemented. c) Main features are described in Section 8.1.6.1 of our 2023 WMP: "A Quality Verification (QV) function will be performed in 2023 that provides analysis and program value. The function historically referred to as QV is included within the QA program referred to above. QV uses a statistically valid sample of QC complete locations. Sample sizes are based on completed QC work. QV audits will be ongoing so long as QC is operational. All QV discrepancies are documented in the electronic QC Review Assessment forms. Dashboards are used to show trends and any discrepancies using pre-determined metrics. Stakeholders use these QC Dashboard results to provide WMP-Discovery2023_DR_CalAdvocates_010-Q010 Page 2 training and coaching and to develop corrective actions for training material/procedure updates." d) We are not presently aware of any probable limitations of the QA program. However, as the program continues, efforts will be taken to proactively identify limitations as they arise.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.6.1	Quality Assurance and Quality Control	Quality Assurance
58	CalPA	Set WMP-10	CalPA_Set WMP-10	11	CalPA_Set WMP-10_Q11	P. 441 of PG&E's WMP states, "We plan to update existing QV [quality verification] procedures for systems inspections." a) Please discuss the progress PG&E has made so far in updating existing QV procedures for systems inspections. b) When does PG&E expect to complete its updates to existing QV procedures for systems inspections? c) Please describe how the planned updates will improve PG&E's existing QV procedures.	a) The quality team is currently undergoing a thorough review of the prior QV procedures as an initial step in the development of updated procedures. b) Expected completion of this work is the end of the third quarter of 2023. c) The planned updates improve upon PG&E's existing QV procedures by accurately reflecting the QV role in the holistic systems inspection throughput.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.6.1	Quality Assurance and Quality Control	Quality Assurance
59	CalPA	Set WMP-10	CalPA_Set WMP-10	12	CalPA_Set WMP-10_Q12	P. 450 of PG&E's WMP states, "Along with reducing wildfire risk related to backlog ignition risk-tags in HFTD/HFRA, new (EC notifications identified after January 1st, 2023) HFTD/HFRA ignition risk tags will be completed in compliance with GO 95 rule 18 timelines, barring external factors." a) What external factors does PG&E anticipate may prevent it from completing HFTD/HFRA ignition risk tags in compliance with GO 95 Rule 18 timelines? b) For each external factor identified in part (a), what is PG&E's plan to mitigate the effect the external factor may have? c) During the period from 2023-2025, will PG&E complete new ignition risk tags in compliance with GO 95 rule 18 timelines for those ignition risk tags located outside the HFTD/HFRA? Please explain your answer.	a) Please refer to page 831 of our 2023 WMP which defines external factors as follows: "External Factors represent reasonable circumstances which may impact execution against targets, objectives, other work, or performance metrics including, but not limited to, physical conditions, landholder refusals, environmental delays, customer refusals or non-contacts, permitting delays/restrictions, weather conditions, removed or destroyed assets, active wildfire, exceptions or exemptions to regulatory/statutory requirements, and other safety considerations." Specifically, each of the items identified in the definition could apply to our asset tag work and cause our work to be delayed. As an example, the severe and repeated storms in the first quarter of 2023 have caused delays in performing our asset tag work and fall under the category of external factors. b) Physical conditions: To mitigate the impacts of physical conditions, we work with our leadership and strategy teams to create solutions specifically tailored to the individual situation. However, despite these efforts, there are times where we must simply await the removal of the external physical condition in order to proceed with work as there is no other reasonable alternative. WMP-Discovery2023_DR_CalAdvocates_010-Q012 Page 2 Landholder refusals: To mitigate the impacts of landholder refusals, we work our local government affairs team to help resolve the refusals in the most efficient way possible so that we can proceed with work. Environmental delays: To mitigate the impacts of environmental delays, we work with our leadership and strategy teams to create solutions specifically tailored to the individual situation. However, despite these efforts, there are times where we must simply await the removal of the external environmental conditions in order to proceed with work as there is no other reasonable alternative. Customer refusals or non-contacts: To mitigate the impacts of customer refusals or non-contacts, we work with our local government affairs team to resolve the refusals and to proceed with the work. Permitting delays/restrictions: To mitigate the impacts of permitting delays and restrictions, we work with our leadership and government affairs teams to have the delays or restrictions resolved as expeditiously as possible and to proceed with work. Weather conditions: To mitigate the impacts of weather conditions, we work with our leadership, strategy, and meteorology teams to create solutions specifically tailored to the individual situation. However, despite these efforts, there are times where we must simply await the end of the weather conditions in order to proceed with work as there is no other reasonable alternative. Removed or destroyed assets: When removed or destroyed assets are discovered, we reassess the asset condition and proceed with work. Active wildfire: During active wildfires, we focus on emergency operations and assisting impacted customers. While we await external wildfire conditions to be removed to proceed with work, we also plan for these situations with our emergency planning and preparedness teams. Other safety considerations: Depending on the specific type of safety consideration, we work with our leadership and strategy teams to create a specifically tailored plan to resolve the situation. c) As set out in our 2023 WMP, PG&E is currently prioritizing HFTD/HFRA ignition risk tags, but PG&E will complete ignition risk tags outside HFTD/HFRA as resources allow in compliance with GO 95 rule 18 timelines.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.7.2	Open Work Orders	Open Work Orders – Distribution Tags
60	CalPA	Set WMP-10	CalPA_Set WMP-10	13	CalPA_Set WMP-10_Q13	Table PG&E-8.1.7-1 on p. 451 of PG&E's WMP states, "Field Safety Reassessment (FSR) performed annually on time dependent tags to confirm Priority E Notification has not escalated to Priority A or B." a) Under PG&E's current procedures and policies, can a FSR de-escalate the priority of a notification? Please explain your answer. b) Under PG&E's current procedures and policies, can a FSR be used to extend the due date of a notification beyond GO 95 rule 18 timelines? Please explain your answer.	a) The FSR program is focused on identifying conditions that have escalated to Priority A and B. Inspectors can also recommend that a notification be canceled if they believe it was created in error, is no longer required according to PG&E's guidelines, or if they find all work identified on the EC is already completed in the field. In certain instances, the FSR can lead to a downgrade in tag priorities. For example, if the tag gatekeeper disagrees with an inspector-recommended escalations or cancellation, the gatekeeper can downgrade the tag rather than cancel or escalate it. PG&E continues to assess its practices and procedures on FSRs and evaluate what alternatives are provided to inspectors and tag gatekeepers. b) FSRs do not extend a notification's required end date beyond GO 95 rule 18 timelines. PG&E's current execution of EC notifications does not meet GO 95 Rule 18 compliance 100% of the time. FSRs are an internal containment activity PG&E performs to mitigate potential safety impacts	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.7.2	Open Work Orders	Open Work Orders – Distribution Tags
61	CalPA	Set WMP-10	CalPA_Set WMP-10	14	CalPA_Set WMP-10_Q14	Table PG&E-8.1.7-3 on p. 456 of PG&E's WMP has empty cells in the HFRA row. a) Please explain why the HFRA row is empty in the above table. b) Please provide an updated version of PG&E-8.1.7-3 with the HFRA row filled in.	The HFRA line in Table PG&E-8.1.7-3 was blank because PG&E was unable to segregate the HFRA tags. Table 1 below shows the number of open distribution work orders categorized by HFTD tier from Q1 2020 through Q4 2022 and is tied to the QDR data provided to Energy Safety on March 1, 2023. The numbers in the March 1, 2023 QDR are different from the numbers provided in Table-8.1.7-3 in PG&E's March 27, 2023 WMP submission. The numbers in the March 1, 2023 QDR are correct. Table 1 – Open Distribution Work Orders by HFTD Tier HFTD Area 2020 2021 2022 Buffer Zone 5 0 0 Non-HFTD 57,116 78,547 5,298 Tier 2 10,938 25,025 1,621 Tier 3 13,018 12,976 30,169 Zone 1 14 83 2 HFRA(a) 383 1,365	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.7.2	Open Work Orders	Open Work Orders – Distribution Tags

62	CalPA	Set WMP-10	CalPA_Set WMP-10	15	CalPA_Set WMP-10_Q15	In response to data request CalAdvocates-PGE-2023WMP-05, question 3, PG&E states, "There is an inherent QC process that is part of the drone inspection, but there is no outside group that is looking at QC." a) Please describe the inherent QC process for drone inspections. What are the main features of this inherent QC process? b) What types of problems or flaws in drone inspections can the inherent QC process identify? c) Please identify the five most common problems or flaws in drone inspections that the inherent QC process identified in 2022. d) What are the limitations of this inherent QC process?	a) There is a 100% review of all inspections that are part of the inspection process. The inspector completes the inspection and a spot check is performed for commonly missed items. b) Spot checks are performed for the commonly missed items that potentially caused a fire or ignition. c) The five most common problems identified in the QC process are: C-hooks, insulators, cotter pins, shoe issues, and structural issues. d) We have not identified any limitations of the QC process at this time.	Holly Wehrman	4/4/2023	4/10/2023	4/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_010.zip	0	N/A	8.1.3	Asset Inspections	N/A
4	MGRA	Data Request No. 1	MGRA_Data Request No. 1	1	MGRA_Data Request No. 1_Q1	Please provide for Asset Point data for Camera, Fuse, Support Structure, and Weather Station.	In response to this request, PG&E is providing Camera and Weather Station data, as delivered in the Q4 2022 OEIS GIS Data Standard Submission. PG&E is also providing non-confidential data from the Support Structure feature class. PG&E is not providing data for the Fuse feature class as this data is confidential critical energy infrastructure information (CEII).	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	1	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
5	MGRA	Data Request No. 1	MGRA_Data Request No. 1	2	MGRA_Data Request No. 1_Q2	Provide Asset Line data for Transmission Line (as permitted as non-confidential), Primary Distribution Line, and Secondary Distribution Line.	In response to this request, PG&E is providing non-confidential data for the Primary and Secondary Distribution Line Feature Classes. PG&E is not providing the Transmission Line feature class because it is confidential CEII.	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
6	MGRA	Data Request No. 1	MGRA_Data Request No. 1	3	MGRA_Data Request No. 1_Q3	Provide PSPS Event data. Include Event Log, Event Line, Event Polygon data. Please exclude customer meter data. Provide all PSPS Event Asset Damage data including photos	In response to this request, PG&E is unable to provide PSPS Event data, PSPS Event Damages data, and PSPS Damage photos since there were no PSPS Events that took place throughout 2022	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
7	MGRA	Data Request No. 1	MGRA_Data Request No. 1	4	MGRA_Data Request No. 1_Q4	Provide Risk Event Point data, including Wire Down, Ignition, Transmission unplanned outage (as classified non-confidential), Distribution Unplanned Outage data, Distribution Vegetation Caused Unplanned Outage, Risk Event Asset Log	In response to this request, PG&E is providing non-confidential data for the Wire Down, Ignition, Transmission Unplanned Outage, Distribution Unplanned Outage, Distribution Vegetation Caused Unplanned Outage, and Risk Event Asset Log feature classes and related table.	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
8	MGRA	Data Request No. 1	MGRA_Data Request No. 1	5	MGRA_Data Request No. 1_Q5	Provide photo data for Risk Events.	PG&E does not have any non-confidential or non-privileged data to provide in response to this request. The photos provided in this feature class may be subject to attorney client privilege or the work product doctrine and may be subject to an ongoing investigation. Additionally, PG&E risk event photos are confidential CEII because they reveal physical facility and critical infrastructure locations.	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
9	MGRA	Data Request No. 1	MGRA_Data Request No. 1	6	MGRA_Data Request No. 1_Q6	Under Initiatives, please provide Grid Hardening data, including Hardening Log, Hardening Point, and Hardening Line data. Inspection data is not requested at this time.	In response to this request, PG&E is providing non-confidential data for the System Hardening, Butte County Rebuild, and 10K Undergrounding WMP initiative programs that were included in the Grid Hardening Log, Grid Hardening Point, and Grid Hardening Line feature classes and related table. Additional initiative projects reported in these feature classes includes data on where PG&E's fuse replacements, switch replacements, surge arrester replacements, and SCADA enabled work has been performed, and where future work is planned to take place. These are confidential CEII because they reveal physical facility and critical infrastructure locations. As such, have been removed from the response.	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
10	MGRA	Data Request No. 1	MGRA_Data Request No. 1	7	MGRA_Data Request No. 1_Q7	Under Initiatives, please provide Other Initiative data for point, line, polygon features and the Other Initiative Log.	In response to this request, PG&E is providing WMP initiative program data for the Weather Station Installation and Optimization and Camera Installation that were included in the Other Initiative Log and Other Initiative Point related table and feature class. Additional WMP initiative projects reported in this feature class and related table includes data on where PG&E's Line Sensor Installations, Distribution Fault Anticipation, EPSS Reliability Improvements and Early Fault Detection Sensors work have been performed, and where future work is planned to take place. These items are confidential CEII because they reveal physical facility and critical infrastructure locations.	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
11	MGRA	Data Request No. 1	MGRA_Data Request No. 1	8	MGRA_Data Request No. 1_Q8	Under Other Required Data, please provide Red Flag Warning Day polygon data.	PG&E is providing the Red Flag Warning Day polygon data, as requested by MGRA.	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
12	MGRA	Data Request No. 1	MGRA_Data Request No. 1	9	MGRA_Data Request No. 1_Q9	Please provide a layer indicating calculated circuit-level risk using the methodology presented in the WMP. a. If independent probability and consequence layers exist, please provide these independently as well.	The method described in the 2023 WMP to aggregate model results is conducted to produce a circuit segment level risk value but it is not used to produce a circuit level risk value. However, the geospatial representation of circuit segments that would be provided in response to this data request involves the identification of CEII, which we are required by law to maintain as confidential and cannot produce without the requesting party agreeing to protect the information through a non-disclosure agreement.	Joseph Mitchell	3/29/2023	4/10/2023	4/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
103	CalPA	Set WMP-12	CalPA_Set WMP-12	1	CalPA_Set WMP-12_Q1	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, the column "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" is blank for the following distribution circuit Entry Numbers: 7, 8, 11, 15, 17, 18, 28, 29, 30, 36, 37, 38, 39, 47, 55, 62, 63, 70, 71, 97, 105, 111, 112, 120, 122, 125, 126, 148, 151, 153, 163, 178, 179, 183: a) For each of the above Entry Numbers, please explain why "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" are blank. b) For each of the above Entry Numbers, please state whether PG&E plans to take any measures during the 2023-2025 WMP period to reduce the need for and impact of future PSPS on that circuit. c) For each item in part (b) where PG&E does not plan to take any measures to reduce the need for an impact of future PSPS on that circuit, please state the basis for this decision.	a) We discovered an error in our 2023 WMP submission in the "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" of the Frequently De-energized Circuits list. We will reach out to Energy Safety to provide this corrected information and discuss updating our WMP submission pursuant to Energy Safety's guidelines. We will provide an explanation of any remaining blanks. Please note, we expect to have the table revised by April 18, 2023. b) See response (a). c) See response (a).	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
104	CalPA	Set WMP-12	CalPA_Set WMP-12	2	CalPA_Set WMP-12_Q2	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, the column "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" is blank for the following transmission circuit Entry Numbers: 200, 227 a) For each of the above Entry Numbers, please explain why "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" are blank. b) For each of the above Entry Numbers, please state whether PG&E plans to take any measures during the 2023-2025 WMP period to reduce the need for and impact of future PSPS on that circuit. c) For each item in part (b) where PG&E does not plan to take any measures to reduce the need for an impact of future PSPS on that circuit, please state the basis for this decision.	a) We discovered an error in our 2023 WMP submission in the "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" of the Frequently De-energized Circuits list. We will reach out to Energy Safety to provide this corrected information and discuss updating our WMP submission pursuant to Energy Safety's guidelines. We will provide an explanation of any remaining blanks. Please note, we expect to have the table revised by April 18, 2023. b) See response (a). c) See response (a).	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
105	CalPA	Set WMP-12	CalPA_Set WMP-12	3	CalPA_Set WMP-12_Q3	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, distribution circuit Entry Numbers: 1, 21, 22, 23, 24, 25, 26, 27, 33, 34, 44, 45, 69, 83, 84, 98, 99, 117, 119, 124, 127, 128, 129, 130, 131, 144, 152, 157, 158, 168, 169, 172, 176, 177, 181, 184 a) Please explain how PG&E deployed Temporary Generation to benefit the number of customers stated. b) Please explain whether PG&E plans to use Temporary Generation again in future PSPS events. If so, how many customers will benefit each time? c) For entries where no number of customers is listed in Table 9-2, please explain why the number of customers was not known.	a) We deploy two Temporary Generation initiatives (Distribution Microgrids and Backup Generation) to address different types of PSPS impacts to benefit the number customers stated. See Section 9.2.4 on p. 781 on details for additional details. The number of customers that benefited from Temporary Generation for each of the circuits listed, is the maximum number of customers mitigated per historic PSPS event by Distribution Microgrids and Backup Generation. b) We plan to continue to utilize Temporary Generation as a mitigation in any potential future PSPS events. • Deployment of the Distribution Microgrids will vary depending on the weather footprint. For Microgrids, the customers mitigated will vary from 14 customers to 3,278 customers. See below for the 2023 list of Distribution Microgrid locations and customers mitigated. Pre-staged Distribution Microgrids (8) County Pre-Staged Distribution Microgrids Customers (SPIDs) Mitigated Napa Angwin 48 Napa Calistoga 1574 Placer Colfax 418 Placer Foresthill 14 Lake Lucerne 1022 Butte Magalia 10 Lake Middletown 428 Shasta Shingletown 86 On Demand Distribution Microgrid Sites (5) County On Demand Distribution Microgrids Customers (SPIDs) Mitigated Eldorado Pollock Pines 63 Lake Clearlake North 3278 Calaveras Arnold 123 El Dorado Georgetown 50 Tuolumne Groveland 61 • Backup Generation is offered to certain critical facilities when an outage could have a significant impact to public safety or the individual critical customer facility's backup generation and/or emergency plan fails. The number of customer customers or facilities mitigated will vary depending on the number of critical facilities in scope for each PSPS event. c) The 2019 temporary generation mitigation data does not include customers mitigated because some data such as temporary microgrid circuits was not recorded at the circuit level. Additionally, in some examples the customer count that was energized by temporary microgrids via temporary generation may have combined customer	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
106	CalPA	Set WMP-12	CalPA_Set WMP-12	4	CalPA_Set WMP-12_Q4	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, distribution circuit Entry Numbers: 3, 4, 6, 13, 14, 19, 20, 21, 22, 23, 24, 25, 26, 27, 32, 35, 49, 50, 51, 52, 53, 60, 61, 64, 65, 66, 67, 68, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 84, 85, 91, 94, 96, 99, 100, 101, 102, 104, 106, 107, 108, 109, 114, 115, 116, 123, 124, 127, 128, 129, 130, 132, 137, 139, 140, 142, 145, 147, 149, 150, 154, 158, 159, 164, 165, 168, 170, 171, 173, 180, 181, 182, 184, 186, 188, 189, 191 a) Please describe the PSPS protocols referenced in these Entry Numbers. b) Please explain how customers were "Mitigated by PSPS protocols." c) Please state how many customers benefited from mitigation by PSPS protocols in past events. d) State whether the customers referenced in part (c) benefited because they were not de energized or because they had reduced impacts from PSPS. e) Please state how many customers PG&E expects to benefit in the future due to mitigation by PSPS protocols. f) State whether the customers referenced in part (e) will benefit because they will not be de energized or because they will have reduced impacts from PSPS.	a) We discovered an error in our 2023 WMP submission in the "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" of the Frequently De-energized Circuits list. We will reach out to Energy Safety to provide this corrected information and discuss updating our WMP submission pursuant to Energy Safety's guidelines. We will provide an explanation of any remaining blanks. Please note, we expect to have the table revised by April 18, 2023. b) See response (a). c) See response (a). d) See response (a). e) See response (a). f) See response (a).	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
107	CalPA	Set WMP-12	CalPA_Set WMP-12	5	CalPA_Set WMP-12_Q5	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, transmission circuit Entry Numbers: 193, 195, 197, 198, 199, 201, 202, 203, 204, 205, 206, 208, 209, 210, 211, 212, 213, 215, 217, 218, 219, 221, 222, 223, 224, 226, 228, 231, 232, 233, 234, 235, 236 a) Please describe the PSPS protocols referenced in these Entry Numbers. b) Please explain how customers were "Mitigated by PSPS protocols." c) Please state how many customers benefited from mitigation by PSPS protocols in past events. d) State whether the customers referenced in part (c) benefited because they were not de energized or because they had reduced impacts from PSPS. e) Please state how many customers PG&E expects to benefit in the future due to mitigation by PSPS protocols. f) State whether the customers referenced in part (e) will benefit because they will not be de energized or because they will have reduced impacts from PSPS.	a) We discovered an error in our 2023 WMP submission in the "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" of the Frequently De-energized Circuits list. We will reach out to Energy Safety to provide this corrected information and discuss updating our WMP submission pursuant to Energy Safety's guidelines. We will provide an explanation of any remaining blanks. Please note, we expect to have the table revised by April 18, 2023. b) See response (a). c) See response (a). d) See response (a). e) See response (a). f) See response (a).	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
108	CalPA	Set WMP-12	CalPA_Set WMP-12	6	CalPA_Set WMP-12_Q6	PG&E's WMP p. 751, Section 9.1.2, states that "This table [Table 9-2] also includes the mitigation measures taken, or planned to be taken, to reduce the likelihood of PSPS on those circuits." Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP: The only planned action listed in Table 9-2 is regarding "MSO device installations or replacement planned" (which is listed for 8 of 236 circuits). a) Please explain why none of the other types of mitigation measures listed on p. 751 are listed in Table 9-2 as planned actions for any circuits. b) Please explain whether PG&E plans to take any mitigation measures for any of the remaining 228 circuits in Table 9-2.	a) We discovered an error in our 2023 WMP submission in the "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" of the Frequently De-energized Circuits list. We will reach out to Energy Safety to provide this corrected information and discuss updating our WMP submission pursuant to Energy Safety's guidelines. Additionally, majority of the mitigation types listed on p. 751 are circuit specific and we have provided the devices installed and line miles completed for those. Besides undergrounding and MSO we currently do not have a plan to install additional a devices such as sectionalizing or Microgrids locations. In our update to the Frequently De-energized Circuit list, we will add planned undergrounding as actions to the applicable circuits. b) See response to (a).	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
109	CalPA	Set WMP-12	CalPA_Set WMP-12	7	CalPA_Set WMP-12_Q7	Regarding ACI PG&E-22-35 (Quantify Mitigation Benefits of Reducing PSPS Scale, Scope, and Frequency) on WMP p. 972-973: a) Please explain why this table shows customer impacts (in terms of incremental PSPS mitigation) for only two mitigation methods (i.e., undergrounding and MSO), while other methods (e.g., overhead hardening, sectionalizing, etc.) are not listed in this table. b) Has PG&E analyzed customer PSPS impacts for other mitigation methods? c) If the answer to part (b) is yes, please provide the results of PG&E's analysis. d) If the answer to part (b) is no, please explain why not.	a) Table PG&E-22-35-1 shows customers mitigated and not customers impacted. In the analysis, we applied the 2022 guidance in the weather lookback period of 2018-2022. Other mitigation methods such as sectionalizing devices, grid hardening, and PSPS protocols are already factored into the lookback. This allows us to calculate the number of customers we are able to mitigate with the two planned mitigations (undergrounding and MSO) we expect to complete in 2023-2025. b) We have not analyzed additional mitigation methods as undergrounding and MSO are the two projects we currently plan to complete in the next 3 years. Other mitigation methods such as sectionalizing devices, grid hardening, and PSPS protocols are already factored into the lookback. c) See response to (b) d) See response to (b)	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-35 – Quantify Mitigation Benefits of Reducing PSPS Scale, Scope, and Frequency
110	CalPA	Set WMP-12	CalPA_Set WMP-12	8	CalPA_Set WMP-12_Q8	Regarding Section 9.2.3 (Outline of Tactical and Strategic Decision-Making Protocol for initiating a PSPS/PSPS (Such as Decision Tree)), subsection, "Decision to De-Energize," the WMP p. 780 states in part that "The OIC will determine whether alternatives to de-energization are inadequate…" a) Please describe the alternatives to de-energization that are considered. b) Please state the basis of PG&E's decision regarding which alternatives to consider. c) Please describe how OIC determines whether such alternatives are adequate or inadequate.	a) We consider if alternatives, such as additional vegetation management and disabling automatic reclosers, could adequately reduce the risk of catastrophic wildfire thus lowering the need for de-energization. When these measures alone cannot reduce the risk of catastrophic wildfire in areas within the PSPS scope sufficiently to protect public safety, we will move forward with PSPS. b) See response to a). c) After alternatives are considered the OIC further evaluates the forecasted high wind speeds and wind gust speeds, which can break and blow vegetation and debris into power lines and blow sparks into dry vegetation, when it's determined these other measures are not adequate alternatives to mitigate the risk of catastrophic wildfire, and that de-energizing in the areas within the PSPS scope is necessary to protect public safety. Furthermore, we implemented efforts to mitigate adverse impacts on the customers and communities in areas where power shutoffs were likely. These efforts include: • Employing granular scoping processes to significantly reduce the public safety impacts of de-energization by de-energizing smaller segments of the grid within the close confines of the fire-critical weather footprint, rather than de-energizing larger amounts of customers in more populated areas. • Considering the public safety impacts of de-energizing by reviewing the total count of impacted customers and the impact of potential de-energization upon Medical Baseline customers, critical facilities, and the back-up generation capabilities of critical facilities that pose societal impact risks if de-energized (e.g., critical infrastructure). • Utilizing temporary generation to energize customers outside of the forecasted risk areas. • Using sectionalization to narrow the scope and number of customers affected. • Considering opportunities for islanding, temporary generation, and alternate grid solutions, to reduce and mitigate the number of customers de-energized. • Reducing the public safety impact of de-energizing some affected communities by using back-up generation to serve critical facilities and customers. • Providing local Community Resource Centers (CRCs) to support customers in those impacted communities. • Supporting vulnerable customers through California Foundation for Independent Living Centers (CFILC) and Community Based Organizations (CBO) resource partners that offered various services to customers impacted by the event. • Making extensive use of Advanced Notifications and outreach tools to notify impacted customers of the expected de-energization. • Using an extensive camera, weather station, and satellite weather monitoring network and on-the-ground personnel to collect real-time observations to inform and speed the identification of Weather "All-Clear" times in more precise, smaller areas, to get customers back in service faster. • Readying and increasing resources for restoration efforts, including use of helicopters and fixed wing aircraft to conduct line safety patrols after the Weather "All-Clear", restoring service to safe lines as quickly as possible subject to operational safety and ability to access equipment for patrol and any needed repairs.	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.2.3	Public Safety Power Shutoff	Outline of Tactical and Strategic Decision-Making Protocol for Initiating a PSPS/PSPS (Such as Decision Tree)

111	CalPA	Set WMP-12	CalPA_Set WMP-12	9	CalPA_Set WMP-12_Q9	Regarding WMP p. 783, Section 9.2.4 (Protocols for Mitigating the Public Safety Impacts of PSPS, Including Impacts on First Responders, Health Care Facilities, Operators of Telecommunications Infrastructure, and Water Electrical Corporations/Agencies), subsection "Transit- or Paratransit Dependent Persons": a) Does PG&E notify its transit- or paratransit-dependent customers of what specific resources are available, ahead of a potential PSPS event? b) If the answer to part (a) is yes, how far in advance of a potential PSPS event does PG&E notify transit- or paratransit-dependent customers? c) If the answer to part (a) is yes, please provide a sample of such a notification. d) Please provide an example of a map that has been provided to paratransit agencies.	a) PG&E provides accessible transportation through partnerships with the California Foundation for Independent Living Center (CFILC), which facilitates the Disability Disaster Access and Resources (DDAR) Program, PG&E's partnership with the California 211 Network, and PG&E's standalone agreement with four transportation organizations that provide accessible transportation in 12 counties. Furthermore, before and during a PSPS, PG&E provides known Paratransit agencies with 24-48 hour Watch Notifications, as well as any applicable Warning, Delay, Cancel, and Restoration Notifications during an event. This also includes a list of the zip codes impacted by county and the number of customers impacted. PG&E promotes all of its resources on https://www.pge.com/en_US/residential/outages/public-safety power-shuttoff/psps-support.page. b) All potentially impacted customers including paratransit dependent customers and agencies begin receiving notifications up to 2 days ahead of the potential PSPS including a 2-day watch, 1 day watch, 1-4 hour warning and at time of de energization. AFN and Medical Baseline customers receive unique PSPS Watch and PSPS Warning notifications. These messages include customized phone, text, and email messages that request confirmation that the notification was received. If previous alerts are not acknowledged, we will make additional attempts to notify the customer. This will continue hourly, or be conducted in person, until we are able to reach them. c) Sample customer notifications are referenced in attachment "WMP Discovery2023_DR_CalAdvocates_012-Q009Atch01.pdf" d) Due to changing weather and therefore changes in projected footprint, we do not specifically provide a map to paratransit agencies, but provides paratransit agencies with a list of impacted zip codes along with the ability to look up any address or view a map of potentially impacted areas at https://pgealerts.alerts.pge.com/updates/	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	1	N/A	9.2.4	Public Safety Power Shutoff	Protocols for Mitigating the Public Safety Impacts of PSPS, Including Impacts on First Responders, Health Care Facilities, Operators of Telecommunications Infrastructure, and Water Electrical Corporations/Agencies
112	CalPA	Set WMP-12	CalPA_Set WMP-12	10	CalPA_Set WMP-12_Q10	Regarding PSPS and its relationship with EPSS settings. a) Please describe the decision-making process for a situation in which PG&E anticipates PSPS conditions but decides to utilize EPSS settings instead. b) Please list all dates in 2021 and 2022 when PG&E anticipated PSPS conditions but utilized EPSS settings instead, if this occurred. c) Please provide a narrative of the decision-making process for any instances listed in part (b) above. d) Please describe how PG&E utilizes EPSS during a PSPS event period.	a) Enabling EPSS instead of executing PSPS is not part of the PSPS decision making process. EPSS operates independent of PSPS based on different criteria and thresholds – see Section 8.1.8.1 of PG&E's WMP. b) There were none as EPSS is not utilized instead of PSPS. Enabling EPSS instead of executing PSPS is not part of the PSPS decision making process. See response to (a) above. c) As explained in response to (a) since EPSS operates independent of PSPS there is no decision-making process to utilize EPSS instead of PSPS. Each program is based on different criteria and protocols, independent of each other. d) EPSS is enabled based on forecasted Fire Potential Index (FPI) criteria on an individual circuit level. If there are circuits adjacent to a PSPS polygon that meet EPSS enablement criteria – including non-tier EPSS buffer circuits within a Red Flag Warning or Fire Weather Watch footprint or meeting Minimum Fire Potential Conditions – those circuits will be EPSS enabled.	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	N/A	Public Safety Power Shutoff & Grid Operations and Procedures	N/A
113	CalPA	Set WMP-12	CalPA_Set WMP-12	11	CalPA_Set WMP-12_Q11	Regarding communications to customers for EPSS: a) Does PG&E provide notifications or other communication to customers when EPSS settings are enabled? (This may include, but is not limited to, notifications that a customer is served by a circuit that is subject to EPSS settings, notifications that an unplanned outage may occur, notifications of expected restoration time when an EPSS outage has occurred, or all clear notifications when EPSS settings are de-activated.) b) If the answer to part (a) is yes, please describe PG&E's approach to notifying customers about EPSS settings. c) Please provide an example of a message sent to a customer for each situation in part (b). d) At what point (i.e., number of minutes/hours) prior to enabling EPSS settings does PG&E notify customers? e) At what point (i.e., number of minutes/hours) after the beginning of an outage triggered by EPSS settings does PG&E notify customers? f) At what point (i.e., number of minutes/hours) after the line is restored, after an outage triggered by EPSS settings, does PG&E notify customers?	a) We have self-serve options for customers and Public Safety Partners to determine if EPSS settings are enabled on the line serving their home or business. Unlike PSPS, because EPSS is not a planned de-energization, we do not proactively notify customers as daily enablement and disablement decisions are made. b) Our customer outreach and education process includes information about the EPSS program, the benefits, and general information about the High Fire Risk Areas protected by EPSS settings. Customers who experienced eight or more outages on EPSS enabled circuits in 2022 will be receiving an email or letter in mid-April about the EPSS program. The letter includes language that indicates that the line serving their home or business has EPSS capability and that there could be unplanned power outages (bold added for emphasis in this response): To help prevent wildfires, we are making the electric system safer and stronger for our customers. This includes safety settings on your powerlines known as Enhanced Powerline Safety Settings (EPSS). While these settings help keep you safe, you may experience unexpected power outages. We are working hard to improve reliability across our electric grid - without sacrificing safety. Near real-time enablement status is available for County agencies and Public Safety Partners through PG&E's Outage Portal. We do not proactively notify customers directly as EPSS settings are enabled or disabled on a daily basis. However, the PG&E Outage Center on pge.com offers customers the option to search for their address. If EPSS settings are enabled, regardless of current outage status, a blue bar will appear at the top of the lookup indicating that EPSS settings are enabled. Please see "WMP-Discovery2023_DR_CalAdvocates_012-Q011Atch01.pdf" for an example from 2022. The language is being updated for 2023 to more clearly indicate that the EPSS settings are currently enabled. This functionality is scheduled to be re-enabled in May 2023. Customers who have not previously opted out are sent an initial outage notification when the outage occurs, regardless of EPSS enablement status. Customers can choose to receive the message via phone call, text message and/or email. Customers may choose any combination of notification preference. This notification includes an estimated time of restoration (ETOR) whenever possible. Restoration updates are sent to customers whenever the ETOR is updated. c) The excerpt from the preseason letter and screenshot from the address lookup are included in response b), above. Samples of the initial outage notifications for calls, text message and email are included below. Automated call Script This is PG&E calling with an unplanned outage alert. Para servicio en espanol, oprima nueve. Your street address starting with <Street Number> may be experiencing an unplanned outage. This outage is affecting <Number of Customers> customers. We expect power to be restored by <ETOR Date, i.e., December 20> at <ETOR Time, i.e., 10:00 p.m.>. When wildfire risk is higher, powerlines in your area shut off instantly when struck by a branch or object. To reduce potential ignitions, lines stay off until they're fully inspected and safe to energize. If you see downed power lines, call 911. For the most up-to-date information about this outage, visit pge.com/outages or call PG&E at 1-800-743-5002. Thank you and please stay safe. To STOP receiving ALL outage notifications from PG&E, press 3. Text Message/SMS PG&E Outage Alert: Address starting <Street Number> may be experiencing an unplanned outage affecting <Number of Customers> customers. Restoration expected <ETOR Date, i.e., December 20> @ <ETOR Time, i.e., 10:00 p.m.>. If an object strikes your lines, they shut off until lines are fully inspected and safe to energize. Info: pge.com/outages. Stop alerts reply STOP Email Subject line: PG&E Unplanned Outage Alert	Holly Wehrman	4/6/2023	4/11/2023	4/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	1	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
114	CalPA	Set WMP-13	CalPA_Set WMP-13	1	CalPA_Set WMP-13_Q1	Figure PG&E-7.1.4-2 on p. 259 of PG&E's WMP shows Down Conductor Detection (DCD) is to be implemented on 4-wire distribution. a) Does PG&E plan to primarily implement DCD on 4-wire distribution, 3-wire distribution, or a mix? b) Please state the number of overhead circuit miles of 4-wire distribution in PG&E's HFTD. c) Please state the number of overhead circuit miles of 3-wire distribution in PG&E's HFTD.	a) At this time, we plan to implement Down Conductor Detection (DCD) only on 3-wire distribution (or on overhead circuits without phase to neutral connected load downstream). PG&E will continue to explore the possibility of applying DCD to 4-wire multi-grounded systems in the future. Figure 7.1.4-2 incorrectly identified DCD applicable to 4-wire when it should have indicated 3-wire systems. b) As shown in Figure 7.1.4-2, the 4-wire multi-grounded overhead mileage is estimated to be 675 miles. c) As shown in Figure 7.1.4-2, the 3-wire overhead mileage is estimated to be 25,540 miles.	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	8.1.2.10.1	Grid Design and System Hardening	Downed Conductor Detection Devices
115	CalPA	Set WMP-13	CalPA_Set WMP-13	2	CalPA_Set WMP-13_Q2	Table 8-27 on p. 586 of PG&E's WMP summarizes grid operation monitoring systems, including Distribution Fault Anticipation (DFA) and Early Fault Detection (EFD). a) Describe the types of faults, equipment failures, and/or other issues that DFA is capable of detecting. b) Describe the types of faults, equipment failures, and/or other issues that EFD is capable of detecting. c) Describe the types of faults, equipment failures, and/or other issues that DFA is capable of detecting, but EFD is not capable of detecting. d) Describe the types of faults, equipment failures, and/or other issues that EFD is capable of detecting, but DFA is not capable of detecting. e) Is DFA capable of locating problematic or failing equipment? Please explain your response. f) Is EFD capable of locating problematic or failing equipment? Please explain your response. g) Please summarize the results PG&E has seen from its DFA installations to date. h) Please summarize the results PG&E has seen from its EFD installations to date.	a) Distribution Fault Anticipation (DFA) is designed to detect conditions that generate current and voltage anomalies including series arcing issues (elbows, splices, switches) and shunt arcing faults (line slap, vegetation contact, wire down). It can also detect loss of load caused by broken conductors. b) Early Fault Detection (EFD) is designed to detect conditions that generate accumulation of Radio Frequency (RF) signal that are caused by partial discharge from equipment components including broken conductor strands, failing splices, broken/damaged/contaminated insulators, close vegetation, and failing windings in service transformers. c) DFA is capable of detecting issues in which events are short and of low repeat occurrences, which are not detected by EFD. DFA, unlike EFD, can also detect issues that are more evident in power quality data (current, voltage, power factor, and harmonics). d) EFD is capable of detecting issues which are very subtle and early within the failure mode that are not detectible by DFA. Examples of these issues include broken conductor strands, failing insulators, vegetation near conductors, and transformer windings. e) DFA is capable of identifying issues in a circuit. It can locate issues when used in combination with faulted circuit impedance models and line sensors. SmartMeters in the future will be able to improve location accuracy. DFA is used to accurately classify the type of issue and the other tools (circuit impedance models, line sensors and SmartMeters) help reduce the issue area so that field investigations can be targeted to a small area. f) EFD is capable of locating issues with high accuracy, to within a span on mainline and large tapline sections directly covered by EFD (with sensors on both ends of segment). g) As of Dec 31, 2022, PG&E has 74 DFA devices deployed and is currently in the phase of Operational Development (pre-production). As a result of this work, the DFA system has been used to identify four arcing connections in underground equipment and detect one fault-induced conductor slap. Other use cases have not been fully developed. h) PG&E has EFD deployed on four circuits as of Dec 31, 2022, and the technology is still in the pilot phase. As a result of this work, PG&E has been able to detect 11 damaged conductors (frayed or birdcaged), two arcing fuses, and one broken insulator.	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	8.3.3.1	Situational Awareness and Forecasting	Existing Systems, Technologies, and Procedures
116	CalPA	Set WMP-13	CalPA_Set WMP-13	3	CalPA_Set WMP-13_Q3	Table 7-3-1 on p. 281 of PG&E's WMP states the following objective with an estimated completion date of 12/31/2023: Develop a process of centralizing constraints resolution. As part of the build out of the centralized constraints team, three major categories will be addressed: customer constraints, environmental constraints (including internal PG&E procedures required to perform work) and permitting constraints (including both Land and Environmental permits). a) Describe what is meant by the phrase "centralizing constraints resolution." b) Please describe the benefits PG&E anticipates from "centralizing constraints resolution." c) Please describe the process PG&E plans to take to centralize customer constraints. d) Please describe the process PG&E plans to take to centralize environmental constraints. e) Please describe the process PG&E plans to take to centralize permitting constraints.	a) Constraints Management Organization (CMO) was created to act as the responsible group for developing and managing processes for constraints resolution. Following the initial lessons learned from the Enhanced Vegetation Management (EVM) program, this team will be formalizing processes and procedures concerning how the various types of constraints that occur within the Vegetation Management (VM) department should be managed. b) In previous years, the Constraints Management Team (CMT) worked within the EVM program to improve our approach to addressing constraints. This team was focused on coordinating efforts with PG&E teams to work with local governments, agencies, and landowners to address permitting or access constraints that temporarily prevented or delayed work from being performed. The CMT was able to gather additional information regarding constraints, review data, and work with other internal teams to resolve permitting or property access issues. As a result, by the end of 2021 the CMT had successfully resolved approximately 390 miles of constrained work for the EVM program. Within the EVM program in 2022, 703 miles of constrained work were resolved, which represents an ~80% increase from the prior year. c) The CMT is in the process of updating our customer constraints processes by reviewing and updating procedures. In addition to the updates, the CMT is also working with other customer focused groups within PG&E to request assistance with notifications if we are unable to contact the customer or if additional support is necessary. Beyond these steps, we are working to streamline our processes in an effort to reduce the timeline from work order creation to work order completion. d) The CMT is working as a point of contact between our VM Operations teams and our Environmental team to better track our environmentally sensitive work and ensure that review and release of work is occurring according to plan. The CMT is also evaluating the benefits of performing reviews of our environmental submittals before they are sent to PG&E's Environmental team to ensure all needed information is accurate and complete in an effort to streamline the process. e) The CMT has created a central email inbox where encroachment-type constraints can be submitted to the CMT for review. This work can be reviewed to see if existing encroachment permits would cover the planned work or if site-specific permits would be needed. The CMT can also assist in submitting for the site specific permits and working with other stakeholders on behalf of VM operational teams as needed.	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	8.2.6	Vegetation Management and Inspections	Open Work Order
117	CalPA	Set WMP-13	CalPA_Set WMP-13	4	CalPA_Set WMP-13_Q4	Table 7-3-1 on p. 282 of PG&E's WMP states the following objective with an estimated completion date of 12/31/2025: For each major constraint category build a process for addressing each constraint type, implement the new process, and create metrics to track each constraint type. a) When does PG&E expect to begin implementing its process for centralizing customer constraints? b) When does PG&E expect to begin implementing its process for centralizing environmental constraints? c) When does PG&E expect to begin implementing its process for centralizing permitting constraints? d) What is the earliest date PG&E expects to begin realizing benefits (e.g. reduced time to resolve constraints) as a result of the objective quoted above? e) Why does PG&E expect that it will take until December 2025 to achieve the objectives in the passage quoted above? f) Between now and December 2025, how is PG&E addressing each constraint type?	a) For some Vegetation Management (VM) programs within the VM department, the Constraints Management Team (CMT) will be implementing process improvements to the customer constraints process as early as Q2 of 2023. b) The CMT has already begun facilitating regular check-in meetings with our Environmental teams to discuss environmental permitting needs, discuss opportunities for process improvement, and to generally engage on upcoming work. c) The CMT has already begun to utilize a centralized email box for submitting encroachment-type permitting support. We expect to continue to review what could be best management practices and to look for process improvement opportunities with the process as it evolves. d) For some VM programs in 2023, we are already seeing benefits of the CMT in pilot areas as process improvement ideas are put into action and VM Operational teams are engaged directly. e) The VM CMT will be integrating additional VM programs into our support model in the coming years and expect to achieve our objectives by December 2025. f) The CMT is working to better identify the various types of constraints that can affect VM's ability to complete needed work, to understand the current processes in place, to identify if process improvement opportunities exist, and to better create and track metrics for these constraints.	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	8.2.6	Vegetation Management and Inspections	Open Work Order
119	CalPA	Set WMP-13	CalPA_Set WMP-13	6	CalPA_Set WMP-13_Q6	Table PG&E-6.2.2.-1 on p. 168 of PG&E's WMP lists four consequence values derived from the mean MAVF of historical fires. a) Has PG&E performed a sensitivity study to determine the effect of these values on the output of PG&E's WFC model? A sensitivity analysis could involve (for example) perturbations in how the mean MAVF of historical fires is calculated, or which historical fires are included in the calculation. b) If the answer to part (a) is yes, please summarize the results of this sensitivity study. c) If the answer to part (a) is no, please explain why not. d) If the answer to part (a) is no, does PG&E plan to perform a study or analysis similar to what is described in part (a)?	a) Yes, a deductive sensitivity analysis was performed to determine the possible effect of these values on the output of PG&E's WFC model. Please see our response to part b) for an explanation of our deductive analysis. b) For points within High Fire Risk Areas (HFRA) (or non-HFRA), there is only a single variable that determines the consequences, which is the fraction of days that a location or point spends in predicted destructive or non-destructive conditions. There are no other dependencies. Only the ordinality in the predicted destructive fraction of days matters to the overall consequence ranking of points within the HFRA (or within the non HFRA). Changing thresholds (i.e. flame length, rate of spread) to determine predicted destructive conditions did not substantially alter the ordinality of the pixels by fraction of predicted destructive days, therefore rankings within HFRA (or within the non HFRA) would not change much. Additionally, we evaluated whether changing predicted destructive values could result in HFRA locations or points dropping below the consequence ranking of locations or points not in the HFRA. The CoRE from Mean MAVF of Historic Fire values for HFRA (True) categories in table PG&E 6.2.2-1 are at least 3 orders of magnitude larger than any of the CoRE MAVF values for the non-HFRA (False) categories. Based on our analysis, we determined that changes to consequence beyond 1 order of magnitude were not likely. Therefore, in order for changes to result in significant consequence rank shifts, the category values represented in Table PG&E 6.2.2-1 would need to be much closer. c) N/A, please see the responses to subparts a) and b). d) N/A, please see the responses to subparts a) and b).	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	6.2.2.2	Risk Methodology and Assessment	Consequence
120	CalPA	Set WMP-13	CalPA_Set WMP-13	7	CalPA_Set WMP-13_Q7	In section 7.2.1 on pp. 275-276 of PG&E's WMP, PG&E states, "We determined that EPSS is more effective at mitigating wildfire risk at a lower cost as shown by comparing the RSEs for the two programs: at the time we filed the 2023 GRC, the RSE for EVM was 14.5 compared to the EPSS RSE of 105.7." a) Other than RSE, what other criteria did PG&E evaluate in the decision to move away from EVM? b) EPSS is a reactive mitigation program in contrast to EVM which is proactive. Does this reactive vs. proactive categorization have any impact on PG&E's decision to transition away from EVM? c) How does PG&E's RSE estimate for EPSS take into account the negative reliability impacts on customers?	a) There were several factors that we considered when deciding between the mitigation programs Enhanced Powerline Safety Settings (EPSS) and Enhanced Vegetation Management (EVM). Besides mitigation effectiveness and implementation and operating costs described by the Risk Spend Efficiency (RSE), we considered the faster pace of implementing EPSS compared to EVM, which results in faster risk reduction. The ability to expand EPSS across all circuits in the High Fire Threat Districts (HFTD), High Fire Risk Area (HFRA), and specific buffer areas quickly provides more immediate and ongoing operational mitigation benefits when compared to the individual miles of EVM scope executed each year. b) Our objective is to evaluate the effectiveness of minimizing catastrophic wildfires, regardless of whether mitigations are reactive or proactive. In fact, we do not use the labels "proactive" and "reactive" to categorize these mitigations. EPSS is better suited for managing overall risk because it more effectively mitigates multiple drivers of failure that could lead to an ignition, which ultimately reduces the chance of an ignition propagating into a catastrophic wildfire. c) The negative reliability impact to customers is captured as part of the Failure of Distribution Overhead asset risk. These impacts are detailed in A. 21-06-021, Exhibit (PG&E-4), Chapter 3, Figure 3-2 (below) in which PG&E showed the risk reduction of wildfire risk along with the negative impacts of reliability. [IMAGE]	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	7.2.1	Wildfire Mitigation Strategy Development	Overview of Mitigation Initiatives and Activities
121	CalPA	Set WMP-13	CalPA_Set WMP-13	8	CalPA_Set WMP-13_Q8	For each of the following programs, what metrics does PG&E track to validate their impact and effectiveness at mitigating the impacts of PSPS events? a) Temporary Distribution Microgrids b) Community Microgrid Enablement Program c) Microgrid Incentive Program	a) We track Megawatts (MW), customers mitigated, and the number of usages per location each season to validate the impact and effectiveness of Temporary Distribution Microgrids. b) We track at minimum the frequency and duration of the microgrid's usage, along with the number of benefitting customer accounts. c) Please see our response to subpart (b).	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	8.1.2.7	Grid Design and System Hardening	Microgrids
122	CalPA	Set WMP-13	CalPA_Set WMP-13	9	CalPA_Set WMP-13_Q9	Do the following programs have any impact on customer reliability (e.g., frequency or duration of outages) in general? Please explain your response for each program. a) Temporary Distribution Microgrids b) Community Microgrid Enablement Program c) Microgrid Incentive Program	a) Distribution microgrids are designed to power communities' central corridors, or "Main Streets", to help safely provide electricity to critical facilities and shared community resources and reduce the number of customers impacted by PSPS. In general, customers being served by a temporary distribution microgrid will experience two brief outages: one as the microgrid is connected and one when the microgrid is disconnected after the PSPS outage. b) The Community Microgrid Enablement Program and Microgrid Incentive Programs are designed to have a positive impact on customer resiliency. The community microgrids developed through each program can reduce the duration of outages by providing energy within the microgrid during a broader grid outage. c) Please see our response to subpart (b).	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	8.1.2.7	Grid Design and System Hardening	Microgrids
123	CalPA	Set WMP-13	CalPA_Set WMP-13	10	CalPA_Set WMP-13_Q10	Figure 7-1 on p. 298 shows a sharp decline in risk after 2026. a) Please provide context as to what drives this decline. b) Why does PG&E anticipate a significantly more rapid rate of decline in residual risk after 2026 than in the 2023-2026 period?	a) The context for this sharper decline in risk after 2026 represents the expected, continued ramp-up of undergrounding miles to be installed each year. b) The more rapid rate of decline in residual risk after 2026 is due to the increase of the number of underground miles expected to be installed each year that are focused on the highest risk (top 20%) circuit segments, in which the benefits of undergrounding are cumulative over time. See section 8.1.2.2, specifically table 8.1.2.-3, which shows the current undergrounding portfolio increasingly addresses the top 20 percent risk-ranked circuit segments so that by 2025, 95 percent of the portfolio addresses the top risk, and in 2026, almost 100 percent of the targeted annual undergrounding miles are focused on the top risk. Note that all current fire rebuild projects are anticipated to complete before 2026. If future wildfires, or any cause, damage or destroy distribution overhead facilities and the decision is made to rebuild underground, this would impact the project portfolio in the relevant year(s) after such a fire.	Holly Wehrman	4/6/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	0	N/A	7.2.2.1	Wildfire Mitigation Strategy Development	Projected Overall Risk Reduction

80	OEIS	001	OEIS_001	12	OEIS_001_Q12	Regarding PG&E's Response to ACI PG&E-22-09 a. PG&E states that "363 [circuits] dropped to the lower 80 percent" (p. 891). For each of these circuit segments, provide the following information via Excel document: i. Name/ID of CPZ ii. V2 mileage of circuit segment iii. V3 mileage of circuit segment iv. Categorization in which movement each circuit segment falls under, as outlined on p. 891 (i.e., large shift in wildfire consequence value and rank; large shift in circuit segment mileage and wildfire consequence; or shift in ignition probability) v. V2 overall risk ranking (including a footnote/written response of the total number of CPZs included in the ranking) vi. V2 overall risk score vii. V2 risk score broken out by: (1) Ignition probability (2) Wildfire consequence viii.V3 overall risk ranking (including a footnote/written response of the total number of CPZs included in the ranking) ix. V3 overall risk score x. V3 risk score broken out by: (1) Ignition probability (2) Wildfire consequence b. For the 8 circuit segments that moved due to ignition probability, describe how such ignition probability changed. c. PG&E states that "As a result of these changes, previously approved system hardening projects have not yet initiated construction on CPZs that are now ranked as much lower risk." (p. 893) Provide the following information on each of these projects via Excel document: i. Name/ID of CPZ ii. Mileage of project iii. Type of project (i.e., covered conductor, undergrounding) iv. V2 overall risk ranking (including a footnote/written response of the total number of CPZs included in the ranking) v. V2 overall risk score vi. V3 overall risk ranking (including a footnote/written response of the total number of CPZs included in the ranking) vii. V3 overall risk score viii.Stage in which the project was at when the project was halted (design, engineering, etc.)	Please see attachment WMP-Discovery2023_DR_OEIS_001-Q012Atch01.xlsx, tab "12.a Dropped v2 CPZs." b. The probability of ignition change was driven primarily by greater granularity in failure modes associated with assets in the probability calculation. Please see attachment WMP-Discovery2023_DR_OEIS_001-Q012Atch01.xlsx, tab "12.b Probability of Ignition" for specific details. c. As noted in the 2023-2025 WMP R1 (posted April 6, 2023), ACI PG&E-22-09, (p.891, under "Project Impacts"), "there were no projects that were de-prioritized from the changes implemented between V2 and V3 of the models." The statement referenced (on p.892, under "Project Impacts") is a quote from the ISM Quarterly report highlighting the previous model changes (V1 to V2) and noting how EVM and System Hardening approached this differently due to the associated timeframes with the work.	Colin Lang	4/5/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22--09 Evaluation of Model Reprioritization and Fire Rebuild in High-Risk Areas
39	CalPA	Set WMP-09	CalPA_Set WMP-09	8	CalPA_Set WMP-09_Q8	P. 129 of PG&E's WMP states: When conducting VM activities, PG&E employees and contractors must adhere to PG&E's Best Management Practices (BMP) where practicable. BMPs are considered practicable where physically possible and not conflicting with other regulatory obligations or safety considerations (GO 95 Rule 35 and Public Resources Codes 4292 and 4293) or emergency response situations. a) How do VM contractors determine when adherence to BMPs is not "physically possible." b) How does PG&E audit or review VM contractors to ensure they are adhering to BMPs where practicable? c) What actions does PG&E take if it determines that a VM contractor has not consistently adhered to BMPs where practicable? d) Please list all instances in 2022 where PG&E has determined that a VM contractor did not adhere to BMPs where BMPs were practicable, as defined above. e) Please list all instances in 2022 in which PG&E took action to reprimand or sanction a VM contractor for failing to adhere to BMPs where practicable.	The BMPs referenced on Page 129 of the WMP in TD-7102P-01-JA01, Best Management Practices (BMPs) are Vegetation Management's (VM) controls to ensure compliance with environmental compliance requirements. a) PG&E makes every effort to comply with the BMPs. If the risk of vegetation in relation to our assets and potential non-compliance with GO 95 Rules 18 & 35, PRCs 4292 or 4293, or NERC Standard FAC-003-04 is greater than the potential environmental risk the BMPs are designed to mitigate, then the priority vegetation work takes precedence, consistent with TD-7102P-17, VM Priority Tag Procedure and TD-7103P-09, Transmission VM Imminent Threat and Hazard Notification Procedure, and referenced in the following Figures provided in the WMP: • Page 518 – Figure PG&E-8.2.2-1: PG&E's VM Transmission Inspection Process • Page 520 – Figure PG&E-8.2.2-2: PG&E's VM Transmission Second Patrol Process • Page 522 – Figure PG&E-8.2.2-3: PG&E's IVM Process • Page 525 – Figure PG&E-8.2.2-4: PG&E's VM Distribution Inspection Process, • Page 527 – Figure PG&E-8.2.2-5: PG&E's VM Distribution Second Patrol Process • Page 810 – Figure PG&E-9.2.1-5: Priority 1 and Priority 2 Tree Tags Examples where PG&E VM contractors might determine that adherence to BMPs is not "physically possible", and tree work would take precedence include: • Limited Operating Periods (LOP), either due to weather/saturated soil conditions or potential biological impacts (i.e., nesting bird season) – our work is required year-round in order to comply with regulatory requirements; • Safety considerations – There may be instances where the only way to safely perform tree mitigation may impact protected environmental resources. b) PG&E reviews contractor BMP adherence through several methods, including: • PG&E's Environmental Management (EM) performs unannounced field audits of projects submitted for environmental review. • Where there have been noticeable trends for a particular Issue Category of BMP non-conformance, EM will occasionally perform focused field audits. • PG&E's vegetation management operations inspectors and program managers perform field observations that may include compliance with applicable laws and regulations, as well as conformance to internal BMPs. c) Corrective actions associated with non-conformances of BMPs vary depending upon the level of risk of the specific issue. For BMP non-conformances that are non-compliance of an external regulatory requirement or commitment, the issue is reported in accordance with PG&E's Compliance Investigations and Self-Reporting Standards1 as applicable. Corrective Actions may include any of the following: • Contractors may be required to take additional training courses to ensure compliance and understanding of when and how to adhere to BMPs; • Contractors and/or internal PG&E personnel may perform site specific remediations as applicable as determined by EM's field reviews; • Increased contractor oversight through more frequent field audits by EM, VM Operations, and/or VM Quality; • After-the-Fact reporting to any regulator or agency of the activity performed by PG&E on a priority basis that resulted in a regulatory non-compliance event d) For the issues that were formally tracked by PG&E EM, please see attachment "2022 Veg Env issues.xlsx." The issues tracked by EM's Issue Management tracking includes 352 issues of concern related to potential BMP or regulatory compliance non-conformances in 2022. There was a special audit performed in 2021 & 2022 related to BMP 12 (debris disposal near watercourses). The special audit for BMP 12 conducted of the Enhanced Vegetation Management (EVM) program found that of the more than 400 locations identified by VM Quality	Holly Wehrman	4/4/2023	4/12/2023	4/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	1	N/A	5.4.5	Overview of the Service Territory	Environmental Compliance and Permitting
39	CalPA	Set WMP-09	CalPA_Set WMP-09	8REV	CalPA_Set WMP-09_Q8REV	P. 129 of PG&E's WMP states: When conducting VM activities, PG&E employees and contractors must adhere to PG&E's Best Management Practices (BMP) where practicable. BMPs are considered practicable where physically possible and not conflicting with other regulatory obligations or safety considerations (GO 95 Rule 35 and Public Resources Codes 4292 and 4293) or emergency response situations. a) How do VM contractors determine when adherence to BMPs is not "physically possible." b) How does PG&E audit or review VM contractors to ensure they are adhering to BMPs where practicable? c) What actions does PG&E take if it determines that a VM contractor has not consistently adhered to BMPs where practicable? d) Please list all instances in 2022 where PG&E has determined that a VM contractor did not adhere to BMPs where BMPs were practicable, as defined above. e) Please list all instances in 2022 in which PG&E took action to reprimand or sanction a VM contractor for failing to adhere to BMPs where practicable.	The BMPs referenced on Page 129 of the WMP in TD-7102P-01-JA01, Best Management Practices (BMPs) are Vegetation Management's (VM) controls to ensure compliance with environmental compliance requirements. a) PG&E makes every effort to comply with the BMPs. If the risk of vegetation in relation to our assets and potential non-compliance with GO 95 Rules 18 & 35, PRCs 4292 or 4293, or NERC Standard FAC-003-04 is greater than the potential environmental risk the BMPs are designed to mitigate, then the priority vegetation work takes precedence, consistent with TD-7102P-17, VM Priority Tag Procedure and TD-7103P-09, Transmission VM Imminent Threat and Hazard Notification Procedure, and referenced in the following Figures provided in the WMP: • Page 518 – Figure PG&E-8.2.2-1: PG&E's VM Transmission Inspection Process • Page 520 – Figure PG&E-8.2.2-2: PG&E's VM Transmission Second Patrol Process • Page 522 – Figure PG&E-8.2.2-3: PG&E's IVM Process • Page 525 – Figure PG&E-8.2.2-4: PG&E's VM Distribution Inspection Process, • Page 527 – Figure PG&E-8.2.2-5: PG&E's VM Distribution Second Patrol Process • Page 810 – Figure PG&E-9.2.1-5: Priority 1 and Priority 2 Tree Tags Examples where PG&E VM contractors might determine that adherence to BMPs is not "physically possible", and tree work would take precedence include: • Limited Operating Periods (LOP), either due to weather/saturated soil conditions or potential biological impacts (i.e., nesting bird season) – our work is required year-round in order to comply with regulatory requirements; • Safety considerations – There may be instances where the only way to safely perform tree mitigation may impact protected environmental resources. b) PG&E reviews contractor BMP adherence through several methods, including: • PG&E's Environmental Management (EM) performs unannounced field audits of projects submitted for environmental review. • Where there have been noticeable trends for a particular Issue Category of BMP non-conformance, EM will occasionally perform focused field audits. • PG&E's vegetation management operations inspectors and program managers perform field observations that may include compliance with applicable laws and regulations, as well as conformance to internal BMPs. c) Corrective actions associated with non-conformances of BMPs vary depending upon the level of risk of the specific issue. For BMP non-conformances that are non-compliance of an external regulatory requirement or commitment, the issue is reported in accordance with PG&E's Compliance Investigations and Self-Reporting Standards1 as applicable. Corrective Actions may include any of the following: • Contractors may be required to take additional training courses to ensure compliance and understanding of when and how to adhere to BMPs; • Contractors and/or internal PG&E personnel may perform site specific remediations as applicable as determined by EM's field reviews; • Increased contractor oversight through more frequent field audits by EM, VM Operations, and/or VM Quality; • After-the-Fact reporting to any regulator or agency of the activity performed by PG&E on a priority basis that resulted in a regulatory non-compliance event d) For the issues that were formally tracked by PG&E EM, please see attachment "WMP-Discovery2023_DR_CalAdvocates_009-Q008Rev01Atch01.xlsx." The issues tracked by EM's Issue Management tracking includes 352 issues of concern related to potential BMP or regulatory compliance non-conformances in 2022. There was a special audit performed in 2021 & 2022 related to BMP 12 (debris disposal near watercourses). The special audit for BMP 12 conducted of the Enhanced Vegetation Management (EVM) program found that of the more than 400 locations identified by VM Quality	Holly Wehrman	4/4/2023	4/12/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_009.zip	1	N/A	5.4.5	Overview of the Service Territory	Environmental Compliance and Permitting
4	MGRA	Data Request No. 1	MGRA_Data Request No. 1	1 SUPP	MGRA_Data Request No. 1_Q1 SUPP	Please provide for Asset Point data for Camera, Fuse, Support Structure, and Weather Station.	In response to this request, PG&E is providing Camera and Weather Station data, as delivered in the Q4 2022 OEIS GIS Data Standard Submission. PG&E is also providing non-confidential data from the Support Structure feature class. PG&E is not providing data for the Fuse feature class as this data is confidential critical energy infrastructure information (CEII).	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	4	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
5	MGRA	Data Request No. 1	MGRA_Data Request No. 1	2 SUPP	MGRA_Data Request No. 1_Q2 SUPP	Provide Asset Line data for Transmission Line (as permitted as non-confidential), Primary Distribution Line, and Secondary Distribution Line.	In response to this request, PG&E is providing non-confidential data for the Primary and Secondary Distribution Line Feature Classes. PG&E is not providing the Transmission Line feature class because it is confidential CEII.	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
6	MGRA	Data Request No. 1	MGRA_Data Request No. 1	3 SUPP	MGRA_Data Request No. 1_Q3 SUPP	Provide PSPS Event data. Include Event Log, Event Line, Event Polygon data. Please exclude customer meter data. Provide all PSPS Event Asset Damage data including photos	In response to this request, PG&E is unable to provide PSPS Event data, PSPS Event Damages data, and PSPS Damage photos since there were no PSPS Events that took place throughout 2022	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
7	MGRA	Data Request No. 1	MGRA_Data Request No. 1	4 SUPP	MGRA_Data Request No. 1_Q4 SUPP	Provide Risk Event Point data, including Wire Down, Ignition, Transmission unplanned outage (as classified non-confidential), Distribution Unplanned Outage data, Distribution Vegetation Caused Unplanned Outage, Risk Event Asset Log	In response to this request, PG&E is providing non-confidential data for the Wire Down, Ignition, Transmission Unplanned Outage, Distribution Unplanned Outage, Distribution Vegetation Caused Unplanned Outage, and Risk Event Asset Log feature classes and related table.	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
8	MGRA	Data Request No. 1	MGRA_Data Request No. 1	5 SUPP	MGRA_Data Request No. 1_Q5 SUPP	Provide photo data for Risk Events.	PG&E does not have any non-confidential or non-privileged data to provide in response to this request. The photos provided in this feature class may be subject to attorney client privilege or the work product doctrine and may be subject to an ongoing investigation. Additionally, PG&E risk event photos are confidential CEII because they reveal physical facility and critical infrastructure locations.	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
9	MGRA	Data Request No. 1	MGRA_Data Request No. 1	6 SUPP	MGRA_Data Request No. 1_Q6 SUPP	Under Initiatives, please provide Grid Hardening data, including Hardening Log, Hardening Point, and Hardening Line data. Inspection data is not requested at this time.	In response to this request, PG&E is providing non-confidential data for the System Hardening, Butte County Rebuild, and 10K Undergrounding WMP initiative programs that were included in the Grid Hardening Log, Grid Hardening Point, and Grid Hardening Line feature classes and related table. Additional initiative projects reported in these feature classes includes data on where PG&E's fuse replacements, switch replacements, surge arrester replacements, and SCADA enabled work has been performed, and where future work is planned to take place. These are confidential CEII because they reveal physical facility and critical infrastructure locations. As such, have been removed from the response.	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
10	MGRA	Data Request No. 1	MGRA_Data Request No. 1	7 SUPP	MGRA_Data Request No. 1_Q7 SUPP	Under Initiatives, please provide Other Initiative data for point, line, polygon features and the Other Initiative Log.	In response to this request, PG&E is providing WMP initiative program data for the Weather Station Installation and Optimization and Camera Installation that were included in the Other Initiative Log and Other Initiative Point related table and feature class. Additional WMP initiative projects reported in this feature class and related table includes data on where PG&E's Line Sensor Installations, Distribution Fault Anticipation, EPSS Reliability Improvements and Early Fault Detection Sensors work have been performed, and where future work is planned to take place. These items are confidential CEII because they reveal physical facility and critical infrastructure locations.	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
11	MGRA	Data Request No. 1	MGRA_Data Request No. 1	8 SUPP	MGRA_Data Request No. 1_Q8 SUPP	Under Other Required Data, please provide Red Flag Warning Day polygon data.	PG&E is providing the Red Flag Warning Day polygon data, as requested by MGRA.	Joseph Mitchell	3/29/2023	4/13/2023	4/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
150	CalPA	Set WMP-15	CalPA_Set WMP-15	1	CalPA_Set WMP-15_Q1	PG&E states in response to Question 1 (b) of CalAdvocates-PGE-2023WMP-08: PG&E will maintain clearances where EVM work occurred. PG&E will also be prescribing a minimum radial clearance of 12 feet throughout the system within HFTD and HFRA. Two new programs, Vegetation Management for Operational Mitigation (VMOM) and Focused Tree Inspection, are likely to result in individual trees that warrant enhanced clearance where EVM was not implemented. These programs inform clearances based on available outage data and trends, as well as site and tree specific conditions. While not called out as a uniform scope, clearances in portions of these targeted circuit segments may have similarities to EVM. a)Are the abovementioned two new programs (Vegetation Management for Operational Mitigations and Focused Tree Inspections) to take place through PG&E's system, as opposed to just in the HFTD or HFRA? b)Please describe the circumstances in which an individual tree would warrant enhanced clearance under the Vegetation Management for Operational Mitigations program. c)Please describe the circumstances in which an individual tree would warrant enhanced clearance under the Focused Tree Inspections program. d)Please describe how each of the two new programs "inform clearances based on available outage data and trends, as well as site and tree specific conditions".	a) Vegetation Management for Operational Mitigation (VMOM) will be primarily focused in HFTD and HFRA. There are instances where a circuit segment may cross in or out of HFTD/HFRA and VMOM would complete work on the whole circuit segment including the areas outside HFTD/HFRA. Focused Tree Inspections are planned for HFTD areas in the plan developed for 2023. b) Enhanced clearances under the VMOM may be warranted under a variety of circumstances because the driver for outages can vary by region. Examples include but are not limited to: 1. A tree identified under the Extent of Conditions patrol as having defects where enhanced clearances are needed to avoid tree-line conflicts. 2. A scenario where larger overhang clearance will be prudent to avoid limb or branch failure towards the line. 3. A tree identified under regional tree failure patterns based on historical outage data and local knowledge, such as sudden oak death in the California Coastal areas. 4. A tree identified because of site specific conditions such as wind exposure, erosion concerns, or other environmental factors. c) The Focused Tree Inspection program will require inspection by Tree Risk Assessment Qualification (TRAQ) inspectors utilizing the Basic Tree Assessment Form as needed. Enhanced clearances may be required if the assessment identifies potential for tree-line conflicts. Circumstances where this would lead to enhanced clearances include, but are not limited to, when trimming work needed will result in more than 30% of the canopy being removed, making tree removal a better overall mitigation due to potential tree health impacts, and when lean or other structural defects of an otherwise healthy green tree has potential to strike assets. d) For the FTI pilots please refer to response provided for CalAdvocates _ 015 -Q 012 a and b for details on how outage data and trends inform inspections. The TRAQ certified Arborists are expected to determine appropriate clearances based on this knowledge in addition to their evaluation of site-specific tree conditions. For VMOM, historical outage data and is being utilized to develop regional inspection criteria based on species composition and failure patterns. The VMOM extent of condition patrols start by evaluating the tree that caused the outage and then patrolling 5 spans in all directions looking for additional trees that may exhibit similar site and tree specific characteristics.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.6	Vegetation Management and Inspections	Discontinued Programs
151	CalPA	Set WMP-15	CalPA_Set WMP-15	2	CalPA_Set WMP-15_Q2	PG&E states in response to Question 1 (c) (iii) of CalAdvocates-PGE-2023WMP-08 that its strategy for determining desired clearance distances going forward will be "Minimum of 12 feet of clearance or enough clearance to mitigate potential impacts to facilities if tree (whole or portion of) failure were to occur." Please describe PG&E's planned methodology for determining sufficient clearance to mitigate potential impacts in the event of tree failure as mentioned above.	Obtaining clearance consistent with GO 95 Rule 35 at the time-of-trim recommendations in the HFTD may often require enhanced clearance beyond those recommendations to address tree conditions, the overall impacts of pruning to tree health, may compel tree removal, which can be interpreted as enhanced clearance. As a methodology, the goal is to mitigate identified problematic tree conditions between inspection cycles and obtaining 2-3 years of clearance whenever possible with landowner cooperation, permitting and other regulatory requirements. With this methodology we work the whole tree or portion of tree to mitigate potential impact to facilities.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.6	Vegetation Management and Inspections	Discontinued Programs
152	CalPA	Set WMP-15	CalPA_Set WMP-15	3	CalPA_Set WMP-15_Q3	PG&E states in its response to Question 2 (b) of CalAdvocates-PGE-2023WMP-08: "Two new programs, Vegetation for Operational Mitigations (VMOM) and Focus Tree Inspections (FTI) will identify new trees for the sort of work identified in this [tree] inventory. Additionally, if any priority trees are discovered while completing the TRI scope of work, they would be listed for work consistent with all other VM programs." Please describe how PG&E intends to track trees identified for work under VMOM and FTI.	PG&E intends to track trees identified for work under VMOM and FTI using the OneVM tool.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory

153	CalPA	Set WMP-15	CalPA_Set WMP-15	4	CalPA_Set WMP-15_Q4	PG&E states in its response to Question 1 (c)(iii) of CalAdvocates-PGE-2023WMP-08 that it will decide desired clearance distances "Based on analysis of outage data and trends by AOC. Additionally, any tree which is within MDR, will be within the MDR before next work completion cycle or is showing signs of imminent failure before next work completion cycle." a)Please provide how PG&E will determine desired clearance distances using analysis of outage data and trends by AOC. b)Does "MDR" stand for "Minimum Distance Requirement" in this instance? Please define if not. c)If yes, is the "Minimum Distance Requirement" referred to here from General Order 95, or from PG&E's internal procedures? d)If the latter, please reference which procedure PG&E is utilizing	a) As a program being performed in addition to Routine VM, the objective of FTI is not based on a uniform or regional clearance specification or a "desired clearance". Outage analysis and data is intended to help inform the Vegetation Management Inspector (VMI) to identify which species and failure types are increasing localized outage trends. For example, this information can help determine if overhanging branch failure is a problematic local trend. In that situation, overhang reduction would be considered based on site and tree response characteristics. To the contrary, if overhanging branch failure is not a localized failure trend, targeting overhang elimination or reduction may not yield as effective results as other forms of vegetation work. The completion of regional pilots is intended to help address "how" PG&E will guide the program moving forward. b) Yes, that is correct. c) MDR is tied to all conductor clearance based on regulations in California. Including GO 95 Rule 35 and PRC 4293. d) N/A	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.6	Vegetation Management and Inspections	Discontinued Programs
154	CalPA	Set WMP-15	CalPA_Set WMP-15	5	CalPA_Set WMP-15_Q5	PG&E states in its response to Question 2 (c) of CalAdvocates-PGE-2023WMP-08 that it "utilized VM EPSS-enabled outage data, historical VM outage data, and customer outage impact data" in devising the VMOM scope of work. a)Please describe how PG&E has utilized each of the following data types in devising the VMOM scope of work: i.VM EPSS-enabled outage data ii.Historical VM outage data iii.Customer outage impact data.	a) i. VM EPSS-enabled outage data was used to determine both a planned unit forecast and identify CPZs where EPSS VM Outages took place. ii. Historical VM outage data was used to identify CPZs where reoccurring VM outages took place. iii. Customer outage impact data was used to identify customers who experienced more frequent outages.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
155	CalPA	Set WMP-15	CalPA_Set WMP-15	6	CalPA_Set WMP-15_Q6	PG&E states in its response to Question 2 (c) of CalAdvocates-PGE-2023WMP-08 that: For FTI, Areas of Concern (AOCs) were identified through a cross-functional effort utilizing county-based regional reviews to create polygons which are geographic areas. Initial polygon development utilized WDRMv3 consequence scores, Public Safety Specialist circuit-based evaluations, expertise, 30-year lookback of meteorology data, and analysis, identified PSPS Lookback Polygons, PSPS Vegetation Damage locations, vegetation caused ignition data, and vegetation caused outage data. The process is intended to be performed annually to identify where trends, models, or emerging available data indicated higher likelihood of tree caused damage or outages. a)Please explain how the following types of data will be utilized in developing AOC polygons for the FTI scope of work: i.WDRMv3 consequence scores ii.Public Safety Specialist circuit-based evaluations and expertise iii.30-year lookback of meteorology data and analysis iv.Identified PSPS Lookback Polygons v.PSPS Vegetation Damage Locations vi.Vegetation caused ignition data vii.Vegetation caused outage data. b)Please define and describe "PSPS Lookback Polygons". c)What is the threshold of 'likelihood of tree caused damage or outages' at which a particular location is determined to be an AOC?	a) i. WDRMv3 Consequence scores aided in quality checking the AOC polygons. Adding this to the process resulted in adding two additional AOC polygons containing 32 circuit miles. WDRMv3 was also used to rank and prioritize the AOC into the tranches. ii. Public Safety Specialists (PSS) circuit-based risk assessments were not specifically developed to identify vegetation risks but often aligned the outage cluster data also utilized for the project. When strong alignment existed between circuits PSS ranked very high to severe and overlapped with other VM specific outage, ignition, or PSPS damage data an AOC polygon was developed. If a PSS very high to severe circuit ranking conflicted or did not align with other VM specific data or expertise, AOC polygons were not developed. iii. 30-year meteorology re-analysis data was provided to the AOC development team to understand historical Diablo wind and FPI-OPW conditions at the regional level. This was additional context and utilized on a limited basis to develop AOC polygons. At the recommendation of the Meteorology Team it was determined that the PSPS lookback polygons described in iv. were a better dataset for use in AOC development. iv. PSPS lookback polygons consolidated all geographic areas impacted by PSPS 2018-2021. When these strongly aligned with other VM specific outage, ignition and PSPS damage data, AOC polygons were developed. v. PSPS asset damage attributed to vegetation was utilized to further inform AOC polygon development. AOC development methodology was specific to prioritizing work for Vegetation Management to reduce tree caused outages and ignitions. vi. Vegetation caused ignition data was utilized to indicate areas where historical ignitions were attributed to tree contacts with assets. This data was broken into size classes to better inform when these ignitions led to wildfire or proved challenging for initial containment. vii. Vegetation Caused outage data 2018-2021 was consolidated into buffered clusters by frequency. This data was further filtered for winter season and summer season. Outages were used as a proxy for potential ignitions. This was considered a strong predictive contributing dataset based on the assumption that areas experiencing higher frequency of historical outages were more likely to experience future outages without additional mitigation. b) Please see response a) iv. c) No predetermined thresholds were created to develop AOCs for 2023. This effort was intended to blend localized knowledge and best available data to identify areas that could be evaluated against existing models. This is a new process intended to improve situational awareness for vegetation management. It is anticipated that AOCs will continue to evolve annually through a repeated process. Adding and removing AOC will be based on the experiences and data gained annually.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
156	CalPA	Set WMP-15	CalPA_Set WMP-15	7	CalPA_Set WMP-15_Q7	PG&E states in its response to Question 2 (h) of CalAdvocates-PGE-2023WMP-08 its Tree Inventory Program "is planned to last 9 years". In response to Question 9 (a) of CalAdvocates-PGE-2023WMP-08, it provides a pace for the next three years of 15,000 trees in 2023, 20,000 trees in 2024, and 25,000 trees in 2025. a)Please explain why PG&E is forecasting it will take 9 years to work down its previously identified tree inventory. b)Please state the basis for the abovementioned pace of work up to the year 2025. c)Does PG&E have current goals or targets for the program past the year 2025? d)If so, please state such goals or targets. e)Please quantify, based on the currently available knowledge, the ignition risk posed by the tree inventory. f)If PG&E had not discontinued EVM at the end of 2022, how long would the EVM program have taken to work down its current tree inventory?	a) The pace was provided for the first three years of the program with intent to ramp up annual pace. 9 years is a starting point to plan the pace of work completion however, the lessons learned will inform the completion timing. b) We anticipate that there will be opportunities in the initial years of the program for lessons learned regarding safety, efficiencies, and coordination with other system hardening activities, so the program has been designed to ramp up over the first three years. c) The goals for 2025 and beyond are not yet determined. The progress and lessons learned in the first three years will inform goals for 2025 and beyond. d) N/A e) We do not have the explicit ignition risk posed by the tree inventory. However, based on the WDRM v3 weighted vegetation trunk risk total, vegetation trunk risk represents an ignition risk score of 5,096 (446 WDRM v3 risk points * Enterprise Wildfire MAVF calibration factor 11.41). This tree inventory is identified to reduce the ignition risk driven by vegetation trunk failure. f) It is difficult to predict how long the inventory would have taken to work down if the program persisted since new work would be continually added while working down existing inventory. As long as the program persisted the inventory would likely have continued due to ongoing addition and completion of trees.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
157	CalPA	Set WMP-15	CalPA_Set WMP-15	8	CalPA_Set WMP-15_Q8	PG&E states in its response to Question 3 (h) of CalAdvocates-PGE-2023WMP-08 that "The Wildfire Data Risk Model (WDRM) v3 was utilized to prioritize nine CPZs for the VMOM program." a)Please provide the CPZs that were prioritized for the VMOM program. b)How was the WDRM v3 model utilized in prioritizing the nine CPZs? c)What risk threshold, or other criteria, was used in prioritizing the nine CPZs?	a) Narrows 21052216 Morgan Hill 2111XR398 Laureles 11112020 Templeton 2110901690 Big Basin 11010720 Silverado 210258626 Bellevue 2103552 Panorama 11021342 Green Valley 210136820 b) The WDRM v3 model includes a trunk failure component, which was used to identify the prioritization of work along with the miles to be patrolled. c) Please see our response to Question 8b).	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.3	Vegetation Management and Inspections	VM for Operational Mitigations
158	CalPA	Set WMP-15	CalPA_Set WMP-15	9	CalPA_Set WMP-15_Q9	PG&E states in its response to Question 3 (f) of CalAdvocates-PGE-2023WMP-08 that "PG&E will utilize EPSS Outages Extent of Condition (EOC) patrols to identify and generate additional tree work throughout the year. Additionally, EPSS outage data will be utilized in the scope of work development for the following year." Please provide the time frame or date when PG&E would plan to complete the additional tree work that is generated throughout the year.	The additional tree work that is generated throughout the year will be worked according to normal VM program timelines. If vegetation is determined to be an immediate risk to PG&E facilities, described as a Priority 1 in the VM Priority Tag Procedure, the condition will be mitigated within 24 hours of identification as long as conditions are safe for the tree crew to proceed with work. Priority 2 tags are issued for vegetation that is within Minimum Distance Requirement (MDR) to the electric lines and will be mitigated within 20 business days.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.3	Vegetation Management and Inspections	VM for Operational Mitigations
159	CalPA	Set WMP-15	CalPA_Set WMP-15	10	CalPA_Set WMP-15_Q10	PG&E states in its response to Question 4 (e) of CalAdvocates-PGE-2023WMP-08 that "Pilot AOCs are prioritized using WDRMv3. The four pilot AOCs selected for 2023 incorporated additional reviews from the VM Execution Operational Team to select appropriate regional areas to inform the programs development." a)Please describe how the Pilot AOCs were prioritized using WDRMv3. b)Did reviews from the VM Execution Operational team change the WDRMv3-generated prioritization? If so please describe how.	a) WDRMv3 vegetation scores were aggregated at the AOC level for each circuit segment within AOC polygon boundaries. The resulting WDRMv3 aggregated scores were averaged per AOC, leading to a ranking which was used to prioritize AOCs. The pilot AOCs were selected among the top 25 ranked AOCs. Pilot AOC selection process is described in response b). b) The four pilot areas were all selected from the highest ranked tranches as prioritized by WDRMv3. These tranches had ranked values from 1-25. After review from VM Execution AOCs ranked 2 (Napa County),5 (Butte County),6 (El Dorado County) and 15 (Calaveras County) were selected for pilots. While these selections do not directly follow a 1-n WDRMv3 ranking they align as top model prioritized rankings and meet the goal to pilot in regions with different vegetation types to support broader program development business requirements, processes and potential variations in execution.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
160	CalPA	Set WMP-15	CalPA_Set WMP-15	11	CalPA_Set WMP-15_Q11	PG&E states in its response to Question 4 (g)(i) of CalAdvocates-PGE-2023WMP-08 that the scope of work for Focused Tree Inspection pilots is to Complete a focused tree inspection pilot project of ~300 OH line miles in 2023 to calibrate processes and optimize efficiencies. Inspections will utilize Tree Risk Assessment Qualification (TRAQ) Certified Arborists. Tree mitigations will be determined as necessary based on site and individual tree conditions. Pilots will begin in Q2 2023 and are intended to inform detailed SOW during the regional implementations. a)How was the initial scope of 300 OH line miles determined? b)Please list and describe the criteria PG&E will utilize to determine tree mitigations "as necessary" within the above-detailed scope of work and within the FTI program. c)Please define the term "regional implementations" in the above instance. d)Please clarify whether the scope referenced above is 300 line miles or 300 circuit miles. Cal Advocates understands "line miles" to typically refer to actual miles of conductor, such that one circuit mile of a three-phase circuit would be approximately three line miles.	a) With a goal to identify regionally variable AOC to pilot the initial program the four AOCs were selected (See response to Question 10b). The 300 miles represents approximately 10% of the overall prioritized AOCs available for 2023 and is intended to yield the learnings needed to support and inform future work plans. Certified Arborists with the additional TRAQ certification can implement industry best standards and guidance to identify, evaluate, perform appropriate inspection level(s) and prescribe work for the trees that require mitigation to reduce outage risks between inspection cycles. b) PG&E's territory is regionally diverse and composed of variable forest and stand conditions in proximity to assets. It is anticipated that the listing practices and clearance types and prescriptions will vary between distinct regions and forest types. For example, mitigations that are acceptable and effective in the Sierra Nevada Mountain Range are expected to be different in Coastal Zone and Coastal Forest areas and varied oak-woodland and mixed conifer foothill systems. c) This program will measure based on circuit line miles. One-mile will equal one-mile, regardless of the single or three-phase configurations.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
161	CalPA	Set WMP-15	CalPA_Set WMP-15	12	CalPA_Set WMP-15_Q12	PG&E states in its response to Question 4 (h)(i) of CalAdvocates-PGE-2023WMP-08 that "While inspection tools and data collection are expected to be standardized it is anticipated that more regional guidance will utilize historical outage data to help us identify problematic tree species and failure modes and site conditions to support focused inspection decisions and prescriptions." a)Does "more regional guidance" mean guidance specific to each Area of Concern that will be developed after the pilots are complete? Please specify if not. b)If yes, please explain and provide relevant examples of how guidance would differ between AOCs.	a) The following clarifications are to provide more detail on what "more regional guidance" is intended to accomplish. Guidance associated with tools utilized and data collected are expected to be standardized for the FTI program in all AOCs during the initial pilots. The outage, species and tree failure details available for each AOC will vary and are expected to be reviewed prior to starting patrols. The data is for situational awareness, some of which may be unique within an AOC but this does not alter the guidance to have each span inspected by a TRAQ certified Arborist. Learnings from the pilot will better inform if unique regional guidelines can improve the program and standardize its execution. Examples of regional factors that could impact regional guidance include Coastal Zone Areas and Timberlands where California Forest Practice Rules apply. In areas such as these, there may be limitations or restrictions to what trees or portions of trees can be mitigated based on the regional factors, environmental restrictions, Limited Operating Periods, etc. b) For the AOC polygons, regional guidance is a data-informed review prior to inspections. Each AOC is subject to deep-dive analysis of historical outages and overlap with other past or future WMP mitigations and treatments. This data informed approach is localized and will help the TRAQ certified inspectors better understand the types of tree failures and species profiles that can provide insights and inform their site and tree specific evaluations and prescriptions. This approach is intended to foster greater overall situational awareness.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
162	CalPA	Set WMP-15	CalPA_Set WMP-15	13	CalPA_Set WMP-15_Q13	PG&E states in its response to Question 4 (k) of CalAdvocates-PGE-2023WMP-08 that "Pass or Fail criteria is not anticipated for the FTI program. FTI will use TRAQ Certified Arborists to perform inspections and prescribe work based on site and tree specific conditions. Some trees will be trimmed and other will be removed to address associated risk between inspection cycles." Please provide all criteria that PG&E will employ to determine tree trimming and removal, including the abovementioned "site and tree specific conditions".	Level 1 inspections are to be performed during patrols . Site specific and tree specific conditions will help inspectors determine when Level 2 inspections are needed to determine if a tree needs to be completely removed or trimmed to mitigate risks between inspection cycles in the AOC. Guidance provided in the California Power Line Fire Prevention Field Guide, "HAZARD TREES/VEGETATION CLEARANCE" section, provides criteria that can aid in the appropriate level of inspection decision. Please see https://osfm.fire.ca.gov/media/3vqj2sft/2021-power-line-fire-prevention-field-guide-ada final_jf_20210125.pdf. The TRAQ Certified Arborists will utilize the Basic Tree Risk Assessment Form when performing a level 2 inspection to document the site and tree specific conditions that are relevant to the inspection. See attachment WMP Discovery2023_DR_CalAdvocates_015-Q013Atch01 to review the Basic Tree Risk Assessment Form.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	1	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
163	CalPA	Set WMP-15	CalPA_Set WMP-15	14	CalPA_Set WMP-15_Q14	PG&E states in its response to Question 6 (f) of CalAdvocates-PGE-2023WMP-08 that: "PG&E has performed lab testing which has shown DCD is able to detect and de-energize downed conductors reducing ignition risk where installed." a)Please describe the methods, scope, and findings of the abovementioned lab testing. b)Please provide any documents generated from the abovementioned lab testing, including reports, etc.	a) DCD lab testing was formally conducted at ATS in 2022 to validate DCD effectiveness to detect and de-energize downed conductors, as well as calibration, troubleshooting, tuning, maintenance, and debugging. The tests were designed to mimic high impedance fault conditions experienced in the system such as a tree resting on energized conductor, or an energized conductor lying on soil, concrete, and various fine fuels. These tests successfully demonstrated that DCD was able to detect the high impedance fault condition and de-energize high impedance downed conductor faults. b) Test results are included in the attached document titled "WMP Discovery2023_DR_CalAdvocates_015-Q014Atch01CONF." The test data is a summary of lab tests performed in 2022 to support DCD validation, including but not limited to DCD effectiveness testing, calibration, troubleshooting, tuning, maintenance, and debugging.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	1	N/A	8.2.3.4	Vegetation Management and Inspections	Fall-In Mitigation
164	CalPA	Set WMP-15	CalPA_Set WMP-15	15	CalPA_Set WMP-15_Q15	PG&E states in its response to Question 12 of CalAdvocates-PGE-2023WMP-08 that: "Should a program fall below a 95% pass rate, catch back plans will be developed in partnership with VM execution to mitigate for specific cause of deficient rate." Please describe the nature of the abovementioned "catch back plans".	A Catch Back is a recovery plan developed when project milestones are off-track. The Catch Back Plan is developed by the project owner with stakeholders, and includes the specific problem, counter measure(s) to date, raised issue date, target closure date, owner, and status.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.5	Vegetation Management and Inspections	Quality Assurance/Quality Control
165	CalPA	Set WMP-15	CalPA_Set WMP-15	16	CalPA_Set WMP-15_Q16	PG&E states in its response to Question 13 (parts a, b, and c) of CalAdvocates-PGE-2023WMP-08 that: Improved quality verticals have been established for 2023, allowing for greater insight into overall VM work product throughput and risk identification/mitigation. Clear definitions of acceptance criteria, sampling methodology, population eligibility, and pass rate calculations were established and communicated across the VM organization prior to beginning 2023 audits. a)Please define the term "improved quality verticals". b)Please list and describe the "improved quality verticals" that have been established for 2023. c)Please describe the "greater insight into overall VM work product throughput and risk identification/mitigation" that was provided by the improved quality verticals. d)Please provide the definitions of the following terms that "were established and communicated across the VM organization prior to beginning 2023 audits": i.Acceptance criteria ii.Sampling methodology iii.Population eligibility iv.Pass rate calculations	a) Quality Control > Quality Assurance were implemented as complimentary layers of defense against deficiencies. The "improved quality verticals" mean that PG&E has implemented complimentary layers of protection (swiss cheese model) to ensure safety, compliance and continuous improvement. b) In each of the primary VM programs (Routine Distribution, Routine Transmission, and Vegetation Control HFTD), a comprehensive quality management system which incorporates the complimentary layers typical of traditional quality management systems (work product>Quality Control>Quality Assurance) has been established. c) This year, PG&E's QMS has designed standard work tools and practices that ensure there are clear and applicable steps for work execution that align with industry code and internal requirements. This approach focused on the fundamentals will allow PG&E to consistently deliver safe and compliant results in addition to early identification of improvement opportunities. d) i. Acceptance criteria refers to the organization's standard work tool "checklist" or attributes which QM auditors will review against. ii. Sampling methodology refers to the 95% confidence and 5% margin of error calculation that defines the minimum sample size. iii. Population eligibility refers to the "definition of done", which in this context is any location status as "quality control complete". iv. Pass rate calculations refers to which items within the "standard work tool checklist" mentioned above would be included in the pass/fail criteria for audits, as well as the numerator and denominator definitions for each program.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.5.1	Vegetation Management and Inspections	Quality Assurance and Quality Verification
166	CalPA	Set WMP-15	CalPA_Set WMP-15	17	CalPA_Set WMP-15_Q17	PG&E states in its response to Question 17(a) of CalAdvocates-PGE-2023WMP-08 that "For Routine and Second Patrol, PG&E does not currently have standards specific to high-risk species", but that species types will be incorporated into Focused Tree Inspections pilots in 2023. PG&E states in its response to question 17(b) that "Development of any standards related to high-risk species is still being determined and contingent upon completion of FTI pilots in 2023. A determination will be made specific to that program as its guidance is formalized following the pilots." a)Why does PG&E not have standards specific to high-risk species for routine and second patrol? b)Why does PG&E only plan to develop standards related to high-risk species for Areas of Concern, rather than throughout its service territory? c)How is PG&E establishing the standards for high-risk species? i.What method is PG&E using to establish the standards for high-risk species? ii.What experts is being used and/or consulted? iii.Is PG&E undertaking independent third party review, peer review, or some other method to provide independent assurance of their proposed standards? d)Would PG&E plan to expand standards related to high-risk species developed for its Areas of Concern for use throughout its service territory? e)If yes, please describe PG&E's planned process for doing so.	a) Species is just one factor of many that PG&E takes into account to reliably identify the higher risk trees. Trees identified during routine and second patrol inspection cycles that require mitigation per PRC4293 and GO95 Rule 35 are expected to be identified and listed for work regardless of species. b) As described in response to CalAdvocates-PGE-2023WMP-08-Q17, the Focused Tree Inspection (FTI) is being piloted within Areas of Concern (AOC). The experience and findings during execution of these pilots may inform development of rogram-specific guidance that relates to regional high-risk species. PG&E will then determine which programs are best suited to incorporate species specific guidance due to anticipated regional variation. The development of any standards related to high-risk species is still being determined and contingent upon completion of FTI pilots in 2023. c) Development of any standards related to high-risk species is still being determined and contingent upon completion of FTI pilots in 2023. i. See response to part c. ii. See response to part c. iii. See response to part c. d) See response to part c. e) See response to part c.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.3.6	Vegetation Management and Inspections	High-Risk Species
167	CalPA	Set WMP-15	CalPA_Set WMP-15	18	CalPA_Set WMP-15_Q18	PG&E states in its response to Question 18 of CalAdvocates-PGE-2023WMP-08 that "The Quality Management team has aligned on setting target pass rates at 88% for Field Quality Control Active Observation Programs for the following core vegetation management programs: Routine Distribution, Second Patrol Distribution, Vegetation Control, and Routine Transmission." Please state the basis, provide the method, and supporting documentation for the abovementioned 88% target pass rate.	Basis for deciding on the 88% target − PG&E decided to utilize Q1 2023 data to establish a baseline target pass rate as pass rates were not calculated in previous years. Performance for Q1 2023 data shows an average pass rate of approximately 88% for Routine Distribution, Second Patrol Distribution, and Vegetation Control, which are the three programs for which we have data. We extended the 88% target pass rate to Routine Transmission. Method for calculating the metric − Pass Rate = Total Passing responses for Critical and Conformance Attributes divided by (Total responses for Critical and Conformance Attributes minus N/A responses) Supporting Documentation for calculating the metric − Supporting Documentation for calculating the metric is provided in the attachments: "WMP-Discovery2023_DR_CalAdvocates_015-Q018Atch01.docx" and "WMP-Discovery2023_DR_CalAdvocates_015-Q018Atch02CONF.xlsx."	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	2	N/A	8.2.3.6	Vegetation Management and Inspections	High-Risk Species

168	CalPA	Set WMP-15	CalPA_Set WMP-15	19	CalPA_Set WMP-15_Q19	In its response to Question 5 of CalAdvocates-PGE-2023WMP-08, PG&E provides the following table of actual and forecasted costs for vegetation management programs. PG&E further states that "The EVM Transitional programs for VM are Focused Tree Inspections, VM for Operational Mitigations, and Tree Removal Inventory.". a)Please update this table to include the actual and forecast costs for each EVM Transitional Program, including: i.Focused Tree Inspections ii.VM for Operational Mitigations iii.Tree Inventory Removal. b)Please explain how PG&E plans to achieve the following cost reductions in vegetation management as demonstrated in the above table: i.$331,522,000 between 2022 and 2023 ii.$24,861,000 between 2023 and 2024.	a) Please see the updated table which includes forecast costs for each EVM transitional program. These programs were not active in 2022 therefore actual costs are not available. ACT FCST FCST 2022 2023 2024 Tree Mortality $ 108,129 $ 100,617 $ 98,112 EVM $ 590,971 N/A N/A (EVM) Transitional Programs N/A $ 160,357 $ 156,366 VM for Operational Mitigations $ 23,455 $ 22,872 Tree Removal Inventory $ 53,484 $ 52,153 Focused Tree Inspections in AOC $ 83,418 $ 81,342 Routine VM $ 607,751 $ 711,944 $ 694,225 VC Pole Clearing $ 23,589 $ 26,000 $ 25,353 Totals $ 1,330,440 $ 998,918 $ 974,057 b) i. The difference of $331,522,000 between 2022 and 2023 is achieved due to the conclusion of the EVM program. These reductions are reflected in the Vegetation Management GRC Supplemental Testimony submitted in February 2022. ii. The difference of $24,861,000 between 2023 and 2024 is due to several factors, this is how PG&E will achieve this reduction; (1) Transitioning from EVM to three new programs; (2) reducing the amount of Routine VM work conducted each year commensurate with the amount of undergrounding miles completed; and (3) reducing unit costs through efficiencies over the rate case period through targeted programmatic adjustments that refine processes and improve resource efficiency.	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.5.2	Vegetation Management and Inspections	Quality Control
169	CalPA	Set WMP-15	CalPA_Set WMP-15	20	CalPA_Set WMP-15_Q20	In its response to Question 19(e) of CalAdvocates-PGE-2023WMP-08, PG&E says, "We do not have a source for tracking planned worked date for individual trees and are unable to provide the data at this time." a)Does PG&E plan to develop a source for tracking planned work date for individual trees? b)If the answer to part (a) is yes, when does PG&E expect to have such a system implemented? c)If the answer to part (a) is no, please explain why not	a) No, PG&E does not have a plan to develop a source for tracking planned work date for individual trees. b) Not applicable. c) When individual trees are identified as needing work, they are packaged into a work request that may contain multiple trees on the same circuit. The work identified is then sent out and completed as a project. Tracking individual trees and individual work dates would be a strain on our resources. PG&E tracks on a project level basis providing a forecast date of when all work should be completed within the project	Holly Wehrman	4/11/2023	4/14/2023	4/14/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_015.zip	0	N/A	8.2.3.4	Vegetation Management and Inspections	Fall-In Mitigation
170	TURN	004	TURN_004	1	TURN_004_Q1	Following up on the response to TURN Data Request 3, Question 2, please provide PG&E's data showing the "recorded reliability improvements at locations that have been undergrounded and/or have been hardened with covered conductor" that will be assessed in the study planned for completion on June 30, 2023.	We are providing the base 3-year outage dataset in the attachment "WMP-Discovery2023_DR_TURN_004-Q001Atch01CONF.xlsx." We are compiling additional complimentary datasets because hardening work is done at targeted high risk segments, and these project locations do not completely line up with the data captured in outage records. Please note that the attachment provided with this response contains confidential information	Tom Long	4/12/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_004.zip	1	Yes	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
171	TURN	004	TURN_004	2	TURN_004_Q2	Regarding Table PG&E-22-35-1 (PSPS Events Lookback Analysis) on page 972 of PG&E's 2023-2025 WMP: a.For each column with numerals, provide a verbal description of all input data and of how the numerals in each column were calculated. b.Provide the table in live Excel format.	a. Input Data: the columns in Table PG&E-22-35-1 used the following input data: 2022 PSPS Five-Year Lookback Analysis (2018-2022): this is an analysis which shows the hypothetical PSPS events created by applying 2022 PSPS guidance to the weather from 2018-2022. This is our most accurate method of estimating PSPS impacts based on our latest PSPS guidance, and results in a dataset identifying the list of customers impacted per hypothetical event. This list of customers is used in this WMP to calculate projected PSPS customer impacts. Customers whose PSPS impact is prevented due to existing mitigations (as-of the end of 2022) are not included in this dataset. Some customers in this dataset may experience short-duration outages due to use of a downstream MSO device in the hypothetical PSPS events. When scoping PSPS events, we also add areas to scope based on the presence of certain asset and vegetation tags, if those areas also meet Minimum Fire Potential Conditions. This results in an incremental expansion of the PSPS scope. The number and location of these asset and vegetation tags on our system varies day-by-day and cannot be accurately forecasted in future PSPS events. This expansion in scope due to asset and vegetation tags is incorporated as a 10.2% multiplier. The asset and vegetation tag multiplier was calculated using 2021 actual PSPS events, excluding the January 19, 2021 PSPS Event (which used the 2020 PSPS guidance and thus did not have a scope increase due to tags). Since we cannot determine which specific customers will be added to scope due to asset and vegetation tags, this 10.2% increase can only be applied to the aggregated customer count for each PSPS event. In this table specifically, this dataset is used in conjunction with the other input data to identify customers mitigated by MSO device replacements and undergrounding. This dataset also serves as the baseline or denominator for calculating the columns showing the percentage of customers mitigated. MSO Device Replacement Workplan (2023-2024): this dataset identifies the list of MSO devises that are planned to be replaced with non-MSO devices in 2023 and 2024. This dataset was used in conjunction with the 2022 PSPS Five-Year Lookback Analysis described above to identify customers whose PSPS outages would be mitigated by planned MSO device replacements. Scoped Undergrounding Projects: this dataset identifies the undergrounding projects scoped for future work. An analysis was performed using this dataset to determine the average expected PSPS customer mitigation per mile of undergrounding completed, among the scoped projects. The expected PSPS customer mitigation is calculated relative to hypothetical PSPS events in the 2022 PSPS Five-Year Lookback Analysis described above. Table Columns: Column: Incremental Customers Mitigated: This column indicates the number of incremental customer-events mitigated per category (year and type of mitigations), relative to the hypothetical PSPS events generated in the 2022 PSPS Five-Year Lookback Analysis. "Incremental" means that this column reports the additional customer-events mitigated (removed from PSPS impact) due specifically to this year and type of mitigation and indicates that these customers would otherwise have been de-energized for PSPS if this year and type of mitigation had not been implemented. All earlier mitigations (either already existing in 2022 or planned to be completed in earlier years) are assumed to be in place. For example, the value reported for "2024 UG" is calculated through the comparison of customer counts from "the 2022 PSPS Five-Year Lookback Analysis with all 2023 planned mitigations installed", and	Tom Long	4/12/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_004.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-35 Quantify Mitigation Benefits of Reducing PSPS Scale, Scope, and Frequency
172	TURN	004	TURN_004	3	TURN_004_Q3	Regarding PG&E's response to ACI PG&E 22-35, beginning on page 971 of its WMP: a.Please identify each mitigation discussed in PG&E's current WMP or its 2022 WMP that has the potential to mitigate the scale, scope, frequency, or duration of PSPS events. b.Please explain why Table 22-35-1 only looks at the impact of two mitigations, undergrounding and MSO, and does not consider the other mitigations identified in response to subpart (a). c.Please provide all PG&E analyses similar to what is presented in Table 22-35-1 regarding the impact on PSPS scale, scope, frequency, or duration of any or all of the other mitigations identified in response to subpart (a). d.Regarding the statement on page 971: "We concluded that none of the 2022 mitigation initiatives eliminated any event." i.Please identify each of the "2022 mitigation initiatives" that are referenced in this statement. ii.Is the meaning of this statement that none of the 2022 mitigation initiatives reduced the scale, scope, frequency or duration of any event? If not, please explain what is meant by the statement and how it relates to the analysis presented in Table 22-35-1.	a. The 2022 WMP and 2023 WMP collectively discuss the following mitigations with the potential to mitigate the scale, scope, frequency, or duration of PSPS events: • Distribution Sectionalizing Devices • Transmission Line Sectionalizing or Switching • Distribution Line Motorized Switch Operator (MSO) Replacements • Temporary Distribution Microgrids • System Hardening (Distribution) • Undergrounding b. We currently do not have initiatives to add additional mitigations devices such as Sectionalizing devices and Temporary Microgrids as described in subpart (a). In each of the 2022 and 2023 WMP, we examined the projected impact of future planned mitigations initiatives on PSPS events. Thus, Table 22-35-1 only looks at the impact of the mitigation initiatives planned for future implementation in the 2023 WMP (undergrounding and MSO Replacements) and does not further examine the impact of past or pre-existing mitigations (including the additional mitigations discussed in the 2022 WMP). c. The analysis presented in Table 22-35-1 was only performed for the mitigation initiatives planned for implementation in the 2023 WMP: Undergrounding and MSO Replacements. The combined or total impacts of the 2023 WMP mitigations is reflected in the following tables: • Table PG&E-22-35-2: Target Reductions as a Result of PG&E's WMP Mitigations • Table 7-3-2: PG&E's WMP Targets • Targets PS-07 • QDR Table 10 The impact of the remaining mitigations identified in the response to subpart (a) on PSPS events were analyzed in the 2022 WMP, in the following tables: • Table PG&E-8.1-1: Estimated Impact of 2022 WMP Planned Mitigations • Table PG&E-8.3-1: PSPS Direct Impact Initiative Targets to be Completed by September 1, 2022 • Table PG&E-8.3-2: PSPS Direct Initiative Targets to be Completed After September 1, 2022 and Prior to the Next WMP Update Furthermore, the combined or total impacts of the 2022 WMP mitigations is reflected in the following tables: • Table PG&E-8.1-2: Estimated Total Impact of 2022 WMP Planned Mitigations • QDR Table 11 d. i. This was a mistake we made in the 2023 WMP. This statement was intended to say: "We concluded that none of the mitigation initiatives described in this analysis will completely eliminate any event." The mitigation initiatives arereferring to Undergrounding and MSO Replacement initiatives described in the 2023 WMP. ii. This statement means that mitigation initiatives, Undergrounding or MSO Replacement, described in the 2023 WMP are not sufficient to completely eliminate or reduce the frequency of a PSPS event. However, they can reduce the scope and scale of a PSPS event in the lookback analysis performed for Table 22-35-1.	Tom Long	4/12/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_004.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-35 Quantify Mitigation Benefits of Reducing PSPS Scale, Scope, and Frequency
124	CalPA	Set WMP-14	CalPA_Set WMP-14	1	CalPA_Set WMP-14_Q1	P. 347 of PG&E's WMP4 states (regarding PG&E's undergrounding program), "Among other benefits, the reduced pace (as compared to prior projections) will decrease costs in the initial years of the program." Please list the "other benefits" referenced in the quote above.	There are also additional benefits to reducing the near-term undergrounding mileage targets, including providing more time to drive process improvements that may reduce long term costs and drive long term efficiency of the program.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
125	CalPA	Set WMP-14	CalPA_Set WMP-14	2	CalPA_Set WMP-14_Q2	P. 347 of PG&E's WMP4 states (regarding PG&E's undergrounding program), "Among other benefits, the reduced pace (as compared to prior projections) will decrease costs in the initial years of the program." Please list the "other benefits" referenced in the quote above.	a) No, DTS-FAST does not have the capability to re-energize a line. Currently, DTS-FAST is monitoring only, and is not automatically sending the trip (de-energize) signal to operations until the system has more testing to ensure accuracy. b) DTS-FAST sensor data will report alarm conditions in real time. For example, if vegetation has fallen into the alarm zone and remains (i.e., leaning on the conductor line), the alarm will remain. However, if the vegetation falls away from the alarm zone, then the alarm will clear. Regardless, we will use the video cameras to validate the alarm and take appropriate actions. c) DTS-FAST does not have the capability to re-energize a line, but it will provide data to operations of sensor alarm statuses. In addition, DTS-FAST cameras will provide remote visual awareness of the alarm location. d) We do not currently have enough field data to draw formal conclusions about reliability impacts, but our goal is to ensure the DTS-FAST sensors report accurate wildfire risks with no false alarms	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.6.1	Grid Design and System Hardening	Distribution, Transmission, and Substation: Fire Action Schemes and Technology
126	CalPA	Set WMP-14	CalPA_Set WMP-14	3	CalPA_Set WMP-14_Q3	P. 359 of PG&E's WMP discusses Breakaway Connectors, and states, "The breakaway disconnect uses a weak link to provide a predictable point of separation and the service will then fall to the ground de-energized." a) What is the maximum wind speed that Breakaway Connectors can handle without separating? b) Has PG&E studied whether conditions exist that could cause a temporary fault and minimal or no damage to a non-breakaway connection, but would cause a Breakaway Connector to separate? For example, a small branch falling on the line. c) If the answer to part (b) is yes, please provide any results of such studies. d) If the answer to part (b) is no, does PG&E plan to perform such a study? e) What reliability impacts does PG&E forecast from Breakaway Connector installation? f) Please quantify the ignition risk associated with a Breakaway Connector separating. If this risk has not been quantified, describe the ignition risk in qualitative terms. g) Do Breakaway Connectors increase the likelihood of an EPSS-induced outage? Please explain your answer. h) If the answer to part (g) is yes, please quantify the increased likelihood of an EPSS-induced outage on circuits where Breakaway Connectors are installed.	a) Maximum wind speed is not easily defined. Span length, tension, conductor size and wind direction all influence the maximum wind speed. General Order 95 rule 49.4 Table 8 and 49.4-C3 require Supply service drops to have a minimum strength of #8 soft or annealed copper. This is 479.8 pounds. The service breakaway has two available weak links 500 lbs. for services 75' and shorter. 750 pounds for services longer than 75 feet and up to 150 feet. The pilot location for the service breakaway has experienced three storms with winds exceeding 100 mph with no breakage of the weak links (both links are 750 lbs. due to span length). b) Yes, we have studied these issues. c) Two limb strikes were observed with limbs weighing 125 lbs. and 200 lbs., respectively. No damage was found, and the weak links did not activate. d) Not applicable, please see the response to subpart (b) above. e) We do not expect any reliability impacts. f) No ignition risk is expected by the service breakaway activating. Our tests showed no spark from the breakaway activating at the rated amperage of the conductor. The conductor will fail before the breakaway. g) EPSS is not affected by secondary conductors. It is primary voltage only. h) Not applicable, please see the response to subpart (g) above.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.6.2	Grid Design and System Hardening	Breakaway Connector
127	CalPA	Set WMP-14	CalPA_Set WMP-14	4	CalPA_Set WMP-14_Q4	P. 359 of PG&E's WMP states, "Breakaway disconnect does not impact PSPS Risk." Please state the basis for the above quote.	Breakaway disconnects are used to prevent energized wire down to minimize ignition risk. At this point in time, of the presence of breakaway disconnects is not included in PSPS scoping decisions, therefore, breakaway disconnects do not impact the PSPS risk.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.6.2	Grid Design and System Hardening	Breakaway Connector
128	CalPA	Set WMP-14	CalPA_Set WMP-14	5	CalPA_Set WMP-14_Q5	P. 363 of PG&E's WMP states, "Temporary distribution microgrids are designed to support community resilience and reduce the number of customers impacted by PSPS by energizing 'main street corridors' with clusters of shared services and critical facilities so that those resources can continue serving surrounding residents during PSPS events." a) Please list the temporary distribution microgrids that PG&E had available in 2020, 2021, and 2022 to mitigate the effect of a possible PSPS event. b) For each temporary distribution microgrid listed in part (a), state the number of times the temporary distribution microgrid was used in 2020, 2021, and 2022 to mitigate the effects of a PSPS event. c) For each instance in part (b), list the number of customers that remained energized during a PSPS event. d) How does PG&E determine what locations would warrant deployment of a temporary distribution microgrid? e) How does PG&E determine when to deploy a temporary distribution microgrid? f) How does PG&E determine when to remove a deployed temporary distribution microgrid?	a-c) Responses are summarized in the tables below, by year: 2020: Temporary Distribution Microgrid available to operate in 2020 Number of 2020 PSPS events supported Approx. qty of service pts energized per 2020 PSPS event Shingletown 4 79 Calistoga 3 1554 Placerville (temporary configuration without a pre-installed interconnection hub) 1 487 Clearlake North (temporary configuration without a pre-installed interconnection hub) 0 n/a Clearlake South (temporary configuration without a pre-installed interconnection hub) 0 n/a 2021: Temporary Distribution Microgrid available to operate in 2021 Number of 2021 PSPS events supported Approx. qty of service pts energized per 2021 PSPS event Angwin 1 48 Shingletown 1 83 Calistoga 1 1556 Magalia 1 83 Georgetown 0 n/a Pollock Pines 0 n/a Foresthill 0 n/a Middletown 0 n/a 2022: Temporary Distribution Microgrid available to operate in 2022 Number of 2022 PSPS events supported Approx. qty of service pts energized per 2022 PSPS event Angwin 0 n/a Shingletown 0 n/a Calistoga 0 n/a Magalia 0 n/	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.7.2	Grid Design and System Hardening	Temporary Distribution Microgrids

129	CalPA	Set WMP-14	CalPA_Set WMP-14	6	CalPA_Set WMP-14_Q6	P. 365 of PG&E's WMP states, "The Redwood Coast Airport Microgrid (RCAM) was built through a California Energy Commission EPIC grant to the Schatz Energy Center and loan from United States of America to the Redwood Coast Energy Authority (a Community Choice Aggregator), in collaboration with PG&E's EPIC 3.11, 'Multi-Use Microgrid,' project." a) What was the total cost of the RCAM project? b) Please provide disaggregated costs associated with the RCAM fulfilled in whole or in part by the California Energy Commission EPIC grant, loan(s) from the United States of America, and any other distinct funding sources.	a. PG&E's total costs for the RCAM project were approximately $3.3MM. PG&E does not have the project financials of our project partners. Please contact Schatz Energy Research Center at Cal-Poly Humboldt and Redwood Coast Energy Authority for details on their total project costs and funding sources. b. Of PG&E's total project costs, i. $3,085,000 was funded through CEC's EPIC grant (EPIC 3.11, Multi-Use Microgrid). ii. $224,140 in cost offsets were provided to the Redwood Coast Energy Authority pursuant to the Community Microgrid Enablement Program (CMEP) [D.20-06-017]. iii. PG&E received no loans from the United States of America nor any other funding sources for this project.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.7.3	Grid Design and System Hardening	Community Microgrid Enablement Program and Microgrid Incentive Program
130	CalPA	Set WMP-14	CalPA_Set WMP-14	7	CalPA_Set WMP-14_Q7	P. 365 of PG&E's WMP states, "The successful deployment of RCAM provides a model for other communities for collaborative development of multi-customer microgrids for energy resilience." a) How does PG&E determine the success of the RCAM? b) Please provide data to support the success of the RCAM.	Attachments to this data response contain CONFIDENTIAL information provided pursuant to the Non-Disclosure Agreement in this proceeding. a) Prior to the start of the Project, PG&E defined the following metrics to calculate the full deployment benefits at RCAM: 1. Increase reliability at critical facilities - Post-deployment measurements of outage number, frequency and duration reductions. Below is a summary of the "RCAM Islanding Events" log current as of 4/17/2023. In addition to the frequency and duration of "Outages Avoided", PG&E also tracks frequency and duration of RCAM islanding events which were not a result of Janes Creek 1103 de-energizing and therefore require fine-tuning of the protection scheme configurations that make up the microgrid. These "Nuisance Events" do not impact customer experience or service quality. Nevertheless, PG&E is researching how to reduce this metric. 2. Successful operation of the microgrid in island mode will illustrate resilience benefits which can be scaled to energize wildfire resilience zones during Public Safety Power Shutoff. The Microgrid has performed as expected since it has been placed in operation, providing over 37 hours of incremental resilience to support for critical regional infrastructure and lifesaving activities at the Redwood Coast Airport and U.S. Coast Guard Air Station. Notable islanding events have been in response to a 6.4 magnitude Earthquake on December 20th that hit 39 miles south of the RCAM site and multiple islanding events as a result of a sequence of storms in January and February of this year. We are attaching the after-event retrospectives of the Earthquake "WMP-Discovery2023_DR_CalAdvocates_014-Q007Atch01CONF.pdf" and a presentation PG&E gave to Energy Division on February 6th describing RCAM's performance across a variety of hazards "WMP-Discovery2023_DR_CalAdvocates_014-Q007Atch02.pdf." 3. ATS Power-Hardware-in-the-Loop (PHIL) testing facilities are now capable of verification testing of 3rd party microgrid controllers and DER equipment for compatibility/stability under various microgrid operational schemes. ATS constructed a microgrid testbed facility and completed PHIL Testing for the RCAM project which verified and validated the SEL-3555 microgrid controllers (among other equipment) and evaluated the operational safety and performance. The Final ATS Report describing this work is attached as "WMP-Discovery2023_DR_CalAdvocates_014-Q007Atch03CONF.pdf." 4. The creation of distribution standards enabling scalable deployment of microgrids to support demand for wildfire and natural disaster threats. In fulfilment of this final objective, PG&E has publicly published our Community Microgrid Technical Best Practices Guide which, informed by the work at ATS, describes PG&Es standards and recommendations for third parties to develop Community Microgrids. That guide is available on our website here: Community Microgrid Technical Best Practices (pge.com) b) Please see attachment "WMP-Discovery2023_DR_CalAdvocates_014-Q007Atch04.xlsx" which is the RCAM Islanding Events data log.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	4	N/A	8.1.2.7.3	Grid Design and System Hardening	Community Microgrid Enablement Program and Microgrid Incentive Program
131	CalPA	Set WMP-14	CalPA_Set WMP-14	8	CalPA_Set WMP-14_Q8	P. 369 of PG&E's WMP states, "For 2023, we have planned to install devices that will provide significant reliability benefits on fuse tap lines that are in the scope of EPSS." a) Please quantify the "significant reliability benefits" that will be provided from devices installed in 2023. b) Please provide any available workpapers or studies to support your response to part (a).	a) Significant reliability benefits are projected at 119,000 CESO savings and 14.618 million customer minutes. During EPSS enablement, upstream protective devices are required to see faults beyond fuses to provide a gang trip of all three phases upon a fault condition. This practice nullifies the benefits of traditional line fuse protection. With these additional protective devices installed, protection granularity and corresponding reliability impact can be returned to the tapline or more downstream location where the new protective devices are replacing fuses. As an additional non-EPSS benefit, these devices can also function as traditional reclosers outside of EPSS enablement thereby reducing the occurrence of sustained outages through reclosing. b) Historical outage data was obtained for thousands of existing fuses on EPSS circuits. Outage data was used to prioritize existing fuses and their effect on reliability. Fuses are then replaced with SCADA operable Fuse Savers and Reclosers to realize the reliability benefits outlined in a) of this response. No work paper has been prepared in connection with this reliability benefit calculation.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.8.1	Grid Design and System Hardening	Installation of System Automation Equipment – Distribution Protective Devices
132	CalPA	Set WMP-14	CalPA_Set WMP-14	9	CalPA_Set WMP-14_Q9	P. 385 of PG&E's WMP states that it will perform a "Substation Animal Abatement Effectiveness Study" in 2023. a) When does PG&E expect to begin the Substation Animal Abatement Effectiveness Study? b) When does PG&E expect to complete the Substation Animal Abatement Effectiveness Study?	a) The study was officially kicked off on January 26, 2023. The "P51" team at Electric Power Research Institute (EPRI) was provided with PG&E historical animal contact records, existing and historical animal abatement strategies employed by PG&E, and other pertinent information needed to perform the study. b) The study is expected to conclude by July 18, 2023.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.12.2	Grid Design and System Hardening	Other Technologies and Systems – Substation Animal Abatement
133	CalPA	Set WMP-14	CalPA_Set WMP-14	10	CalPA_Set WMP-14_Q10	P. 393 of PG&E's WMP states, "In 2022 PGE implemented revisions made to TD-2325, which incorporated industry best practices as well as adjusted the pole rejection criteria." Please list the adjustments that PG&E made to the pole rejection criteria.	Please see our current procedure TD-2325P-01 for the requested information: https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/standards-and-procedures/td-2325p-01.pdf The Revision Notes table on page 40 of the document describes in detail the changes that were made compared to the prior version.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.3.1.5	Asset Inspections	Intrusive Pole Inspection
134	CalPA	Set WMP-14	CalPA_Set WMP-14	11	CalPA_Set WMP-14_Q11	P. 400 of PG&E's WMP states, "PG&E designated plat maps as extreme, severe, high, medium, or low based on the average wildfire consequence of the structures within that plat map." a) Is the designation described above based on the wildfire consequence scores from the WDRM v2 or the WDRM v3? b) How frequently does PG&E plan to re-evaluate the plat map designations described above? c) When PG&E re-evaluates the plat map designations, what steps will it take regarding a plat map that has increased in severity, such as from high to severe or severe to extreme?	a) The quote referenced above is based on the wildfire consequence scores from the WDRM v3. b) We plan to review wildfire risk model results annually and evaluate how to update the inspection plan accordingly. c) After we review risk model results each year, we will evaluate whether the plan needs to be adjusted. Updates to the plan may include reassigning a plat map to a different consequence tier or adding individual structures to the inspection plan to account for increased risk or consequence.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.3.2.1	Asset Inspections	Detailed Ground Inspection
135	CalPA	Set WMP-14	CalPA_Set WMP-14	12	CalPA_Set WMP-14_Q12	Table PG&E-8.1.7-6 on p. 458 of PG&E's WMP shows that PG&E added 41,869 distribution work orders to its HFTD/HFRA backlog in 2022. a) What measures has PG&E implemented to ensure that it will be able to reduce its backlog in 2023 by closing more tags than it opens? b) What factors may prevent PG&E from reaching its targets regarding backlog reduction in 2023? c) For each factor in part (b), what measures has PG&E taken to mitigate the risk that this factor will prevent PG&E from reducing its backlog in 2023?	a) In order to ensure we will continue to reduce our backlog of asset tags, as of January 1, 2023, all new HFTD/HFRA tags will be completed by the compliance date. Thus, these tags will be in a "steady state" where this population is no longer growing. In addition to this work, we will continue with the plan set out in our 2022 and 2023 WMPs where we target the HFTD/HFRA tags in our backlog with the highest risk, eliminating first our "non-pole ignition risk tags" then our "pole ignition risk tags," and finally our "non-ignition risk tags." However, while we can forecast the number of new tags that we create every year based on historical data, there are circumstances outside our control, which we identify in the WMP as "External Factors," which may prevent us from being able to close more tags than were opened in a particular year. An excellent example of these types of External Factors would be the unprecedented storms that occurred this winter, and which have substantially delayed some of our inspection work. While we currently forecast being able to get back on course before the end of the year, any future External Factors might prevent us from being able to execute our catch-up plan and irreversibly delay the work this year. b) As explained in our response WMP-Discovery2023_CalAdvocates_010-Q012, and on page 831 of our 2023 WMP, External Factors represent reasonable circumstances which may impact execution against targets, objectives, other work, or performance metrics including, but not limited to, physical conditions, landholder refusals, environmental delays, customer refusals or non-contacts, permitting delays/restrictions, weather conditions, removed or destroyed assets, active wildfire, exceptions or exemptions to regulatory/statutory requirements, and other safety considerations. c) As explained in our response WMP-Discovery2023_CalAdvocates_010-Q012, to mitigate the impacts of physical conditions, we work with our leadership and strategy teams to create solutions specifically tailored to the individual situation. However, despite these efforts, there are times where we must simply await the removal of the external physical condition in order to proceed with work as there is no other reasonable alternative.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.7.2	Open Work Orders	Open Work Orders – Distribution Tags
136	CalPA	Set WMP-14	CalPA_Set WMP-14	13	CalPA_Set WMP-14_Q13	P. 463 of PG&E's WMP states, "EPSS does not cause a power outage." Given that EPSS settings can de-energize a line without prior warning, and without an apparent cause, please explain what is meant by the above quote.	Enhanced Powerline Safety Settings (EPSS) enable capable protective devices on a circuit to operate in 0.1 seconds or less in order to de-energize and isolate affected portion(s) of our distribution system when a fault or abnormal condition is detected that could generate a spark and subsequent wildfire ignition as well as detecting higher impedance faults. Outages that occur when EPSS settings are enabled on protection devices are unplanned and only occur when an external event occurs on the distribution line causing a fault on the circuit. Stated another way, EPSS does not cause outages but rather outages may result from a line being quickly de-energized when a tree, vegetation or other foreign debris makes contact with the EPSS-enabled line. Unknown cause outages – or "outages without an apparent cause" – also occur without EPSS enabled. This does not mean there was not an actual fault condition present. Note that in 2022 PG&E reported 106 of 2,375 EPSS outages as 'Company Initiated'. In these limited instances, devices can trip as a result of switching, in-rush current (e.g., a pump or heavy machinery starting up), or other utility operations while EPSS is enabled. In these instances the outage is reported as 'Company Initiated' and our protection engineers will review the EPSS settings, coordinate with customers, and / or coordinate with the Distribution Control Center to identify design setting adjustments or other corrective actions as appropriate and technically feasible.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
137	CalPA	Set WMP-14	CalPA_Set WMP-14	14	CalPA_Set WMP-14_Q14	Per PG&E's January 2023 EPSS monthly report, PG&E experienced 2,375 EPSS outages in 2022. a) Of the EPSS-triggered outages in 2022, in how many of these outages did PG&E find that no corrective actions were required prior to re-energizing (i.e. there was no persistent condition that PG&E needed to resolve upon inspecting the location of the outage)? b) Were there any EPSS-triggered outages in 2022 that PG&E determined were triggered by events that did not pose an ignition risk? c) If the answer to part (b) is yes, how many such EPSS-triggered outages occurred in 2022?	a) PG&E reported 1,083 unknown cause outages in 2022. Note that while this is indicative that a conclusive corrective action was not identified during the outage patrol and restoration process, it is not indicative of no ignition risk. Our focus during outage patrols and restoration is to restore power as soon as it is safe to do so for our customers and communities. b) Outages that occurred as a result of planned switching or from in rush current (e.g. a pump or heavy machinery start up) are examples of outages that do not present an ignition risk. c) There were 106 of these outages in 2022.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
138	CalPA	Set WMP-14	CalPA_Set WMP-14	15	CalPA_Set WMP-14_Q15	P. 465 of PG&E's WMP states, "In 2022, we expanded the scope of EPSS to all HFRAs in our service territory and select adjacent EPSS buffer areas." a) In 2022, did PG&E expand the scope of EPSS to all HFRAs and all HFTD? b) If PG&E did not expand the scope of EPSS to all HFTD in 2022, please state the basis for this decision. c) In 2023, will the scope of EPSS cover all HFRAs and all HFTD? d) If the answer to part (c) is no, please state the basis for this decision.	a) EPSS capability was extended to 100% of HFRA in 2022. 100% of HFTD was not targeted. b) PG&E's HFRA map is a purpose-built map to inform the Public Safety Power Shutoff (PSPS) and EPSS scoping process by identifying areas in PG&E's service area where overhead electrical infrastructure could be the source of an ignition that results in a catastrophic wildfire and accordingly, is used for EPSS scoping. The processes PG&E used to develop the HFRA were described in PG&E's 2021 and 2022 WMPs. See PG&E's 2021 WMP (June 3, 2021), starting at page 85, and PG&E's 2022 WMP (Feb. 25, 2022), starting at page 75. c) In 2023 EPSS will target 100% of HFRA and select HFRA-adjacent areas, referred to as EPSS Buffer Areas. HFTD is not targeted. d) Please see response to Question 15b.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
139	CalPA	Set WMP-14	CalPA_Set WMP-14	16	CalPA_Set WMP-14_Q16	Cal Advocates understands that a circuit segment that has been undergrounded may still experience PSPS outages, if segments upstream or downstream of the underground circuit segment are subject to PSPS. a) Is the above understanding correct? If not, please correct the above. b) During the 2023-2025 WMP period, does PG&E intend to utilize temporary microgrids or other mitigations to fully eliminate the risk of a PSPS event de-energizing undergrounded lines? c) If the answer to part (b) is no, please explain why not. d) If the answer to part (b) is yes, please describe PG&E's plans.	a) Yes, that statement is correct. While it is unlikely that a downstream segment would affect the underground section, it is possible if there are no available downstream isolation devices. b) In cases where undergrounding segments affected by upstream overhead segments, mitigations such as Temp Microgrids may possibly remove the underground section from scope. However, it may not be feasible to utilize temporary microgrids due to resource constraints, and/or rapid changing weather conditions. c) See response to b. d) See response to b.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	9.1.5	Public Safety Power Shutoff	Performance Metrics Identified by the Electrical Corporation
140	CalPA	Set WMP-14	CalPA_Set WMP-14	17	CalPA_Set WMP-14_Q17	a) Has PG&E performed a study or back cast to predict the likelihood that an undergrounded segment will be subject to PSPS de-energizations due to upstream or downstream segments becoming subject to PSPS? b) If the answer to part (a) is yes, please provide the results of any such studies. c) If the answer to part (a) is no, please explain why not.	a) No, we have not performed a study or back cast mentioned in the question. b) See response to a. c) Projecting likelihood of an underground segment being subject to PSPS is possible but would take significant manual effort. However, back cast weather data was used to analyze the expected reduction in customers affected by PSPS for future underground work.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	9.1.5	Public Safety Power Shutoff	Performance Metrics Identified by the Electrical Corporation
141	CalPA	Set WMP-14	CalPA_Set WMP-14	18	CalPA_Set WMP-14_Q18	a) Has PG&E performed a study or back cast to predict the likelihood that an undergrounded segment will be subject to an EPSS-triggered de-energizations due to upstream or downstream segments becoming subject to EPSS? b) If the answer to part (a) is yes, please provide the results of any such studies. c) If the answer to part (a) is no, please explain why not.	a) We have not performed this type of study. b) Not applicable. Please see the response to subpart a). c) PG&E has not yet performed this type of study because the volume of mileage that has been placed underground is relatively small. The analysis would need to be circuit specific. For this type of study to be more meaningful, a greater number of underground miles would need to be evaluated. It is also important to note that undergrounding occurs on targeted line segments, which often means that other portions of the same circuit remain overhead and would require the protection of EPSS applied to the entire line segment including both UG and OH sections.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
143	CalPA	Set WMP-14	CalPA_Set WMP-14	20	CalPA_Set WMP-14_Q20	a) During the period from 2020-2022, did PG&E replace any distribution poles as part of its WMP activities for which PG&E had not fully recovered the original cost of the pole? b) If the answer to part (a) is yes, what was PG&E's practice regarding cost recovery on the unrecovered portion of the value associated with the replaced pole? c) If the answer to part (a) is yes, please provide the number of such poles that PG&E replaced.	(a) – (c) We cannot provide the requested data. Our asset registry and work execution systems are not set up to enable this cross-referenced data consolidation and we do not track the volume of assets replaced that have not been fully recovered.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.3	Grid Design and System Hardening	Distribution Pole Replacements and Reinforcements
144	CalPA	Set WMP-14	CalPA_Set WMP-14	21	CalPA_Set WMP-14_Q21	a) During the period from 2020-2022, did PG&E replace any distribution conductor as part of its WMP activities for which PG&E had not fully recovered the original cost of the conductor? This may involve undergrounding a previously hardened line, or replacing a bare overhead line with covered conductor. b) If the answer to part (a) is yes, what was PG&E's practice regarding cost recovery on the unrecovered portion of the value associated with the replaced conductor? c) If the answer to part (a) is yes, please provide the number of circuit miles of such conductor that PG&E replaced.	(a) – (c) We cannot provide the requested data. PG&E's asset registry and work execution systems are not set up to enable this cross-referenced data consolidation and we do not track the volume of assets replaced that have not been fully recovered.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.2.5.2	Grid Design and System Hardening	Traditional Overhead Hardening – Distribution
145	CalPA	Set WMP-14	CalPA_Set WMP-14	22	CalPA_Set WMP-14_Q22	a) During the period from 2020-2022, did PG&E replace any distribution transformers as part of its WMP activities for which PG&E had not fully recovered the original cost of the transformer? b) If the answer to part (a) is yes, what was PG&E's practice regarding cost recovery on the unrecovered portion of the value associated with the replaced transformer? c) If the answer to part (a) is yes, please provide the number of such transformers that PG&E replaced.	(a) – (c) We cannot provide the requested data. Our asset registry and work execution systems are not set up to enable this cross-referenced data consolidation and we do not track the volume of assets replaced that have not been fully recovered.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	8.1.4.11	Equipment Maintenance and Repair	Transformers
146	CalPA	Set WMP-14	CalPA_Set WMP-14	23	CalPA_Set WMP-14_Q23	a) In 2022, how many ignitions did PG&E experience related to overhead covered conductor distribution lines? b) In 2022, how many ignitions did PG&E experience related to overhead bare conductor distribution lines? c) In 2022, how many ignitions did PG&E experience related to underground distribution lines?	a) In 2022, PG&E observed 1 CPUC reportable ignition where the equipment type associated with the ignition was insulated distribution primary overhead conductor. b) In 2022, PG&E observed 183 CPUC reportable ignitions where the equipment type associated with the ignition was bare distribution primary overhead conductor. c) In 2022, PG&E observed 1 CPUC reportable ignition where the equipment type associated with the ignition was underground conductor.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-06 – Addressing Increase in Risk Events
147	CalPA	Set WMP-14	CalPA_Set WMP-14	24	CalPA_Set WMP-14_Q24	a) In 2022, how many ignitions did PG&E experience related to overhead secondary distribution lines? b) In 2022, how many ignitions did PG&E experience related to overhead service lines?	a) In 2022, PG&E observed 44 CPUC reportable ignitions associated with overhead secondary facilities. b) In 2022, PG&E observed 54 CPUC reportable ignitions associated with overhead distribution service facilities.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-06 – Addressing Increase in Risk Events
148	CalPA	Set WMP-14	CalPA_Set WMP-14	25	CalPA_Set WMP-14_Q25	P. 89 of PG&E's 2022 Joint Annual Report to Shareholders states: On October 26, 2022, the Utility notified the CPUC that the Utility's procedure for wood pole replacements did not comply with CPUC requirements for replacement of poles under certain conditions and, accordingly, in some instances, the Utility failed to replace wood poles with safety factors below the required minimum.5 a) Please provide a copy of the October 26, 2022 self-report referenced above. b) List the specific non-compliances referenced in the statement, "the Utility's procedure for wood pole replacements did not comply with CPUC requirements for replacement of poles under certain conditions." c) List the specific conditions referenced in the statement, "the Utility's procedure for wood pole replacements did not comply with CPUC requirements for replacement of poles under certain conditions." d) List the corrective actions PG&E has implemented to remediate the non-compliances described in its self-report.	a) Please see "WMP-Discovery2023_DR_CalAdvocates_014-Q025Atch01.pdf" for the requested information. b) The specific referenced non-compliances were with General Order (GO) 95, Rules 12.2 and 44.3. Please see page 1 of "WMP-Discovery2023_DR_CalAdvocates_014-Q025Atch01." c) The specific referenced condition is when both the remaining strength of the pole and the loading on the pole results in a calculated safety factor below the at replacement value specified in rule 44.3. An example of this is described in "WMP-Discovery2023_DR_CalAdvocates_014-Q025Atch01.pdf" starting on page 1. d) "WMP-Discovery2023_DR_CalAdvocates_014-Q025Atch01.pdf" pages 3-4 includes the immediate risk remediation and longer-term corrective actions.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	1	N/A	8.1.2.3	Grid Design and System Hardening	Distribution Pole Replacements and Reinforcements
149	CalPA	Set WMP-14	CalPA_Set WMP-14	26	CalPA_Set WMP-14_Q26	P. 89 of PG&E's 2022 Joint Annual Report to Shareholders states: On December 22, 2022, the Utility submitted an update to the CPUC explaining the Utility had identified a population of wood poles that had not received intrusive inspections in accordance with GO 165's deadlines due to legacy issues, which should no longer be an issue due to changes in Utility procedures. a) Please provide a copy of the December 22, 2022 update referenced above. b) Describe the population of wood poles that had not received intrusive inspections in accordance with GO 165, referenced in the quote above. c) Describe the "legacy issues" referenced in the quote above. d) Describe the "changes in Utility procedures" referenced in the quote above. e) List the corrective actions PG&E has implemented to remediate the issues described in its update to the CPUC.	a) Please see "WMP-Discovery2023_DR_CalAdvocates_014-Q026Atch01.pdf" for the requested information. b) 213 out of the 950 poles sampled (22%) did not have evidence of intrusive inspections within the compliance timeframe. Please see pages 2 through 3 of "WMP-Discovery2023_DR_CalAdvocates_014-Q026Atch01.pdf." c) The legacy issues referenced include eliminating the issues identified with "No Pole" or "Visual Only" records where these inspections were not properly meeting the General Order requirements. Please see pages 1 through 2 of "WMP-Discovery2023_DR_CalAdvocates_014-Q026Atch01.pdf" for additional details. d) The changes in utility procedure include revising procedure TD-2325P-01 to eliminate the option to complete Pole Test & Treat (PT&T) inspections based only on visual inspections. Please see page 3 of "WMP-Discovery2023_DR_CalAdvocates_014-026Atch01.pdf." e) The corrective actions implemented to remediate these issues include those identified in response to Question 25, subpart (d) as well as those listed on pages 3 through 4 of attachment WMP-Discovery2023_DR_CalAdvocates_014-Q026Atch01.pdf.	Holly Wehrman	4/11/2023	4/17/2023	4/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	1	N/A	8.1.2.3	Grid Design and System Hardening	Distribution Pole Replacements and Reinforcements

178	OEIS	002	OEIS_002	1	OEIS_002_Q1	a.Has PG&E used its Targeted Tree Species study to identify additional clearances for and begin inventory of trees with the highest growth and highest failure potential? i.If so, explain the results and how PG&E has and will integrate this knowledge into its VM programs. ii.If not, please explain PG&E's plan to perform this analysis and provide a timeline for completion and operationalization. b.Has PG&E reviewed the Process and Procedures for collecting and enhancing checklists for field inspections and current clearance guidance? i.If so, explain the results and how PG&E has and will integrate this knowledge into its VM programs. ii.If not, please explain PG&E's plan to perform this review and provide a timeline for completion and operationalization. c.Has PG&E evaluated how mid-cycle inspections sequence can be adjusted to align with Areas of Concerns in highest risk regions? i.If so, explain the results and how PG&E has and will integrate this knowledge into its VM programs. ii.If not, please explain PG&E's plan to perform this review and provide a timeline for completion and operationalization. d.Has PG&E evaluated the feasibility of developing a multi-year historical tree data set? i.If so, explain the results and how PG&E has and will integrate this knowledge into its VM programs. ii.If not, please explain PG&E's plan to perform this evaluation and provide a timeline for completion and operationalization.	a. i. No, PG&E has not used its Targeted Tree Species study to identify additional clearances for inventory of trees with the highest growth and highest failure potential and there is currently no plan to begin such an inventory. The Targeted Tree Species Study (TTSS) did not include in its objective any analysis of tree growth rates or make any recommendations on clearances to be obtained at time of tree pruning. ii. PG&E does not have a plan to perform this analysis at this time. b. We are currently reviewing the Process and Procedures for field inspections and current clearance guidance. i. The plan is to complete the review by year end 2023, any updates deemed necessary will be incorporated for operationalization in 2024. ii. See above. This is currently in progress. c. Yes, we began reviewing mid-cycle inspection areas during the development of Areas of Concern in Q4 2022. These reviews supported a proposal and plan to continue refinements to mid-cycle areas through November 30, 2023. Refinements during this time will inform 2024 mid-cycle inspection planning and workplan development. In addition to developing and piloting the Focused Tree Inspection Program in 2023, adjustments to mid-cycle inspection areas and sequencing are anticipated for VM operations beginning in 2024. d. Yes, we have evaluated the feasibility of developing a multi-year historical tree data set. i. We will have multi-year historical tree data with the One VM Tool. The dataset will inform inspectors about previous work on a vegetation point as well as associated clearances. This will also assist with analysis related to tree growth, allowing the inspector to make a well-informed decision regarding a vegetation point needing to be worked.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-24 – Progression of Vegetation Management Maturity
179	OEIS	002	OEIS_002	2	OEIS_002_Q2	a.What are the minimum qualifications for an inspector preforming the tree-risk assessment for the Focused Tree Inspections? b.Why and how did PG&E choose to use the American National Standards Institute (ANSI) A-300 tree risk assessment standard over PG&E's Tree Assessment Tool (TAT) for Focused Tree Inspections? Include a comparison of the benefits and drawbacks of ANSI A-300 and PG&E's TAT.	a) The minimum qualifications for an inspector performing the tree-risk assessment for the Focused Tree Inspection is a Tree Risk Assessment Qualification (TRAQ) through the International Society of Arboriculture (ISA). b) We will utilize the International Society of Arboriculture (ISA) Basic Tree Risk Assessment Form for the Focused Tree Inspections. The Basic Tree Risk Assessment Form is provided with the ISA Tree Risk Assessment Manual, which is based on ANSI A-300. We utilized industry standards, regulatory guidance, and existing commitments in the decision to select ANSI A-300 as a beneficial framework as guidance for the FTI program. • ANSI A-300 is an industry wide standard that was created independent of PG&E with decades of proven usage in the field and research employed. • A300 is called out for use and guidance in California Power Line Fire Prevention Field Guide (2021 EDITION). • Recommended Changes to the CPUC's General Orders on Page#11 of Envista Forensic, Inc dated July 6, 2022. • "Modification of GO 95, Rule 35 to emphasize safety, reliability and hazard tree assessment that would direct and enable electric utilities to better focus on the root cause of tree-related fires by requiring utilities to use the following standards and best management practices: • ANSI-A300 (Part 9) Tree Risk Assessment a. Tree Failure American National Standards for Tree Care Operations–Tree, Shrub, and other Woody Plant Management–Standard Practices (Tree Risk Assessment a. Tree Failure) Latest Edition • International Society of Arboriculture's Best Management Practices Utility Tree Risk Assessment Practices Edition 2020" The ISA Tree Risk Assessment Qualification provides an industry accepted tree risk assessment methodology that benefits by being supported by a qualification program designed to train and assess candidates in a specialized field of arboriculture. The TRAQ also has pre-requisites for candidates to be eligible to apply for the TRAQ course. The TAT was built specifically for the EVM program at PG&E and was not consistent with industry standards. The TAT also did not have the same level of pre-requisites or level of training and assessment as does the TRAQ.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
180	OEIS	002	OEIS_002	3	OEIS_002_Q3	On page 621, PG&E references its Company Emergency Response Plan (CERP). Provide an unredacted version of the CERP and all annexes.	The confidential attachments are being provided pursuant to the accompanying confidentiality declaration. a. Please see attachment "WMP-Discovery2023_DR_OEIS_002-Q003Atch01CONF.pdf" for a unredacted version of our CERP. Please see attachments "WMP-Discovery2023_DR_OEIS_002-Q003Atch02CONF.pdf" and "WMP-Discovery2023_DR_OEIS_002-Q003Atch03CONF.pdf" for our unredacted Wildfire Annex and PSPS Annex, respectively.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	3	N/A	8.4.1	Emergency Preparedness	Overview
181	OEIS	002	OEIS_002	4	OEIS_002_Q4	a.On page 567, PG&E references the weather stations deployed over their 70,000 square mile territory for monitoring conditions. i.Provide the instillation standard that all PG&E weather stations are installed to. Include height from ground, direction of cross-arm, and which side of the pole/tower they are installed on. b.On page 570, PG&E references the maintenance for their weather stations and calibrations preformed to "our standard". i.Provide the PG&E specific standard that is being referenced for the calibrations as compared to the manufactures standards. ii.Provide the total number of stations that are serviced annually over the past 3 years, and the maintenance preformed on each station. iii.Provide the total number of stations not serviced annually over the past 3 years due to "remoteness of location" and "weather conditions". iv.Provide the estimated life span of each sensor and the replacement cycle for each	a. i. Please see the attachment "WMP-Discovery2023_DR_OEIS_002-Q004Atch01CONF.pdf" for the requested information. b. i. Please see the attachment "WMP-Discovery2023_DR_OEIS_002-Q004Atch01 Atch02CONF.pdf" for the requested information. We developed our calibration procedure in coordination with Western Weather Group, who provides guidance on calibration and maintenance cycles. ii. Over the last 3 years, 611 out of 622 stations were calibrated in 2020, 981 out of 991 stations in 2021, and 1297 out of 1315 stations in 2022. The remainder of these stations were not able to be serviced due to External Factors such as customer refusals, environmental-concern related refusals, weather conditions, and safety issues. We are unable to provide the historical maintenance performed on each station but—based on historical data—we forecast 30% of our weather stations to have an incident-ticket issued per year. This is corrective maintenance as opposed to preventive (calibration) maintenance. During preventative maintenance (calibrations), technicians are instructed to inspect the weather station for issues such as missing or damaged hardware and equipment. They are also instructed to document weather station information, perform tests on equipment, upgrade software, and replace any equipment that is not working correctly. iii. Over the last 3 years, 6 weather stations could not be calibrated in 2021 and 3 in 2022 due to the remoteness of the location and weather conditions. iv. Below is a table with estimated life span for weather station equipment. This was provided by our partner, Western Weather Group.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	2	N/A	8.3.2.1	Situational Awareness and Forecasting	Existing Systems, Technologies, and Procedures
182	OEIS	002	OEIS_002	5	OEIS_002_Q5	Please provide an Excel version of Table 7-4: Summary of Risk Reduction for Top Risk Circuit Segments from PG&E's 2023 WMP.	In reviewing this request, we discovered that some of the information in Table 7-4 is incorrect. We have corrected it in response to this discovery request. We will reach out to discuss this update and making corrections to the WMP pursuant to Energy Safety's Guidelines. Please see WMP attachment "WMP-Discovery2023_DR_OEIS_002-Q005Atch01.xlsx."	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	1	N/A	7.2.2.3	Wildfire Mitigation Strategy Development	Projected Risk Reduction on Highest-Risk Circuits Over the 3-Year WMP Cycle
183	OEIS	002	OEIS_002	6	OEIS_002_Q6	Under Section 8.1.2.8, PG&E only includes additional information for distribution protective devices. What program(s) does PG&E currently have for system automation equipment at the transmission level?	As indicated in Section 8.1.8.1.2 of the 2023-2025 WMP, on the transmission system, auto reclosing is disabled for the entire wildfire season when the FPI rating reaches R3 or greater. In addition, in Section 9.2.1, we explained how our Transmission Asset Health Specialist reviews the system to identify if there are low impact lines that do not meet our PSPS scoping criteria (e.g. Asset health, Vegetation Risk, Wildfire Consequence) but can be deenergized without incremental impact to customers or other adverse effects to the grid. In addition, we have implemented EPSS on some transmission lines and are evaluating expanding EPSS protection or other enhanced protection schemes on additional transmission lines.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	0	N/A	8.1.2.9.1	Grid Design and System Hardening	T Line removal (in HFTD) - Transmission
184	OEIS	002	OEIS_002	7	OEIS_002_Q7	a.Provide a definition for PG&E's "Critical Pass Rate" for its asset inspection QC, as shown in Table PG&E-22-21-1. This should include criteria for what qualifies as "critical" including any risk thresholds, associated equipment-types, or other relevant determinations. b.Does "Critical Pass Rate" differ from the "QA Review HFTD Pass Rate" provided in Table RN-PG&E-22-08-05 in response to Critical Issue RN-PG&E-22-08 (f)? If not, describe how the two differ. c.Does "Critical Pass Rate" differ from the inverse of the "QC Review HFTD – Failure Rate" provided in Table RN-PG&E-22-08-04 in response to Critical Issue RN-PG&E-22-08 (f)? If not, describe how the two differ.	a. "Critical Pass Rate" is the number of assets reviewed by QC that did not have a Critical Attribute (as defined by Asset Strategy) failure or miss divided by the number of assets reviewed by QC. This is shown as a percentage. A Critical Attribute is defined as: a condition that could lead to either an ignition point or wire down situation that could result in a potential fire ignition. b. "Critical Pass Rate" does not differ from "QA Review HFTD Pass Rate." Critical attributes are defined by Asset Strategy. c. "Critical Pass Rate" is not the inverse of "QC Review HFTD-Failure Rate." These items differ because "Critical Pass Rate" only looks at Critical Attributes as defined by Asset Strategy, whereas "QC Review HFTD-Failure Rate" is a measure of all errors within the QC review checklist, not just Critical Attributes. "QC Review HFTD Failure Rate" is the number of reviews completed by QC that have at least one QC finding divided by the total number of reviews completed by QC and is displayed as a percentage.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22--21 Asset Inspections Quality Assurance and Quality Control ACI PG&E-22--08 Better Application of Specific Lessons Learned from Utility-Caused Fires
185	OEIS	002	OEIS_002	8	OEIS_002_Q8	a.How many ignitions were evaluated via PG&E's EIA program in 2021, 2022, and 2023 (if applicable) respectively? b.When would PG&E perform an EIA? c.Provide an example of an ignition PG&E performed EIA for, including supporting documentation and reports as applicable. d.Via Excel format, provide the following information for each ignition in which PG&E performed an EIA, following the same definitions as Table 6 of the QDR: i.CPZ in which ignition occurred ii.HFTD Tier iii.Date of ignition iv.Qualifier for performing EIA (HFTD tier, EPSS protected facility, etc.) v.Metric type vi.Ignition driver vii.Line type viii. Summary/detail on the cause of ignition as identified via EIA	a. We completed EIA evaluative actions for 118 ignitions in 2021; we established the EIA program in 2021 and the scope/breadth of these evaluations may vary. Under the EIA program, we completed 147 ignition evaluations in 2022, and 17 ignition evaluations year-to-date in 2023. b. As outlined in our Utility Procedure: RISK-6306P-02 Fire Incident Enhanced Ignition Analysis Procedure (first published in September 2022), ignitions with these conditions meet EIA criteria: • PG&E Facility Ignitions in a High Fire Risk Area (HFRA) or High Fire Threat District (HFTD) Note: Facility ignitions caused by insulator tracking that do not result in a CPUC reportable ignition will not be included in-scope for Enhanced Ignition Analysis. • Ignitions on an Enhanced Powerline Safety Settings (EPSS) enabled circuit protection zone (CPZ) • All CPUC Reportable Transmission and Substation Ignitions The EIA Program may not perform some or all of the activities described in the above-mentioned Procedure if the ignition investigation is being performed under the direction of counsel. c. We are attaching three reports associated with ignition #20220450 as an example of typical EIA work products. 1. WMP-Discovery2023_DR_OEIS_002-Q008Atch01CONF.pdf; 2. WMP-Discovery2023_DR_OEIS_002-Q008Atch02.pdf; and 3. WMP-Discovery2023_DR_OEIS_002-Q008Atch03CONF.pdf This ignition occurred on April 18th, 2022 because of an improperly installed connection device. As a result of this fire, we proactively replaced additional connection devices and jumpers from the incident circuit, and are in the process of revising guidance documents related to connection device installation methods. The reports include the following: (1) A Preliminary Ignition Investigation Report [PIIR] with event details and location history, (2) material analysis report produced by Applied Technology Services department [ATS] identifying the suspected failure mode, and (3) an Extent of Condition Report produced by our Asset Strategy department related to corrective and evaluative actions associated with that failure mode. d. Please see "WMP-Discovery2023_DR_OEIS_002-Q008Atch04.xlsx" for table of ignitions where PG&E has completed EIA related evaluative actions. Note the following: 1. The list contains events where CPUC reportability may not have been met and ignitions where the suspected cause of the fire was not PG&E assets through the EIA process. We added CPUC reportability to the attached table for reference. 2. We used the data schema from the 2023 Q1 QDR Table 6 template for 'Metric Type' and 'Ignition Driver'. 3. Given the volume of ignitions, we are not able to provide a summary of each event in the allotted time to respond to this data request. Given additional time, we could review each incident and provide a short description of the event upon request.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	4	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22--08 Better Application of Specific Lessons Learned from Utility-Caused Fires
186	OEIS	002	OEIS_002	9	OEIS_002_Q9	a.Provide the definitions for the EPSS Outage Types under Column J for the tab labeled "2022 EPSS Outage Data". b.What analysis has PG&E performed on EPSS-caused outages to determine which outages would have led to an ignition? c.What percentage of EPSS-caused outages since the establishment of the EPSS program would have led to an ignition had EPSS not been enabled? d.Broken down by year since establishment of the EPSS program, how many ignitions have occurred on EPSS-enabled circuits while EPSS was enabled at the time of ignition? e.Broken down by year since establishment of the EPSS program, how many ignitions have occurred on EPSS-enabled circuits while EPSS was not enabled at the time of ignition? f.In PG&E's response to RN-PG&E-22-12, PG&E provided additional reliability measures in Table RN-PG&E-22-12-05: EPSS System Reliability Remediations & Correction Actions, such as targeted equipment repairs. Is PG&E still using all of the identified reliability measures within this table? If not, provide a list of reliability measures PG&E is no longer using, as well as an explanation as to why it is no longer being used. g.Provide the GIS file for Figure PG&E-22-32-1: Circuits by Number of EPSS Outages. h.Provide an updated Excel version of 2023-03-27_PGE_2023_WMP_R0_Appendix D ACI PG&E-22-32_Atch01 with additional columns on the tab labeled "2022 CPZ Data": i.Whether or not the CPZ qualifies for additional mitigations based on the results of the study ii.The mitigation type(s) being used on the CPZ as a result (vegetation management, installation of animal guards, etc.)	a. The table below defines each of the four (4) values appearing in column "J" of the spreadsheet PG&E provided. EPSS Outage Type FTS "Fast Trip Setting"; Post-Optimized Circuit Settings HLT "Hot Line Tag"; Pre-Optimized Circuit Settings T-EPSS "Transmission"-EPSS; EPSS outages on transmission lines C/OUT "Reclosing Cut-out"; Only subject to reclose blocking b. EPSS does not cause outages. Any time there is a fault condition on powerlines, there is an inherent risk of sparks and/or thermal energy dissipation from that fault condition leading to a potential wildfire ignition. Those conditions have been simulated in a laboratory environment to both demonstrate that a fault condition can ignite vegetation as well as demonstrate that de-energization of the line with EPSS significantly reduces the fault energy and associated sparks contacting the vegetation. It is acknowledged that certain fault types may not present as high of a risk of wildfire ignition. An example of this could be an underground cable fault within a mixed overhead and underground system protected by a common protective device. Out of the total outages experienced during EPSS enablement only a small fraction of the outages could be characterized as having a low ignition potential. c. More than 95% of outages that occurred in 2022 while EPSS protection was enabled presented a potential ignition risk. d. In 2021, there were five Reportable Fire Ignitions (RFIs) in HFTD on circuits enabled with EPSS over the time period of July 28th – October 20th when the EPSS pilot was implemented on 170 circuits. In 2022, there were thirty-one RFIs on EPSS-enabled circuits in HFTD over the time period of May 20th – Oct 26th. There have been 0 ignitions with EPSS enabled in 2023 year to date. e. We understand this question to be asking about RFIs that occurred downstream of an EPSS capable device when EPSS was not enabled. In 2021, there were 2 RFIs in HFTD downstream of an EPSS capable device that was not EPSS enabled; in 2022, there were 23 RFIs in HFTD downstream of an EPSS capable device that was not EPSS enabled, and in 2023 year to date there have been 9. f. Yes. g. GIS file is attached/included "WMP-Discovery2023_DR_OEIS_002-Q009Atch01CONF.kmz" (in KMZ format). Please note a redacted version of the requested document is not being provided because it could not be reasonably redacted. h. The updated excel version of "WMP-Discovery2023_DR_OEIS_002-Q009Atch02.xlsx" includes two additional columns as requested. These columns outline what CPZs are being scoped for additional reliability mitigations in column X. These reliability mitigations are scoped to the CPZ where they will have the greatest impact based on the mitigation and the reliability history.	Colin Lang	4/13/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-32 – Updates on EPSS Reliability Study
103	CalPA	Set WMP-12	CalPA_Set WMP-12	1 SUPP	CalPA_Set WMP-12_Q1 SUPP	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, the column "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" is blank for the following distribution circuit Entry Numbers: 7, 8, 11, 15, 17, 18, 28, 29, 30, 36, 37, 38, 39, 47, 55, 62, 63, 70, 71, 97, 105, 111, 112, 120, 122, 125, 126, 148, 151, 153, 163, 178, 179, 183: a) For each of the above Entry Numbers, please explain why "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" are blank. b) For each of the above Entry Numbers, please state whether PG&E plans to take any measures during the 2023-2025 WMP period to reduce the need for and impact of future PSPS on that circuit. c) For each item in part (b) where PG&E does not plan to take any measures to reduce the need for an impact of future PSPS on that circuit, please state the basis for this decision.	We have updated our List of Frequently De-energized Circuits based on the errors found in our review. The Entry Numbers listed above may not reflect the latest circuits that are mitigated by PSPS protocols. Please see attachment "WMPDiscovery2023_DR_CalAdvocates_012-Q001Supp01Atch01.xlsx" for the updated List of Frequently De-energized Circuits. a) After updating our table, eight distribution circuits have no PSPS Mitigation Measures taken or planned to be taken. These have been marked with "No PSPS Mitigation Measures taken or planned to be taken, see footnotes below for explanation" instead of a blank cell to avoid confusion. Other than mitigations stated in the Frequently De-energized Table, PG&E plans to implement in-event alternatives such as remediation of asset and vegetation tags, and potential use of temporary generation where possible that could reduce customer impact. b) See response (a). c) See response (a).	Holly Wehrman	4/6/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	1	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
104	CalPA	Set WMP-12	CalPA_Set WMP-12	2 SUPP	CalPA_Set WMP-12_Q2 SUPP	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, the column "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" is blank for the following transmission circuit Entry Numbers: 200, 227 a) For each of the above Entry Numbers, please explain why "Measures Taken, or Planned to Be Taken, to Reduce the Need for and Impact of Future PSPS of Circuit" are blank. b) For each of the above Entry Numbers, please state whether PG&E plans to take any measures during the 2023-2025 WMP period to reduce the need for and impact of future PSPS on that circuit. c) For each item in part (b) where PG&E does not plan to take any measures to reduce the need for an impact of future PSPS on that circuit, please state the basis for this decision	We have updated our List of Frequently De-energized Circuits based on the errors found in our review. The Entry Numbers listed above may not reflect the latest circuits that are mitigated by PSPS protocols. Please see attachment "WMPDiscovery2023_DR_CalAdvocates_012-Q001Supp01Atch01.xlsx" for the updated List of Frequently De-energized Circuits. a) After updating our table, one transmission line has no PSPS Mitigation Measures taken or planned to be taken. This line has been marked with "No PSPS Mitigation Measures taken or planned to be taken, see footnotes below for explanation" instead of a blank cell to avoid confusion. Other than mitigations stated in the Frequently De-energized Table, PG&E plans to implement in-event alternatives such as remediation of asset and vegetation tags, and potential use of temporary generation where possible that could reduce customer impact.	Holly Wehrman	4/6/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
106	CalPA	Set WMP-12	CalPA_Set WMP-12	4 SUPP	CalPA_Set WMP-12_Q4 SUPP	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, distribution circuit Entry Numbers: 3, 4, 6, 13, 14, 19, 20, 21, 22, 23, 24, 25, 26, 27, 32, 35, 49, 50, 51, 52, 53, 60, 61, 64, 65, 66, 67, 68, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 84, 85, 91, 94, 96, 99, 100, 101, 102, 104, 106, 107, 108, 109, 114, 115, 116, 123, 124, 127, 128, 129, 130, 132, 137, 139, 140, 142, 145, 147, 149, 150, 154, 158, 159, 164, 165, 168, 170, 171, 173, 180, 181, 182, 184, 186, 188, 189, 191 a) Please describe the PSPS protocols referenced in these Entry Numbers. b) Please explain how customers were "Mitigated by PSPS protocols." c) Please state how many customers benefited from mitigation by PSPS protocols in past events. d) State whether the customers referenced in part (c) benefited because they were not de energized or because they had reduced impacts from PSPS. e) Please state how many customers PG&E expects to benefit in the future due to mitigation by PSPS protocols. f) State whether the customers referenced in part (e) will benefit because they will not be de energized or because they will have reduced impacts from PSPS.	We have updated our List of Frequently De-energized Circuits based on the errors found in our review. The entries listed above may not reflect the latest circuits that are mitigated by PSPS protocols. Please see attachment "WMPDiscovery2023_DR_CalAdvocates_012-Q001Supp01Atch01.xlsx" for the updated List of Frequently De-energized Circuits. a) Please refer to Section 9.2 Protocols on PSPS beginning on p. 766 for Distribution. b) PG&E's current PSPS Protocols were updated compared to PSPS Protocols from previous years. Based on our current PSPS Protocols, our scoping improved and some of the circuits would not have been de energized or would have fewer customers impacted than for certain past PSPS events. c) 565,826 Distribution customer-events would have been mitigated by current PSPS protocols from 2019-2022. This calculation is based on a comparison of historical PSPS events and the 2022 PSPS Five-Year Lookback Analysis, which applies current PSPS protocols to the weather conditions present in 2018-2022. This comparison excludes 2018 because PG&E's historical PSPS events only occurred in the later part of 2018. The total number of mitigated customer-events is calculated as a net value: if some circuits would increase customer impacts due to PSPS protocols, the impacted customerevents would lower the total mitigated customer count reported here. "Customer-events" refers to the count of customer impacts over the Five-Year Lookback. If the same customer is mitigated from PSPS for three PSPS events in the Five-Year Lookback, this is reported as "three customer-events mitigated" instead of "one unique customer mitigated". d) Customers referenced in part (c) benefited because they would not have been deenergized for certain past PSPS events based on the current PSPS Protocols. Some of these customers may still be de-energized in other PSPS events in the years compared for this analysis but saw a decrease in the number of PSPS event impacts. e) The number of customers mitigated in each PSPS event by PSPS Protocols depends on a look back analysis, updated PSPS Protocols, and the weather conditions seen during that PSPS event. Until we make enhancements to our protocols, we are not able to calculate future customers mitigated. See SA-04, SA-05, SA-06, PS-02, and PS-04 for additional details on evaluation of enhancements to PSPS protocols. f) See response (e).	Holly Wehrman	4/6/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits

107	CalPA	Set WMP-12	CalPA_Set WMP-12	5 SUPP	CalPA_Set WMP-12_Q5 SUPP	Regarding Table 9-2 (Lists of Frequently De-energized Circuits) in Appendix F of PG&E's WMP, transmission circuit Entry Numbers: 193, 195, 197, 198, 199, 201, 202, 203, 204, 205, 206, 208, 209, 210, 211, 212, 213, 215, 217, 218, 219, 221, 222, 223, 224, 226, 228, 231, 232, 233, 234, 235, 236 a) Please describe the PSPS protocols referenced in these Entry Numbers. b) Please explain how customers were "Mitigated by PSPS protocols." c) Please state how many customers benefited from mitigation by PSPS protocols in past events. d) State whether the customers referenced in part (c) benefited because they were not de-energized or because they had reduced impacts from PSPS. e) Please state how many customers PG&E expects to benefit in the future due to mitigation by PSPS protocols. f) State whether the customers referenced in part (e) will benefit because they will not be de-energized or because they will have reduced impacts from PSPS.	We have updated our List of Frequently De-energized Circuits based on the errors found in our review. The entries listed above may not reflect the latest circuits that are mitigated by PSPS protocols. Please see attachment "WMPDiscovery2023_DR_CalAdvocates_012-Q001Supp01Atch01.xlsx" for the updated List of Frequently De-energized Circuits. a) Please refer to Section 9.2 Protocols on PSPS beginning on p. 773 for Transmission. b) See response to 4b. c) 34 Transmission customer-events would have been mitigated by current PSPS protocols from 2019-2022. This calculation is based on a comparison of historical PSPS events and the 2022 PSPS Five-Year Lookback Analysis, which applies the current PSPS protocols to the weather conditions present in 2018-2022. This comparison excludes 2018 because PG&E's historical PSPS events only occurred in the later part of 2018. The number of mitigated customer-events is calculated as a net value: if some circuits would have seen higher customer impacts due to PSPS protocols, the increase in impacted customer-events would have been subtracted from the mitigated customer count reported here. "Customer-events" refers to the count of customer impacts over the Five-Year Lookback. If the same customer is mitigated from PSPS for three PSPS events in the Five-Year Lookback, this is reported as "three customer-events mitigated" instead of "one unique customer mitigated". d) See response to 4d. e) See response to 4e. f) See response to 4e.	Holly Wehrman	4/6/2023	4/18/2023	4/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_012.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
188	TURN	005	TURN_005	1	TURN_005_Q1	1.Please provide any decision tree schematic in PG&E's possession that shows, for a given location where PG&E believes that system hardening is necessary, how PG&E decides which mitigation technique to use – i.e., undergrounding, covered conductor, remote grid installation, etc. – including without limitation the criteria that PG&E uses to select the mitigation technique for that location. Please provide a narrative explanation of what the decision tree schematic shows.	PG&E has used three relevant decision trees to scope work for System Hardening: (1) System Hardening, (2) Targeted Undergrounding, and (3) Fire Rebuild taking place in an HFTD. Before the Targeted 10K UG program, PG&E predominantly used the System Hardening (see attachment WMP-Discovery2023_DR_TURN_005-Q001Atch03) and Fire Rebuild Decision trees (see attachment WMP-Discovery2023_DR_TURN_005-Q001Atch02) to scope work. Most of the system hardening work in 2023 was scoped using these decision trees. Since late 2021, PG&E has completed most of our new planned scoping using a Targeted Undergrounding decision tree (see attachment WMP-Discovery2023_DR_TURN_005-Q001Atch01) after line removal is considered (if feasible). If undergrounding is ultimately determined to be infeasible, we typically proceed with overhead covered conductor. Since our current scoping efforts primarily utilize the Targeted undergrounding decision tree, and the fire rebuild decision tree (where appropriate), we provide additional context regarding those trees below in response to this request. The primary approach for selecting undergrounding miles used two risk prioritization methodologies: (1) Top 20 percent circuit segments based on the 2021 WDRM v2; and (2) the Wildfire Feasibility Efficiency (WFE)-ranked circuit segments based on the 2022 WDRM v3 and considering undergrounding feasibility. Both approaches used to select undergrounding projects represent approximately 70 percent of our total wildfire risk. Please see attachment "WMP-Discovery2023_DR_TURN_005-Q001Atch01.pdf." This decision tree reflects the process we followed to further analyze our highest risk undergrounding circuits included in the WMP. The process, as shown on the decision tree attachment and described below, is split into four key phases. 1. Circuit Segment Risk Ranking (purple box): First prioritize circuit segments in the locations where wildfire risk is the highest based on the latest wildfire distribution risk model (currently WDRM v3). 2. Circuit Selection Prioritization Process (blue boxes): Then identify potential environmental conditions that impact feasibility of undergrounding (water crossing, rock type, gradient), and calculate wildfire feasibility efficiency (WFE) by circuit segment to prioritize undergrounding in the locations where WFE is the highest. 3. Feasibility Study (green boxes): First, we confirm the segment identified is not already completed or included in existing work. Then, engineering review identifies opportunities to improve efficiencies and mitigate additional impacts, including adjusting the project to mitigate PSPS or EPSS impacts, determining if undergrounding is unfeasible (if so, identifying alternatives such as overhead, remote grid or hybrid), and confirming if there are any recent changes to the electric assets. 4. Field Scoping (orange boxes): Field scoping then takes place, which is focused on identifying impediments to the proposed project route and determining if a route or scope change is needed. If so, an alternative route is developed. Then, we sequence bundled miles and begin the planning phase of work. We also have a decision tree for undergrounding during emergency response, set forth in standard EMER-4004S. This standard describes the required actions that must be taken while performing system hardening during emergency response. Please reference "WMP-Discovery2023_DR_TURN_005-Q001Atch02.pdf" for the referenced decision tree. The following scenarios are considered as shown in the Fire Rebuild Decision Tree included in "WMP-Discovery2023_DR_TURN_005-Q001Atch02.pdf." 1. Consider for Line Removal – If the facility is idle or redundant the line is removed. 2. Consider for Remote Grid/Buyout – If it is determined that the line serves isolated customers or a small group of customers that could be served through temporary generation, we consider remote grid or buyout. 3. Consider for Hardening – Where feasible, undergrounding is our preferred mitigation. If it is infeasible, we consider other hardening options.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	3	N/A	8.1.2	Grid Design and System Hardening	ALL
189	TURN	005	TURN_005	2	TURN_005_Q2	2.If the response to question 1 is that PG&E has no such decision tree schematic, then please describe the process that PG&E uses to decide, for a given location, which mitigation technique to use – i.e., undergrounding, covered conductor, remote grid installation, etc. – including without limitation the criteria that PG&E uses to select the mitigation technique for that location.	Not applicable. PG&E has a decision tree. Please see our response to TURN_005-Q001.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	0	N/A	8.1.2	Grid Design and System Hardening	ALL
190	TURN	005	TURN_005	3	TURN_005_Q3	3.In choosing among alternative system hardening mitigation techniques – i.e., undergrounding, covered conductor, remote grid installation, etc. – for a given location, please explain how PG&E takes into account the execution and schedule risks associated with undergrounding compared to other alternatives. PG&E discusses those risks in its 2023-2025 WMP at pages 344-346. They were also discussed in PG&E's Revised 2021 WMP (version dated 6/30/21) at pages 600-601 (Section 7.3.3.17.1, Subsection 3)(b)), where PG&E uses the terms "execution risk" and "schedule risk."	During the field scoping process, the team reviews all high-impact dependencies that could extend the execution. During review, we evaluate alternative undergrounding routes to avoid such impacts, design decisions that could mitigate that risk, and the steps we can take to work with the applicable agencies to address potential scheduling and execution risk issues (e.g., permitting and land rights). Our current strategy is to plan for potential schedule and execution risks and work with agency partners to remove roadblocks where encountered. If there is a location where undergrounding is infeasible that we cannot solve through relocation, or other mitigation measures, then other design alternatives (e.g., covered conductor) may be considered later in the design stage.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	0	N/A	8.1.2	Grid Design and System Hardening	ALL
191	TURN	005	TURN_005	4	TURN_005_Q4	4.For the undergrounding work described in PG&E's 2023-2025 WMP, please describe PG&E's policy concerning undergrounding of service connections and the removal of poles on which service connections are attached. To the extent that this determination varies by project, please describe the criteria that PG&E uses to decide whether PG&E undergrounds service connections in a given location.	Our 10,000-mile undergrounding program is focused on undergrounding higher-voltage primary distribution powerlines in areas of high fire risk. While there is a degree of risk anywhere there are energized overhead facilities, historically, we have observed more frequent ignitions and larger wildfires associated with the overhead primary distribution powerlines. This is compared to lower voltage secondary distribution lines, service connections, and high voltage transmission lines. At this time, we are not undergrounding lower voltage secondary lines or service drops to address risk. In most cases overhead lower voltage secondary lines and service drops will remain overhead. There are some cases in which we may underground secondary powerlines, such as when lines run parallel to the trench path or for constructability reasons. In these special cases, the poles attached to the secondary lines will be removed. We will overhead harden remaining secondary and service lines by replacing open-wire secondary, gray services, and tree-connects with the current standard covered aerial conductor. We have also recently started to apply "breakaway" connectors to our standard construction system-wide to help mitigate any residual risk on the service and secondary wire. Poles will remain in these instances to continue to support the remaining service/secondary wire and any communication lines remaining on those poles.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
192	TURN	005	TURN_005	5	TURN_005_Q5	5.For the undergrounding work described in PG&E's 2023-2025 WMP, please describe PG&E's policy concerning undergrounding of secondary distribution lines (as opposed to primary lines) and the removal of poles on which secondary lines are attached. To the extent that this determination varies by project, please describe the criteria that PG&E uses to decide whether PG&E undergrounds secondary lines in a given location.	Please see response to TURN_005-Q004, which includes our policy as it relates to secondary distribution lines.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
193	TURN	005	TURN_005	6	TURN_005_Q6	For the distribution circuits on which PG&E plans System Hardening undergrounding (as opposed to Rebuild undergrounding) as that term is used in PG&E's WMP (see, e.g., Table PG&E-8.1.2-2 on page 347), please provide PG&E's best estimate of the percentage of existing poles in the affected circuits (including poles supporting primary lines, secondary lines, and services) that will be removed as a result of the planned System Hardening undergrounding mileage in 2023-2025. Please explain how PG&E made this calculation and provide all inputs and assumptions.	PG&E does not currently track the existing poles that will be removed by undergrounded circuits. The analysis would require manual review at the individual project level and would include: • Determining the poles that are to be removed • Determining the poles that will be topped • Determining the poles that are jointly owned and will remain after undergrounding In the absence of any material data on this front, PG&E does not have an estimate available for the "percentage of existing poles in the affected circuits" to provide in response to this request at this time. Even if historical data was available, PG&E expects that the number of poles that will be removed will vary substantially from one project to the next based on many factors including: the presence of joint pole utilities (like telecom lines) who would need to maintain the poles and the density of homes and services which would have service poles remaining. In addition, our UG workplan submitted with the WMP includes miles that exceed our annual targets to account for unforeseen delays related to factors such as access, weather, permitting, land rights acquisition, materials or other constraints that may be experienced during the project lifecycle.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
194	TURN	005	TURN_005	7	TURN_005_Q7	7.With respect to the values for 2023-2025 in the column for Estimated System Hardening Undergrounding Miles in Table PG&E-8.1.2-2 on page 347 of PG&E's 2023-2025 WMP: a.For each year, please provide PG&E's estimate of the overhead circuit miles that will be replaced and explain how this estimate was determined; b.For the figures provided in response to subpart "a", please provide an estimated breakdown of the overhead circuit miles replaced by: primary lines, secondary lines, and services.	a. Based on subject matter expertise and a sample of completed projects, the estimated overhead to undergrounding conversion rate is 1.25 miles of underground line installed for every 1 mile of overhead primary line removed. Our target undergrounding miles for 2023-2026 is 2,100 miles. Using the estimated conversion rate, the overhead primary miles removed is projected to be approximately 1,680 miles. b. The estimate provided in part a is for the primary lines only. This information is not available for secondary and service lines. As described in TURN_005-Q004, at this time, we are not undergrounding lower voltage secondary lines or service drops to address risk. In most cases overhead lower voltage secondary lines and service drops will remain overhead. There are some cases in which we may underground secondary powerlines, such as when lines run parallel to the trench path or for constructability reasons.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
195	TURN	005	TURN_005	8	TURN_005_Q8	8.With respect to the values for 2023-2025 in the column for Estimated Butte County Rebuild Miles in Table PG&E-8.1.2-2 on page 347 of PG&E's 2023-2025 WMP: a.For each year, please provide PG&E's estimate of the overhead circuit miles that will be replaced and explain how this estimate was determined; b.For the figures provided in response to subpart "a", please provide an estimated breakdown of the overhead circuit miles replaced by: primary lines, secondary lines, and services.	a. As described in our GRC1, the estimated overhead to undergrounding conversion rate in the Butte Rebuild area is 1.57 miles of underground line installed for every 1 mile of overhead primary line removed. The 1.57 factor was based on relocated Community Rebuild overhead miles (2022-2025) and local topography. Our current estimate for Butte County undergrounding mileage for 2023-2026 is 175 miles. Using the estimated conversion rate, the overhead primary miles removed are projected to be 111 miles. b. The estimate provided in part a is for the primary lines only. This information is not available for secondary and service lines.	Tom Long	4/13/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
173	CPUC - SPD (Safety Policy Division)	003	CPUC - SPD (Safety Policy Division)_003	1	CPUC - SPD (Safety Policy Division)_003_Q1	1.Fill in the attached spreadsheet "Wildfire Mitigation Table DR – PG&E." The first tab is a "Glossary" which provides definitions for each attribute. The other tabs, "Data Input," "Asset Inspections," and "VM Inspections;" all need to be completed with data inputted from PG&E.	Please see attachment "WMP-Discovery2023_DR_SPD_003-Q001Atch01.xlsx" which is the completed Wildfire Mitigation Table DR – PG&E template provided to us by SPD.	Kevin Miller	4/12/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_003.zip	1	N/A	8	Wildfire Mitigation	N/A
174	CPUC - SPD (Safety Policy Division)	003	CPUC - SPD (Safety Policy Division)_003	2	CPUC - SPD (Safety Policy Division)_003_Q2	2.In "PGE_2023_WMP_R0_Section_642_Atch01," SPD has observed the mitigation effectiveness of Covered Conductor is on the order of 49% compared to the value reported in the WMP which is 64% (page 340). Explain the discrepancy.	The cited information is incorrect in the WMP. We have corrected it in response to this discovery request. We will reach out to Energy Safety to discuss this update and making corrections to the WMP pursuant to Energy Safety's Guidelines. The 49% effectiveness cited above was due to an incorrect link in the original file and has been corrected in "WMP-Discovery2023_DR_SPD_003-Q004Atach1". The correct effectiveness factor is approximately 64%. As seen in the attachment there is some minor variation in effectiveness per circuit segment depending on the specific sub-drivers	Kevin Miller	4/12/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_003.zip	0	N/A	8.1.2.1	Grid Design and System Hardening	Covered Conductor Installation – Distribution
175	CPUC - SPD (Safety Policy Division)	003	CPUC - SPD (Safety Policy Division)_003	3	CPUC - SPD (Safety Policy Division)_003_Q3	3.Confirm or revise PG&E's Butte County OH to UG conversion factor in the 2023-2025 WMP (currently 1.57 in the GRC) based on actual and estimated UG miles for 2023-2026. In the PG&E 2023 GRC Reply Brief (Dec '22) PG&E forecast 2,000 SH UG miles (MAT 08W) and 100 Butte County UG miles (MAT 95F) for 2023-2026.	PG&E confirms that our Butte County OH to UG conversion factor for the 2023-2025 WMP is 1.57.	Kevin Miller	4/12/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_003.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
176	CPUC - SPD (Safety Policy Division)	003	CPUC - SPD (Safety Policy Division)_003	4	CPUC - SPD (Safety Policy Division)_003_Q4	4.Based on WSPS' initial review of the wildfire ignitions and general understanding of PG&E's undergrounding program, it appears that undergrounding would have prevented only 87% of CPUC-reportable ignitions in the HFTD area between 2020-2022 primarily due to the impact of secondary and service conductor ignitions. Additionally, SPD noted ten CPUC-reportable ignitions in PG&E territory during 2022 which were related to undergrounding. [The data used is the fire ignition data stored here: Wildfire and Wildfire Safety (ca.gov). Please note, WSPS is still cleaning the data and determining the best methodology to analyze the data.] a.Provide the justification for the 99% mitigation effectiveness value for undergrounding reported in the Wildfire Mitigation Plan. Explain how secondary, service conductor, and underground ignitions are accounted for in the 99% mitigation effectiveness. b.Provide the percentage of CPUC-reportable ignitions in the HFTD that undergrounding would be expecting to remediate, accounting for secondary and service conductors. c.Provide a description of each CPUC-reportable ignition related to undergrounding that occurred in 2022 and describe how PG&E's undergrounding approach would or would not mitigate this ignition. d.SPD's general understanding is that ignitions from secondary conductors and service drops are accounted for in the methodology for calculating the effectiveness for both covered conductor and EPSS, but this risk does not appear to be accounted for in the same way for undergrounding. Explain the difference in the methodology for how the 99% mitigation effectiveness for undergrounding is calculated as compared to the 64% mitigation effectiveness for covered conductor and 65% effectiveness for EPSS. e.Explain how the mitigation effectiveness is applied to the risk calculation (such as that approach used in PGE_2023_WMP_R0_Section_642_Atch01) and contrast this approach to the approach used for covered conductor and EPSS. f.Provide the number of CPUC-reportable ignitions related to HFTDs in secondary and service conductors for each year starting in 2014 onward.	a) In the 2022 WMP discovery process, we provided a data response that showed how PG&E estimated the effectiveness of undergrounding in reducing ignitions (WMP-Discovery2022_DR_CalAdvocates_028-Q04). As PG&E explained in that data request: PG&E's estimate of the effectiveness of undergrounding in reducing ignitions is based on subject matter expertise. We validated this estimation using the ignition rate per mile for overhead and underground circuits respectively. Based on 2015-2021 historical CPUC-reportable ignitions and the system circuit miles, the effectiveness of undergrounding is approximately 95-96% from an ignition rate perspective as indicated in Table 1 below. However, Table 1 does not fully represent wildfire risk reduction as an ignition is different than wildfire frequency or consequences. Based on the 2015-2021 dataset, no underground ignition resulted in a fire greater than 10 acres, further substantiating underground represents an even lower wildfire risk than overhead facilities. As such, we determined that the CPUC-reportable ignition data information is consistent with subject matter expert estimations of 99%. The reportable ignition data considered includes the ignitions associated with secondary and service conductors. b) Our current workplan is to underground primary conductor. At this time, we do not underground lateral secondary lines and service conductors. As noted in part a, we assume that undergrounding is 99% effective at reducing ignitions on the distribution primary lines where the undergrounding has taken place. However, as part of the undergrounding projects, we will overhead harden remaining secondary and service lines by replacing open-wire secondary, gray services, and tree-connects with the current standard covered aerial conductor. PG&E has also recently started to apply "breakaway" connectors to our standard construction system-wide to help mitigate any residual risk on the service and secondary wire. While the exact wildfire risk mitigation benefit associated with these enhancements to the lateral secondary and service lines has not been quantified, it will provide some enhanced wildfire mitigation value to the lateral secondary and service lines touched by the undergrounding program. c) We understand this question as a request for ignitions related to undergrounding work conducted in 2022. PG&E has not identified any ignitions related to our undergrounding work in 2022. d) The effectiveness in mitigating wildfire risk from services and secondary lines for the three mitigations referenced (OH Hardening / Covered Conductor, Undergrounding, and EPSS) is actually very similar. OH Hardening and Undergrounding both result in the same hardening or replacement of services and secondary lines as described in the response to subpart b above. Separately, EPSS provides limited coverage for potential ignition risks on services and secondary lines because these assets are downstream of a service transformer. By being downstream of a service transformer, the service and secondary lines are not "seen" directly by the system protection devices which are programmed with EPSS settings. There are cases where an issue with a service or secondary line may be "seen" by the protection device and trigger an EPSS deactivation, but in most cases a fault on a service or secondary line downstream of the transformer will not trigger a de-energization by a protection device programmed with EPSS settings. Therefore, all three mitigation activities are focused on reducing ignition risk on the higher-risk primary distribution lines and do not quantify meaningful mitigation of ignition potential on services and secondary lines. e) The method for calculating risk reduction based on mitigation effectiveness for EPSS and for Covered Conductor is the same. The risk reduction calculation is based on the effectiveness applied to various sub-drivers at each location and based on the workplans at each location. This is aggregated as part of attachment "WMP-Discovery2023_DR_SPD_003-Q004Atch01.xlsb." f) Since 2014, we have identified a total of 142 CPUC-reportable ignitions in HFTDs related to secondary and service conductors. Please reference the following table for the number of CPUC-reportable ignitions by year.	Kevin Miller	4/12/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_003.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution

177	CPUC - SPD (Safety Policy Division)	003	CPUC - SPD (Safety Policy Division)_003	5	CPUC - SPD (Safety Policy Division)_003_Q5	5.Regarding the UG workplan table provided by PG&E, 2023-03-27_PGE_2023_WMP_R0_Appendix D ACI PG&E-22-16_Atch01_CONF.xlsx: a.Why does Column "O" "Risk Rank (V2)" begin at Rank 7 (as opposed to 1) for circuits? i.Why does it end at 3328? ii.Why do the gaps in rank 1-N exist? b.Why does Column "R" "Risk Rank (V3)" begin at Rank 6 (as opposed to 1) for circuits? i.Why does it end at 3263? ii.Why do the gaps in rank 1-N exist?	a. There are three primary reasons why the risk ranking does not begin at 1: 1. If the circuit segment length is less than 1 mile then those smaller segments are bundled with other larger projects (e.g., the circuit segments that are risk ranked 1, 3, 4, and 5 were all less than 1 mile and bundled with other larger groups of circuit segments). 2. Some of the circuit segments are privately owned lines; we send an annual letter to the owner reminding them of their responsibility to maintain the line but do not take action on these circuits (e.g., the circuit segment that is risk ranked 2 is privately owned). 3. Some circuits are in the risk model data but work has been completed on that circuit segment and therefore the circuit segment is not included in planned work in the 2023-2026 work plan (e.g., work on a circuit segment that is risk ranked 6has already been completed). i. We have approximately 3,600 CPZs identified in the HFTD as part of the 2021 WDRM V2 . The data provided is only for the circuit segments in the current workplan which represents a subset of the overall 10,000 mile undergrounding program (~2,700 miles) which is only a portion of the overall electric distribution lines in HFTD. The Risk Rank (V2) ends at 3,328 in the workplan because not all circuit segments are represented in the 2023-2026 workplan, including a number of the circuit segments that are lower on the risk priority list (3,329-~3,600). ii. Some of the numerical risk ranks (that would be expected in a complete 1-N dataset) are missing from the workplan data provided primarily because this data only represents the projects in our 2023-2026 workplan which is a subset of the overall 10,000 mile undergrounding program (~2,700 miles), and only a portion of the overall electric distribution lines in HFTD (which total ~25,500 miles). To a lesser extent the exceptions noted in the response to subpart (a) above also apply in that a risk rank number may be skipped if that circuit segment: (1) is small and bundled with the larger project which is represented in the workplan using the mean risk pixel of the larger CPZ, (2) has already had work completed on it, or (3) is privately owned and not included in PG&E's scope of work. b. There are three primary reasons why the risk ranking does not begin at 1: 1. Using the Wildfire Feasibility Efficiency (WFE) score, PG&E bundles smaller projects (circuit segment is less than 1 mile) with other larger projects (e.g., circuit segment risk ranked 1 is bundled with the large project that is risk ranked 68, segment with risk rank 2 is bundled with segment that is risk ranked 132, and segment with risk rank 4 is bundled with segment risk that is ranked 41). 2. Some of the circuit segments are privately owned lines; we send an annual letter to the owner reminding them of their responsibility to maintain the line but do not take action on these circuits (e.g., circuit segment that is risk ranked 3 is a privately owned line). 3. Some circuit segments are not yet included in the 2023-2026 workplan due to the high difficulty of execution (e.g., circuit segment with risk rank 5 is bundled with three other segments with high execution difficulty such that they are not yet scoped in the 2023-2026 workplan). i. PG&E has approximately 3,600 total CPZs identified in the HFTD as part of the 2022 WDRM V3. The data provided is only for the circuit segments in the current workplan which represents a subset of the overall 10,000 mile undergrounding program (~2,700 miles) which is only a portion of the overall electric distribution lines in HFTD. The Risk Rank (V3) ends at 3,263 in the workplan because not all circuit segments are represented in the 2023-2026 workplan, including a number of the circuit segments that are lower on the risk priority list (3,264-~3,600). ii. Please see response to subpart a.ii.	Kevin Miller	4/12/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_003.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-16 – Progress and Updates on Undergrounding and Risk Prioritization
71	OEIS	001	OEIS_001	3 SUPP	OEIS_001_Q3 SUPP	Regarding PG&E's Focused Tree Inspections pilot a. Describe the current state of development for the pilot area, PG&E's Areas of Concern (AOC), and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529) and the expected timeline for operationalization. b. Detail the criteria PG&E has and is using to develop the pilot area, PG&E's Areas of Concern (AOC), and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529). c. What standards, processes, procedures, and tools are vegetation management personnel using/will use to perform tree risk assessments for this pilot? d. Will PG&E be using its One VM Tool for recordkeeping for this pilot? If not, what system will PG&E use for recording keeping for this pilot? e. Where is PG&E conducting its Focused Tree Inspections pilot? If PG&E has not yet begun its pilot, where will PG&E be conducting its Focused Tree Inspections pilot? f. How many circuit miles are in scope for the pilot? g. Was the pilot area previously in-scope for Enhanced Vegetation Management (EVM)? h. For each Circuit Protection Zone (CPZ) in the pilot area provide the: i. CPZ name. ii. Tree Weighted Risk Score from PG&E's most recent version of its EVM Tree-Weighted Prioritization List. iii. Tree Weighted Rank from PG&E's most recent version of its EVM Tree-Weighted Prioritization List. iv. Risk Tranche i. Does PG&E have a plan to continue its Focused Tree Inspections assuming the pilot is a success? If so, detail those plans, including how many circuit miles PG&E plans to inspect under this program in 2023 and 2024. j. Provide a GIS layer of the pilot area, PG&E's Areas of Concern (AOC),1 and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529). As applicable, provide the following attributes for each polygon: i. Number of overhead circuit miles within the polygon ii. Overall Utility Risk iii. Ignition Risk iv. PSPS Risk v. Contact from Vegetation Likelihood of Ignition	h) 2023 development of Areas of Concern (AOC) used WDRM v3 to prioritize CPZs to inform the pilot areas selected. In the four AOC selected for pilots there are 31 CPZs total. 22 of these CPZs match where WDRM v2 was used in 2022 and EVM Tree Weighted Risk Scores and Rankings are available to accurately cross-reference. 9 CPZs do not have EVM Tree Weighted Risk Scores or Ranking. These omissions are due to circuit configuration and/or operating number changes that do not allow for matching with the WDRM v2 CPZ list. Where available EVM Tree Weighted Risk Score and EVM Tree Weighted Rank are provided in the table below.	Colin Lang	4/5/2023	4/19/2023	4/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
196	CalPA	Set WMP-16	CalPA_Set WMP-16	1	CalPA_Set WMP-16_Q1	Regarding PG&E's SCADA Underground (UG) Switches: a) Please explain PG&E's operating procedure for operating a SCADA UG switch to energize and de-energize a circuit or circuit segment. b) Please provide PG&E's written procedures or other documentation related to your response to part (a). c) Please explain in detail PG&E's operating procedure, from start to finish, for the following operation: after opening a normally closed switch, the switch is returned to its normally closed position during switching. d) Please explain in detail PG&E's operating procedure, from start to finish, for the following operation: after closing a normally open switch, the switch is returned to its normally open position during switching.	The confidential attachments are being provided pursuant to the accompanying confidentialy declaration. a) For distribution operations operating procedures, SCADA UG switch when de energizing is an open command in RT SCADA with load read on SCADA devices before and after de-energizing. Energizing with a SCADA UG switch will have source side protective device reclosing relay cut out, the ground relay will be checked to verify cut in, close command will be given in RT SCADA to energize the section, and then the load read will be taken once closed. Reclosing relay will then be cut in on source side protective device if not EPSS enabled. b) Please reference "WMP-Discovery2023_DR_CalAdvocates_016-Q001Atch01CONF.pdf" for our Operating Procedures for Primary Underground Separable Terminations. Please also reference "WMP□Discovery2023_DR_CalAdvocates_016-Q001Atch02CONF.pdf" for our Distribution Switching Procedures. c) For distribution operations operating procedures, if a line is currently energized from an alternate source when switching normal to a closed position, a parallel will be made by closing the abnormally opened switch and then opening the abnormally closed switch to separate parallel and return circuit to its normal source. When creating a parallel path reclosing and ground relays are cut out on all protective devices in the parallel path and Bank LTC/REGS are placed on manual. All protective device relays are cut in following parallel separation. Load reads will be taken before, during, and after the parallel. It should be noted that reclosing relays may or may not be cut in if devices in the parallel path are EPSS enabled. EPSS enabled devices have reclosing relay cut out. d) For distribution operations operating procedures, see the answer to subpart c). The abnormally closed switch will be opened to separate the parallel, setups, and load reads, which will be the same as subpart c).	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	2	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment
197	CalPA	Set WMP-16	CalPA_Set WMP-16	2	CalPA_Set WMP-16_Q2	Regarding PG&E's Load Break Elbows: a) Please explain PG&E's operating procedure for operating a load break elbow in a vault to energize or de-energize a circuit or circuit segment. b) Please provide PG&E's written procedures or other documentation related to your response to part (a). c) Please explain in detail PG&E's operating procedure, from start to finish, for the following: after opening a circuit segment via a load break elbow that is normally in a closed position, the circuit segment is returned to its normally closed position during switching. d) Please explain in detail PG&E's operating procedure from start to finish of the following operation: after closing a circuit segment via a load break elbow that is normally in an open position, then the circuit segment is returned to its normally open position during switching.	The confidential attachments are being provided pursuant to the accompanying confidentiality declaration. a) For distribution operations operating procedures, if de-energizing or energizing from Load break elbows that are not protected by fuses on the source side, then reclosing a relay is first cut out or verified cut out on the source side protective device as well as ground relay verified cut in. Following the source side protective setup (reclosing relay cut/out ground relay cut/in), the ok is then given to the field operations to then manually remove or place load break elbow to de□energize/energize circuit segment. De-energizing elbows will be placed on insulated stand off and protective equipment installed. To energize elbows, protective equipment is removed, and elbows are placed/closed in operating position. Once operation is complete, relays are then placed to their previous state. Load Break elbows are not to be used when energizing a segment with a known or potential fault. b) Please reference "WMP-Discovery2023_DR_CalAdvocates_016-Q001Atch01CONF.pdf" and "WMP-Discovery2023_DR_CalAdvocates_016-Q001AAtch02CONF.pdf" provided in response to Question 001(b) of this Data Request Set for a copy of these Procedures. c) For distribution operations operating procedures, see the answer to subpart a) for energizing/deenergizing. If the segment to place normal is already energized, a parallel cannot be made using load break elbows, however, a parallel can be made adjoining the 2 circuits at a different location (i.e. an UG SCADA switch) in order to loop switch with the load break elbows. Protection schemes for a parallel have ground and reclosing relays cut out, as well as any fuses in the path bypassed. Before closing load breaks in a loop, while still in parallel, ground relays must be cut in, reclosing relays verified cut out, and then the ok will be given to the field to perform the operation of closing the load break elbow on a loop. The abnormally closed device will then be opened to separate the loop. Relays will then be placed in their proper configuration to address the current parallel, and then parallel will be separated and relays and fuses placed into their beginning state, placing the circuit normal. If no parallel is needed (i.e. only one circuit involved), cut-out the source side protective device's reclosing relay and verify the ground relay is cut in, bypass fuses before closing on a loop, and then open the abnormally closed device to separate the loop. Protective schemes will be then placed in their previous state. d) For distribution operations operating procedures, please see the answer to subpart c). The process is the same for opening a load break elbow when placing circuit normal using a larger parallel path, if more than one circuit involved, and creating a local loop to address load break elbow on an already energized segment of line.	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.10.3	Grid Design and System Hardening	Motor Switch Operator Switch Replacement
198	CalPA	Set WMP-16	CalPA_Set WMP-16	3	CalPA_Set WMP-16_Q3	Regarding PG&E's Junction Boxes: a) Please explain in detail PG&E's operating procedure for operating a junction box in a vault to energize or de-energize a circuit or circuit segment. b) Please provide PG&E's written procedures or other documentation related to your response to part (a). c) Please explain in detail PG&E's operating procedure, from start to finish, for the following operation: after closing a circuit segment via a junction box that is normally in an open position, the circuit segment is returned to its normally open position during switching. d) Please explain in detail PG&E's operating procedure, from start to finish, for the following operation: after closing a circuit segment via a junction box that is normally in a closed position, the circuit segment is returned to its normally closed position during switching.	The confidential attachments are being provided pursuant to the accompanying confidentiality declaration. a) For distribution operations operating procedures, junction boxes my contain either Load Break elbows or dead break elbows. For Load break operations, see the responses to question 2 of this data request set. Dead Break elbows cannot be used to energize or de-energize circuit segments. Dead break elbows are only to be opened or closed on a de-energized circuit segment after checking that the cables are de-energized. b) Please reference "WMP-Discovery2023_DR_CalAdvocates_016-Q001Atch01CONF.pdf" and "WMP-Discovery2023_DR_CalAdvocates_016-Q001Atch01CONF.pdf" provided in response to Question 001 of this data request set for a copy of these Procedures. c) For distribution operations operating procedures, see the responses to Question 2 of this data request set for load break elbow operation. For dead break elbows, after checking cables are de-energized, elbows can then be placed on insulated stand off and protective equipment installed. d) For distribution operations operating procedures, please see the responses to Question 2 of this data request set for load break elbow operation. For dead break elbows, after checking cables are de-energized, protective equipment is removed,and elbows are placed/closed in operating position. Circuit segments can then be energized	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.10	Grid Design and System Hardening	Other Grid Topology Improvements to Minimize Risk of Ignitions
199	CalPA	Set WMP-16	CalPA_Set WMP-16	4	CalPA_Set WMP-16_Q4	Please explain PG&E's selection criteria for where to install the following equipment on underground circuits: a) SCADA UG switches b) Junction boxes c) Load break elbows	a) SCADA underground switches are typically only installed at mainline intersections. The 3-way SCADA switch can have up to two positions enabled with SCADA due to the space constraints on the top of the switch. Additionally, a communications signal to enable SCADA is not always available at the location where we would otherwise like to install a SCADA-enabled switch. While SCADA-enabled switches are preferred in these locations (mainline intersections where communication are available), it is at the discretion of the Electric Distribution Planning Engineer to specify the appropriate device as part of the project design. b) PG&E installs junction boxes on both mainline (600 Amp, AKA 600A) and tap-line(200A) systems. i. A mainline junction is the connection of multiple 600A separable connectors tied together in a subsurface enclosure and mounted on a wall of the enclosure. This connection could also include a 200A elbow mounted on top to feed a nearby radial tap-line. PG&E typically designs the underground system such that there is a switching device at every other enclosure, allowing the use of a single junction in between. [Technically speaking, this design approach is due to the 600A single junction (also called a "separable") being a dead-break device requiring a clearance to open.] ii. A tap-line junction is typically a load-break elbow installed on a bus bar mounted on the wall of a subsurface enclosure. These can be 3-way or 4-way connections. These junctions are typically designed to be back-to-back on 200A radial systems and are not the preferred connection for 200A loops, but they can be used to serve a single transformer on a loop system if it is more cost efficient than looping in and out of a transformer. In some cases, the 200A junction can also be pad-mounted (installed inside a pad-mounted enclosure). c) The use of 200A Load-Break (LB) elbows is required when terminating 200A cable (ending the cable run, generally into a piece of equipment like a transformer) on all subsurface installations installed after July 2016. The use of 200A LB elbows has been required for terminating 200A cable on most new pad−mounted installations since the early 1990s. [Please note that when performing work on existing underground installations that involves the replacement of existing 200A Dead□Break (DB) elbows, it may not be feasible to convert 200A DB to LB elbows. The overall height of the 200-Amp LB elbow is 0.92" taller than the existing DB elbow and the enclosure covers must be able to be securely closed when cables are placed on an insulated or grounded standoff in the enclosure. In the cases where a LB elbow cannot fit safely in the existing enclosure. DB elbows are approved for use.	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2	Grid Design and System Hardening	Other Grid Topology Improvements to Minimize Risk of Ignitions
200	CalPA	Set WMP-16	CalPA_Set WMP-16	5	CalPA_Set WMP-16_Q5	Please explain PG&E's selection criteria for where to install the following equipment on underground circuits a) Pad-mounted transformers b) Subsurface transformers	a) PG&E's standard is to install pad-mounted transformers on underground circuits where transformers are need. See the response to subpart b for when a pad-mount may not be used in favor of a subsurface transformers [For residential customers, we prefer to install pad-mounted transformers in the street franchise, easement, or right-of-way areas for multiple customers or on the customer's property for a single service. For non-residential customers, the preference is to install pad-mounted transformers outside / adjacent to the building on a concrete pad.] b) Subsurface transformers are typically not installed unless it is required to support easement acquisition, there is no space available for a pad-mounted transformer to be installed, or it is otherwise specified due to project-specific concerns. Reasons that subsurface transformers are not preferred include that a subsurface transformer located in an enclosure where the air circulation is restricted and the ambient temperature is high, such as in the Central Valley or some of the HFTD areas that see high summer temperatures, may exceed its capabilities at nameplate loading due to excessive temperature. Space is also limited in a subsurface enclosure, so load requirements that influence the size of the transformer may limit the option of installing a sub-surface transformer. When one is needed, the preferred location for a subsurface transformer (from most preferred to least preferred) is generally: i. On the customer's property beside a sidewalk. ii. In a planted area between the curb and the sidewalk. iii. In the sidewalk. iv. In the paved portion of a parking lot. v. In the parking / shoulder area of a street. vi. In the trafficked portion of the street	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment
201	CalPA	Set WMP-16	CalPA_Set WMP-16	6	CalPA_Set WMP-16_Q6	For each of the undergrounding projects that PG&E has planned for 2023, please answer the following questions on each project: a) How many SCADA underground switches will be installed? b) How many overhead switches will be removed? c) How many tie switches to adjacent circuits currently exist? d) How many OH tie switches to adjacent circuits will be removed? e) How many tie switches (OH or UG) will exist when the project is complete? f) How many SCADA overhead switches will be removed? g) How many SCADA underground switches will be installed as tie points to adjacent circuits? h) How many SCADA underground switches will be installed for sectionalizing? i) How many subsurface transformers will be installed? j) How many pad-mounted transformers will be installed? k) How many vaults will be installed? l) How many junction boxes will be installed? m) How many junction boxes will be installed for sectionalizing? n) How many junction boxes will be installed as tie points to adjacent circuits? o) How many load break elbows will be installed? p) How many load break elbows will be installed for sectionalizing? q) How many load break elbows will be installed as tie points to adjacent circuits? r) How many handholes will be installed? s) How many risers will be installed?	PG&E objects to this request as overbroad and unduly burdensome. We do not maintain the requested information in a manner that allows it to be aggregated without a manual review of each project's engineering and construction documentation. Manually collecting the data across hundreds of projects would require significant time and resources and the development of multiple processes to ensure data accuracy. If you would like to discuss this request further, please feel free to reach out to us.	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment

202	CalPA	Set WMP-16	CalPA_Set WMP-16	7	CalPA_Set WMP-16_Q7	For each of the undergrounding projects that PG&E has planned for 2024, please answer the following questions on each project: a) How many SCADA underground switches will be installed in each circuit. b) How many overhead switches will be removed? c) How many tie switches to adjacent circuits currently exist? d) How many OH tie switches to adjacent circuits will be removed? e) How many tie switches (OH or UG) will exist when the project is complete? f) How many SCADA overhead switches will be removed? g) How many SCADA underground switches will be installed as tie points to adjacent circuits? h) How many SCADA underground switches will be installed for sectionalizing? i) How many subsurface transformers will be installed? j) How many pad-mounted transformers will be installed? k) How many vaults will be installed? l) How many junction boxes will be installed? m) How many junction boxes will be installed for sectionalizing? n) How many junction boxes will be installed as tie points to adjacent circuits? o) How many load break elbows will be installed? p) How many load break elbows will be installed for sectionalizing? q) How many load break elbows will be installed as tie points to adjacent circuits? r) How many handholes will be installed? s) How many risers will be installed?	PG&E objects to this request as overbroad and unduly burdensome. We do not maintain the requested information in a manner that allows it to be aggregated without a manual review of each project's engineering and construction documentation. Manually collecting the data across hundreds of projects would require significant time and resources and the development of multiple processes to ensure data accuracy. If you would like to discuss this request further, please feel free to reach out to us.	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment
204	CalPA	Set WMP-16	CalPA_Set WMP-16	9	CalPA_Set WMP-16_Q9	8.1.2.10 - Other Grid Topology Improvements to Minimize Risk of Ignitions 8.1.2.10.1 -Downed Conductor Detection Devices Pg 374-375 of PG&E's WMP states, "Installation of DCD on existing, new, and retrofitted recloser controllers is expected to reduce the number of ignitions due to high impedance line-to-ground faults by quickly detecting and de-energizing the fault, which is the primary existing gap in EPSS protection on primary overhead distribution conductor. Approximately half of the CPUC reportable ignitions in HFTD that occurred in 2022 while EPSS was enabled were the result of high-impedance faults." a) Explain the existing gap on EPSS. b) Explain how DCD technology can mitigate this gap to encompass all high impedance faults. c) List the advantages of having both programs working simultaneously. d) What percentage of high-impedance faults does PG&E anticipate could be mitigated by EPSS alone? e) What percentage of high-impedance faults does PG&E anticipate could be mitigated by DCD alone? f) What percentage of high-impedance faults does PG&E anticipate could be mitigated by the combination of EPSS and DCD?	a) While EPSS has proven to be highly effective in lowering the incident energy during traditional faults and associated potential ignitions, reliable detection, and de-energization of high impedance fault conditions continues to be a gap that we are working to close. As part of EPSS, we deployed an expansive use of low set, non-directional ground fault overcurrent protection, commonly referred to as Sensitive Ground Fault (SGF) to aid in this effort. While SGF has been effective in closing the gap on high impedance faults, it also has effectiveness limits and further protection strategies like DCD that are being explored to allow for even greater sensitivity, detection, and de-energization of high impedance fault conditions. In addition to SGF and DCD, partial voltage (PV) force out and the gang trip functionality which are incorporated under the core EPSS strategy have also been deployed to help close the gap. These practices are all part of a defense in depth strategy to provide layered levels of protection against high impedance faults. b) DCD implements very sensitive and sophisticated levels of ground fault protection that specifically look for characteristics of arcing associated with line to ground faults. With high sensitivity, there is a higher likelihood of protective relay misoperation which may result in an outage for a non-fault condition. DCD works to overcome this by looking for the specific arcing characteristics that must be present for an actual fault condition. c) DCD is a further enhancement to EPSS, rather than a separate program. EPSS is designed to lower the incident arc energy for traditional faults, add gang, three phase tripping past fuses, and introduce higher impedance fault detection down to 15 amps. DCD and other high impedance fault detection methods assist in de-energizing fault conditions which are below the normal detection capabilities of traditional ground overcurrent protection, as low as 1 amp. d) As mentioned above, EPSS is a suite of enhanced protection schemes. It is not separate from DCD. Further, given the nature of these fault conditions, we do not readily have access to the data to support this statistic. e) As mentioned above, EPSS is a suite of enhanced protection schemes. It is not separate from DCD. DCD requires EPSS to be enabled to function. Further, given the nature of these fault conditions, we do not readily have access to the data to support this statistic. f) Based upon limited field experience and post event data analysis, we estimate that incrementally approximately 25% of all 2022 EPSS high impedance line to ground fault ignitions would have been mitigated by DCD.	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.10	Grid Design and System Hardening	Other Grid Topology Improvements to Minimize Risk of Ignitions
205	CalPA	Set WMP-16	CalPA_Set WMP-16	10	CalPA_Set WMP-16_Q10	Please provide an Excel sheet listing each circuit (in its own row) that had circuit outages that occurred from 2020 to 2022 in any HFTD area. A circuit outage is when the Substation circuit breaker trips and de-energizes the entire circuit due to a fault. For each circuit with an outage, the Excel sheet should list each Circuit Outage as a row. Please provide the following additional information (in columns): a) ID number of the circuit affected b) The date of the outage c) Cause of outage. d) For all equipment failure outages, please state the specific type of failure (i.e.: OH transformer failure, overload, cross arms, UG transformer failure, cable failure, splice failure etc.) e) The outage duration in minutes f) The total number of customers impacted. g) If all or part of the circuit is currently undergrounded, provide the date that OH to UG conversion was completed. h) If all or part of the circuit is in scope of a planned undergrounding project, the forecast completion date of the OH to UG conversion project.	Please see "WMP-Discovery2023_DR_CalAdvocates_016-Q010Atch01.xlsx." for a list of sustained outages in a HFTD in 2020 through 2022. The undergrounding information in response to subsections G and H is based on the undergrounding workplan submitted in the 2023-2025 WMP. a) See Column C b) See Column D c) See Column F and Column G d) See Column J e) See Column H f) See Column I g) See Column L • Cells with multiple years indicate that individual projects have been completed on that circuit within the years listed • "N/A" indicates that there are no completed projects for that circuit h) See Column M • Cells with multiple years indicate that individual projects are forecasted for that circuit within the years listed • "N/A" indicates that there are no forecasted projects for that circuit	Holly Wehrman	4/18/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	1	N/A	QDR	N/A	N/A
12	MGRA	Data Request No. 1	MGRA_Data Request No. 1	9 SUPP	MGRA_Data Request No. 1_Q9 SUPP	Please provide a layer indicating calculated circuit-level risk using the methodology presented in the WMP. a. If independent probability and consequence layers exist, please provide these independently as well.	The method described in the 2023 WMP to aggregate model results is conducted to produce a circuit segment level risk value but it is not used to produce a circuit level risk value. However, the geospatial representation of circuit segments that would be provided in response to this data request involves the identification of CEII, which we are required by law to maintain as confidential and cannot produce without the requesting party agreeing to protect the information through a non-disclosure agreement.	Joseph Mitchell	3/29/2023	4/21/2023	4/21/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_001.zip	1	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
76	OEIS	001	OEIS_001	8	OEIS_001_Q8	Regarding Comprehensive System Diagram for All Risk Models Used Provide comprehensive system diagrams in MS Visio or PPT for all risk models. 1. A comprehensive diagram for operational models and 2. A comprehensive diagram for planning models. Section 6.1.2, Summary of Risk Models, asks for a summary of risk models in table form with specific fields. Section 6.2.1, Risk and Risk Component Identification, asks for a chart that demonstrates the components of overall utility risk. This request is comprehensive of all models that work together in the Decision-Making Framework (DMF). The requested diagram should show: a. Interaction between the models presented graphically (e.g., inputs and outputs coming to and going from models to other models), b. Organization with the use of swimlanes where applicable, c. Starting and ending points, d. Decisions and process flows, e. Use of a legend and colors to classify inputs/output types and model-to-model interactions, and f. The full cycle of models working together and creating feedback for model adjustments and fine-tuning	PG&E has provided two system diagrams within WMP-Discovery2023_DR_OEIS_001-Q008Atch01.pdf in response to this data request – one for operational models (slide 01) and one for planning models (slide 02). Each diagram depicts the interaction among different models and each's inputs and outputs. The diagrams also show the decision points, process flows, feedback loops where adjustments to the models are required. 1) Please see slide 01 of WMP-Discovery2023_DR_OEIS_001-Q008Atch01.pdf. 2) Please see slide 02 of WMP-Discovery2023_DR_OEIS_001-Q008Atch01.pdf. This diagram depicts PG&E's comprehensive decision-making framework, from identifying risk drivers to developing mitigation initiatives to address risk, adjusting program scope and developing workplans, balancing the mitigation portfolio, and executing the work.	Colin Lang	4/5/2023	4/24/2023	4/24/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	1	N/A	6.1.2	Risk Methodology and Assessment	Summary of Risk Models
207	MGRA	Data Request No. 2	MGRA_Data Request No. 2	1	MGRA_Data Request No. 2_Q1	With regard to PG&E's response to CalPA_Set WMP-11_Q14: PG&E states that one of the significant changes to the grid required for REFCL is "The replacement of old, direct bury underground cable": Please explain the incompatibility of "old, direct bury underground cable" with REFCL.	During the demonstration project, we reviewed primary distribution equipment insulation ratings. During REFCL operation, line-to-ground voltage increases by 1.7 times, so the equipment must be able to withstand this increased voltage. A long run of old (1970 build), direct bury underground cable was identified during the review. The cable was tested for concentric neutral resistance and tan delta. The cable sections did not pass the tests and would likely fail during REFCL operation, so the cable sections were replaced. Underground cable replacements like this may be needed before a REFCL can be put into service for a given distribution substation.	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
208	MGRA	Data Request No. 2	MGRA_Data Request No. 2	2	MGRA_Data Request No. 2_Q2	With regard to PG&E's response to CalPA_Set WMP-11_Q14: PG&E states that one of the significant changes to the grid required for REFCL is "The replacement of old, direct bury underground cable": Does PG&E have any recently undergrounded segments that are also "direct bury"? If so would these be incompatible with REFCL?	Direct bury of underground cable, meaning laying the cable directly in a dirt trench and not inside a conduit, is not a standard, approved design for our underground electric distribution system at this point in time. As such, no, we have not recently undergrounded any electric distribution segments via direct bury. The direct bury underground cable design itself would not be incompatible with REFCL, however, many direct bury underground cable installations are old and the cable insulation may not withstand the 1.7 times normal line-to-ground voltages required during REFCL operation.	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
209	MGRA	Data Request No. 2	MGRA_Data Request No. 2	3	MGRA_Data Request No. 2_Q3	With regard to PG&E's response to CalPA_Set WMP-11_Q14: PG&E states that one of the significant changes to the grid required for REFCL is "The replacement of old, direct bury underground cable": Does PG&E's future undergrounding plans include "direct bury" and if so would that make these segments incompatible with REFCL?	No, PG&E's undergrounding plans include cable in conduit with standard voltage ratings exceeding REFCL operating voltage.	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	0	N/A	8.1.8.1.3.1	Grid Operations and Procedures	Rapid Earth Fault Current Limiter
210	MGRA	Data Request No. 2	MGRA_Data Request No. 2	4	MGRA_Data Request No. 2_Q4	Please provide non-confidential versions of the following documents: WMP-Discovery2023_DR_OEIS_001-Q007Atch02CONF.pdf	Please see "WMP-Discovery2023_DR_OEIS_001-Q007Atch02_Redacted.pdf."	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	1	N/A	Appendix B	Supporting Documentation for Risk Methodology and Assessment Definitions	Detailed Model Documentation
211	MGRA	Data Request No. 2	MGRA_Data Request No. 2	5	MGRA_Data Request No. 2_Q5	Please provide non-confidential versions of the following documents: WMP-Discovery2023_DR_OEIS_001-Q007Atch03CONF.pdf	Please see "WMP-Discovery2023_DR_OEIS_001-Q007Atch03_Redacted.pdf."	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	1	N/A	Appendix B	Supporting Documentation for Risk Methodology and Assessment Definitions	Detailed Model Documentation
212	MGRA	Data Request No. 2	MGRA_Data Request No. 2	6	MGRA_Data Request No. 2_Q6	Please provide non-confidential versions of the following documents: WMP-Discovery2023_DR_OEIS_001-Q007Atch04CONF.pdf	Please see "WMP-Discovery2023_DR_OEIS_001-Q007Atch04_Redacted.pdf."	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	1	N/A	Appendix B	Supporting Documentation for Risk Methodology and Assessment Definitions	Detailed Model Documentation
213	MGRA	Data Request No. 2	MGRA_Data Request No. 2	7	MGRA_Data Request No. 2_Q7	Please provide a GIS file of 2022 outages occurring on circuits where EPSS was enabled.	The method of providing a geospatial file with the location of 2022 outages on EPSS enabled circuits would require the disclosure of device location and therefore the geospatial representation of outage location that would be provided in this response to this data request involves the identification of Critical Energy Infrastructure Information (CEII), which we are required by law to maintain as confidential and cannot produce without the requesting party agreeing to protect the information through a non-disclosure agreement.	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
214	MGRA	Data Request No. 2	MGRA_Data Request No. 2	8	MGRA_Data Request No. 2_Q8	Please provide a GIS file of 2022 ignitions occurring on circuits where EPSS was enabled.	Please see "WMP-Discovery2023_DR_MGRA_002-Q008Atch01.kmz."	Joseph Mitchell	4/20/2023	4/25/2023	4/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_002.zip	1	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
215	OEIS	003	OEIS_003	1	OEIS_003_Q1	Regarding Activities that Exceed GO 166 On page 624, PG&E states it "is currently working with internal and external stakeholders, including CalOES, to develop and implement activities that exceed compliance requirements in CPUC General Order (GO) 166, Standards for Operation, Reliability, and Safety During Emergencies and Disasters." a. List and describe the referenced activities. b. Explain how each listed activity exceeds GO 166.	CPUC General Order 166 Standard 1A, Internal Coordination, requires California electric utilities to provide as part of their emergency plans a description of internal coordination functions how they gather, process, and disseminate information within their service areas, set priorities, allocate resources, and coordinate activities to restore service. GO 166 Standard 1D, External and Government Coordination, requires California electric utilities to address as part of their emergency planning coordination with Essential Customers and state and local government agencies. a) The additional items referenced above that are not required by GO 166 are listed below: i. We have drafted a Threat Hazard Identification Risk Assessment (THIRA) and will be sharing the results with external agency partners. ii. We participate in quarterly MARAC meetings. iii. We hold quarterly Operational Area calls with our PG&E Public Safety Specialists. iv. We conduct more than the minimum one single exercise and include public partners in integrated exercise play; this includes inviting them to be part of the planning exercises. Internal and External Coordination Additionally, although not required as part of GO 166, Standard 1A compliance, a key element of PG&E's internal and external coordination strategy is the alignment of PG&E's functional areas to the frameworks provided by the California Standardized Emergency Management System (SEMS) and SEMS component Incident Command System (ICS). The adoption of these frameworks aligns PG&E with public partners to execute a coordinated response that supports safe restoration of service and whole community recovery. Specifically, PG&E hasadopted the following SEMS/ICS consistent operational components: • Use of the same framework as the SEMS Operational Area concept in the context of emergency organizational structure and levels, with emergencies beginning at the local level (Level 1) which is PG&E's base emergency posture. • Whole community engagement through PG&E's presence in County Emergency Operations Centers and the State Operations Center, and actions of PG&E's Liaison Officer and team leveraging coordination calls and collaboration of community and customer support. SEMS Operational Area coordination framework details can be found in CERP subsection 9.4, Local Government, Operational Areas. Whole community engagement, including PG&E Liaison Officer actions are described in CERP sections 4 and 9, Coordination and Communication, and External Relationships.PG&E Coworker Training General Order 166, Standard 3C, requires California utilities to annually train designated personnel in preparation for emergencies and major outages. Per Standard 3C, the training shall be designed to overcome problems identified in the evaluations of responses to a major outage or exercise and shall reflect relevant changes to the plan. Although not required as part of GO Standard 3C compliance, PG&E has continued to train its EOC staff using a SEMS/ICS Baseline, Expanded, Advanced and Position Specific approach, as follows: • ICS Baseline: Foundational SEMS and NIMS courses required of all EOC personnel and pre-requisites to any advanced training. • Expanded: California Specialized Training Institute training request, including: o G-191 (EOC/ICS Interface); o G-626 (EOC Action Planning); o G-775 (EOC Management and Operations; o IS-368 (Including People with Disabilities & Others with Access & Functional Needs in Disaster Operations). • Advanced: ICS-300 and ICS-400	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	8.4.1.1	Emergency Preparedness	Objectives

216	OEIS	003	OEIS_003	2	OEIS_003_Q2	Regarding Emergency Preparedness Plans Beyond Stated Objectives On page 624, PG&E states that there are, "current plans for wildfire-related activities beyond the objectives in Table 8-33 and Table 8-34." a. List and describe the "plans… beyond the objectives." b. Explain why plan beyond the objectives are not presented as objectives in WMP Table 8-33 and 8-34.	a. The table below provides our current plans beyond the objectives in Table 8-33 and Table 8-34 of our WMP. • Cybersecurity (NERC CIP-008 compliance), EMER-3102M • Disaster Rebuild, EMER-3012M • Extreme Weather Annex (EMER-3108M) • Infectious Disease and Pandemic Response Annex, EMER-3103M • Nuclear Annex • Electric, EMER-3002M • Emergency Communications, EMER-3008M • Information Technology, EMER-3007M • Tsunami Annex, EMER-3104M • Aviation Services Annex, EMER-3010M • Logistics, EMER-3005M • Earthquake, EMER-3101M • Canal Entry Annex, EMER-3011M • Gas, EMER-3003M • Human Resources, EMER-3006M • Power Generation, EMER-3004M • Workforce Management/Contact Center Operations, EMER-3009M • Physical Threat Annex b. The other emergency plan (annexes) are not WMP commitments however they may be used during any response, including a wildfire. They are either requirements of GO 166 or have been developed to address a specific hazard and/or response. As they are not commitments specifically for wildfire mitigation they are not presented as objectives. However, we have included expansion of all hazard planning in 8.4.3.1 KPI EP-04-2023.	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	8.4.1.1	Emergency Preparedness	Objectives
217	OEIS	003	OEIS_003	3	OEIS_003_Q3	Regarding After Action Reports a. Provide After Action Reports (or similar post-event reports) for each wildfire-related emergency in 2021 and 2022. b. Does PG&E have internal After-Action Reports (or similar post event reports) for both actual and potential PSPS events that differ from reports filed with the CPUC?1 If so, provide these internal reports for events in 2021 and 2022.	The confidential attachments are being provided pursuant to the accompanying confidentiality declaration. a. We interpret "wildfire-related emergency" as wildfire events for which our Emergency Operations Center was activated. Please reference "WMP Discovery2023_DR_OEIS_003-Q003Atch01CONF.pdf" for the After Action Report for the wildfire-related emergency that occurred in 2021. Please note, the EOC was not activated for any"wildfire- related emergencies" in 2022. b. Yes, please reference the following attachments for the requested information. • WMP-Discovery2023_DR_OEIS_003-Q003Atch02CONF.pdf • WMP-Discovery2023_DR_OEIS_003-Q003Atch03.pdf • WMP-Discovery2023_DR_OEIS_003-Q003Atch04CONF.pdf	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	4	N/A	8.4	Emergency Preparedness	N/A
218	OEIS	003	OEIS_003	4	OEIS_003_Q4	Regarding Support for Medical Baseline Customers a. How does PG&E support Medical Baseline (MBL) customers during wildfire emergencies?	PG&E evaluates the scope of the wildfire emergency and partners with Community Based Organizations (CBOs) to activate services based on the wildfire footprint and estimated customer impact. Two contact centers are activated during emergencies to provide 24/7 emergency live agent service for customers to report emergencies and obtain information on support resources. PG&E's partnership with 211 connects customers identified as Access and Functional Need (AFN), including Medical Baseline (MBL) customers, with approximately 11,000 CBOs and government agencies across PG&E's service area. 2-1-1 provides emergency needs screening via incoming calls and texts, outbound efforts, and in-person visits to identify the needs of households during wildfire emergencies. 2-1-1 provides Care Coordination. Through the Care Coordination process, individuals will undergo an intake assessment with a 2-1-1 Care Coordinator, including their current household situation, electricity needs, and medication and/or assistive technology usage to determine their needs during a wildfire emergency. Care Coordination provides a personalized safety plan that lists the individual's emergency contacts, local emergency or customer organizations' contact information, health and medical information, and other similar items. 2-1-1 Care Coordinators will contact the individual customer to check whether they require additional support. PG&E also partners with local food banks to provide customers with support during wildfires. For additional information, please refer to PG&E's 2023 AFN Plan at https://www.pge.com/en_US/residential/outages/public-safety-power shuttoff/psps-support.page At times, PG&E may also make Live Agent phone calls to Medical Baseline customers daily, in parallel to the automated notifications, as an additional attempt to reach the customer during a wildfire event	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	8.4.6	Emergency Preparedness	Customer Support in Wildfire and PSPS Emergencies
219	OEIS	003	OEIS_003	5	OEIS_003_Q5	Regarding Emergency Operations Customer Surveys a. Provide an example of each customer survey sent in 2021 and 2022 regarding emergency operations and any reports analyzing those surveys' results.	Please see attachment "WMP-Discovery2023_DR_OEIS_003-Q005Atch01CONF.zip" for the following survey questionnaires and executive summaries for surveys regarding outreach effectiveness and general customer awareness of PSPS: • 2021 PSPS Pre-season Questionnaire and Executive Summaries; • 2021 PSPS Post-Season Questionnaire and Executive Summaries; • 2021 PSPS Outreach Effectiveness Questionnaire and Executive Summaries; • 2022 PSPS Pre-season Questionnaire and Executive Summaries; • 2022 PSPS Post-Season Questionnaire and Executive Summaries; and • 2022 PSPS Outreach Effectiveness Questionnaire and Executive Summaries. Due to limitations around uploading compressed documents (zip files) to OEIS's Docket portal, we are unable to serve this attachment through the confidential Docket. We have placed the confidential attachment within OEIS's secure SharePoint	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	1	N/A	8.4.4	Emergency Preparedness	Public Emergency Communication Strategy
222	OEIS	003	OEIS_003	8	OEIS_003_Q8	Regarding Confidential Stakeholder Data Requests a. Provide PG&E's confidential responses and attachments to the following Data Requests: i. WMP-Discovery2023_CalAdvocates_002-Q001 ii. WMP-Discovery2023_CalAdvocates_006-Q007 iii. WMP-Discovery2023_CalAdvocates_006-Q008 iv. WMP-Discovery2023_CalAdvocates_006-Q011 v. WMP-Discovery2023_CalAdvocates_006-Q012 vi. WMP-Discovery2023_CalAdvocates_009-Q016	The confidential material is being provided pursuant to the accompanying confidentiality declaration. Please see requested attachments: i. WMP-Discovery2023_DR_CalAdvocates_002-Q001.pdf WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch01CONF.pdf WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch02CONF.pdf WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch03CONF.pdf WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch04.xlsx WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch05.pdf WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch06CONF.zip ii. WMP-Discovery2023_DR_CalAdvocates_006-Q007.pdf WMP-Discovery2023_DR_CalAdvocates_006-Q007Atch01CONF.xlsx iii. WMP-Discovery2023_DR_CalAdvocates_006-Q008.pdf WMP-Discovery2023_DR_CalAdvocates_006-Q008Atch01CONF.xlsx iv. WMP-Discovery2023_DR_CalAdvocates_006-Q011.pdf WMP-Discovery2023_DR_CalAdvocates_006-Q011Atch01CONF.xlsx v. WMP-Discovery2023_DR_CalAdvocates_006-Q012.pdf WMP-Discovery2023_DR_CalAdvocates_006-Q012Atch01CONF.zip vi. WMP-Discovery2023_DR_CalAdvocates_009-Q016.pdf WMP-Discovery2023_DR_CalAdvocates_009-Q016.xlsx	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	7	Wildfire Mitigation Strategy Development	N/A
223	OEIS	003	OEIS_003	9	OEIS_003_Q9	Regarding PG&E's Asset Inspection Program a. Provide the inspection checklists used for both PG&E's patrols and detailed inspections. b. If PG&E tailors its inspections specifically to inspect wildfire risk specific items, identify which items within the checklist this applies to, particularly if such differs from standard GO 95 inspections. c. On average, how many detailed inspections are completed by inspectors per day?	THE CONFIDENTIAL MATERIAL IS BEING PROVIDED PURSUANT TO THE ACCOMPANYING CONFIDENTIALITY DECLARATION. Distribution Inspection Program a) Please see attachment "WMP-Discovery2023_DR_OEIS_003-Q009Atch01.xlsx" for the inspection checklist used by our detailed distribution inspections. Please note that no checklist is used during distribution patrols. b) Please see column F of attachment "WMP-Discovery2023_DR_OEIS_003-Q009Atch01.xlsx" for the items specific to wildfire risk. The checklist items that are related to wildfire risk have been designated as "critical attributes." c) On average, PG&E completes 25 to 30 structures per day, per inspector. Transmission Inspection Program a) Please see the following attachments for the checklists related to our Transmission Inspection Program: i. Transmission Inspection form: "WMP-Discovery2023_DR_OEIS_003-Q009Atch02.xlsb." ii. Patrol forms: "WMP-Discovery2023_DR_OEIS_003-Q009Atch03CONF.pdf;" "WMP-Discovery2023_DR_OEIS_003-Q009Atch04.pdf." b) Wildfire risk items are identified through asset abnormalities prioritized by G.O. 95, Rule 18 and documented in Please reference our Electric Transmission Line Guidance for Setting Priority Codes Standards located on our website at the following link: https://www.pge.com/pge_global/common/pdfs/safety/emergency preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/standards-and procedures/td-8123p-103.pdf. Items that reference "Issues" on Column "Question" of the inspection form attachment WMP Discovery2023_DR_OEIS_003-Q009Atch02.xlsb (ex: "Conductor Issues") list potential wildfire risk items for the inspectors to identify. c) On average, PG&E completes inspections on 20 to 25 structures per day, per inspector. Substation Inspection Program a) Please see attachment "WMP-Discovery2023_DR_OEIS_003-Q009Atch05.xlsx" for a checklist providing a detailed view of supplemental inspection questions by substation asset type. b) Substation supplemental inspections questions were developed specifically for the detection of fire ignition risks within substations and were informed by Failure Mode & Effects Analysis (FMEA). Although, many of the questions are overlapped from the routine-based inspections, the methods for detecting ignition issues utilized during supplemental inspections are more rigorous and intended to provide higher ignition detectability compared to routine (GO 174) inspections. The supplemental inspection program utilizes a combination of ground-based inspections, aerial-based drone inspections, and infrared-based inspections to complete a supplemental inspection unit at a substation. Different than routine-based substation inspections, the supplemental inspections are then reviewed in part by a Centralized Inspection Review Team (CIRT) and Inspection Review Specialists (IRS) to validate findings and ensure inspection accuracy. c) Substation supplemental inspection completions include three methods of inspection: ground, infrared and aerial-drone. The average rate of inspection completions is equal to 0.077 inspections per day, per inspector during the substation supplemental inspection cycle.	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	5	N/A	8.1.3	Asset Inspections	N/A
225	OEIS	003	OEIS_003	11	OEIS_003_Q11	Regarding PG&E's Response to P-WMP_2023-PG&E-002-Q07 a. PG&E states that a Critical Attribute is defined as "a condition that could lead to either an ignition point or wire down situation that could result in a potential fire ignition." Provide all supporting documentation for procedures PG&E uses to determine whether something is a Critical Attribute. If such procedures do not exist, PG&E must provide the following: i. A description of PG&E's process for how it determines what qualifies as a Critical Attribute. ii. A list of criteria PG&E uses to qualify an asset as a Critical Attribute. b. What does PG&E mean by "as defined by Asset Strategy"?	a. i. For distribution, a critical attribute is any question that identifies a condition that could lead to either an ignition point or wire down situation that could result in a potential fire ignition. The determination of critical attribute was created based on discussions with multiple stakeholders/SMEs from Asset Strategy, Standards, and System Inspections. The finalized list was routed through EDRS and was approved by leaders from Asset Strategy and System Inspections. This list is provided as Atch01, included in our response to Question 011.A.II below. For transmission, the guidance within "Electric Transmission Line Guidance for Setting Priority Codes" provided in our response to Question 009, in accordance with GO-95 Rule 18, informs whether issues identified through inspection are critical attributes in the context of QA/QC for asset inspections. Questions on the inspection form that lead to high priority findings are considered critical. For example, the finding of greater than 50% material loss of a conductor is critical. ii. For Distribution asset inspections, please review "WMP Discovery2023_DR_OEIS_003-Q009Atch01.xlsx" provided in our response to Question 009 for a list of our Distribution assets that we have defined as "Critical Attributes." For Transmission asset inspections, PG&E uses the following criteria to qualify critical attributes: • TD-8123P-103 "Priority A": The condition is urgent and requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. b. "As defined by Asset Strategy" means that the guidance was provided via the Asset Strategy departments within PG&E. PG&E uses the term 'critical attribute' in a variety of contexts, such as the approximately 300 critical data elements noted in WMP Table 22-33-3, Tracking ID 23, which provide information for risk modeling, failure analysis, etc	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22--21 Asset Inspections Quality Assurance and Quality Control ACI PG&E-22--08 Better Application of Specific Lessons Learned from Utility-Caused Fires
226	OEIS	003	OEIS_003	12	OEIS_003_Q12	Regarding PG&E's Response to P-WMP_2023-PG&E-002-Q09 a. PG&E states that it is still performing targeted equipment repairs relating to EPSS. Is this a program separate from that described within Section 8.1.7 of its WMP? If so, provide the following: i. Description and procedures in which PG&E uses to decide when and where it will perform EPSS-related targeted equipment repairs. ii. How PG&E reallocates resources to address these EPSS-related targeted equipment repairs (particularly in relation to the program described in Section 8.1.7). iii. The scale of such EPSS-related targeted equipment repairs (i.e. number of work orders, number of CPZs included in this program). b. In the attachment "WMP-Discovery2023_DR_OEIS_002-Q009Atch02.xlsx", targeted equipment repairs are not included as part of the additional mitigations being completed. Why were these not included if PG&E is still using this measure? c. Provide a GIS file with the locations of CPZs scoped for additional reliability mitigations based on EPSS impacts.	The confidential material is being provided pursuant to the accompanying confidentiality declaration. a. (i) (ii) (iii) EPSS targeted equipment repairs are incorporated into the Open Work Orders Tag program as described in Section 8.1.7 of the WMP. EPSS targeted equipment repairs can be either an EC, ER, or CE Notification. Notifications with a potential reliability impact on EPSS circuits receive a priority ranking for visibility during work scheduling to allow them to be scheduled on a priority basis compared to other work. Field Operations uses the priority ranking during scheduling to help in decision-making and subsequent execution. PG&E is currently using the prioritization criteria from 2022 that is based on circuit risk rankings. b. EPSS targeted equipment repairs are currently included as a part of attachment "WMP-Discovery2023_DR_OEIS_002-Q009Atch02.xlsb" in column T (Open Work Tags (Asset)). These Tags may constitute EC, ER, and CE Notifications and may be EPSS targeted equipment repairs or other types of work. The additional mitigation measures previously included in the attachment are mitigation measures being undertaken from a reliability improvement perspective. These are in addition to the Open Work Orders Tag program. c. Please see attached file "WMP-Discovery2023_DR_OEIS_003-Q012Atch01CONF.kmz."	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-32 – Updates on EPSS Reliability Study
227	OEIS	003	OEIS_003	13	OEIS_003_Q13	Regarding PG&E's Response to P-WMP_2023-PG&E-002-Q08 a. Provide all Enhanced Ignition analysis (EIA) reports completed for instances in which the qualifier was an EPSS protected facility.a. Provide all Enhanced Ignition analysis (EIA) reports completed for instances in which the qualifier was an EPSS protected facility.	The confidential attachments are being provided pursuant to the accompanying confidentiality declaration. In response to Question 8 of Energy Safety's Second Data Request, subpart (d), PG&E provided a list of ignitions that were evaluated/partially evaluated in the Enhanced Ignition Analysis (EIA) program and listed why each ignition event qualified to be included in the program. The program is primarily focused on analyzing ignitions in HFTD and HFRA, but PG&E includes ignitions on EPSS protected facilities in the process as an exception, regardless of location. As indicated in the spreadsheet in response to Question 8(d), there were 22 ignitions on circuits protected by EPSS that were included into the EIA program when the location criteria was not also met. PG&E understands this request is a follow-up asking for the deliverables for the 22 events where the only qualifier was EPSS. Given the limited time to respond to this request, PG&E is providing the summary investigation reports prepared by the EIA program for each of the 22 ignitions in "WMP-Discovery2023_DR_OEIS_003-Q013CONF.zip." Please note this entire .zip file is confidential. We note that this population of events is not inclusive of all ignitions associated with EPSS protected facilities that were analyzed as part of this program and qualified for review based on other factors like location (i.e. HFTD or HFRA as indicated in response to Question 8 (d)). Please feel free to reach out if you have any additional questions regarding this response	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22--08 Better Application of Specific Lessons Learned from Utility-Caused Fires
228	OEIS	003	OEIS_003	14	OEIS_003_Q14	Regarding PG&E's Fault Ramer Replacements a. Provide the numbers of fault tamers PG&E has replaced by year since 2020. b. Provide PG&E's targets for fault tamer replacements in 2023 and 2024, as applicable. c. Provide the number of fault tamer devices within PG&E's HFTD. d. Provide the number of fault tamer devices identified as needing replacement within PG&E's HFTD.	a. We interpret "replaced" to mean a proactive changing of an in-service fault tamer fuse that had not failed or operated normally due to a fault. In July 2021, in response to our 2020 causal evaluation of 4 apparent fault tamer failures, we published a bulletin that requires replacement of the entire fuse after a fault (no re use of the backup limiter portion of the fuse). We replaced fuses at seven locations associated with recent transformer changeouts in high wildfire consequence zones. At the time, there was a hypothesis that fault tamer failures were correlated with transformer changeouts. That hypothesis has since been disproven. Several fault tamer replacements from circuits in the Sonoma division were completed in August 2022 to support our failure evaluation. On 10/06/2022, after identifying an internal weld separation issue as the root cause of a recent increase in failures associated with 2021 and newer vintage fuses, we issued a full stop of new fault tamer installs, and we purged and returned all fault tamer inventory. b. We do not have any defined targets for proactive replacements in 2023 and 2024, unless they are identified in our GO165 inspection program guidance, as revised for 2023 to better assess for fuse end of life conditions and to reflect recent updates in manufacturer guidelines. New fault tamers are not currently being installed, so when a fault tamer fuse operates after a fault, it is replaced with a substitute fuse. c. We have records indicating there are 59,102 fault tamer fuses in service for transformer protection in HFTD, installed between 2020 and 2022, through the October 2022 purge of fault tamer inventory. There are additional fault tamers installed prior to 2020 and a separate smaller population of fault tamers installed for line protection. Those totals are not available in the limited amount of time to respond to this data request. d. Please reference our response to Q14 subpart (b)	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	N/A	N/A	N/A

229	OEIS	003	OEIS_003	15	OEIS_003_Q15	Regarding PG&E's V4 of its Wildfire Distribution Risk Model (WDRM) a. What is PG&E's status for review and approval of V4? b. When does PG&E intend to use V4 output to influence its undergrounding plan? Include discussion on details of how this may affect PG&E's undergrounding plan. c. Provide a list of the differences and improvements being made to V4 in comparison to V3. d. Is V4 undergoing third-party review similar to V2 and V3? If so, provide a status update on the review, including expected completion date for the related report.	a. The WDRM v4 is currently in review and validation prior to an anticipated approval in Q2 2023. b. The WDRM v4 will be available as an input to the underground program development after approval in Q2 2023. Beyond the response provided to ACI PG&E-22-34, the impact to the undergrounding program—i.e., how it will be applied and which years it will be used to plan—has not yet been determined. c. WDRM v4 has not yet been finalized, so we do not have a final list of differences and improvements being made to v4 in comparison to v3. However, in our 2023-2025 WMP, we discussed potential changes and improvements to WDRM v4 at high level. In Section 6.7 (page 213), we discussed our Risk Assessment Improvement Plan, including potential model improvements. Similarly, on page 848 in Appendix B we discussed WDRM v4 as part of our model development schedule. And ACI 22-07 (page 865) discusses our lessons learned from third party review of our models. d. Yes, as part of the review and validation model development step, the WDRM v4 is currently undergoing third-party review. The final validation report is scheduled for Q3 2023	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	6.2.1	Risk Methodology and Assessment	Risk and Risk Component Identification
230	OEIS	003	OEIS_003	16	OEIS_003_Q16	Regarding PG&E's response to OEIS Data Request 2 Question 5 Attachment 1 a. How did PG&E determine a mitigation effectiveness of 11.8% for down conductor detection (DCD)? b. In Table 8-4, PG&E has included 2023, 2024 and 2025 targets for DCD. Additionally, in response to CalAdvocates Data Request 10 Question 1, PG&E supplies that 21,000 miles will be covered by DCD by 2025. However, within the attachment, PG&E only demonstrates goals of approximately 27.34, 1.40, and 0 miles in 2023, 2024, and 2025 respectively.2 Explain this discrepancy. c. Include the number of miles DCD covered in 2022, as well as how many additional miles will be covered based on PG&E's targets for 2023, 2024, and 2025 broken down by year. d. How did PG&E determine a mitigation effectiveness of 65% for EPSS? e. Why is partial voltage detection (PVD) not included within PG&E's mitigations within the attachment? If it were, what would the mitigation effectiveness be for including PVD?	a) The mitigation effectiveness for down conductor detection was based on the incremental benefit to EPSS. The mitigation effectiveness was determined by reviewing the ignitions that occurred during EPSS enablement periods. Out of the 30 ignitions reviewed, 14 of them are high impedance faults. Of the 14 ignitions, we estimate that 25% can be prevented based on subject matter expert review. That review considered the fault characteristics relative to DCD's ability to detect high impedance faults as small as 1 amp, and that DCD can detect line to ground faults, but not line to line faults. Based on the above, the calculation of effectiveness is as follows: 14/30 * 25% = 11.8% b) The approximate miles that OEIS calculates is only the miles in the Top 5% of risk (41 circuit segments) and not the full mileage across all locations in which DCD is covering. c) Approximately 3,500 HFRA miles were covered by Down Conductor Detection (DCD) in 2022, with another 17,000 HFRA miles planned in 2023, 700 HFRA miles in 2024 and 30 HFRA miles in 2025. HFRA map utilizes the same methodology as CPUC-approved HFTD map, but also factors in incremental adds or exclusions to the HFTD map boundaries in consideration of risk factors for potential catastrophic fires originating from utility infrastructure. d) The effectiveness of 65% was a conservative estimation of EPSS effectiveness prior to the final calculated effectiveness of 68% based on review of 2022 EPSS ignitions. e) We do not possess sufficient data on Partial Voltage Detection in order to adequately represent an effectiveness	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	8.1.2.10	Grid Design and System Hardening	Downed Conductor Detection Devices
231	OEIS	003	OEIS_003	17	OEIS_003_Q17	Regarding undefined terms in 8.4.6 PG&E discusses "red tagged" customers, "impacted" communities, and "impacted" customers (including cities, counties, and tribal governments) in Section 8.4.6; however, definitions of such terms are not provided. a. Provide a definition, as it pertains to both wildfire and PSPS events in the context of Section 8.4.6, and the criteria for these groups being identified as such for: i. "Red tagged" customers ii. "Impacted" communities iii. "Impacted" customers	Red Tag: For natural disasters, including wildfires, in which the Governor or POTUS declares a State of Emergency, the official definition comes from D.19-07-015 (page 16) "…when a disaster(s) has resulted in the destruction or damage of a structure, such that utility service is disrupted voluntarily or involuntarily due to safety concerns or reconstruction activities to address the damage from a proclaimed state of emergency event…". Impacted Communities: this term was used as shorthand for all impacted customers and facilities. Impacted Customers: In a typical wildfire event, PG&E uses the fire perimeter maps available on National Inter-Agency Fire Center website and expand them by 2 miles each day. Any customer attached to a meter within the extended perimeter becomes an "impacted customer". The list of impacted customers and structures are refreshed daily, until the fire is contained.	Colin Lang	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	0	N/A	8.4.6	Emergency Preparedness	Customer Support in Wildfire and PSPS Emergencies
236	TURN	006	TURN_006	1	TURN_006_Q1	1. Regarding the System Hardening Decision Tree provided as Attachment 3 to the response to TURN data request 5-1, please define the following acronyms used in the Decision Tree: a. PSS b. FSD c. EASOP d. WGC e. ECOP	a. PSS = Public Safety Specialist. PG&E PSS team members with extensive, local wildfire operations experience. Many had a previous career with CAL FIRE or other fire agencies. b. FSD = Field Scoping Desktop Meeting. Meeting to scope potential undergrounding project sites held in office as opposed to in the field. c. EASOP = Economic Analysis Software Program. Program used by PG&E to evaluate project economics. d. WGC = Wildfire Governance Committee. Also referred to as PG&E's Wildfire Risk Governance Steering Committee (WRGSC). It makes decisions about developing and prioritizing mitigation initiatives. e. ECOP = Electric Correction Optimization Program. This program considers existing open electric work when prioritizing, leveraging opportunities to gain efficiency by bundling multiple outstanding work tags into a project.	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_006.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
237	TURN	006	TURN_006	2	TURN_006_Q2	Regarding the System Hardening Decision Tree provided as Attachment 3 to the response to TURN data request 5-1 and discussed in that response: a. Does PG&E intend to use this Decision Tree for future projects during the 2023-2025 period for selecting which system hardening mitigation to usefor a given location? b. If the answer to "a" is anything other than an unequivocal "no," please explain each and every circumstance under which PG&E intends to use this Decision Tree for future projects.	a) No. The System Hardening Decision Tree was used to scope base system hardening projects in the workplan from 2023-2026 that were selected using the WDRM, version 2. Much of this work was initiated for scoping prior to the 10K UG program announcement in late 2021. This System Hardening Decision Tree is not and will not be used for newly scoped work. b) N/A	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_006.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
238	TURN	006	TURN_006	3	TURN_006_Q3	Regarding the Undergrounding Decision Tree provided as Attachment 1 to the response to TURN data request 5-1 and discussed in that response: a. Please provide a time range in months for each of the "Key Phases" listed in the box in the lower left corner. b. Please explain how PG&E defines the words "infeasible," as used in the text of the response (related to the possibility that undergrounding may ultimately be determined to be "infeasible"), and "unfeasible" as used in the Decision Tree.	a) Circuit Segment Risk Ranking – The WDRM risk model is the first step in identifying the list of circuit segments where wildfire risk is the highest. This data is updated roughly on an annual basis. Circuit Selection Process – The inputs to the feasibility score, bundling methodology following the previous year's lessons learned, and new inputs are developed in parallel, but require multiple reviews of the analysis and ultimate approval. This can take 2-3 months, but the first discussions often start before the risk model is finalized. Once the model is available, and barring any major modifications to inputs, it can be 1-2 months following release of the new risk model and associated Circuit Segment Risk Ranking. Feasibility study – Currently, the outlook for steady state output from this step is 40-70 miles per month with many activities being done in parallel. The Grid Design team can usually complete this step in about 1 month. Field Scoping – This is often the longest step due to the coordination of multiple groups, field checks, and finalization of documents and decisions related to the details of the project being scoped. Typically, this step can take ~2-3 months with high variation in that number for specific projects. b) In this context, infeasible and unfeasible are used interchangeably, to represent an option as impractical to actually construct. Typically, locations deemed infeasible would require substantial re-routing of the line or must cross simply non-passable terrain that would impede a potential UG route for the circuit. In these cases, targeted use of OH hardening is considered	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_006.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
239	TURN	006	TURN_006	4	TURN_006_Q4	Regarding the Fire Rebuild Decision Tree provided as Attachment 2 to the response to TURN data request 5-1 and discussed in that response: a. Please define the following acronyms used in the Decision Tree: PIH, EASOP, OEC, DG, SG b. Does PG&E intend to use this Decision Tree for future fire rebuild projects during the 2023-2025 period for selecting which system hardening mitigation to use for a given location? c. If the answer to "b" is anything other than an unequivocal "no," please explain each and every circumstance under which PG&E intends to use this Decision Tree for future fire rebuild projects.	a) PIH – Pre-installed Interconnection Hub – In this context this refers to a tie-in point to facilitate generation connection to serve customers on a radially fed circuit with no available field-side operational ties (AKA "back-ties"). EASOP – Economic Analysis Software Program – Program used by PG&E to evaluate project economics. A OEC – Operations Emergency Center – Regional operation center activated during an emergency event to manage resources and response locally. DG – Distribution Generators – Generators installed on the primary voltage system serving multiple customers. SG – Service Generators – Generators installed in the secondary/service conductor often serving only one customer. b) Yes. c) PG&E will use this Fire Rebuild Decision Tree to provide guidance to the OEC and supporting teams on how to rebuild the system if/when damaged by a major storm or fire event	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_006.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
240	TURN	006	TURN_006	5	TURN_006_Q5	Regarding the response to TURN data request 5-4, please explain the following terms used in the last paragraph of that response: a. Gray services b. Tree-connects c. "Breakaway" connectors	a) Gray Services – An older type of insulated service aerial conductor that is more susceptible to water ingress and deterioration. b) Tree-connects – In this context, a service or secondary wire that is tied / connected directly to trees instead of poles. c) Break-away connectors – A connector system, primarily used at the service pole, that is designed to separate safely (AKA "break-away"), in the event of a tree or branch falling into the line, at the pole instead of pulling down the energized service wire or disconnecting at the weather head. The breakaway connector system is designed to leave no exposed energized components on the downed service line.	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_006.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
241	TURN	006	TURN_006	6	TURN_006_Q6	Regarding the response to TURN data request 5-6: a. Please explain what is meant by the word "topped" in the phrase: "Determining the poles that will be topped." b. Is PG&E unable to offer even a rough approximation of the percentage of existing poles in the affected distribution circuits -- including poles supporting primary lines, secondary lines and service – that would be removed as a result of the planned undergrounding mileage in 2023-2025? Please provide such a rough approximation if possible.	a. When the primary conductor is removed and only communication wire remains, the top of the pole above the comms will be removed/cut off to leave only the height of the pole necessary to support the remaining connections. b. No, PG&E is not able to offer a rough approximation that is reasonably accurate of the percentage of existing poles on the impacted distribution circuits that will be removed as part of the underground plans from 2023-2025. PG&E cannot provide this information because we have not completed the engineering design for each of the 2023-2025 undergrounding projects. Individual undergrounding projects vary significantly in the amount of poles that will be removed, topped, or left in place as part of the construction process.	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_006.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
242	TURN	007	TURN_007	1	TURN_007_Q1	1. Regarding the 2023-2026 Undergrounding Workplan referenced on page 910 of the WMP (R1) and provided in Excel format in response to TURN Data Request 2-4: a. Please explain how, if at all, either or both of Simplified Wildfire Risk Spend Efficiency (SWRSE) and Wildfire Feasibility Efficiency (WFE) values (discussed on p. 968 of the WMP (R1)) were used in developing this workplan. b. Please explain what measure(s) PG&E used to prioritize projects in this workplan and how such measure(s) were used. c. Please add to the Excel spreadsheet columns showing the SWRSE and WFE for each listed circuit segment. d. Comparing this Workplan with Table 7-2 of the WMP, please explain how the HFTD miles in Table 7-2 for a given circuit segment relate to the Planned UG miles in Columns V through AA of the Undergrounding Workplan. For example, the second highest risk ranked circuit segment in Table 7-2, Bonnie Nook 1101CB, is shown to have 17.80 HFTD miles, but the Undergrounding Workplan shows projects for 2023-2026 totaling only 0.91 miles. Please explain all of the reasons why the miles in the Undergrounding Workplan would differ from the miles in Table 7-2 for a given circuit segment. Please also specifically explain, for the Bonnie Nook 1101CB circuit segment, why the planned undergrounding mileage only addresses a small portion of the mileage identified in Table 7-2.	The confidential attachment is being provided pursuant to a signed NDA with PG&E. The circuits listed in Table 7-2 are the same circuits listed in Table 7-4 where additional detail is provided. a. As described in ACI 22-34, PG&E used the SWRSE and WFE to identify where we could most efficiently reduce risk at specific locations. We selected the roughly 8,100 OH miles with the highest SWRSE to produce roughly 10,000 miles of undergrounding. b. We describe these measures in WMP (R1) section 8.1.2.2 (page 343) c. Please refer to attachment "WMP-Discovery2023_DR_TURN_007-Q001Atch01CONF.xlsx" • See column AC for HF_WFE Score • See column AD for HF_WFE Ranking • We do not provide a separate SWRSE score because, as indicated on page 968 of the 2023-2025 WMP, while in practice the standard cost per mile of undergrounding is expected to decline over time, we assumed it to be fixed at 1 for all circuit segments so that the selection is only driven by feasibility and risk. d. In the amount of time available to respond to this request, there are several reasons why the project mileage may be different from the quoted OH HFTD miles. These reasons include: • The total OH HFTD miles does not equal the required mileage for an underground project, • Projects can span multiple years. • Projects can include multiple circuit segments. • Projects can include remote grid or hybrid alternatives. • Some portion of the line may already be hardened. • Relocation of the line can result in a difference in resultant project miles. • Portions of the line may be private or customer owned. • There may be projects targeting the remote grid only in the near term.	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_007.zip	1	Yes	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
243	TURN	007	TURN_007	2	TURN_007_Q2	Regarding Table 7-2 in the WMP: a. TURN understands from Table 6-5 that the Overall Risk Score values in Table 7-2 are the sum of Total Ignition Risk Score and the Total PSPS Risk Score. Please explain how these input values to the Overall Risk Score column were calculated. Please include in the explanation the relevant mathematical equation(s). b. If not explained in response to "a", please explain how the Overall Risk Score relates to the Wildfire Mean Risk Score. c. Please provide, in live Excel format, a table that shows the information in Table 7-2 for all HFTD circuit segments. If PG&E has the same information for its self-identified HFRA circuit segments, please include that information also, and indicate which circuit segments are HFRA.	a. The Overall Risk Score is calculated by the calibration of the Wildfire Risk and PSPS Risk scores to the overall Enterprise Risk Model in the form of Multi Attribute Value Function (MAVF) units. This is shown in Section 7.2.2.2: = (,)+ (,) ( )=(23,082 +772 +14)+(2170)=26,038 Overall Utility Risk Wildfire Risk Dx Tx Sub PSPS Risk Backcast PIC Enterprise Risk MAVF Dx Tx Sub Each individual risk model that included further granularity at the structure or circuit segment level was calibrated to the overall enterprise risk MAVF scores. For example, in Table 7.2.2-4, PG&E shows an example calculation of the workplan location risk scores based on the Wildfire Distribution Risk Model (WDRM) that includes a WDRM to Enterprise MAVF Calibration of 23,082 / 2,022 = 11.41. The workplan locations and its associated risk reduction is re-calibrated by 11.41 to arrival at comparable enterprise level scores used for the Overall Risk Score. b. As stated in Section 6.4.2, We consider circuit segment ranking by high to lowmean_risk. By sorting in this method, the risk of the circuit segment is indifferent to the length of the circuit segment. However, the length of the circuit segment based on the mean_risk affects the total risk. In order to calculate Total Ignition Risk Score to arrive at Overall Risk Score, the mean risk is multiplied by the risk pixels it crosses, to arrive at total_risk from WDRM. This total_risk score is then multiplied by 11.41 to convert the WDRM v3 risk scores to the enterprise wildfire risk score as it relates to distribution. c. Please see attachment WMP-Discovery2023_DR_TURN_007-Q002Atch1.xlsb. Two additional columns N:O were added to this 'TopRisk_Table' tab and the rows were extended to capture applicable circuit segments. Table 7-2 contents can be seen in Column EN:EQ. Please note, line items outside of the top 5% risk circuit segments do not have same level of detailed review given the amount of time to respond to this request	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_007.zip	1	N/A	7.1.3	Wildfire Mitigation Strategy Development	Risk-Informed Prioritization
245	TURN	007	TURN_007	4	TURN_007_Q4	Regarding Attachment 2023-03-27_PGE_2023_WMP_R1_Section 6.4.2_Atch01, which is referenced on page 195, fn. 77 of the WMP (R1): a. Please provide a version of this Excel workbook that includes the same information for all of PG&E's HFTD circuit segments, or as many of those segments for which PG&E has such information. b. If PG&E has comparable information for its self-identified HFRA segments, please provide that information. c. Has PG&E calculated RSEs at the circuit segment level for any of the various mitigations shown in this workbook? If so, which mitigations? Provide those calculated RSEs, preferably as additional columns in the workbook(s) provided in response to "a" and "b". d. Regarding the Covered Conductor Mitigation Effectiveness values in Columns U (2022), AE (2023), BP (2024), and DA (2025): i. Please explain how these values were determined. ii. Why are the values for 2023-2025 much lower than the values for 2022? iii. Why do the values differ (slightly) based on circuit segment? iv. Are the values shown the values that are being used in PG&E's process for selecting among different wildfire mitigation techniques (e.g., undergrounding vs. covered conductor) for the listed circuit segments.	a) Please see attachment WMP-Discovery2023_DR_TURN_007-Q002Atch1.xlsb. Two additional columns N:O were added to this 'TopRisk_Table' tab and the rows were extended to capture applicable circuit segments. Please note, line items outside of the top 5% risk circuit segments do not have same level of detailed review given the limited time to respond to this request. b) Please see attachment WMP-Discovery2023_DR_TURN_007-Q002Atch1.xlsb. Two additional columns N:O were added to this 'TopRisk_Table' tab and the rows were extended to capture applicable circuit segments. Please note, line items outside of the top 5% risk circuit segments do not have same level of detailed review given the limited time to respond to this request. c) RSEs were not a requirement of the 2023-2025 WMP, only risk reduction. The risk reduction is provided in tab "Data_RR" of "WMP Discovery2023_DR_TURN_007-Q002Atch1.xlsb". d) Responses below: i. The values are determined by the subdriver effectiveness against the subdriver probability at each circuit segment. ii. This was an error. The corrected file has been provided in response to Cal Advocates and OEIS data requests and will be corrected in an errata filing on April 26, 2023. The corrected values are used in attachment "WMP Discovery2023_DR_TURN_007-Q002Atch1.xlsb". iii. These values are based on the blended average effectiveness based on the subdriver composition for each circuit segment. As per Table 7-2, the contribution of vegetation, equipment, and contact from object is different for each circuit segment, so the effectiveness varies by location. iv. It is part of the consideration, however, the overall risk reduction benefit is much higher for undergrounding as compared to covered conductor, even after taking into account the variations in covered conductor effectiveness.	Tom Long	4/21/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_007.zip	0	N/A	6.4.2	Risk Methodology and Assessment	Top Risk-Contributing Circuits/Segments
206	CalPA	Set WMP-16	CalPA_Set WMP-16	11	CalPA_Set WMP-16_Q11	Regarding PG&E's Average Peak Load for UG Projects. For the purposes of this question, if any portion of a circuit was or will be undergrounded as part of an OH to UG conversion project, the circuit should be included: a) Provide the average peak load to circuit ampacity in percent from 2017 to 2019 for the circuits with OH to UG conversion completed in 2020. b) Provide the average peak load to circuit ampacity in percent from 2018 to 2020 for the circuits with OH to UG conversion completed in 2021. c) Provide the average peak load to circuit ampacity in percent from 2019 to 2021 for the circuits with OH to UG conversion completed in 2022. d) Provide the average peak load to circuit ampacity in percent from 2020 to 2022 for the circuits that will be undergrounded in 2023. e) Provide average peak load to circuit ampacity in percent from 2020 to 2022 for the circuits that will be undergrounded in 2024. f) Provide the average peak load to circuit ampacity in percent from 2020 to 2022 for all adjacent circuits to the circuits that have OH to UG conversion projects in 2023. g) Provide the average peak load to circuit ampacity in percent from 2020 to 2022 for all adjacent circuits to the circuits that have OH to UG conversion projects in 2024. END OF	Please see "WMP-Discovery2023_DR_CalAdvocates_016-Q011Atch01.xlsx" for the requested information. The attachment includes a separate worksheet for each subsection to this response and is labeled accordingly (a, b, c, etc.). Please note that the circuits included in this response for planned work (relevant to subsections d – g) are based on the undergrounding workplan submitted in the 2023-2025 WMP (based on our workplan as of January 3, 2023). In response to subsections f and g, "adjacent circuit" is defined as a circuit that shares an open point. The adjacent circuits included in the response may also be a circuit included in the workplan if it is adjacent to another in the workplan.	Holly Wehrman	4/18/2023	4/26/2023	4/26/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment
246	CalPA	Set WMP-18	CalPA_Set WMP-18	1	CalPA_Set WMP-18_Q1	PG&E states in response to Question 1(a) of CalAdvocates-PGE-2023WMP-15: Vegetation Management for Operational Mitigation (VMOM) will be primarily focused in HFTD and HFRA. There are instances where a circuit segment may cross in or out of HFTD/HFRA and VMOM would complete work on the whole circuit segment including the areas outside HFTD/HFRA. Focused Tree Inspections are planned for HFTD areas in the plan developed for 2023. a) Is it correct to interpret the statement above to mean that Focused Tree Inspections will take place only in HFTD areas (and will not include the HFRA, as VMOM will) in 2023? b) If Focused Tree Inspections will take place only in HFTD areas and not in HFRA, please explain why. c) Will Focused Tree Inspections take place outside of the HFTD after the year 2023? d) If yes, please state where (in addition to the HFTD) Focused Tree Inspections are likely to take place after the year 2023.	a. No, but the following clarifications are provided to better inform an accurate interpretation. Most of HFRA overlaps with HFTD as HFRA refinements utilized HFTD as the base map for evaluating areas to add or remove based on identified risk, risk misidentification, or false-precision associated with HFTD boundaries. AOCs prioritized for execution are dominantly in HFTD but AOC are based on polygons and the circuit segments contained. HFTD can have "islands" of non-HFTD that portions of circuits transect, and in these cases the limited areas of non-HFTD are included in the inspection assignment for 2023. b. All portions of circuits in targeted AOCs will be inspected with the same guidance. The areas with include HFTD, HFRA, and limited non-HFTD as noted in response a. Due to the GO95 compliance requirements for vegetation clearances and hazardous tree identification in HFTD the Vegetation Management program does not deviate from those requirements in HFTD. These same clearance expectations will apply in HFRA if it is in areas within AOC polygons outside HFTD. c. It has not been determined if FTI will be applied outside HFTD after 2023. Initial AOCs were developed systemwide by county and some AOCs are identified outside HFTD and HFRA mainly due to localized tree mortality or outage trends. While none of these AOC were prioritized for 2023 these AOC still serve a value for situational awareness supporting Routine and Second Patrols. It is planned to evaluate AOC annually. As a result they are subject to change after 2023. d. Please refer to response c.	Holly Wehrman	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2.2.2.6	Vegetation Management and Inspections	Discontinued Programs

247	CalPA	Set WMP-18	CalPA_Set WMP-18	2	CalPA_Set WMP-18_Q2	PG&E states in response to Question 3 of CalAdvocates-PGE-2023WMP-15 that "PG&E intends to track trees identified for work under VMOM and FTI using the OneVM tool." Please provide the following regarding the OneVM tool: a) Its purpose(s) b) How the tool works (i.e. what mechanisms or procedures it will use to achieve outputs) c) When the tool was developed d) When PG&E will begin utilizing the tool.	a) The purpose of the One VM tool is to provide map-based work execution, monitoring, and validation through a single software platform that incorporates VM work management systems into one. With increased integration between our databases and data, additional visibility of what work is being performed at what times could be achieved to reduce the risk of overlapping programs, reduce potential of disruption to our customers, and enable better risk-informed planning and decision-making. b) The One VM tool is governed by the same procedures affecting VM Distribution Routine and Second Patrol. The way One VM functions is by providing a comprehensive overview of projects from planning to execution to completion/closure, linking work lifecycles through parent-child relationships, and providing visibility into the workforce that performs the work via a dispatcher console with Gannt. This CRM or workforce management platform then is linked to our reporting system, Power BI, so that we can provide Realtime insights into who is doing what, where, and when. c) In 2020, we began reviewing data requirements from the Wildfire Safety Division to ensure that the development of the OneVM tool would support its requirements. At this time PG&E also began drafting a project plan and documenting processes to support the development of the OneVM Tool. d) We began utilizing the One VM Tool in January 2022 to a pilot group to test and provide user feedback.	Holly Wehrman	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
248	CalPA	Set WMP-18	CalPA_Set WMP-18	3	CalPA_Set WMP-18_Q3	PG&E states in its response to Question 5(a)(i) of CalAdvocates-PGE-2023WMP-15: "VM EPSS-enabled outage data was used to determine both a planned unit forecast and identify CPZs where EPSS VM Outages took place." Please explain what "planned unit forecast" refers to in the above instance.	'Planned unit forecast' refers to an estimate of the number of trees that may be worked under the program. The word 'forecast' is used because the exact number of trees is unknown until inspection has occurred.	Holly Wehrman	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
249	CalPA	Set WMP-18	CalPA_Set WMP-18	4	CalPA_Set WMP-18_Q4	PG&E states in its response to Question 7(a) of CalAdvocates-PGE-2023WMP-15 that its forecasted 9-year pace of work for its Tree Inventory Program "was provided for the first three years of the program with intent to ramp up annual pace. 9 years is a starting point to plan the pace of work completion however, the lessons learned will inform the completion timing." a) Please explain your reasoning for using nine years as a "starting point". b) Did PG&E consider durations other than nine years "to plan the pace of work completion"? Please explain. c) Does PG&E intend for the Tree Inventory Program to continue for more than nine years?	a) Nine years was selected as the starting point based on a realistically achievable average pace of approximately 33,000 trees removed per year (33,000 x 9 = 297,000) with the pace and duration of the program to be re-evaluated as needed based on the lessons learned from the initial years of the program. As of August 29, 2022, when the Tree Removal Inventory (TRI) program was being formulated, it was estimated that approximately 350,000 trees would remain at the conclusion of the Enhanced Vegetation Management (EVM). 84,000 of these trees listed for a work prescription of removal were identified as needing re-inspection due to having Tree Assessment Tool (TAT) ratings other than "Abate", typically due to the extent of clearance needed to achieve EVM overhang clearance requirements despite having no other significant defects. Given that the re-inspection was likely to lower the population to some extent, the pace was set to complete approximately 297,000 trees. Additionally, over the course of nine years all trees would still be inspected twice per year, once by the Routine annual inspection and once during the Second Patrol cycles, which would allow for mitigation of any trees with worsened conditions prior to the inclusion of any given circuit segment into an annual TRI scope of work. b) Different durations were considered to complete the work; however, nine years was selected as the starting point. The pace may be adjusted based on the amount and composition of the work, and the success rate of constraint resolution. c) We do not currently intend for the Tree Inventory Program to continue for more than nine years.	Holly Wehrman	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
250	CalPA	Set WMP-18	CalPA_Set WMP-18	5	CalPA_Set WMP-18_Q5	In response to question 19(b)(iii) of CalAdvocates-PGE-2023WMP-15, PG&E states: The difference [in projected vegetation management costs] of $24,861,000 between 2023 and 2024 is due to several factors, this is how PG&E will achieve this reduction; (1) Transitioning from EVM to three new programs; (2) reducing the amount of Routine VM work conducted each year commensurate with the amount of undergrounding miles completed; and (3) reducing unit costs through efficiencies over the rate case period through targeted programmatic adjustments that refine processes and improve resource efficiency. a) How does transitioning from EVM to three new programs result in a cost reduction? b) Please provide the following information about anticipated VM cost reductions from undergrounding in the below table: Year Number of Undergrounding Miles to be Completed Planned reduction in Number of Routine VM Miles Amount of Routine VM Cost Savings from Undergrounding ($$$) 2023 2024 2025	a-b) Year Number of Undergrounding Miles to be Completed Planned reduction in Number of Routine VM Miles Amount of Routine VM Cost Savings from Undergrounding ($$$) 2023 350 Miles Planned for 2023 Though we do anticipate a reduction in volume of work in routine and second patrol driven by lines undergrounded, per General Order 95 Rule 35, PRC 4293 and PRC 4293 we will continue to inspect 100% of our routine miles. N/A There will be savings due to undergrounding as there will be less miles to inspect and maintain under VM Programs. It is difficult to predict exact savings as it depends on the tree density and number of trees requiring work in the given year. 2024 450 Miles Planned for 2024 See response above for 2023. See response above for 2023. 2025 550 Miles Planned for 2025 See response above for 2023. See response above for 2023.	Holly Wehrman	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2.5.2	Vegetation Management and Inspections	Quality Control
251	CalPA	Set WMP-18	CalPA_Set WMP-18	6	CalPA_Set WMP-18_Q6	In response to question 19(b)(iii) of CalAdvocates-PGE-2023WMP-15, PG&E states: The difference [in projected vegetation management costs] of $24,861,000 between 2023 and 2024 is due to several factors, … (3) reducing unit costs through efficiencies over the rate case period through targeted programmatic adjustments that refine processes and improve resource efficiency. a) For which specific programs does PG&E anticipate reducing unit costs as mentioned in the quote above? b) For each individual program identified in your response to the previous part, please state the following: i. Program/initiative name ii. What efficiencies does PG&E anticipate realizing? iii. Describe the "targeted programmatic adjustments" that PG&E is considering or planning to make. iv. State the current unit costs and the applicable units. v. State the unit costs that PG&E anticipates achieving in 2024 (on average for the year). vi. State the unit costs that PG&E anticipates achieving in 2025 (on average for the year).	a) PG&E anticipates reducing costs on EVM Transitional, Routine, Tree Mortality, and VC pole clearing programs b) i. The three EVM transitional programs are Vegetation Management for Operational Mitigation (VMOM), Tree Removal Inventory (TRI), and Focused Tree Inspections (FTI). ii. To maximize reduction of wildfire risk effectively and efficiently, the EVM program concluded in 2022 the transitional programs will be incorporated into the 2023 workplan, we anticipate a significant decrease in VM spend due to this. As PG&E continues the effort to underground distribution lines, we anticipate a reduction in costs related to tree work, we are evaluating additional operational mitigations, including partial voltage detection, downed conductor detection, and breakaway connector, each of which we anticipate further reduce the risk of catastrophic wildfires. iii. We have been working with IBEW to identify opportunities to grow our internal inspection workforce. We hired approximately 150 internal resources in 2022 and have plans to hire an additional 150 resources in 2023, there is typically lower turnover with internal resources. We anticipate that this will create an internal team with the ability to efficiently inspect vegetation around PG&E distribution and transmission lines. In 2023 we are consolidating from 24 prime vendors to 14 to build a stable and predictable workplan. We are also implementing controls for sub contracting and regionalized work and resources. This will provide a better experience for our customers by limiting repeat visits and lowering costs. iv. The following are the unit costs1 and applicable units by program/initiative: Program/Initiative 2023 Forecast 2024 Forecast 2025 Forecast Tree Mortality Units 65,081 65,000 65,000 Tree Mortality-Unit Cost $1,546 $1,509 $1,437 VMOM-Units (Trees) 17,000 17,000 17,000 VMOM-Unit Cost $1,380 $1,345 $1,281 TRI-Units(Trees) 15,000 20,000 25,000 TRI-Unit Cost $3,566 $2,608 $1,987 FTI-Units(Miles) 5,100 5,100 $5,100 FTI-Unit Cost $16,356 $15,949 $15,189 Routine Units(Trees) $1,486,111 $1,537,100 $1,522,576 Routine-Unit Cost $497 $468 $450 v. See table above vi. See table above	Holly Wehrman	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2.5.2	Vegetation Management and Inspections	Quality Control
252	CalPA	Set WMP-18	CalPA_Set WMP-18	7	CalPA_Set WMP-18_Q7	Please provide the following information regarding actual and projected costs for each WMP initiative under Chapter 8.2 (Vegetation Management and Inspections). Each initiative should be a row in the table below. WMP Initiative Number Initiative Name 2022 Capital Expendi-ture (Actual) 2023 Capital Expendi-ture (Forecast) 2024 Capital Expendi-ture (Forecast) 2022 Operating Expense (Actual) 2023 Operating Expense (Forecast) 2024 Operating Expense (Forecast)	We report vegetation management financials pursuant to the OEIS Guidelines in Table 11 of the Quarterly Data Report. In the table below, we provide additional high-level information into the figures reported in Table 11 based on information available at this time. Please note that due to the nature of vegetation management work the costs listed are all Operating Expenses and no Capital Expenditures. Also note table below includes updates and corrections, and will align with the Q1 QDR WMP update that PG&E will send on May 1,2023.	Holly Wehrman	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2	Vegetation Management and Inspections	N/A
253	TURN	008	TURN_008	1	TURN_008_Q1	Please provide PG&E's most recent calculation of RSEs for Undergrounding, by year from 2023-2025, at the most granular level for which PG&E has computed them. For this question, "Undergrounding" refers to all programs that underground distribution lines for wildfire mitigation purposes and/or fire rebuild purposes. Please provide the workpapers with the supporting inputs and calculations for these RSEs in Excel format.	Our most recent calculation of RSEs for Undergrounding is shared in our 2023 GRC Supplemental Filing from February 2022. The most granular level at which we calculated RSEs is at the tranche level. This is summarized in attachment "WMP Discovery2023_DR_TURN_008-Q001Atch01." The RSE results are summarized in the 'RSE Results' tab with the RSE across 2023-2026 shown in cells 'H12:L12'. The supporting inputs are spanned across M002 references in tabs '1-Program Exposure', '2-Program Cost', '3-Eff – Freq Program', 'M002', 'M002 – SME input', and 'M002 – Effectiveness tabs'. Specific to more granular level assessments at the circuit segment level, WMP guidelines require risk reduction not RSE based on 2023-2025 workplans. Those risk reduction values are provided in workpaper "2023-03-27_PGE_2023_WMP_R2_Section 6.4.2" and provided with this response as "WMP Discovery2023_DR_TURN_008-Q001Atch02	Tom Long	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_008.zip	2	N/A	7.2	Wildfire Mitigation Strategy Development	Risk Impact of Mitigation Initiatives
254	TURN	008	TURN_008	2	TURN_008_Q2	Please provide PG&E's most recent calculation of RSEs for Covered Conductor, by year from 2023-2025, at the most granular level for which PG&E has computed them. Please identify all activities that PG&E includes in the calculation of RSEs for Covered Conductor. Please provide the workpapers with the supporting inputs and calculations for these RSEs in Excel format.	Our most recent calculation of RSEs for Covered Conductor is shared in our 2023 GRC Supplemental Filing in February 2022. The most granular level at which we calculated RSEs is at the tranche level. This is summarized in attachment "WMP Discovery2023_DR_TURN_008-Q001Atch01". The RSE results are summarized in the 'RSE Results' tab with the RSE across 2023-2026 shown in cells 'H11:L11'. The supporting inputs are spanned across M002 references in tabs '1-Program Exposure', '2-Program Cost', '3-Eff – Freq Program', 'M002', 'M002 – SME input', and 'M002 – Effectiveness tabs'. Specific to more granular level assessments, WMP guidelines require risk reduction, not RSE, based on 2023-2025 workplans. Those risk reduction values are provided in workpaper 2023-03-27_PGE_2023_WMP_R2_Section 6.4.2 and provided with this response as "WMP-Discovery2023_DR_TURN_008-Q001Atch02."	Tom Long	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_008.zip	0	N/A	7.2.2	Wildfire Mitigation Strategy Development	Risk Impact of Mitigation Initiatives
255	TURN	008	TURN_008	3	TURN_008_Q3	Regarding the Undergrounding Decision Tree provided in response to Data Request 5-1, Atch 1, is there an error in the alternative responses to the question at the far right: "Will a route or project scope change mitigate impediments?" It appears that the "Yes" and "No" alternatives should be flipped. If there is an error, please provide a corrected Decision Tree.	The decision tree is correct as originally submitted.	Tom Long	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_008.zip	0	N/A	8.1.2	Grid Design and System Hardening	ALL
256	TURN	008	TURN_008	4	TURN_008_Q4	The first paragraph of the response to TURN data request 5-4 states that, historically, PG&E has observed more frequent ignitions and larger wildfires associated with the overhead primary distribution powerlines, compared to lower voltage secondary distribution lines, service connections and high voltage transmission lines. a. Please provide, in live Excel format, the data on which this statement was based, and provide an explanation of what PG&E believes the data show. b. Please provide data, from 2015 to the present, showing for each of primary distribution overhead lines, secondary distribution overhead lines, service connections, and high voltage transmission lines: i. Number of ignitions ii. Number of ignitions normalized by mileage; iii. Size (e.g., acres) of fires resulting from ignitions; and iv. Number of structures destroyed by fires resulting from ignitions.	a. This statement was based on our CPUC reportable ignitions in High Fire Threat Districts (HFTDs) across PG&E's service territory in 2019–2022. See Worksheet a of attachment WMP-Discovery2023_DR_TURN_008-Q004Atch01.xlsx. The detailed data by ignition can be found in worksheet entitled "Detail_CPUC HFTD 2015-2022." As shown in the table on Worksheet a, we observed 33 of 489 (~7%) equipment-related ignitions in HFTDs associated with transmission powerlines, 33 of 489 (~7%) equipment related ignitions in HFTDs associated with lower voltage service distribution powerlines, and 25 of 489 (~5%) equipment-related ignitions in HFTDs associated with lower voltage secondary distribution powerlines. In contrast, for the same period, we observed over 80% of ignitions in HFTDs on primary distribution powerlines. b. Please see four separate worksheets for each subpart in attachment "WMP Discovery2023_DR_TURN_008-Q004Atch01.xlsx" that provide the detail requested for 2015 through 2022. The detailed data by ignition can be found in worksheet entitled "Detail_CPUC HFTD 2015-2022." i. Number of ignitions - See worksheet b.i. ii. Number of ignitions normalized by mileage – See worksheet b.ii. iii. Size (e.g., acres) of fires resulting from ignitions – See worksheet b.iii. iv. Number of structures destroyed by fires resulting from ignitions – See worksheet b.iv.	Tom Long	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_008.zip	1	N/A	8.1.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
257	TURN	008	TURN_008	5	TURN_008_Q5	In response to TURN DR 5-4, after stating that PG&E is not undergrounding service drops and is not undergrounding secondary lines in most cases, PG&E states in the last paragraph, "We will overhead remaining secondary and service 3 lines by replacing open-wire secondary, gray services, and tree-connects with the current standard covered aerial conductor." (emphasis added) a. What is meant by the word "remaining" in this quote? b. Does this mean that, in a project PG&E describes as an undergrounding project, some of the "undergrounding" work typically consists of overhead hardening of secondary and service lines? Please explain your answer. c. Please explain the conditions under which an undergrounding project would include overhead hardening of secondary and service lines and when an undergrounding project would not include such overhead hardening work. Please provide an estimate of the percentage of undergrounding projects that include overhead hardening of secondary and service lines. d. In Table 8-3 of the WMP, for the row "10K undergrounding" (initiative GH-04), do the target miles for "undergrounding work" include overhead hardening of secondary and service lines? If not, where is the overhead hardening of secondary and service lines described in this DR response accounted for in Table 8-3? e. Do PG&E's unit cost estimates for "undergrounding" include the costs of overhead hardening of secondary and service lines that may be included in "undergrounding" projects? Please explain your response. f. Do PG&E's RSE calculations for "undergrounding" include miles, costs, and risk reduction benefits from overhead hardening of secondary and service lines that may be included in "undergrounding" projects? Please explain your response.	a) In some cases, where secondary or service wires are in-line with the primary being undergrounded, it too will be undergrounded in the same trench; however, any secondary or service lines that are "lateral" to the undergrounded primary will not be placed underground. Therefore, the term "remaining" is meant to apply to those lateral secondary or service lines that are going to remain overhead. Those "remaining" secondary and service lines will be hardened by replacing open-wire secondary, gray services, and tree-connects with the current standard covered aerial conductor. b) Yes, our underground projects include overhead hardening of secondary and services where required as described in subpart a). We also execute some "hybrid" system hardening projects where portions of a circuit are undergrounded and other portions of the circuit are overhead hardened where undergrounding is deemed infeasible. Some projects also contain overhead line removal when the line is deemed idle or not required as part of a relocation or deployment of a remote grid. c) Our undergrounding work includes overhead hardening of secondary and service lines where required because the existing overhead secondary and service lines are not already in alignment with our design requirement. As noted in our response to TURN DR 5-4, secondary and service assets that are not in alignment with our design requirements and would need to be replaced include open-wire secondary, gray services, and tree-connects. We do not have exact data on the volume of undergrounding projects that involve some overhead hardening of secondary and services but estimates that the majority of undergrounding projects involve some overhead hardening of secondary and services. An exception is that Community Rebuild projects in areas impacted by a significant wildfire generally involve undergrounding secondary and services, particularly where previously existing secondary and service assets have been damaged or destroyed. d) No, the miles of secondary and services overhead hardened is not included in the miles of targeted undergrounding work. Secondary and Service replacement is also not tracked separately or reported as overhead hardened miles. We do not currently track the length or mileage of secondary and service lines replaced, overhead hardened, or otherwise modified. e) Yes, the cost of hardening secondary and service line is included in the recorded UG cost per mile used to develop the unit cost estimates. The total cost of the undergrounding project, including overhead hardening of secondary and service lines, is divided by the miles of primary distribution circuits installed underground to develop the unit cost per mile of UG projects. The cost of the secondary and services undergrounding is not itemized or projected separately. f) Our RSE calculations are based off the unit costs associated with our current undergrounding standard. Given that our current undergrounding standard includes overhead hardening of secondary and service lines that may be included as part of the "undergrounding projects", it is captured. RSEs, whether it be for tranche level representation as shared in GRC or selection criteria as part of Wildfire Feasibility Effectiveness (WFE, also called Simplified Wildfire Risk Spend Efficiency), is provided as directional guidance for grid design teams, so the actual costs per project can vary substantially.	Tom Long	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_008.zip	0	N/A	8.1.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
258	TURN	008	TURN_008	6	TURN_008_Q6	SCE's WMP (R0), p. 252, states that: "SCE has determined that lines with covered conductor have a 90% risk in PSPS activations. When a circuit (or fully isolatable circuit segment) is all covered conductor, the de-energization threshold is increased to 40/58 mph (sustained wind/gusts)." a. Please provide any data, studies or reports in PG&E's possession that address whether lines with covered conductor have experienced a reduction in PSPS activations. b. Please provide any reports or studies in PG&E's possession that assess whether any de-energization thresholds should be changed for circuits (or portions thereof) with covered conductor. c. Does PG&E have plans to do any studies in the future to assess whether any de-energization thresholds should be changed for circuits (or portions thereof) with covered conductor? If so, describe what will be studied and the planned timing for the study or studies.	a. We have not performed studies or have reports to support whether lines with covered conductors experienced a reduction in PSPS activations. b. We have not performed studies or have reports to support whether any de energization thresholds should be changed for circuits (or portions thereof) with covered conductor. We currently do not plan on adjusting thresholds for circuits with covered conductors for the reasons stated in (c). c. As stated in response to ACI PG&E-22-31 in the 2023-2025 WMP, due to our PSPS modeling approach, we would not manually adjust our final PSPS risk thresholds to account for covered conductor or any other program that reduces the probability of catastrophic outcomes. Our Catastrophic Fire Probability model (discussed in Section 9) is a risk-based assessment of the probability of ignition given an outage multiplied by the probability of catastrophic fires (Fire Potential Index). Thus, we would not adjust the threshold at which PSPS is executed (each area is scoped for PSPS at the same risk threshold), but any program or external factor that results in a beneficial outcome would reduce the probability of ignitions and therefore decrease the chance of achieving the PSPS threshold. We do however, incorporate new outage data each year into our Outage Producing Winds (OPW) and Ignition Probability Weather (IPW) machine learning models. These updates account for any updated wind to outage to ignition responses in local areas of the grid. We are also exploring if adding covered conductor as a feature of the IPW model in future iterations provides benefits (see Objective SA 04)	Tom Long	4/24/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_008.zip	0	N/A	8.1.2.1 & 9	Grid Design and System Hardening & PSPS	Covered Conductor and PSPS

221	OEIS	003	OEIS_003	7	OEIS_003_Q7	Regarding Focused Tree Inspections a. During the decision process to discontinue use of the Tree Assessment Tool (TAT) and adopt the ISA's Basic Tree Risk Assessment Form (ISA form), did PG&E consider incorporating elements from the ISA's form into the TAT? b. Is PG&E collecting a digital record of each ISA form generated by inspectors, in OneVM or another system? c. How does PG&E plan to incorporate known localized risk factors (e.g., wind, outage rates by species) into tree risk assessments? d. Did PG&E perform any analysis or study that compared the outcomes of the TAT and the ISA's checklist in the field? If so, provide this analysis or study. e. Has PG&E benchmarked and/or discussed the latest version of its TAT and the associated risk assessment procedure and its new tree risk assessment procedures using the ISA's checklist with other utilities, including, but not limited to, SCE and its Tree Risk Calculator? If so, provide a summary of that benchmarking/discussions. f. Provide the logic and any documentation of methodologies, stakeholders, and data sources for the most recent version of the TAT. Include a list of the factors considered in TAT scoring methodology.	a. Yes, as part of normal practice, we considered enhancing the TAT by incorporating additional elements of the ISA Form in 2022. b. At this time, the TRAQ form will not be digitized for the Focused Tree Inspection Program (FTI). It is the current plan that FTI Inspections will be performed by 100% TRAQ certified arborists and the TRAQ form will be used as a guide. c. We will utilizing the TRAQ form for tree risk assessments which considers local weather patterns. Inspection will also be informed by historical vegetation cased outage trends within the area of concern, d. Yes, we did informally compare the outcomes of the TAT and the ISA form. The comparison included a field testing of a sample of locations and trees for validation purposes. This study and analysis effort was not finalized. e. As part of the TAT improvement efforts in 2022, our subject matter experts met on a recurring basis with counterparts from SCE and SDG&E to share experiences, methodology and other ideas regarding hazard tree assessment. f. Please see below for Logic and Methodology of the TAT that was last used by the EVM program until the program concluded at the end of 2022. Please see attachment "WMP-Discovery2023_DR_OEIS_003-Q007Atch01_CONF.pdf" for the white paper describing the basis for the development of the TAT as well as the stakeholders and data sources. 1. Preliminary Strike Assessment a. Questions and results of the survey (in red font) are listed below. If no result is listed, the survey continues to the next question. i. Is tree tall enough to strike the facilities? 1. Yes 2. No- STOP TAT. TAT NOT REQUIRED 3. No- tree already removed- ABATE ii. Is the tree completely blocked from falling towards facilities? Some trees are tall enough to strike, but cannot because the path is blocked. CONSIDER that other trees can reduce the likelihood of a tree falling toward facilities, but only in extreme cases do they completely and reliably block the path to facilities 1. Yes- DO NOT ABATE 2. No iii. Is the tree leaning severely (>25 degrees)? 1. No 2. Toward Facilities- ABATE 3. Away from Facilities- DO NOT ABATE 4. Parallel to Facilities 2. Tree Health Score a. Questions and results of the survey listed below (if no result is listed, the survey continues to the next question.) i. Is the tree dead or clearly dying? 1. Yes- ABATE 2. No ii. Are there fruiting bodies produced by (known) decay causing fungi on roots, butt or trunk (if unknown, assume decay causing)?	Colin Lang	4/21/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	1	N/A	8.2	Vegetation Management and Inspections	N/A
244	TURN	007	TURN_007	3	TURN_007_Q3	Regarding the System Hardening Workplan provided as Attachment 1 to the response to TURN data request 2-2 (which in turn asked for a response provided to Cal Advocates): a. The first tab in this Excel workbook is named "SH Workplan_2023-2026_Conf", which suggests that this response to Cal Advocates was taken from a document that also included the years 2025 and 2026. Please provide the most up-to-date version of this workbook for the period 2023- 2026. Indicate the date of the information in the workbook that is provided. b. It appears that some of the circuit segments listed as high risk in Table 7-2 of the WMP and in the 2023-2026 Undergrounding Work Plan referenced on page 910 of the WMP (R1), e.g., Indian Flat 1104CB and Bonnie Nook 1101CB (only Bonnie Nook 1102CB is shown), are not listed in this workbook. Please explain why this is the case, even though this workbook includes planned undergrounding miles. c. Are there discrepancies in the names of the circuit segments between this workbook, and Table 7-2 and the 2023-2026 Undergrounding Work Plan referenced on page 910 of the WMP (R1). If so, please modify the version of this workbook provided in response to "a" to make the circuit segment names consistent with Table 7-2 and the 2023-2026 Undergrounding Work Plan referenced on page 910 of the WMP (R1).	The confidential attachment is being provided pursuant to a signed NDA with PG&E. a. Please refer to attachment "WMP-Discovery2023_DR_TURN_007-Q003Atch01CONF.xlsx" which is the System Hardening workplan prepared for the 2023-2026 WMP (plan dated January 3, 2023). Please see columns AH-AK and AL-AO that includes the 2025 and 2026 forecasted miles, respectively. The estimated mileage forecasts for each sub-type of hardening (overhead, underground and line removal) will vary from the actual mileage completed in each year. Additionally, if we complete system hardening miles above the annual targets in a particular year, we may lower future annual targets in a subsequent WMP or plan update. b. The following are the reasons why circuit segments from Table 7-2 may not be on the undergrounding workplan: • The circuit segment has a lower Wildfire Feasibility Effectiveness (WFE) score due to expected high undergrounding difficulty and/or bundling with other nearby circuit segments that could result in the combined WFE score for the bundled segment being relatively lower. These projects were not scoped in the workplan and remain supported by other layers of protection as described in Table 7-4 of the WMP. • The circuit segment is shorter such that it is being bundled with other nearby circuit segment(s) to optimize construction efficiency as part of a combined project. • The circuit segment was previously hardened (either OH or UG). • The circuit segment is a privately owned line. We send an annual letter to the owner reminding them of their responsibility to maintain the line but do not take action on these circuits. The following is a list of the circuit segments that were listed in Table 7-2 and an explanation why it was not included in the 2023-2026 Undergrounding Workplan: • Oakhurst 110310140 – This circuit segment had a lowered WFE score due to expected high undergrounding difficulty, and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. • Monticello 1101654 - This circuit segment had a lowered WFE score due to expected high undergrounding difficulty, and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. In addition, this section has significant OH hardening that was completed following the 2020 LNU fire. • Balch No 1 1101105414 - This circuit segment had a lowered WFE score due to expected high undergrounding difficulty, and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. • Curtis 170356972 - This circuit segment had a lowered WFE score due to expected high undergrounding difficulty, and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. • Monticello 1101630 - This circuit segment had a lowered WFE score due to expected high undergrounding difficulty, and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. In addition, this section has significant OH hardening that was completed following the 2020 LNU fire. • Calistoga 1102131531 - Currently both Calistoga circuits have REFCL enabled. Additional undergrounding in this location could compromise the REFCL system by adding capacitance. • Electra 1102CB - This circuit segment had a lowered WFE score due to expected high undergrounding difficulty, and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. • French Gulch 1101CB - This circuit segment had a lowered WFE score due to expected high undergrounding difficulty, and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years.	Tom Long	4/21/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_007.zip	1	Yes	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
71	OEIS	001	OEIS_001	3 SUPP_2	OEIS_001_Q3 SUPP_2	Regarding PG&E's Focused Tree Inspections pilot a. Describe the current state of development for the pilot area, PG&E's Areas of Concern (AOC), and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529) and the expected timeline for operationalization. b. Detail the criteria PG&E has and is using to develop the pilot area, PG&E's Areas of Concern (AOC), and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529). c. What standards, processes, procedures, and tools are vegetation management personnel using/will use to perform tree risk assessments for this pilot? d. Will PG&E be using its One VM Tool for recordkeeping for this pilot? If not, what system will PG&E use for recording keeping for this pilot? e. Where is PG&E conducting its Focused Tree Inspections pilot? If PG&E has not yet begun its pilot, where will PG&E be conducting its Focused Tree Inspections pilot? f. How many circuit miles are in scope for the pilot? g. Was the pilot area previously in-scope for Enhanced Vegetation Management (EVM)? h. For each Circuit Protection Zone (CPZ) in the pilot area provide the: i. CPZ name. ii. Tree Weighted Risk Score from PG&E's most recent version of its EVM Tree-Weighted Prioritization List. iii. Tree Weighted Rank from PG&E's most recent version of its EVM Tree-Weighted Prioritization List. iv. Risk Tranche i. Does PG&E have a plan to continue its Focused Tree Inspections assuming the pilot is a success? If so, detail those plans, including how many circuit miles PG&E plans to inspect under this program in 2023 and 2024. j. Provide a GIS layer of the pilot area, PG&E's Areas of Concern (AOC),1 and "polygons where focused vegetation inspection can be evaluated to determine appropriate counties to prioritize pilots(s)" (page 529). As applicable, provide the following attributes for each polygon: i. Number of overhead circuit miles within the polygon ii. Overall Utility Risk iii. Ignition Risk iv. PSPS Risk v. Contact from Vegetation Likelihood of Ignition	j) GIS layer for each polygon with the additional attributes have been provided. Please see "WMP-Discovery2023_DR_OEIS_001-Q003Supp02Atch01.zip" and "WMP-Discovery2023_DR_OEIS_001-Q003Supp02Atch02.xlsx." Specifically for Overall Utility Risk, Ignition Risk, and PSPS Risk, these are typically presented in terms of circuit segments or circuit protection zones. The AOC polygons do not always align with CPZ segments so circuit segments may be partially included or completely included. Since PG&E does not calculate the percentage of risk within the circuit segment designations, PG&E provides pro-rated risk scores based purely on the percentage of miles that fall within the AOC as an approximation for this data response.	Colin Lang	4/5/2023	4/27/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_001.zip	2	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
259	CalPA	Set WMP-19	CalPA_Set WMP-19	1	CalPA_Set WMP-19_Q1	Please list PG&E's expected average useful life for a given installation of the following technologies: a) DCD b) REFCL	a) DCD technology is provisioned on protective relay equipment. Expected useful life based upon similar technology obsolescence, as well as asset health and lifecycle, is projected to be 20-30 years. b) REFCL expected useful life of the core components is estimated to be 30 years.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1	Grid Design, Operations, and Maintenance	Down Conductor Detection Devices Rapid Earth Fault Current Limiter
260	CalPA	Set WMP-19	CalPA_Set WMP-19	2	CalPA_Set WMP-19_Q2	a) In 2023, what is the average per-circuit-mile cost that PG&E expects to incur for asset inspection and maintenance for a covered conductor distribution line installed in the HFTD? b) In 2023, what is the average per-circuit-mile cost that PG&E expects to incur for asset inspection and maintenance for an underground distribution line installed in the HFTD? c) In 2023, what is the average per-circuit-mile cost that PG&E expects to incur for asset inspection and maintenance for a bare distribution line installed in the HFTD? d) Please state the assumptions and limitations of your estimates for parts (a) through (c).	a) Conductor is inspected as part of our General Order (GO) 165 detailed ground inspections and patrols program. It is also inspected during infrared inspection. These inspection processes currently do not differentiate between covered conductor and bare conductor. The cost that we expect to incur for distribution overhead asset inspections in HFTDs in 2023 is roughly $2,310 per-circuit-mile, regardless of whether the conductor is covered or bare. In addition, the cost that we expect to incur for distribution overhead asset maintenance in HFTDs in 2023 is $14,565 per-circuit-mile. b) Underground cable is inspected as part of our GO 128 underground inspections and patrols program, which has an expected cost in 2023 of $93/unit for inspection and $11/unit for patrol. We do not calculate a per-circuit-mile cost on distribution underground inspections because the unit of inspection is an enclosure, padmount, subsurface vault, manhole, or J-box. We expect to spend $12.7 million for distribution underground inspections and patrols system-wide in 2023. In addition, we expect to spend $92.4 million for distribution underground asset maintenance system-wide in 2023. We do not track whether costs for distribution underground line inspection and maintenance occur in HFTDs and non-HFTDs. c) Please see the response to subpart (a). d) We used the following assumptions in calculating the per-circuit-mile inspection cost for overhead conductor in HFTD: • We expect to spend $25.7 million for distribution overhead conductor inspections in HFTDs in 2023. This includes spending for the following types of inspections: detailed ground inspection, patrol inspection, and infrared inspection. • We expect to inspect approximately 234,648 support structures in HFTDs in 2023, as part of its detailed ground inspections. • We use an average span length of 250 feet. • We expect to inspect approximately 11,110 circuit-miles of overhead distribution conductor in HFTDs in 2023, as part of its detailed ground inspections. • Our calculated cost to inspect distribution overhead conductor is $2,310 per circuit-mile in HFTDs in 2023. We used the following assumptions in calculating the per-circuit-mile maintenance costs for distribution overhead assets in HFTD: • We only included the maintenance costs associated with general overhead Electric Corrective (EC) Notifications. • These costs are tracked at the Maintenance Activity Type (MAT) level, not detailed by asset type, so we could not extract the costs associated with conductor only EC notifications. As such, the maintenance costs are for all assets in the HFTDs. • Proactive asset replacement programs were not included (e.g. pole replacements, transformer replacements, overhead line equipment replacements, etc.). • System hardening program was not included. • We expect to spend $364.6 million for distribution overhead asset maintenance in HFTDs in 2023. • We have approximately 25,030 circuit-miles of overhead distribution in HFTDs. • Our calculated cost for distribution overhead asset maintenance is $14,565 per-circuit-mile in HFTDs in 2023.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.5	Asset Management and Inspection Enterprise System(s)	N/A
261	CalPA	Set WMP-19	CalPA_Set WMP-19	3	CalPA_Set WMP-19_Q3	a) State the total costs that PG&E incurred in 2022 for asset inspections and maintenance on covered conductor distribution lines installed in the HFTD. b) State the total number of circuit-miles of covered conductor distribution lines that PG&E had in the HFTD as of January 1, 2022. c) State the total costs that PG&E incurred in 2022 for asset inspections and maintenance on underground distribution lines installed in the HFTD. d) State the total number of circuit-miles of underground distribution lines that PG&E had in the HFTD as of January 1, 2022. e) State the total costs that PG&E incurred in 2022 for asset inspections and maintenance on bare overhead distribution lines installed in the HFTD. f) State the total number of circuit-miles of bare overhead distribution lines that PG&E had in the HFTD as of January 1, 2022.	a) In 2022, we spent $241 million for asset inspections and maintenance on distribution overhead lines installed in the HFTDs. We do not differentiate costs between covered and bare conductor, so these costs are for all assets in the HFTDs. Further, we only included the maintenance costs associated with general overhead Electric Corrective (EC) Notifications. These costs are tracked at the Maintenance Activity Type (MAT) level, not detailed by asset type, so we could not extract the costs associated with conductor only EC Notifications. In addition, the costs for our proactive asset replacement programs were not included. b) In response to 2022 WMP Discovery, Cal Advocates 028, Question 3, provided on August 1, 2022, PG&E reported our total overhead distribution line circuit-miles as approximately 25,030 in the HFTDs. This data was originally extracted from the Quarterly Data Report (QDR), Table 8. Our GIS system is a dynamic, "real-time" system that reflects the current assets in our service territory. When old assets are removed, or replaced, they are removed from the GIS system. In addition, our GIS system does not include an attribute to distinguish between covered and bare conductor. As a result, we are only able to provide the total overhead distribution line circuit-miles, not the breakdown between covered and bare conductor. c) In 2022, we spent $109 million for asset inspections and maintenance on distribution underground lines system-wide. We do not track whether costs for distribution underground line inspections and maintenance occur in HFTD and non HFTDs. d) In response to 2022 WMP Discovery, Cal Advocates 028, Question 3, provided on August 1, 2022, we reported our total underground distribution line circuit-miles as approximately 2,855 in the HFTDs. This data was originally extracted from the QDR, Table 8. e) See the response to subpart (a). f) See the response to subpart (b).	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.2	Grid Design, Operations, and Maintenance	Grid Design and System Hardening
262	CalPA	Set WMP-19	CalPA_Set WMP-19	4	CalPA_Set WMP-19_Q4	a) In 2023, what is the average per-circuit-mile cost that PG&E expects to incur for vegetation management for an overhead distribution line installed in the HFTD? b) In 2023, what is the average per-circuit-mile cost that PG&E expects to incur for vegetation management for an underground distribution line installed in the HFTD?	a) Based on 2019-2022 data, our cost for vegetation management maintenance systemwide was approximately $8,500 per mile. We expect to incur similar costs in 2023. Costs for vegetation management are not forecast separately between HFTD and Non-HFTD. b) We do not separately forecast an average per-circuit mile cost incurred for vegetation management for an underground distribution line installed in HFTD.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.2	Vegetation Management and Inspections	N/A
263	CalPA	Set WMP-19	CalPA_Set WMP-19	5	CalPA_Set WMP-19_Q5	a) State the total costs that PG&E incurred in 2022 for vegetation management on overhead distribution lines in the HFTD. b) State the total costs that PG&E incurred in 2022 for vegetation management on underground distribution lines in the HFTD.	a) We do not separately track costs incurred in HFTD vs. Non-HFTD for vegetation management on overhead distribution lines. b) We do not separately track costs incurred in HFTD vs. Non-HFTD for vegetation management on underground distribution lines.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.2	Vegetation Management and Inspections	N/A
264	CalPA	Set WMP-19	CalPA_Set WMP-19	6	CalPA_Set WMP-19_Q6	a) Please describe the vegetation management activities that PG&E currently undertakes on rights-of-way with underground lines in the HFTD. b) Please describe any changes PG&E plans to make during the 2023-2025 WMP period regarding the vegetation management activities that PG&E plans to undertake on rights-of-way with underground lines in the HFTD. c) Please provide any protocols, procedures, or manuals that describe PG&E's approach to vegetation management where PG&E has underground lines in the HFTD.	a) Where there are no overhead electric facilities, we do not conduct routine vegetation management activities. As part of GO 165, the PG&E System Inspection program can identify vegetation work as part of clearing and maintenance for padmount transformers and other typical undergrounding equipment. b) Not applicable. c) Not applicable.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.2	Vegetation Management and Inspections	N/A

265	CalPA	Set WMP-19	CalPA_Set WMP-19	7	CalPA_Set WMP-19_Q7	Pages 454-455 of PG&E's WMP describe PG&E's plan to reduce its backlog of open distribution work orders. As part of this plan, PG&E states that it plans to eliminate the ignition-risk backlog by the end of 2029, and the non-ignition risk backlog by the end of 2032. a) Does the plan described above apply to PG&E's entire service territory, or only those tags in the HFTD/HFRA? b) When does PG&E expect to eliminate its backlog of ignition-risk distribution work orders that exist outside the HFTD/HFRA? c) When does PG&E expect to eliminate its backlog of non-ignition-risk distribution work orders that exist outside the HFTD/HFRA?	a) This plan only applies to tags in HFRA/HFTD areas because these areas constitute 99% of the wildfire risk in our service territory. b) We are still in the process of creating a plan/timeline for eliminating our backlog of tags outside of our HFRA/HFTD areas. Given that the HFRA/HFTD areas comprise 99% of the wildfire risk in our territory, we are prioritizing this work in order to reduce our wildfire risk as quickly and efficiently as possible. c) Please see the response to subpart (b) above.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.7.2	Open Work Orders	Open Work Orders – Distribution Tags
266	CalPA	Set WMP-19	CalPA_Set WMP-19	8	CalPA_Set WMP-19_Q8	Page 454 of PG&E's WMP states, "We divide remaining notifications into two groups: (1) ignition risk notifications in the HFTD/HFRA; and (2) non-ignition risk notifications in the HFTD/HFRA." a) How does PG&E determine whether a maintenance issue is an "ignition risk notification" or a "non-ignition risk notification"? b) Are there circumstances where a tag is a "non-ignition risk tag" but still poses other public safety hazards? c) If the answer to part (b) is yes, please list all such circumstances.	a) "Ignition Risk" notifications are maintenance tags that have been determined to have some form of ignition risk as a result of the non-conformance identified on the tag (e.g., conductor or structural support deficiency). We used a combination of wildfire risk models to calculate the wildfire risk for each notification. Each notification contains one or multiple FDA (Facility-Damage-Action) code(s) for documenting the associated issue. A team of subject matter experts from Asset Strategy, Wildfire Risk Management, and Standards/Work Methods reviewed each combination of FDAs and bucketed them into the following categories: i. No – Not Ignition Risk. This FDA has no probability of ignition. ii. Yes - Ignition risk, and then mapped to an associated wildfire risk model (example: Conductor composite model, support structure equipment failure model, vegetation composite model). Then the associated wildfire risk score is calculated for the issue based on the assigned risk model. Any notification with a greater than zero wildfire risk score is considered an ignition risk notification. b) Yes, there are some instances when a non-ignition risk tag can cause a public safety hazard. However, the circumstances of these issues identified do not correlate with a failure that could lead to a spark or ignition likelihood, which could WMP-Discovery2023_DR_CalAdvocates_019-Q008 Page 2 lead to a much larger public safety issue. The most common example of a non-ignition tag would be missing high voltage signs. While this has some public safety hazard associated with awareness of high voltage around our lines, these do not pose a direct impact to the public safety of our assets causing harm to the public. c) Missing high voltage signs, missing visibility strips on poles, broken streetlights, and de-energized idle facilities that need to be removed are examples of non-ignition risk tags that could potentially pose a public safety hazard. However, given the multiple possibilities, we cannot speak to every single circumstance that can pose a public safety hazard.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.7.2	Open Work Orders	Open Work Orders – Distribution Tags
267	CalPA	Set WMP-19	CalPA_Set WMP-19	9	CalPA_Set WMP-19_Q9	Page 895 of PG&E's WMP references an external study that stated, "for fire weather purposes, it may be necessary to position additional weather stations in canyons and other regions where short-term winds can rapidly spread wildfires." a) In response to this report, has PG&E assessed the need to position additional weather stations in canyons and other regions where short-term winds can rapidly spread wildfires? b) If the answer to part (a) is yes, please describe the results of any such assessment. c) In the 2023-2025 period, does PG&E plan to assess (or continue assessing) the need to position additional weather stations in canyons and other regions where short-term winds can rapidly spread wildfires?	a) We assess the need to position weather stations in canyons, but not specifically in response to this report. The external report did not provide specific guidance on canyons and other localized locations. Therefore, we continually evaluate the need for additional weather stations during each year of the program and install weather stations where appropriate. b) Please see the response above. The siting of new weather station locations is a routine part of the program and not a unique assessment that can be provided. c) Yes, this is part of our routine program.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-10 – Justification of Weather Station Network Density
268	CalPA	Set WMP-19	CalPA_Set WMP-19	10	CalPA_Set WMP-19_Q10	Table PG&E-22-11-3 on page 903 of PG&E's WMP lists the component costs of covered conductor installation. Below the table, PG&E states, "The costs in Table PG&E-22-11-3 include the components for CC that are comparable with the other IOUs as part of the Joint IOU efforts. They do not include all cost components that make up our comprehensive Overhead System Hardening Program." a) Please add rows to Table PG&E-22-11-3 for the components that are part of PG&E's comprehensive overhead system hardening program but were not included in Table PG&E-22-11-3. b) For each item in Table PG&E-22-11-3, including the elements noted in part (a), please provide a brief description of the work and materials that are included in each component	a) The statement referenced was to simply point out that the System Hardening Program is made up of a suite of mitigation options including Covered Conductor, Remote Grid, Removal, and Underground. The costs associated with the overhead hardening projects recorded were bundled into similar categories for only the overhead hardening portion of our System Hardening program. There are no additional costs associated with overhead hardening that were excluded from Table 22-11-3. b) Not applicable.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-11 – Covered Conductor Effectiveness Lessons Learned
269	CalPA	Set WMP-19	CalPA_Set WMP-19	11	CalPA_Set WMP-19_Q11	Pages 968-969 of PG&E's WMP describe PG&E's simplified wildfire risk spend efficiency (SWRSE), used to prioritize its undergrounding projects. Page 1006 states, "For the Undergrounding Program, we selected the roughly 8,000 OH miles with the highest SWRSE to produce roughly 10,000 miles of undergrounding." a) Is there a threshold SWRSE value at which PG&E determines that covered conductor is a more suitable mitigation than undergrounding? Please explain your answer. b) Is there a threshold SWRSE value at which PG&E determines that undergrounding is not a suitable mitigation? Please explain your answer. c) Does PG&E plan to underground any portion of line with a lower SWRSE than those top 8,000 OH miles that were selected for undergrounding (as described in the quote above)? Please explain your answer.	a) No, there is no threshold in SWRSE that we use to determine that covered conductor is a more suitable mitigation than undergrounding. SWRSE helps provide ranking of locations which have higher risk spend efficiency to mitigate wildfire work as compared to other locations and is used to select miles for undergrounding. Regarding the decision between covered conductor and undergrounding, the overall consideration of the amount of risk reduction the mitigation provides is important. By undergrounding, the amount of residual risk is virtually removed, while covered conductor does not fully mitigate the risk. b) No, there is not currently a threshold of SWRSE that we use to determine that undergrounding is not a suitable mitigation. In these early stages of our permanent system resilience mitigation work (undergrounding), we are focusing on undergrounding miles in the highest risk areas as defined in Section 8.1.2.2 of the 2023-2025 WMP, which include high risk circuits based on our risk models, fire rebuild projects, PSPS mitigation projects, and areas identified by Public Safety Specialists. We are exploring the potential use of a threshold based on the cost benefit of the investment and the risk exposure it avoids, as part of our longer-term undergrounding plans. c) SWRSE is one of the first steps in identifying miles for Undergrounding. When We scope a location for undergrounding, we review adjacent circuit segments for consideration beyond wildfire. For example, if there is potential to minimize PSPS or EPSS impact on top of the existing wildfire risk at those nearby adjacent circuit segments, we will consider expanding the scope of the undergrounding project to address those needs. Additionally, there are other cases in which we may underground, for example, for fire rebuild.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-34 – Revise Process of Prioritizing Wildfire Mitigations
270	CalPA	Set WMP-19	CalPA_Set WMP-19	12	CalPA_Set WMP-19_Q12	Attachment 1 to PG&E's response to data request CalAdvocates-PGE-2023WMP-14 states that on November 18, 2019, an intrusive inspection indicated that a pole had 18% remaining strength. On January 14, 2020, the inspector issued a priority E tag to replace the pole by January 13, 2021. a) Why was the tag for the above pole created approximately two months after the initial finding? b) Describe any actions that PG&E took between November 18, 2019 and January 14, 2020 to address the safety of the pole noted above. c) Why was the tag created with a one-year deadline based on the tag creation date, rather than a deadline based on the date of the initial finding? d) Under PG&E's current procedures and process, is the compliance deadline for a new tag based on the tag creation date or the date of the initial finding? Please explain your answer. e) Was a priority E tag the appropriate priority level in this instance? Why or why not?	a) The delay was due to this pole being intrusively inspected using our legacy inspection system, which did not release inspection records until the inspection project was closed, enabling the downstream corrective action notifications to be created. In the legacy inspection system, inspection projects were created with a finite volume of poles (generally between 200 and 400 poles) and the project was not closed until the entire pole population was inspected. Due to access issues and other constraints, it was not unusual for projects to remain open for multiple months. We acknowledged this gap and, in March of 2022, we retired this legacy inspection system. We migrated intrusive inspections onto the updated inspection application, which releases inspection records in real time and creates corrective action notifications on the same day as the inspection. b) We did not take any immediate action on this pole between November 18, 2019 and January 14, 2020. c) As discussed in subpart (a), this pole was intrusively inspected using our legacy inspection system, which did not release the inspection records until the inspection project was closed. As a result, our work management system automatically populated a due date based on the corrective action notification creation date, as it was not set up to acknowledge the inspection date. Again, we acknowledged this gap and retired the legacy inspection system. In the updated inspection application, inspection records are released in real time, creating corrective action notification on the same date as the inspection. This functionality ensures that the corrective action notification due dates align with the inspection dates. d) As discussed in subparts (a) and (c), beginning in March 2022, intrusive inspections are now performed using the updated inspection application, which creates corrective action notifications on the same date as the inspection, aligning the due date with the inspection date. e) Based on our guidance documents, Priority E was appropriate at the time of the inspection and corrective action notification creation. As a result of this event investigation, we acknowledged a gap in assessing the intrusive inspection results and utilizing the percent remaining strength to inform corrective action notification priority. We are actively revising the guidance documents and inspection application to improve our processes.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.3.2.3	Asset Inspections	Intrusive Pole Inspections
271	CalPA	Set WMP-19	CalPA_Set WMP-19	13	CalPA_Set WMP-19_Q13	The PG&E Independent Safety Monitor Status Update Report by Filsinger Energy Partners on October 4, 2022, page 9 states: During the period, the ISM reviewed data provided by PG&E related to PG&E's Underground Transmission asset ages and the average age of certain PG&E Underground Transmission assets. For example, 60% of one type of underground transmission cable is beyond its useful life.[18] Footnote 18 states, "Internal PG&E Report." Page 9 of the ISM report further states, "PG&E also states in an internal report published in May 2022 that underground transmission provides a low-risk score." a) Please provide a copy of the internal PG&E report referenced in footnote 18. b) Please provide a copy of the internal PG&E report published in May 2022, referenced above.	The confidential attachment is being provided pursuant to the accompnaying confidentiality declaration. a) Please reference "WMP-Discovery2023_DR_CalAdvocates_019-Q013Atch01CONF.pdf" for our internal PG&E presentation from May 2022. Specifically, the references are found on Slide number 16. We clarify that "beyond its useful life" refers to expected average based on industry benchmarking information. Actual condition of the assets such as their physical environment, loading conditions, inspection results, etc. may adjust this useful life. The percentage was provided to show, on a high level, where we may need to focus life extension and asset renewal efforts. b) Please reference "WMP-Discovery2023_DR_CalAdvocates_019-Q013Atch01CONF.pdf" included in part (a) of this response.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	1	N/A	8.1.2.5	Grid Design and System Hardening	Traditional Overhead Hardening –Transmission Conductor and Distribution
272	CalPA	Set WMP-19	CalPA_Set WMP-19	14	CalPA_Set WMP-19_Q14	On April 13, 2023, Cal Advocates met with a Senior Director of Grid Research Innovation and Development at PG&E. During this meeting, PG&E stated that REFCL is not a scalable product. a) Does the above statement accurately reflect PG&E's current assessment of REFCL? Please explain your answer. b) If the answer to part (a) is yes, please state all the reasons why PG&E believes REFCL is not a scalable product.	a) We are still evaluating REFCL technology in the EPIC3.15 demonstration project including field testing and gaining operational experience. We expect to have final results by the end of 2023. Decisions about further deployment of REFCL will be made after completion of the demonstration project with consideration for all wildfire risk mitigations available. b) Not applicable.	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.8.1.3.1	Grid Design, Operations, and Maintenance	8.1.8.1.3.1 Rapid Earth Fault Current Limiter
273	CalPA	Set WMP-19	CalPA_Set WMP-19	15	CalPA_Set WMP-19_Q15	a) Has PG&E performed a study to estimate the combined effectiveness of one or more combinations of covered conductor, EPSS, DCD, PVD, and REFCL in mitigating wildfires, when installed on distribution circuits in the HFTD? b) If the answer to part (a) is no, please explain why not. c) If the answer to part (a) is no, does PG&E plan to perform such a study? If so, provide the timeline for initiating and completing it. d) If the answer to part (a) is yes, please provide the results of any such study, including any reports, workpapers, or other work products.	a) PG&E is actively analyzing the effectiveness of Covered Conductor (CC), in combination with EPSS and DCD/PV. In addition, we are actively analyzing the effectiveness of Bare Conductor (BC), in combination with EPSS and DVD/PV. PG&E is in the initial phase of these two studies and intends to use the results to compare the effectiveness of CC and BC. b) As noted in the response to subpart a, we have not done this analysis previously, but it is underway. One reason that this analysis has not been completed to date is the evolution of our combined mitigations. 2022 was the first year of broad-scale application of EPSS, while DCD and PV were in development and refinement phases in 2022, such that we were still developing the knowledge, experience, and data regarding how these tools would work to mitigate wildfire risk. c) We have recently (Q1 2023) begun performing this analysis. At this time, a completion date has not been confirmed but is anticipated to be completed in 2023. d) In alignment with the response to subpart a), we do not yet have results from an analysis or study as requested, so there are no reports, workpapers, or other work products at this time. We anticipate completing these two studies by the end of 2023. This analysis will also inform our planned filing of the SB884 10-Year Undergrounding Plan	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.2	Grid Design and System Hardening	Various
274	CalPA	Set WMP-19	CalPA_Set WMP-19	16	CalPA_Set WMP-19_Q16	Table 7 on page 20 of the Joint IOU Covered Conductor Working Group Report lists SCE's estimate of the combined effectiveness of its covered conductor program, asset inspections, and several vegetation management programs. a) Has PG&E performed a similar estimate of the combined effectiveness of covered conductor, asset inspections, and vegetation management? b) If the answer to part (a) is yes, please explain the results of PG&E's estimate. c) If the answer to part (a) is no, please explain why not. d) If the answer to part (a) is no, does PG&E plan to perform such a study?	) We have not performed a similar analysis of covered conductor (CC) with the same methodology as used in Table 7. b) Not applicable. c) We did not conduct a similar estimate of the combined effectiveness of covered conductor, asset inspections, and several VM programs because Figure 8, Table 6, and Table 7 in the Joint IOU Covered Conductor Working Group Report were preliminary work and some assessments of the values for Table 6 and Table 7 were inputted by the joint utilities for illustrative purposes only. As stated on pages 17 and 18 in the Alternatives section of the Joint IOU Covered Conductor Working Group Report, the framework (Figure 8, page 18) used to support Table 7 is preliminary. Table 7 is an illustration of how that proposed framework in Figure 8 would work as an alternative technology if vegetation management and inspections were separate from CC assets. Table 7 relies on data from Table 6 (page 19) and it is stated on page 18 that some values were, "For purposes of this illustration, no discounting of individual estimated mitigation values was included." Additionally on page 19 there is a statement, "As such, and for purposes of this illustration," where another assumption is made to support the values of Table 6. If the values on Table 6 are illustrative then the results for Table 7 are also for illustrative purposes. d) As noted on page 17, "all utilities deploy CC and where CC is installed all utilities conduct vegetation management mitigations and asset inspection mitigations." After alignment across all utilities is reached on the preliminary framework for assessing alternative technologies, we will determine if a study is needed to estimate the effectiveness of its CC program separate from asset inspections and vegetation management programs	Holly Wehrman	4/25/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-11 – Covered Conductor Effectiveness Lessons Learned
250	CalPA	Set WMP-18	CalPA_Set WMP-18	5 SUPP	CalPA_Set WMP-18_Q5 SUPP	In response to question 19(b)(iii) of CalAdvocates-PGE-2023WMP-15, PG&E states: The difference [in projected vegetation management costs] of $24,861,000 between 2023 and 2024 is due to several factors, this is how PG&E will achieve this reduction; (1) Transitioning from EVM to three new programs; (2) reducing the amount of Routine VM work conducted each year commensurate with the amount of undergrounding miles completed; and (3) reducing unit costs through efficiencies over the rate case period through targeted programmatic adjustments that refine processes and improve resource efficiency. a) How does transitioning from EVM to three new programs result in a cost reduction? b) Please provide the following information about anticipated VM cost reductions from undergrounding in the below table: Year Number of Undergrounding Miles to be Completed Planned reduction in Number of Routine VM Miles Amount of Routine VM Cost Savings from Undergrounding ($$$) 2023 2024 2025	a. The EVM program concluded in 2022 and would not contribute to a savings between 2023 and 2024. The reduction in Routine work and Second Patrol work, reduction in unit costs, and programmatic efficiencies are expected to contribute to the $24M in savings that is shown in this table. ACT FCST FCST 2022 2023 2024 Tree Mortality $ 108,129 $ 100,617 $ 98,112 EVM $ 590,971 N/A N/A (EVM) Transitional Programs N/A $ 160,357 $ 156,366 VM for Operational Mitigations $ 23,455 $ 22,872 Tree Removal Inventory $ 53,484 $ 52,153 Focused Tree Inspections in AOC $ 83,418 $ 81,342 Routine VM $ 607,751 $ 711,944 $ 694,225 VC Pole Clearing $ 23,589 $ 26,000 $ 25,353 Totals $ 1,330,440 $ 998,918 $ 974,057 WMP-Discovery2023_DR_CalAdvocates_018-Q005Supp01 Page 3 b. Year Number of Undergrounding Miles to be Completed Planned reduction in Number of Routine VM Miles Amount of Routine VM Cost Savings from Undergrounding ($$$) 2023 350 Miles Planned for 2023 Though we do anticipate a reduction in volume of work in routine and second patrol driven by lines undergrounded, per General Order 95	Holly Wehrman	4/24/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_018.zip	0	N/A	8.2.5.2	Vegetation Management and Inspections	Quality Control

220	OEIS	003	OEIS_003	6	OEIS_003_Q6	Regarding PG&E's Areas of Concern a. Provide a GIS layer of PG&E's Areas of Concern (AOC) with the following attributes for each AOC polygon: i. Name of the AOC ii. Number of overhead circuit miles in the AOC that are in scope for Focused Tree Inspections iii. AOC in pilot? (Yes/No) iv. Cumulative probability of ignition caused by vegetation coupled with consequence of ignition as given by WDRM v3 (wdrmv3_v_c) v. Average probability of ignition caused by vegetation coupled with consequence of ignition as given by WDRM v3 (wdrmv3_v_c) vi. Cumulative Overall Utility Risk as defined by the 2023-2025 WMP Technical Guidelines, Appendix B vii. Cumulative Ignition Risk as defined by the 2023-2025 WMP Technical Guidelines, Appendix B viii. Cumulative PSPS Risk as defined by the 2023-2025 WMP Technical Guidelines, Appendix B ix. Cumulative Contact from Vegetation Likelihood of Ignition as defined by the 2023-2025 WMP Technical Guidelines, Appendix B b. Has PG&E used any vegetation related data source to identify the density/presence of overstrike trees to create the AOCs? (e.g., LiDAR, satellite) If so, list the data source(s) and the date the data were collected. (e.g., distribution LiDAR flown by PG&E in 2019) c. Has PG&E used any tree mortality data sets to: i. Create the AOCs? If so, list the data set(s) and the date the data were collected. ii. Determine the prioritization of inspection among the AOCs? If so, list the data set(s) and the date the data were collected.	a. Please reference "WMP-Discovery2023_DR_OEIS_003-Q006Atch01.xlsx" and "WMP-Discovery2023_DR_OEIS_003-Q006Atch02.zip"1 for the requested information. Specifically for Overall Utility Risk, Ignition Risk, and PSPS Risk, these are typically presented in terms of circuit segments or circuit protection zones. The AOC polygons do not always align with CPZ segments so circuit segments can be partially included or completely included. Since PG&E does not calculate the percentage of risk within the circuit segment designations, we will provide pro-rated risk scores based purely on the percentage of miles that fall within the AOC as an approximation for this data response. b. Yes, PG&E used vegetation related data sources to identify the density/presence of overstrike trees to create the AOCs. Please see supporting data 'WMP Discovery2023_DR_OEIS_003-Q006Atch03.zip'1. The AOC drafting and development was completed using Google Earth and supporting KMZ files. The following imagery or KMZ data was available to inform density and presence of vegetation including overstrike trees. i. Satellite imagery was used as a base map layer in Google Earth and helped developers understand vegetation densities in proximity to other datasets used to aid development of AOC polygons. ii. Outage Clusters 2018-2021 by frequency and season. These layers help identify regional areas where vegetation failures have caused outages which can be considered a data-informed proxy for area with higher densities of overstrike trees and overhanging canopy conditions. iii. Fire Perimeters with strike trees identified through 2019-2020 LiDAR data was also made available to the AOC development team. Paired with the outage cluster data and satellite imagery this KMZ file could also help developers evaluate vegetation density and areas with higher populations of overstrike trees. iv. Vegetation caused ignitions (June 2014-2021) were also provided by resulting fire size. Paired with satellite imagery, this data could also help developers evaluate vegetation density and areas with higher populations of overstrike trees or canopy conditions that have resulted in CPUC reportable ignitions. v. PSPS Asset Damages (2020-2021) was provided to identify areas where trees with overstrike potential have been documented in association with problematic winds combined with seasonally extreme dry conditions. c. i. Yes, PG&E utilized the Second Patrol VM review of tree mortality populations at a divisional level in October 2022. ii. The development team was expected to have strong local knowledge of regional tree mortality trends and utilize that knowledge to develop AOC polygons.	Colin Lang	4/21/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	3	N/A	8.2	Vegetation Management and Inspections	N/A
232	CalPA	Set WMP-17	CalPA_Set WMP-17	1	CalPA_Set WMP-17_Q1	<BEGIN CONFIDENTIAL>> Table 1 – Projects not pursued for Undergrounding in first 2100 miles PG&E's WDRM V3 ranks circuit protection zones (CPZs) based on risk measured across 17 risk models to create a "cumulative risk score" for each CPZ.4 In Table 1 above, select CPZs that PG&E has decided not to pursue Undergrounding in its first 2100 miles of UG projects5 are compared by: • Cumulative risk score for the CPZ in WDRM V3 • Total CPZ length in miles measured by projecting the feature class in WDRM V3 to a UTM projection and calculating geometry in GIS • A calculated "risk per mile" or "average risk" value derived from the two previous values • Whether the CPZ has experienced outages due to PSPS or EPSS in the past three years • PG&E 2023 WMP's decision to which program the CPZ belongs (crossed referenced against Question 8 on "PGE-2023WMP-06_VM_inspection_SH_questions" for projects in the 2023-2024 timeframe) • PG&E 2023 WMP's risk rank for each CPZ (crossed referenced against Question 8 on "PGE-2023WMP-06_VM_inspection_SH_questions" for projects in the 2023-2024 timeframe) • PG&E 2023 WMP Wildfire Feasibility Efficiency (WFE Score) for each CPZ (crossed referenced against Question 16 on "PGE-2023WMP-09_VM_WTRM_UG_vs_CC_costs_and_RSE" for projects in the 2023-2026 timeframe). a. Please explain why these select CPZs in Table 1, with large average risk profiles in WDRM V3 and some with reliability concerns from PSPS or EPSS outages, are not being considered potential projects for Undergrounding in the first 2,100 miles. b. Please identify all factors in the selection of CPZ "EL DORADO PH 210119752" for "BASE SH" (base system-hardening) rather than Undergrounding in PG&E's 2023 WMP project selection. c. Please identify all factors in the selection of CPZ "PEORIA 170190090" for "BASE SH" (base system-hardening) rather than Undergrounding in PG&E's 2023 WMP project selection. d. Please identify all factors that resulted in CPZ "OAKHURST 110310140" not being selected for any WMP system hardening program (including Base SH, Community Rebuild, Fire Rebuild, Targeted UG, Idle Facilities, Other) despite it being targeted for PSPS and EPSS outages and having a larger average risk profile than other projects in Table 1. e. Please identify all factors that resulted in CPZ "BEAR VALLEY 2105CB" not being selected for any WMP system hardening program (including Base SH, Community Rebuild, Fire Rebuild, Targeted UG, Idle Facilities, Other) despite it having a larger average risk profile than other projects in Table 1.	Upon review, PG&E respectfully finds that the CPZ mileages presented in Table 1 are incorrect. As a result of the mileage errors in the Table, the Calculated Risk/Mile CONFIDENTIAL – Provided Pursuant to Confidentiality Declaration ("WMP-Discovery2023_DR_CalAdvocates_017_Confidentiality Declaration.pdf") WMP-Discovery2023_DR_CalAdvocates_017-Q001CONF Page 3 figures are incorrect as well. We also note that we do not use the term "cumulative risk." We use the term "composite risk" and interpret this question as involving "composite risk" scores. Any difference between these two terms is not material to our response. The attachment used to develop the quoted miles from this analysis, WMP Discovery2022_DR_CalAdvocates_035, does not represent the total OH miles contained within each circuit segment, but the total projected UG miles from the "project." These "projects" can include multiple circuit segments and represent the UG miles planned to be installed, not the OH miles removed used to calculate the risk value. Each of these segments were bundled with other high-risk segments and brought forward to be worked concurrently. The bundling of neighboring circuit segments supports cost effectiveness and will provide a larger benefit in terms of reduced PSPS and EPSS impacts as well. Therefore, the analysis performed here in terms of risk points for a single circuit segment divided by the undergrounding miles for a bundled project (which includes multiple circuit segments) is not comparing a consistent numerator and denominator. The 2,100 miles in the beginning stages of our undergrounding program is primarily comprised of 2021 WDRM V2 scoped miles, Fire Rebuild miles, PSPS miles, and PSS recommended miles, and only more recently included miles selected based off of the 2022 WDRM V3. We did not cancel previously scoped and in process work due to the release of V3. For the available miles to be scoped leveraging V3, we utilized a selection strategy to include underground difficulty and cost efficiency measures such as bundling to facilitate improved unit costs, execution timelines, and a balance of work. The following is a list of more specific reasons why each circuit segment referenced in this question was not included in the 2,100 mile workplan referenced: • Circuit segments: Oakhurst 110310140, Bear Valley 2105CB, Keswick 11019712, Peoria 170190090, Columbia Hill 1101CB, and Apple Hill 21029722 had a lower Wildfire Feasibility Effectiveness (WFE) score due to expected high undergrounding difficulty and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. o In addition, Apple Hill 21029722 was not included due to concerns with area over-saturation, i.e., there were >100 miles already planned in our first tranche on this same circuit. • El Dorado PH 210119752 is already hardened with some undergrounding along Sly Park Rd. The fact that a portion of the circuit is already undergrounded was not considered by the WDRM V3 risk model as a result of GIS snapshot timing, but upon engineering review of the circuit based on its current configuration, no additional work is recommended at this time. b) El Dorado PH 210119752 was identified in the earlier parts of the System Hardening program and completed in 2022. The scope for that project was developed in prior years and the project was in construction prior to the creation of the Underground 10K program in late 2021. CONFIDENTIAL – Provided Pursuant to Confidentiality Declaration ("WMP-Discovery2023_DR_CalAdvocates_017_Confidentiality Declaration.pdf") WMP-Discovery2023_DR_CalAdvocates_017-Q001CONF Page 4 c) Portions of Peoria 170190090 were identified as potential remote grid candidates and the work on that circuit is being advanced separately from the future planned underground work. In that context, Remote Grid work is classified as "BASE SH". d) Circuit segment Oakhurst 110310140 had a lower WFE score due to expected high undergrounding difficulty and, after bundling with nearby segments, there are other locations with higher WFE scores to prioritize in the earlier years. Note that the "Fire	Matthew Taul	4/21/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_017.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
233	CalPA	Set WMP-17	CalPA_Set WMP-17	2	CalPA_Set WMP-17_Q2	In general, identify all the factors PG&E considers when deciding that a CPZ with a large average risk profile or large total risk in WDRM V3 should not be prioritized in PG&E's 2023 WMP project selection.	We are selecting locations in 2022 and 2023 based on the Wildfire Feasibility Effectiveness (WFE) analysis, which leveraged WDRM V3 risk data, to prioritize for project selection. As part of the WFE analysis, for operational efficiency, individual Circuit Protection Zones (CPZs) were bundled together for project selection and design. Once bundled together with adjacent CPZs that are also identified for targeted undergrounding, the combined bundled WFE score is used to select projects. In that process, it is possible that an individual CPZ with a larger average risk profile, is combined with another adjacent CPZ within the 10-year undergrounding plan scope that may result in a lower combined WFE score that drives the bundled project to be lower than other projects that are selected for project development. We believe this CPZ bundling approach is appropriate not only to improve field operational efficiency but also because bundling adjacent CPZs: • Provides continuity with other projects to eliminate re-work, temporary facilities, and allows for a more complete design solution. • Allows for nearer-term PSPS and EPSS benefits by bundling nearby segments together. CONFIDENTIAL – Provided Pursuant to Confidentiality Declaration ("WMP-Discovery2023_DR_CalAdvocates_017_Confidentiality Declaration.pdf") WMP-Discovery2023_DR_CalAdvocates_017-Q002CONF Page 2 • Allows for more comprehensive customer and community engagement as opposed to multiple projects being developed and worked on separate timelines. Lastly, our workplan as presented in the 2023 WMP was developed using numerous factors that could cause a particular circuit segment not to be included in this iteration of the 2023 WMP workplan including: 1) Due to the typically long timeframe required to develop and construct an underground project, 2022 WDRM V3 risk data via the WFE only minimally informed the early years in the 2023-2026 workplan, with much of the portfolio being informed by 2021 WDRM V2. 2) There continues to be carry over work from previous workplans that must be completed, if a project had been started in a prior period it will be worked to completion. 3) The WFE selection strategy utilizing WDRM V3 takes various cost and schedule optimization inputs into its selection methodology including: • Area saturation • Underground difficulty and long-term permitting risks • Circuit segment bundling • Resource readiness and availability • Previously hardened facilities • Private/customer owned facilities 4) Some projects have been selected due to Fire rebuild, PSPS mitigation or based on input from Public Safety Specialists.	Matthew Taul	4/21/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_017.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
234	CalPA	Set WMP-17	CalPA_Set WMP-17	3	CalPA_Set WMP-17_Q3	<<BEGIN CONFIDENTIAL>> In Table 2 above, select CPZs that PG&E has decided to pursue Undergrounding in its first 2100 miles of UG projects6 are compared by: • Cumulative risk score for the CPZ in WDRM V3 • The total mile length of Undergrounding which PG&E quoted for each UG project in Confidential response to Question 1 on "WMP-Discovery2022_DR_CalAdvocates_035" • A calculated "risk per mile" or "average risk" value derived from the two previous values • Whether the CPZ has experienced outages due to PSPS or EPSS in the past three years • PG&E 2023 WMP's decision to which program the CPZ belongs (crossed referenced against Question 8 on "PGE-2023WMP-06_VM_inspection_SH_questions" for projects in the 2023-2024 timeframe) • PG&E 2023 WMP's risk rank for each CPZ (crossed referenced against Question 8 on "PGE-2023WMP-06_VM_inspection_SH_questions" for projects in the 2023-2024 timeframe) • PG&E 2023 WMP Wildfire Feasibility Efficiency (WFE Score) for each CPZ (crossed referenced against Question 16 on "PGE-2023WMP-09_VM_WTRM_UG_vs_CC_costs_and_RSE" for projects in the 2023-2026 timeframe) a. Please explain why these select CPZs in Table 2, with small total risk profiles and small average risk profiles in WDRM V3, are being considered as potential projects for Undergrounding. b. Please provide reasons why PG&E did not opt for alternatives to underground CPZ "PINE GROVE 110213438" given that the CPZ is comparatively long with both a low average and small cumulative risk profile. "Alternatives to underground" include other means by which to reduce risk such as use of Covered Conductor or a hybrid UG/OH approach. c. Please provide reasons why PG&E did not opt for alternatives to underground CPZ "STANISLAUS 17021888" given that the CPZ is comparatively long with both a low average and small cumulative risk profile. "Alternatives to underground" include other means by which to reduce risk such as use of Covered Conductor or a hybrid UG/OH approach. d. Please identify all factors under consideration that resulted in priority given to CPZ "STANISLAUS 17021888", with a cumulative risk score of 2.44 and distance to underground of 24.19 miles in PG&E's 2023 WMP for mitigation over other CPZs such as: i. "OAKHURST 110310140", with a cumulative risk score of 9.19 and distance to underground ~19 miles. ii. "BEAR VALLEY 2105CB", with a cumulative risk score of 7.40 and distance to underground ~16 miles. iii. "KESWICK 11019712", with a cumulative risk score of 8.28 and distance to underground ~21 miles.	a) Upon review, we respectfully find that the CPZ mileages presented in Table 2 are incorrect. As a result of the mileage errors in the Table, the Calculated Risk/Mile figures are incorrect as well. We also note that we do not use the term "cumulative risk." We use the term "composite risk" and interpret this question as involving "composite risk" scores. Any difference between these two terms is not material to our response. The attachment used to develop the quoted miles from this analysis, WMP Discovery2022_DR_CalAdvocates_035, does not represent the total OH miles contained within each circuit segment, but the total projected UG miles from the "project." These "projects" can include multiple circuit segments and represent the UG miles planned to be installed, not the OH miles removed used to calculate the risk value. Each of the segments referenced in this question were bundled with other high-risk segments and combined to be worked concurrently. The bundling of neighboring circuit segments supports cost effectiveness and will provide a larger benefit in terms of reduced PSPS/EPSS impacts as well. Therefore, the analysis performed here in terms of risk points for a single circuit segment divided by the undergrounding miles for a bundled project (which includes multiple circuit segments) is not comparing a consistent numerator and denominator. b) Pine Grove 110213438 is a 17.61 mile segment, with a mean risk rank of 204, and is well within the top 20% of the circuit segments. With a relatively low difficulty score (1.05) it is very cost efficient, especially when combined with other source side and adjacent high-risk segments. This segment was combined into an operationally effective bundle. c) Stanislaus 17021888 is a 19.8 mile segment, with a mean risk rank of 379, and is well within the top 20% of the circuit segments. With a relatively low difficulty score (1.17) it is very cost efficient, especially when combined with other source-side and adjacent high-risk segments. This segment was combined it into an operationally effective bundle. Additionally, this circuit segment serves as a gateway to other segments planned for undergrounding in future years running along the south-side of the primary customer pocket in Arnold such that undergrounding it early in the program allows for better system operations in terms of load balancing, switching, and continuity of Undergrounding to support the reduction of impacts (outages) due to PSPS and EPSS in the future. d) Stanislaus 17021888 was brought forward for inclusion in the currently scoped workplan due to our bundling strategy grouping adjacent segments together to improve cost efficiency, coordination in the community, and overall area design needs, as discussed in the response to subpart c) above. i) Bundling and feasibility considerations also impacted the total risk analysis for each of the three circuit segments mentioned in this question as discussed in the response to Question 1 of this data request. ii) See the response to Question1 iii) See the response to Question 1	Matthew Taul	4/21/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_017.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
235	CalPA	Set WMP-17	CalPA_Set WMP-17	4	CalPA_Set WMP-17_Q4	In general, identify all the factors PG&E considers when deciding that a CPZ with small total risk profiles and small average risk profiles in WDRM V3 should be prioritized in PG&E's 2023 WMP project selection.	We are selecting locations in 2022 and 2023 based on the Wildfire Feasibility Effectiveness (WFE) analysis, which leveraged WDRM V3 risk data, to prioritize for project selection. As part of the WFE analysis, for operational efficiency, individual Circuit Protection Zones (CPZs) were bundled together for project selection and design. Once bundled together with adjacent CPZs that are also identified for targeted undergrounding, the combined bundled WFE score is used to select projects. In that process, it is possible that an individual CPZ with a lower average risk profile, is combined with another adjacent CPZ within the 10-year undergrounding plan scope that may result in a higher combined WFE score that drives the bundled project to be selected for project development. We believe this CPZ bundling approach is appropriate not only to improve field operational efficiency but also because bundling adjacent CPZs: • Provides continuity with other projects to eliminate re-work, temporary facilities, and allows for a more complete design solution. • Allows for nearer-term PSPS and EPSS benefits by bundling nearby segments together. • Allows for more comprehensive customer and community engagement as opposed to multiple projects being developed and worked on separate timelines. Lastly, our workplan as presented in the 2023 WMP was developed using numerous factors that could cause a particular circuit segment to be included in this iteration of the 2023 WMP workplan including: 1) Due to the typically long timeframe required to develop and construct an underground project, 2022 WDRM V3 risk data via the WFE only minimally informed the early years in the 2023-2026 workplan, with much of the portfolio being informed by 2021 WDRM V2. 2) There continues to be carry over work from previous workplans that must be completed, if a project had been started in a prior period it will be worked to completion. 3) The WFE selection strategy utilizing WDRM V3 takes various cost and schedule optimization inputs into its selection methodology including: • Area saturation • Underground difficulty and long-term permitting risks • Circuit segment bundling • Resource readiness and availability 4) Some projects have been selected due to Fire rebuild, PSPS mitigation or based on input from Public Safety Specialists.	Matthew Taul	4/21/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_017.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
142	CalPA	Set WMP-14	CalPA_Set WMP-14	19	CalPA_Set WMP-14_Q19	Please provide a list of all dig-in incidents that occurred from 2020-2022 and involved an underground electric distribution line. For each incident, please provide: a) Date of the incident b) Whether the dig-in was caused by PG&E employees, PG&E contractors, or a third-party c) Duration of the resulting outage, if applicable d) Injuries associated with the dig-in, if any e) Fatalities associated with the dig-in, if any f) Damage to non-PG&E structures associated with the dig-in, if any.	PG&E objects to this request as beyond the scope of this proceeding and unrelated to PG&E's 2023 WMP. Notwithstanding and without waiving these objections, we provide the following information in relation to dig ins that happened in the 2020 to 2022 timeframe within HFTD Tier 2 and Tier 3 zones: a) Please see column A of attachment "WMP-Discovery2023_DR_CalAdvocates_014-Q019Atch01.xlsx" for the requested information. b) Please see columns G and H of attachment "WMPDiscovery2023_DR_CalAdvocates_014-Q019Atch01.xlsx" for the requested information. c) Please see column E of attachment "WMP-Discovery2023_DR_CalAdvocates_014-Q019Atch01.xlsx" for the requested information. d) Please see column J of attachment "WMP-Discovery2023_DR_CalAdvocates_014-Q019Atch01.xlsx" for the requested information. Please note that there were no injuries associated with dig-ins involving an underground electric distribution line in the 2020 to 2022 time period. e) Please see column K of attachment "WMP-Discovery2023_DR_CalAdvocates_014-Q019Atch01.xlsx" for the requested information. Please note that there were no fatalities associated with dig-ins involving an underground electric distribution line in the 2020 to 2022 time period. f) Please see column L of attachment "WMP-Discovery2023_DR_CalAdvocates_014-Q019Atch01.xlsx" for the requested information. However, please note that we do not track damage to non-PG&E facilities caused by third parties	Holly Wehrman	4/11/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_014.zip	1	N/A	8.4.2.1	Emergency Preparedness	Overview of Wildfire and PSPS Emergency Preparedness
118	CalPA	Set WMP-13	CalPA_Set WMP-13	5	CalPA_Set WMP-13_Q5	Table 7-4 on pp. 307-313 of PG&E's WMP lists the top risk circuit segments (i.e., riskiest segments when sorted by total wildfire risk). a) Footnote b in the column entitled "Jan 1, 2023 Overall Risk" states, "Accounts for risk reduction associated with EPSS." Please explain how PG&E quantified the risk reduction associated with EPSS for each of the circuit segments in Table 7-4. b) Do the values in the column entitled "Jan. 1, 2024 Overall Risk" account for risk reduction associated with EPSS? c) Do the values in the column entitled "Jan. 1, 2025 Overall Risk" account for risk reduction associated with EPSS? d) Do the values in the column entitled "Jan. 1, 2026 Overall Risk" account for risk reduction associated with EPSS? e) Please supplement Table 7-4 with the following additional columns: i. Forecast SAIDI in 2023 if EPSS were not utilized ii. Forecast SAIDI in 2023 with EPSS	a) Based on the recorded effectiveness performance of Enhanced Powerline Safety Settings (EPSS) in 2022, we include this effectiveness across each circuit segment across High Fire Threat Districts (HFTD) circuit segments. The recorded effectiveness compares EPSS enabled ignitions to those that met EPSS criteria and is normalized by circuit-mile-days. The recorded effectiveness uses Fire Potential Index (FPI) information provided from our Meteorology team, which is currently only available through 2020, therefore we used 2018-2020 as a baseline. b) Yes, it includes the risk reduction associated with EPSS. c) Yes, it includes the risk reduction associated with EPSS. d) Yes, it includes the risk reduction associated with EPSS. WMP-Discovery2023_DR_CalAdvocates_013-Q005 Page 2 e) Please see "WMP-Discovery2023_DR_CalAdvocates_013-Q005Atch01.xlsb." This is shown in tab 'TopRisk_Table' columns E and F. The SAIDI forecast was based on reliability of data between 2020-2022. With a very limited data set on EPSS performance, the SAIDI forecast at a device level may vary significantly. Some devices may not have any activity in the past year with or without EPSS settings but could have activity in the future years. As we collect more data, the SAIDI forecast will improve.	Holly Wehrman	4/6/2023	4/28/2023	4/28/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_013.zip	1	N/A	7.2.2.3	Wildfire Mitigation Strategy Development	Projected Risk Reduction on Highest-Risk Circuits Over the 3-Year WMP Cycle

282	TURN	009	TURN_009	1	TURN_009_Q1	1. Regarding the 2023-2026 Undergrounding Workplan referenced on page 910 of the WMP (R1) and provided in Excel format in response to TURN Data Request 2-4: a. For each undergrounding project listed in this document, please provide the RSE calculated in accordance with the CPUC's S-MAP Settlement (see pp. 242 et seq of PG&E's WMP-R1) (not SWRSE or WFE) that PG&E calculated for the undergrounding project. Please provide all inputs and calculations for these RSE values, in live Excel format. b. For each undergrounding project listed in this document, please provide the RSE calculated in accordance with the CPUC's S-MAP Settlement (see pp. 242 et seq of PG&E's WMP-R1) that PG&E calculated for any alternative mitigation for the project location, including but not limited to covered conductor. Please provide all inputs and calculations for these RSE values, in live Excel format.	a) As explained on page 968 of the 2023-2025 WMP, PG&E developed a measurement described in the 2022 Revised WMP as the Simplified Wildfire Risk Spend Efficiency (SWRSE) or Wildfire Feasibility Efficiency (WFE) to identify where PG&E could most efficiently reduce risk given the terrain feasibility at a particular location due to the presence of hard rock, large water crossings, and/or gradient. PG&E calculates the SWRSE as follows: SWRSE = Wildfire Risk = ______Wildfire Risk____________ Cost Standard Cost * Feasibility Score While in practice the standard cost per mile of undergrounding is expected to decline over time, PG&E assumed it to be fixed at 1 for all circuit segments so that the selection is only driven by feasibility and risk. This defines the WFE Score: = WFE Score = Line Weighted Risk per Mile / Feasibility Cost Multiplier r PG&E's WFE scores incorporate the elements of RSE calculations with the feasibility element used to modify the spend factor to account for operational and executability factors. PG&E has calculated WFE scores for individual circuit segments and have given that information to TURN in response to Data Request 7, Question 1 ("WMP-Discovery2023_DR_TURN_007-Q001Atch01CONF.xlsx"). PG&E does not have any other RSE calculations matching the CPUC's S-MAP Settlement for each underground project listed in its workplan. Specific to more granular level assessments at the circuit segment level, WMP guidelines required risk reduction (not RSE) based on 2023-2025 workplans. Those risk reduction values are provided in workpaper "2023-03-27_PGE_2023_WMP_R2_Section 6.4.2" which was provided in response to TURN Data Request 8, Question 1 as "WMP-Discovery2023_DR_TURN_008-Q001Atch02.xlsb." b) As explained in response to subpart (a), PG&E has created WFE scores for each circuit segment included in PG&E's undergrounding workplan. These scores incorporate the elements of RSE calculations with the added element of feasibility to account for operational and executability factors. PG&E does not have separate RSE calculations matching the CPUC's S-MAP Settlement for each project alternative listed in the document. Specific to more granular level assessments at the circuit segment level, WMP guidelines require risk reduction (not RSE) based on 2023-2025 workplans. Those risk reduction values are provided in workpaper "2023-03-27_PGE_2023_WMP_R2_Section 6.4.2" which was provided in response to TURN Data Request 8, Question 1 as "WMP-Discoverv2023_DR_TURN_008-Q001Atch02.xlsb."	Tom Long	4/26/2023	5/1/2023	5/1/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_009.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-16 – Progress and Updates on Undergrounding and Risk Prioritization
283	MGRA	Data Request No. 3	MGRA_Data Request No. 3	1	MGRA_Data Request No. 3_Q1	Please provide for Asset Point data for Camera, Fuse, Support Structure, and Weather Station.	The attachments have been reuploaded to ESFT.	Joseph Mitchell	4/27/2023	5/2/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_003.pdf	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
284	MGRA	Data Request No. 3	MGRA_Data Request No. 3	2	MGRA_Data Request No. 3_Q2	Provide Asset Line data for Transmission Line (as permitted as non-confidential), Primary Distribution Line, and Secondary Distribution Line.	The attachments have been reuploaded to ESFT.	Joseph Mitchell	4/27/2023	5/2/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_003.pdf	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
285	MGRA	Data Request No. 3	MGRA_Data Request No. 3	3	MGRA_Data Request No. 3_Q3	Provide PSPS Event data. Include Event Log, Event Line, Event Polygon data. Please exclude customer meter data. Provide all PSPS Event Asset Damage data including photos.	The attachments have been reuploaded to ESFT.	Joseph Mitchell	4/27/2023	5/2/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_003.pdf	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
286	MGRA	Data Request No. 3	MGRA_Data Request No. 3	4	MGRA_Data Request No. 3_Q4	Provide Risk Event Point data, including Wire Down, Ignition, Transmission unplanned outage (as classified non-confidential), Distribution Unplanned Outage data, Distribution Vegetation Caused Unplanned Outage, Risk Event Asset Log.	The attachments have been reuploaded to ESFT.	Joseph Mitchell	4/27/2023	5/2/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_003.pdf	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
287	MGRA	Data Request No. 3	MGRA_Data Request No. 3	5	MGRA_Data Request No. 3_Q5	Under Initiatives, please provide Grid Hardening data, including Hardening Log, Hardening Point, and Hardening Line data. Inspection data is not requested at this time.	The attachments have been reuploaded to ESFT.	Joseph Mitchell	4/27/2023	5/2/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_003.pdf	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
288	MGRA	Data Request No. 3	MGRA_Data Request No. 3	6	MGRA_Data Request No. 3_Q6	Under Initiatives, please provide Other Initiative data for point, line, polygon features and the Other Initiative Log.	The attachments have been reuploaded to ESFT.	Joseph Mitchell	4/27/2023	5/2/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_003.pdf	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
289	MGRA	Data Request No. 3	MGRA_Data Request No. 3	7	MGRA_Data Request No. 3_Q7	Under Other Required Data, please provide Red Flag Warning Day polygon data.z	The attachments have been reuploaded to ESFT.	Joseph Mitchell	4/27/2023	5/2/2023	4/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_003.pdf	0	N/A	6.4	Risk Methodology and Assessment	Risk Analysis Results and Presentation
290	CalPA	Set WMP-21	CalPA_Set WMP-21	1	CalPA_Set WMP-21_Q1	Per Table 8-12, Vegetation Management Implementation Objectives, PG&E's Focused Tree Inspection (FTI) Program is currently under development. By the end of 2025, PG&E plans to "Fully implement AOC cross-functional team to implement guidelines across all AOCs."4 PG&E states in response to question 11 of data request CalAdvocates-PGE-WMP-15 that its FTI pilot of 300 overhead miles is "intended to yield the learnings needed to support and inform future work plans." Please provide an anticipated schedule for PG&E's rollout of the Focused Tree Inspection Program in the table below (adding rows as needed). Include, at a minimum, when and how PG&E will execute the pilots, analyze data collected from those pilots, and translate said data into a fully realized Focused Tree Inspection Program. Step in implementing the Focused Tree Inspections Program Beginning Date Completion Date	Please see the table below for the Focused Tree Inspection Program schedule. PG&E is still developing the procedures for this program. We intend to use Q4 of 2023 to analyze the results of the pilots to inform our 2024 FTI plan. Step in implementing the Focused Tree Inspections Program Beginning Date Completion Date Execute FTI Pilots 5/30/2023 12/31/2023 Evaluate how mid-cycle inspections sequence can adjust with FTI 6/1/2023 11/30/2023 Review relevant processes and procedures 3/1/2023 10/31/2023 Implement guidelines across all AOCs in HFRA 10/31/2024 12/31/2024 Evaluate feasibility of developing a multi-year historical dataset 8/1/2023 3/1/2024	Holly Wehrman	4/27/2023	5/2/2023	5/2/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_021.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
292	CalPA	Set WMP-21	CalPA_Set WMP-21	3	CalPA_Set WMP-21_Q3	In response to data request CalAdvocates-PGE-2023WMP-16, question 10, PG&E stated, "The five most common problems identified in the QC process are: C-hooks, insulators, cotter pins, shoe issues, and structural issues." For each of the five problems listed above, please list any changes PG&E has made to its inspection process, procedures, or training to reduce the number of inspections with these problems.	The confidential attachment is being provided pursuant to the accompanying confidentiality declaration. Please note, the quote is in reference to CalAdvocates-PGE-2023WMP-10, question 15. For transmission inspections training, the top QC findings were shared with all returning and new inspectors as part of 2023 Onboarding and Refresher. Aerial Transmission Inspections 1) C-Hooks and hanger plates: PG&E created visual diagrams to help identify wear and corrosion on c-hooks and hanger plates. Please see Air+Handbook page 121-124 and job aid TD-1001M- JA-07. 2) Insulators: PG&E developed training and documentation for identifying issues from flashes/tracking/chalking/contamination/pin corrosion. Additionally, PG&E continue to share all uncommon issues PG&E finds amongst our pod chats to ensure alignment and consistent resolution. Please see the Air+Handbook page 90-112 and job aid TD-1001M- JA-07. 3) Cotter pins: PG&E developed training and documentation for identifying different styles of cotter pins and when they become unseated, including humps, straight legs, and gaps between legs. Please see the Air+Handbook page 117-119 and job aid TD-1001M- JA-07. WMP-Discovery2023_DR_CalAdvocates_021-Q003 Page 2 4) Shoe Issues: PG&E developed training and documentation for identifying cracked shoes and making other determinations on damage such as hardware corrosion. Please see the Air+Handbook page 112-123 and job aid TD-1001M- JA-07. 5) Structural: PG&E developed training and documentation for identifying different levels of corrosion, and judging when hardware is loose, judging primary vs secondary members, and evaluating the size and severity of any woodpecker damage. Please see the Air+Handbook page 55-76 and job aids TD-1001M-JA-04 and TD-1001M- JA-06. In addition to the items listed above, PG&E also has an A-tag presentation and weekly meeting in which we go over any questions or concerns relating to PG&E equipment, along with any uncommon issues identified. Transmission Ground Detailed & Transmission Climbing Detailed Inspections 1) C-Hooks: PG&E developed training and documentation that provides examples of issues with c-hooks and describes how to identify various levels of material loss that are also included in Inspector initial and refresher training, as well as in job aid TD1001M-JA-07. 2) Insulators: PG&E developed training and documentation that provides examples of issues with insulators and describes how to identify various types of damage, corrosion, and material loss that are also included in Inspector initial and refresher training, as well as in job aid TD-1001M- JA-07. 3) Cotter Pins: PG&E developed training and documentation that provides examples of issues with cotter pins and describes how to identify various types of damage and material loss that are also included in Inspector initial and refresher training, as well as in job aid TD-1001M- JA-07. 4) Shoe Issues: PG&E developed training and documentation that provides with examples of shoe issues and describes how to identify various types of damage and	Holly Wehrman	4/27/2023	5/2/2023	5/2/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_021.zip	3	N/A	QDR	N/A	N/A
293	CalPA	Set WMP-21	CalPA_Set WMP-21	4	CalPA_Set WMP-21_Q4	Figure PG&E-8.1.8-2 on p. 465 of PG&E's WMP shows that PSPS will be considered under the following conditions: • Wind gusts 30-40+ mph • Relative humidity <30% • Dead Fuel Moisture <9-11% • FPI of R5+ Page 768 of PG&E's WMP states that the following thresholds are taken into consideration in PSPS decision-making: • Sustained wind speed above 19 miles per hour • Dead fuel moisture (DFM) 10 hour less than 9 percent • DFM 100-hour, 1,000 hours less than 11 percent • Relative Humidity (RH) below 30 percent • Herbaceous live fuel moisture below 65 percent • Shrub (Chamise) Live Fuel Moisture below 90 percent • FPI above 0.7 With respect to the WMP passages noted above: a) Please explain why these lists are different. b) What is the difference between an FPI of R5+ and a FPI above 0.7? c) Does PG&E consider sustained wind speeds, gusts, or both in PSPS decision-making? Please explain your answer.	a) Figure PG&E-8.1.8-2 on p. 465 of PG&E's WMP is intended to be a simplified version of our criteria for general awareness. Whereas the thresholds on page 768 of PG&E's WMP are the minimum fire potential conditions with quantifiable factors used during PSPS. b) An FPI of R5+ is when there is an occurrence of high FPI (above 0.7) plus the presence of high ignition potential driven by wind. c) PG&E considers sustained wind speeds for PSPS decision making on the distribution system.	Holly Wehrman	4/27/2023	5/2/2023	5/2/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_021.zip	0	N/A	9.2.1	Public Safety Power Shutoff	Risk Thresholds (e.g., WS, FPI, etc.) and Decision-Making Process That Determine the Need for a PSPS.
201	CalPA	Set WMP-16	CalPA_Set WMP-16	6 SUPP	CalPA_Set WMP-16_Q6 SUPP	For each of the undergrounding projects that PG&E has planned for 2023, please answer the following questions on each project: a) How many SCADA underground switches will be installed? b) How many overhead switches will be removed? c) How many tie switches to adjacent circuits currently exist? d) How many OH tie switches to adjacent circuits will be removed? e) How many tie switches (OH or UG) will exist when the project is complete? f) How many SCADA overhead switches will be removed? g) How many SCADA underground switches will be installed as tie points to adjacent circuits? h) How many SCADA underground switches will be installed for sectionalizing? i) How many subsurface transformers will be installed? j) How many pad-mounted transformers will be installed? k) How many vaults will be installed? l) How many junction boxes will be installed? m) How many junction boxes will be installed for sectionalizing? n) How many junction boxes will be installed as tie points to adjacent circuits? o) How many load break elbows will be installed? p) How many load break elbows will be installed for sectionalizing? q) How many load break elbows will be installed as tie points to adjacent circuits? r) How many handholes will be installed? s) How many risers will be installed?	PG&E objects to this request as overbroad and unduly burdensome. We do not maintain the requested information in a manner that allows it to be aggregated without a manual review of each project's engineering and construction documentation. Manually collecting the data across hundreds of projects would require significant time and resources and the development of multiple processes to ensure data accuracy. If you would like to discuss this request further, please feel free to reach out to us. Revision: In response to a request to provide the results of a manual review of a few projects, PG&E completed this review on a series of four projects at Clark Road 1102 LR81296 Phase 1.1-1.4. PG&E is providing the total quantities for the four projects that are constructed on the same circuit. The following orders are the associated projects that can be found on our Undergrounding Workplan: 35299631, 35329009, 35329010, 35329011. Below we also provide the assumptions used to collect this information. a) PG&E assumes "SCADA underground switches installed" includes both padmounted and sub-surface SCADA devices. Because these devices often have multiple positions enabled (e.g. three-way switch), PG&E also collected the number of those with SCADA enabled as these are not always 1:1. • SCADA underground devices – 1 • SCADA positions enabled – 1 b) PG&E assumes "Overhead switches removed" to include both mainline and tap-line switches, protection devices that can be operated as switches, bypass switches and in-line disconnects as installed as part of recloser packages. • Overhead Switches Removed – 14 c) PG&E assumes "tie switches to adjacent circuits" are only included if part of the project reviewed and excludes ties to itself. • Tie Switches to Adjacent Circuits – 0 d) PG&E assumes "tie switches to adjacent circuits removed" are only included if part of the project reviewed and excludes ties to itself. • Tie Switches to Adjacent Circuits Removed – 0 e) PG&E assumes "tie switches (OH and UG) to adjacent circuits installed" are only included if part of the project reviewed and excludes ties to itself. • Tie Switches (OH and UG) to Adjacent Circuits installed – 0 f) PG&E assumes "SCADA OH switches removed" to include both mainline, tap-line switches, and protection devices with SCADA that can be operated as switches. • SCADA Overhead Switches Removed – 3 g) PG&E assumes "SCADA underground tie switches to adjacent circuits are only included if part of the project reviewed and excludes ties to itself. • Tie Switches to Adjacent Circuits – 0 WMP-Discovery2023_DR_CalAdvocates_016-Q006 Page 3	Holly Wehrman	4/18/2023	5/2/2023	5/1/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment
294	MGRA	Data Request No. 4	MGRA_Data Request No. 4	1	MGRA_Data Request No. 4_Q1	Please provide a description of how the data was created, and from which version of WDRM. Please provide a description of how risk data was assigned to the 100 meter square polygons that make up the layer, specifically if it is an average over the risk scores of the components within the area.	Section 6.4.1.1 is provided in response to Energy Safety's 2023-2025 WMP guidelines which requested a geospatial risk map with risk levels presented in three layers as th top 5%, 5% to 20%, and bottom 80% within the HFRA. PG&E provided a more detailed presentation of risk layers than requested. For this reason, the numeric risk value is not provided as it was not requested. The data provided in Attachment 2023-03-27_PGE_2023_WMP_R1_Appendix C_Atch01\Section_6.gdb is from the Wildfire Distribution Risk Model v3. The risk values for each 100m x 100m pixel are the System Hardening composite value. As described in section 6.2.2.3, pages 171 and 172 in PG&E's 2023-2025 WMP, the pixel level risk value is the product of the cumulative probability of all risk drivers in that pixel and the wildfire consequence	Joseph Mitchell	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	1	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
295	MGRA	Data Request No. 4	MGRA_Data Request No. 4	2	MGRA_Data Request No. 4_Q2	Explain why the vast majority of the polygons show low risk (<25%), and why high risk polygons (>70%) are very rare.	PG&E objects to this question as vague. Subject to and without waiving this objection, PG&E responds as follows: High risk polygons are rarer than low risk polygons as the highest wildfire risk is concentrated. This distribution of risk can be seen in Figure 6.2.2-11.	Joseph Mitchell	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
297	MGRA	Data Request No. 4	MGRA_Data Request No. 4	4	MGRA_Data Request No. 4_Q4	Please explain why isolated "hot polygons" appear in the data, as shown below, and whether these represent actual risk or an artifact.	It is difficult to determine the location of the provided example based on the information provided. Orphaned pixels, such as those shown in the example, may result from missing pixels due to incomplete data or processing of the data. At the pixel-by-pixel level, the model does exhibit some level of noise that can result in high-risk hot spots in an area of generally lower risk pixels . As seen in the example below, low risk and highrisk pixels can mix locally. For this reason, workplan development is generally guided by circuit segment level aggregations that provide an improved indication of risk level.	Joseph Mitchell	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD

299	MGRA	Data Request No. 4	MGRA_Data Request No. 4	6	MGRA_Data Request No. 4_Q6	If the risk score for each polygon represents an average over the risk in the polygon, please provide an additional version in which the maximum numerical value in the polygon is provided instead.	As described in section 6.2.2.3, pages 171 and 172 in PG&E's 2023-2025 WMP, the pixel level risk value is the product of the cumulative probability of all risk drivers in that pixel and the wildfire consequence. As such, the value is not an average over the risk in a polygon.	Joseph Mitchell	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
301	MGRA	Data Request No. 4	MGRA_Data Request No. 4	8	MGRA_Data Request No. 4_Q8	Please provide an excel spreadsheet giving the Distribution Outage ID for each outage occurring while EPSS was enabled in 2022.	Please see “WMP-Discovery2023_DR_MGRA_004-Q008Atch01.xlsx.”	Joseph Mitchell	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
302	TURN	010	TURN_010	1	TURN_010_Q1	PG&E's WMP (R1) at page 3 states PG&E undergrounded 180 miles in 2022 and 73 miles in 2021. In each of these years, separately, please provide the number of overhead miles that were converted to underground related to these mileage figures.	We currently do not track the overhead miles removed and replaced through undergrounding. Our geospatial system of record only tracks assets currently in the field. Based on the average overhead to underground conversion factor of 1 overhead mile to 1.25 system hardening underground miles and the estimated conversion factor of 1 overhead mile to 1.57 community rebuild underground miles, the estimated overhead miles removed in 2022 and 2021 were approximately 134 and 53 miles, respectively. The below table represents the miles complete in 2021 and 2022, split by System Hardening and Community rebuild that calculate the estimated overhead miles removed based on each program. Program OH to UG Conversion Factor (A) 2021 2022 Underground (B) Est. Overhead Removed (C = B/A) Underground (D) Est. Overhead Removed (E = D/A) System Hardening 1.25 40 32 119 95 Community Rebuild 1.57 33 21 61 39 Total 73 53 180 134	Tom Long	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_010.zip	0	N/A	8.1.2.2	Grid Design, Operations, and Maintenance	Undergrounding
303	TURN	010	TURN_010	2	TURN_010_Q2	PG&E's WMP (R1) at page 4 states “Between 2023 and 2026, 87 percent of PG&E's undergrounding work is planned for the top 20 percent of risk-ranked circuit segments, as identified by our risk models.” a. Please provide workpapers and data in Excel that supports the 87 percent figure. b. Please explain what “top 20 percent of risk-ranked circuit segments” means, and reference the data and response in part (a) to show how this is calculated.	The confidential attachment is being provided pursuant to a signed Non-Disclosure Agreement with PG&E. a. Please see attachment “WMP-Discovery2023_DR_TURN_010-Q002Atch01CONF.xlsx” b. "Top 20% Risk-Ranked Circuit Segments" miles can come from either the WDRM V2 or V3 Risk Rank Models: The "V3 Top 20% Risk-Ranked Circuit Segments" are miles selected from the WDRM V3 risk model with a V3 Risk Rank greater than 720. Any miles with a V3 Risk Rank above 720 that are completed as part of the program would then be considered outside “the top 20 percent of risk-ranked circuit segments”. The "V2 Top 20% Risk-Ranked Circuit Segments" are miles selected from the WDRM V2 risk model with a V2 Risk Rank of greater than 727. Any miles with a V2 Risk Rank above 727 that are completed as part of the program would then be considered outside “the top 20 percent of risk-ranked circuit segments”.	Tom Long	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_010.zip	1	Yes	8.1.2.2	Grid Design, Operations, and Maintenance	Undergrounding
304	TURN	010	TURN_010	3	TURN_010_Q3	Following up on the response to TURN DR 7-4(c), in which TURN asked whether PG&E calculated circuit-segment level RSEs for the past and future work shown in Attachment 2023-04-06_PGE_2023_WMP_R2_Section 6.4.2_Atch01, an earlier version of which is referenced on page 195, fn. 77 of the WMP (R1): a. Whether or not OEIS required PG&E to present such circuit-segment level RSEs in the 2023-2025 WMP, has PG&E calculated them? If so, please provide the RSEs, preferably as additional columns in the workbook provided as Atch01 to TURN DR 7-2. Please provide all supporting workpapers, calculations, input data, and assumptions regarding these RSE calculations.	As described in more detail in response to TURN Data Request 09, PG&E's Wildfire Feasibility (WFE) scores incorporate the elements of RSE calculations with the feasibility element used to modify the spend factor to account for operational and executability factors. Please see attachment “WMP-Discovery2023_DR_TURN_010-Q003Atch01.xlsx” for a list of all circuit segments and their calculated WFE scores. Circuit segments without a WFE score are not in a HFTD and do not have a score calculated. • Circuit Segment (column A) • WFE Score (column B)	Tom Long	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_010.zip	1	N/A	6.4.2	Risk Methodology and Assessment	Top Risk-Contributing Circuits/Segments
306	TURN	010	TURN_010	5	TURN_010_Q5	Please provide the number of miles of secondary overhead distribution lines versus primary overhead distribution lines in PG&E's HFTD, and separately for PG&E's self-identified HFRA.	Please see “WMP-Discovery2023_DR_TURN_010-Q005Atch01.xlsx”.	Tom Long	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_010.zip	1	N/A	8.1.2.5	Grid Design and System Hardening	Traditional Overhead Hardening
307	TURN	010	TURN_010	6	TURN_010_Q6	PG&E's WMP (R1) at page 4 states “Recent data and analysis demonstrate that the Enhanced Vegetation Management (EVM) Program risk reduction is less than EPSS and additional Operational Mitigations such as Partial Voltage Detection capabilities.” Please provide this recent data, including all supporting documents and quantitative analyses in Excel, that support this statement.	PG&E introduced the comparison of risk reduction and Risk Spend Efficiency (RSE) of EPSS vs EVM in the 2022 WMP and 2023 GRC Supplemental Filing in February 2022. This comparison is described in the 2023 GRC, Exhibit 3 Chapter 4 page 3-2 through 3-7. The updated wildfire mitigation strategy is summarized in Table 3-4 on page 3-39, as the risk reduction relative to spend between EVM and EPSS is substantially in EPSS's favor. Please reference the following workpapers: • 2022 WMP o 2022 WMP Data Table 12 - ‘WMP-Discovery2023_DR_TURN_010-Q006Atch01.xlsx’, initiative 7.3.5.15 and 7.3.6.8 o EVM RSE Workpaper - ‘WMP-Discovery2023_DR_TURN_010-Q006Atch02.xlsx’ o EPSS RSE Workpaper - ‘WMP-Discovery2023_DR_TURN_010-Q006Atch03.xlsx’ • 2023 GRC Supplemental Filing o ED_001 – ‘WMP-Discovery2023_DR_TURN_010-Q006Atch04.xlsm’	Tom Long	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_010.zip	4	N/A	8.2.3	Vegetation Management and Inspections	Vegetation and Fuels Management
308	TURN	010	TURN_010	7	TURN_010_Q7	PG&E WMP (R1) at page 251 states “The type of mitigation tradeoff and effectiveness analysis we conduct informed PG&E's decision to transition away from the Enhanced Vegetation Management (EVM) program.” a. Please provide all documentation and internal communications regarding the transition away from the EVM program. b. Please provide the “effectiveness analysis” conducted by PG&E that informed its decision to discontinue the EVM program. c. Please provide annual total spending on the EVM program from 2018-2022.	a. Please see “WMP-Discovery2023_DR_TURN_010-Q007Atch03CONF.pdf” sent by VM Program Communications on October 20, 2022 referencing end of EVM at the end of 2022. In an All-Hands Call held on October 20, 2022, PG&E informed staff that due to the end of the Enhanced Vegetation Management (EVM) Program by year's end, PG&E has eliminated the EVM program's mandatory trainings and evaluations. b. Please see “WMP-Discovery2023_DR_TURN_010-Q007Atch01.pdf” and “WMP-Discovery2023_DR_TURN_010-Q007Atch02.pdf” that were performed by PG&E which helped inform the decision to discontinue EVM. c. The EVM program began in 2019. Please see below for EVM Actual Totals for 2019-2022. EVM Actual 2019 $ 470.4M 2020 $ 451.4M 2021 $ 770.4M 2022 $ 817M	Tom Long	4/28/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_010.zip	3	Yes	8.2.3	Vegetation Management and Inspections	Vegetation and Fuels Management
275	CalPA	Set WMP-20	CalPA_Set WMP-20	1	CalPA_Set WMP-20_Q1	a) Describe PG&E's standard process for retiring an asset from service. b) Describe how PG&E records the retirement of an asset from service.	a) Decisions to replace an asset and “retire” it from service are driven by various factors such as asset risk, condition, design usefulness, and capacity needs, and are determined by the asset managers of each asset family. Different programs establish varied processes for making decisions on when to retire an asset from service. As an example, in our distribution system hardening and the undergrounding program, PG&E follows TD-9001M Chapter 15 requirements attached as “WMPDiscovery2023_DR_CalAdvocates_020-Q001Atch01.pdf”. The overhead assets are therefore retired when they are replaced with new, hardened assets (either overhead or underground) based on PG&E's determination driven from the wildfire distribution risk model as described in the WMP. b) To record the retirement of the assets removed from the field as described in response to subpart a), the retired assets are administratively removed from the inservice partition of PG&E's asset registry and work management system and placed in an archival partition within the work management system where they can be accessed for reference only. When an asset is retired from service due to replacement or removal, PG&E has an as-built process to document the work completed in the field, including removing of a pre-existing asset. As a part of this process, As-Builts may be work verified, redlined (modified from the original project design), submitted for mapping for certain asset types, and recorded in PG&E's system of record.	Holly Wehrman	4/26/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_020.zip	1	N/A	8.1.5	Asset Management and Inspection Enterprise System(s)	N/A
276	CalPA	Set WMP-20	CalPA_Set WMP-20	2	CalPA_Set WMP-20_Q2	a) In 2022, as part of its WMP system hardening activities, did PG&E retire from service (i.e., replace, remove, destroy, or decommission) any assets that had not been fully depreciated at the time of retirement? b) Please describe how PG&E recorded the retirement of assets during 2022 system hardening activities.	a) Not applicable. The assets replaced as part of WMP system hardening activities (electric distribution overhead assets) follow group depreciation and retirement accounting. As such, there is no undepreciated value for the assets that were retired. Please refer to our response to Question 005, Subpart (a) for additional information on group depreciation and retirement accounting. b) Please see the response to Question 001, Subparts (a) - (b) of this Data Request. The retirement of assets during 2022 system hardening activities followed PG&E's standard process for recording the retirement of assets.	Holly Wehrman	4/26/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_020.zip	0	N/A	8.1.2	Grid Design and System Hardening	All
277	CalPA	Set WMP-20	CalPA_Set WMP-20	3	CalPA_Set WMP-20_Q3	a) In 2023, as part of its WMP system hardening activities, does PG&E intend to retire from service (i.e., replace, remove, destroy, or decommission) any assets that are not fully depreciated at the time of retirement? b) Please describe how PG&E will record the retirement of assets during 2023 system hardening activities.	a) Not applicable. The assets to be replaced as part of WMP system hardening activities in 2023 follow group depreciation and retirement accounting. As such, there is no undepreciated value of the assets that will be retired. Please refer to our response to Question 005, Subpart (a) for additional information. b) See response to Question 001, Subparts (a) - (b) of this Data Request Set. The retirement of assets during 2023 system hardening activities follow PG&E's standard process for recording the retirement of assets.	Holly Wehrman	4/26/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_020.zip	0	N/A	8.1.2	Grid Design and System Hardening	All
278	CalPA	Set WMP-20	CalPA_Set WMP-20	4	CalPA_Set WMP-20_Q4	What is PG&E's standard practice for tracking assets that are retired from service before they are fully depreciated?	Please see the response to Question 001, Subpart (b) for information regarding the tracking of PG&E's retired assets. Please also see Question 005, Subpart (a) for information on group depreciation and retirement accounting, as established by the CPUC, FERC, and the National Association of Regulatory Utility Commissioners (NARUC), which PG&E follows.	Holly Wehrman	4/26/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_020.zip	0	N/A	8.1.5	Asset Management and Inspection Enterprise System(s)	N/A
279	CalPA	Set WMP-20	CalPA_Set WMP-20	5	CalPA_Set WMP-20_Q5	a) If PG&E retires from service an asset that has not been fully depreciated, does it remove the remaining undepreciated value of the asset from its rate base? b) How does PG&E determine the remaining undepreciated value of an asset at the time the asset is retired from service? c) Please describe any scenario in which PG&E would retire from service an asset that has not been fully depreciated, but would keep the remaining undepreciated value of the asset in its rate base.	a) The premise of this question is incorrect. PG&E follows group depreciation and retirement accounting, as established by the CPUC, FERC, and the National Association of Regulatory Utility Commissioners (NARUC). Group depreciation accounting refers to the well-established regulatory accounting method for large groups of homogenous assets. The premise of group depreciation accounting principles (which may be referred to as “mass asset accounting” or “group depreciation”) is that assets retired are deemed fully depreciated at the time of their retirement, and hence their value in rate base going forward is zero. As such, there is no undepreciated value of WMP assets retired. PG&E follows group depreciation practices, which are based on the average service life of elements of plant and equipment. The average age takes into account the ages of assets whenever they retire (are removed from service) and computes the average. The average itself is a recognition that some retirements occur before the average service life and others after. PG&E complies with the requirements of the FERC Code of Federal Regulations (CFR) Uniform System of Accounts when retiring assets. Title18, Part 101 of the CFR states in its Electric Plant Instruction, section 10(B)(2), that when depreciable plant is retired, the book cost of the unit retired is credited to the plant account and debited to the accumulated provision for depreciation. Thus there is no change in rate base when plant is retired. The Commission's Standard Practice U-4, Determination of Straight-Line Remaining Life Depreciation Accruals (SP U-4), dated January 3, 1961, provides the same accounting treatment for retirements. (SP U-4, p. 5, Ch.1, § 4.) Authorized depreciation expense is calculated with the understanding that unrecovered depreciation expense due to earlier retirements is made up by depreciation expense on other units which outlive the average service life of an account. As later explained in the Commission's SP U-4: In group accounting all units having like mortality characteristics or all units of an account are considered together. Accruals for the group are based on composite or weighted average values of salvage and service life expectancy. The resulting values are applied to the surviving plant balances each year or each accounting period. A deficiency due to early retirement of a particular unit is made up through greater accruals on a	Holly Wehrman	4/26/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_020.zip	0	N/A	8.1.5	Asset Management and Inspection Enterprise System(s)	N/A
280	CalPA	Set WMP-20	CalPA_Set WMP-20	6	CalPA_Set WMP-20_Q6	a) As of the date of this data request, does PG&E's rate base currently include any portion of the value of any assets that are no longer in service? b) If the answer to part (a) is yes, please explain why. c) If the answer to part (a) is no, list the controls in place that ensure PG&E's rate base does not currently include any portion of the value of assets that are no longer in service.	a) No. Please see the response to Question 005, Subpart (a) for a detailed explanation. b) Not applicable, as described in subpart (a) of this response. c) PG&E follows group depreciation and retirement accounting established by the CPUC, FERC, and National Association of Regulatory Utility Commissioners (NARUC). As such, there is no undepreciated value of WMP retired assets in rate base or required controls. Please see the response to Question 005, Subpart (a), for a detailed explanation.	Holly Wehrman	4/26/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_020.zip	0	N/A	8.1.5	Asset Management and Inspection Enterprise System(s)	N/A

281	CalPA	Set WMP-20	CalPA_Set WMP-20	7	CalPA_Set WMP-20_Q7	In its response to data request CalAdvocates-PGE-2023WMP-14, questions 20-22, PG&E stated, "We cannot provide the requested data. Our asset registry and work execution systems are not set up to enable this cross-referenced data consolidation and we do not track the volume of assets replaced that have not been fully recovered." a) Please explain what is meant by the statement, "Our asset registry and work execution systems are not set up to enable this cross-referenced data consolidation." b) Please explain what is meant by the statement, "we do not track the volume of assets replaced that have not been fully recovered." c) Is PG&E able to determine the number of assets that have not been fully depreciated that it retired from service as part of its 2020-2022 WMP activities? d) Is PG&E able to determine the total remaining undepreciated value of assets that it retired from service as part of its 2020-2022 WMP activities?	a) Please see the response to Question 001, Subparts (a) and (b). When an asset is retired from service, PG&E has an as-built process to document work completed in the field. These as-builts are submitted for mapping in the system of record and the retired asset is removed from our Geospatial System or record (GIS). In addition, the retired asset is also removed from the in-service partition of the work management system (SAP) and placed in the archival partition within SAP, where it can be accessed for reference only. b) Please see the response to Question 007, Subpart (a). When an asset is retired from service, it is removed from our GIS system and archived within SAP. Please see also the response to CalAdvocates_020-QQuestion 005, Subpart (a) which describes that the assets replaced in the WMP follow group accounting, and there is no undepreciated value of retired WMP assets. As such, PG&E does not track retirements in this manner. c) Please see the response to Question 005, Subpart (a). When an asset is retired from service, it is deemed fully depreciated. d) Please see the response to Question 005, Subpart (a). When an asset is retired from service, it is deemed fully depreciated.	Holly Wehrman	4/26/2023	5/3/2023	5/3/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_020.zip	0	N/A	8.1	Grid Design, Operations, and Maintenance	Distribution Pole and Replacements Traditional Overhead Hardening Transformers
313	CalPA	Set WMP-22	CalPA_Set WMP-22	1	CalPA_Set WMP-22_Q1	During the panel discussion portion of the Grid Operation, Design, and Maintenance session of the WMP workshop held on April 27, 2023, PG&E estimated that, during wildfire season (May through November) in 2022, EPSS was enabled on approximately 40-60% of circuit days. a) Is the above estimate correct? If not, please provide an estimate of the percentage of circuit days that EPSS was enabled during fire season in 2022. b) Does PG&E have a forecast of the percentage of circuit days on which EPSS will be enabled during fire season in 2023? If so, please provide it. c) Please define "circuit days."	a) Yes, we calculated the number of High Fire Risk Area (HFRA) circuits that were protected by EPSS between May and November in 2022, which was 59.8% of circuit-days. Note that we did not include EPSS buffer circuits, which are only enabled during Fire Weather Watch , Red Flag Warning, or minimum Fire Potential Conditions. Including those circuits would reduce that percentage significantly (those circuits - or portions of circuits - are only enabled a few days per year, if at all). b) A forecast for 2023 would require forecasting weather and Fire Potential Index (FPI) at the circuit level for the full year, which is not possible. However, given that 2022 saw 31% more days than the 2018-20 3-year average in R3 FPI or greater conditions, it is reasonable to assume that 60% is on the higher end of the estimate, and that a reduction of a third would be approximately 40% of circuit mile days. c) One 'Circuit-Day' is equivalent to one EPSS capable circuit in HFRA protected by EPSS for one day during the May to November timeframe. This unit was selected as PG&E enables EPSS and returns settings to normal based on localized wildfire and meteorological risk conditions as defined at the daily circuit level.	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.8.1.1	Grid Design and System Hardening	Protective Equipment and Device Settings
314	CalPA	Set WMP-22	CalPA_Set WMP-22	2	CalPA_Set WMP-22_Q2	During the Q&A portion of the Grid Operation, Design, and Maintenance session of the WMP workshop held on April 27, 2023, a caller raised concerns about the feasibility of undergrounding in rocky and steep terrain and in wetlands. In response, PG&E stated that it was evaluating tools and techniques to perform undergrounding in those areas. Regarding undergrounding in areas with steep and rocky terrain: a) Please list and describe the current difficulties or obstacles to undergrounding in rocky and steep terrain. b) What tools and techniques is PG&E evaluating to improve the feasibility of undergrounding in rocky and steep terrain? c) What is PG&E's estimate of the current unit cost of undergrounding in rocky and steep terrain? d) Please state whether the unit cost provided in response to part (c) is based on mileage of overhead circuits removed or mileage of underground circuits installed. e) Regarding the unit cost given in response to part (c) of this question, when does PG&E expect to be able to reduce the unit cost to less than $3.0 million per mile? f) Of the WMP undergrounding projects that PG&E plans to execute in 2023-2024, do any involve installing a significant amount (greater than 0.1 miles) of underground conductor in rocky and steep terrain? g) If the answer to part (f) is yes, please list each such project.	a) Yes, we calculated the number of High Fire Risk Area (HFRA) circuits that were protected by EPSS between May and November in 2022, which was 59.8% of circuit-days. Note that we did not include EPSS buffer circuits, which are only enabled during Fire Weather Watch , Red Flag Warning, or minimum Fire Potential Conditions. Including those circuits would reduce that percentage significantly (those circuits - or portions of circuits - are only enabled a few days per year, if at all). b) A forecast for 2023 would require forecasting weather and Fire Potential Index (FPI) at the circuit level for the full year, which is not possible. However, given that 2022 saw 31% more days than the 2018-20 3-year average in R3 FPI or greater conditions, it is reasonable to assume that 60% is on the higher end of the estimate, and that a reduction of a third would be approximately 40% of circuit mile days. c) One 'Circuit-Day' is equivalent to one EPSS capable circuit in HFRA protected by EPSS for one day during the May to November timeframe. This unit was selected as PG&E enables EPSS and returns settings to normal based on localized wildfire and meteorological risk conditions as defined at the daily circuit level. up rock using expansive epoxy (e.g., drill holes in the hard rock and add epoxy to the holes to expand and crack the hard rock). At a minimum digging in hard rock is more time consuming and costly and may simply be infeasible in some cases. b) For rocky and/or steep terrain, PG&E is currently piloting at-grade construction where a cable "tray" is installed inside a casing at ground level to house the electric cables. PG&E has also engaged with some early-stage technologies to dig / drill / excavate in hard rock areas including "rock plasma blasting". Some existing technologies, like Rock Wheels and boring machines, can operate effectively in certain environments but not others ("cobble" environments with a collection of hard rock but not a uniform consistency can be particularly challenging). c) PG&E has estimated that it can cost up to three times as much to underground lines in areas that are steep and have hard rock as compared to "normal" environments. Of course, the exact conditions of any particular project are highly variable and it is very unlikely that any project would be completely in hard rock and/or steep terrain conditions. Another data point is that some PG&E contracts with the civil construction vendors performing undergrounding work identify a "cost adder" that is applied to the linear footage of trench installation when hard rock encountered, that adder could ranges from approximately $50 - $300 per linear foot (which could mean an adder of ~$275K to $1.6M per mile, just for the civil construction portion of the undergrounding project cost). d) All of PG&E's unit cost data or forecasts related to Undergrounding are based on the underground primary distribution circuit miles installed. e) We do not have an estimate of the total unit cost in rocky and steep terrain in part because, as noted in the response to subpart c) no project is completely made up of hard rock and steep terrain, most projects contain some mix of terrains and soil conditions. As noted in PG&E's GRC System Hardening Underground Unit cost forecast by year (Table 4-11), PG&E expects to reduce total unit cost of the portfolio of undergrounding work to less than $3.0 million per mile in 2025. Those unit cost forecasts represent the average across the portfolio of all undergrounding work, meaning that some projects will still cost more than $3 million per mile (including potentially hard rock or steep terrain projects) while others will be executed for less than the targeted unit cost (e.g. $2.96 million per mile in 2025). f) The significant majority of undergrounding projects in the WMP portfolio are expected to encounter some level of rocky and/or steep conditions. However, at this time PG&E does not track data on the terrain type by mile for completed or planned undergrounding projects. As noted previously, the severity of the rocky and/or steep conditions varies significantly across each project. g) Not applicable. PG&E does not track the terrain type by mile when undergrounding miles.	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
315	CalPA	Set WMP-22	CalPA_Set WMP-22	3	CalPA_Set WMP-22_Q3	During the Q&A portion of the Grid Operation, Design, and Maintenance session of the WMP workshop held on April 27, 2023, a caller raised concerns about the feasibility of undergrounding in rocky and steep terrain and in wetlands. In response, PG&E stated that it was evaluating tools and techniques to perform undergrounding in those areas. Regarding undergrounding in wetland areas: a) Please list and describe the current difficulties or obstacles to undergrounding in wetlands. b) What tools and techniques is PG&E evaluating to improve the feasibility of undergrounding in wetlands? c) What is PG&E's estimate of the current unit cost of undergrounding in wetlands? d) Please state whether the unit cost provided in response to part (c) is based on mileage of overhead circuits removed or mileage of underground circuits installed. e) Regarding the unit cost given in response to part (c) of this question, when does PG&E expect to be able to reduce the unit cost to less than $3.0 million per mile? f) Of the WMP undergrounding projects that PG&E plans to execute in 2023-2024, do any involve installing a significant amount (greater than 0.1 miles) of underground conductor in wetlands? g) If the answer to part (f) is yes, please list each such project.	a) To the greatest extent possible, PG&E avoids construction in federal or state jurisdictional wetlands and we have generally found relatively few locations where it is unavoidable to underground in a "wetland" area. PG&E will first seek to relocate our distribution circuits to a less sensitive environmental location. However, undergrounding across water crossings – streams, rivers, etc. is not uncommon due to the linear nature of electric distribution circuits and the linear nature of streams and rivers. When needing to underground across a water crossing (or a wetland, if it were to be necessary), the significant obstacles are not disrupting the waterway and avoiding water intrusion into our trench / conduit path. Because of this, PG&E generally uses existing boring technology (also referred to as Horizontal Directional Drilling (HDD)) to drill significantly below ground (and under the waterway) to avoid impacts to the waterway (or wetland). In these cases where HDD is used, we have an environmental inspector and/or a biological monitor on site to ensure the construction is properly protecting the waterway or other sensitive environmental areas. b) See the response to subpart a). c) PG&E does not specifically track unit cost per terrain type by mile when undergrounding miles, and therefore does not have this available. The cost of installing conduit underground via boring (or HDD) varies significantly based on many factors including the depth of bore needed, the rock / geological makeup of the area (hard rock or "cobble" rock environments are more difficult to bore through), the accessibility of the boring site, etc. In some cases, boring can be performed at a lower cost per foot or per mile than traditional trenching installing but in other cases boring may cost significantly more on a per foot basis (but may be the only tool available, like for undergrounding across a water crossing). Due to this high variability, there is no standard unit cost for undergrounding under waterways. d) Not applicable, please see the response to subpart c). As noted in response to Question 2, subpart d) of this data request: all of PG&E's unit cost data or forecasts related to Undergrounding are based on the underground primary distribution circuit miles installed. e) PG&E does not have an estimate of the total unit cost for undergrounding in wetlands (or across waterways). As noted in PG&E's GRC System Hardening Underground Unit cost forecast by year (Table 4-11), PG&E expects to reduce total unit cost of the portfolio to less than $3.0 million per mile in 2025. Those unit cost forecasts represent the average across the portfolio of all undergrounding work, meaning that some projects will still cost more than $3 million per mile (including potentially hard rock or steep terrain projects) while others will be executed for less than the targeted unit cost (e.g. $2.96 million per mile in 2025). f) PG&E does not track the terrain type by mile when undergrounding. As noted in response to subpart a), PG&E aims to avoid undergrounding in wetland terrain and the footage of undergrounding below water crossings tends to be relatively small in comparison to total project length. g) Not applicable. PG&E does not track the terrain type by mile when undergrounding miles.	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
316	CalPA	Set WMP-22	CalPA_Set WMP-22	4	CalPA_Set WMP-22_Q4	Table PG&E-22-11-3 on page 903 of PG&E's WMP states that the cost per circuit mile of covered conductor was $825,698 in 2022. PG&E's response to data request CalAdvocates-PGE-2023WMP-19, question 10 confirms that "There are no additional costs associated with overhead hardening that were excluded from Table 22-11-3." In response to data request CalAdvocates-PGE-2023WMP-06, question 10, PG&E stated that its actual 2022 expenditures related to covered conductor were $285,544,000 and that PG&E installed 335 miles. This results in $851,860 per circuit mile of covered conductor in 2022. In response to data request CalAdvocates-PGE-2023WMP-09, question 14, PG&E provided a unit cost forecast of $1.678 million per mile for overhead hardening in 2025. a) Please explain the discrepancy in 2022 covered conductor unit costs between PG&E's response to CalAdvocates-PGE-2023WMP-06, question 10 ($851,860 per circuit mile) and Table PG&E-22-11-3 ($825,698 per circuit mile). b) Why is PG&E's forecast of covered conductor unit cost in 2025 nearly double the actual unit cost in 2022? c) Please state the basis of your unit cost forecast of $1.678 million per mile in 2025. d) Provide any workpapers or analyses that you used to develop your unit cost forecast of $1.678 million per mile in 2025.	a) The primary driver for this discrepancy is that in Table PG&E-22-11-3 of the WMP, the unit cost is calculated on 2022 projects using the cost-since-inception methodology to derive the true unit cost. Meaning, the costs for those projects include the whole lifecycle of costs from prior to 2022. The inferred unit cost calculation in this data request using data from CalAdvocates-PGE-2023WMP-06, question 10, does not give you the true unit cost since there are costs in 2022 that are specific to 2022 miles achieved—primarily close-out costs for 2021 completed projects—and readiness costs (Estimating/Design, Permitting, Materials, etc.) for 2023 and beyond projects. PG&E recommends avoiding calculating unit cost by using financials and units from the same year. b) With the reduction in overhead hardening mileage over the WMP period (as compared to prior years), PG&E anticipates an increase in the unit cost of covered conductor installations due to an assumed loss of economies of scale. c) PG&E's 2025 forecast for the unit cost of covered conductor in the WMP is aligned with PG&E's forecast in the 2023 GRC. The unit cost forecast from the 2023 GRC is provided in the table excerpt below. The 2025 unit cost forecast specifically reflects an escalation of the unit cost forecasts from 2023 and 2024, noting that the 2025 unit cost forecast is an ~2.96% increase from the 2024 unit cost forecast. So the driver of the 2025 unit cost is the 2023 unit cost which is $1.56 million per mile. The 2023 unit cost is based on the 2020 recorded unit costs of approximately $1.89 million per mile plus certain adjustments. The 2020 recorded unit costs included approximately $250,000 to $300,000 per mile for vegetation clearing. PG&E excluded these vegetation costs from the 2023 unit costs because work planned in future years is likely to occur in areas with much less vegetation. Excluding vegetation clearing reduced the unit costs to approximately $1.59 million per mile to $1.64 million per mile. PG&E further reduced the unit costs to address affordability concerns and increased costs to account for inflation. With these adjustments, the 2023 unit cost for System Hardening OH is $1.56 million per mile. (In PG&E's initial 2023 GRC filing this figure was $1.52 million per mile but with the increase in inflation observed during the proceeding it was updated to $1.56 million in a February 2022 update to PG&E's 2023 GRC filing.) This 2023 unit cost was then escalated to forecast the 2024 and 2025 unit costs for overhead system hardening. d) The analysis used to develop the 2025 unit cost is provided in the response to subpart c above and aligns with PG&E's response to data response TURN_007-Q06 in the 2023 GRC proceeding.	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.2.1	Grid Design and System Hardening	Covered Conductor Installation – Distribution
318	CalPA	Set WMP-22	CalPA_Set WMP-22	6	CalPA_Set WMP-22_Q6	a) Given the best information now available to PG&E, is the expected useful life of newly installed covered conductor identical to that of newly installed bare overhead conductor? b) Does PG&E expect that the asset management and maintenance needs for covered overhead conductor are identical to those of bare overhead conductor? c) Does PG&E intend, either now or at any point in the future, to apply different PSPS criteria (such as wind speed thresholds) for circuit-segments that are hardened with covered conductor, relative to those with bare overhead conductor? d) If the answer to the previous part is yes, how will PG&E determine which PSPS criteria to apply without having accurate information about where on its system it has installed covered conductor?	a) The expected life of newly installed Covered Conductor (CC) is not identical to the newly installed Bare Conductor (BC) because the failure modes are different between the two conductor types. At this time, PG&E does not have a set useful life expectancy for covered conductor due to ongoing evaluation of UV exposure and the possibility of accelerated corrosion from water intrusion to the protective jacket. These failure modes were documented in PG&E's Covered Conductor Testing. The Joint IOU effort is continuing to evaluate PG&E's testing results and the impacts of the expected useful life of newly installed covered conductor.. b) PG&E uses the same inspection methods for CC and BC. As noted in the 2023 WMP Joint IOU CC Report, most inspection practices of BC also apply to CC. In addition, in 2023, PG&E updated the Detailed Ground Inspection Checklist to include prompts for identifying failure modes that are unique to CC, such as CC wire jacket cut into and internal conductor exposed, CC exposed and burnt, and dead-end cover mis-aligned on CC construction. PG&E is continuing to evaluate test results, discussed in response to subpart (a), to assess if additional updates to inspection methods are required. c) As stated in response to ACI PG&E-22-31 in the 2023-2025 WMP, due to PG&E's PSPS modeling approach, PG&E would not manually adjust our PSPS criteria (such as wind speed thresholds) for circuit-segments to account for covered conductor or any other program that reduces the probability of catastrophic outcomes. Our Catastrophic Fire Probability model (discussed in Section 9) is a risk-based assessment of the probability of ignition given an outage multiplied by the probability of catastrophic fires (Fire Potential Index). Thus, we would not adjust the threshold at which PSPS is executed (each area is scoped for PSPS at the same risk threshold), but any program or external factor that results in a beneficial outcome would reduce the probability of ignitions and therefore decrease the chance of achieving the PSPS threshold. We incorporate new outage data each year into our Outage Producing Winds (OPW) and Ignition Probability Weather (IPW) machine learning models. These updates account for any updated wind to outage to ignition responses in local areas of the grid. We are also exploring if adding covered conductor as a feature of the IPW model in future iterations provides benefits (see Objective SA-04). d) See the response to Subpart (c).	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.2.1	Grid Design and System Hardening	Covered Conductor Installation – Distribution
319	CalPA	Set WMP-22	CalPA_Set WMP-22	7	CalPA_Set WMP-22_Q7	Table 8-7-2 on page 446 of PG&E's WMP uses the term "Critical pass rate." Please define this term.	The attachment to this response is confidential as described in the confidentiality declaration of Richard Knoeber, dated May 5, 2023.Please see attachment "WMP-Discovery2023_DR_CalAdvocates_022-Q007Atch01CONF.pdf" for the requested information. Specifically, on pages 1-2 of the document, we identify three calculations that comprise the Quality Pass Rate: (1) the QV Distribution Pass Rate; (2) the QV Transmission Pass Rate; and (3) the Routine Vegetation Management Pass Rate. The Critical Pass Rate is comprised of two of these three calculations: (1) the QV Distribution Pass Rate; and (2) the QV Transmission Pass Rate.	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	1	N/A	8.1.6.2	Grid Design and System Hardening	Quality Control
320	CalPA	Set WMP-22	CalPA_Set WMP-22	8	CalPA_Set WMP-22_Q8	In response to data request CalAdvocates-PGE-2023WMP-05, question 3, PG&E provided the number of distribution inspections that failed QC review. Out of 52,894 inspections that underwent desktop quality control, 4,978 (9.4%) failed. Out of 4,096 inspections that underwent field quality control, 602 (14.7%) failed. The above numbers generate a pass rate of 90.6% for desktop quality control and 85.3% for field quality control. Table 8-7-2 on page 446 of PG&E's WMP lists a "critical pass rate" of 85.5% for distribution desktop audits, and 79.3% for distribution field audits. a) If any of the figures in the table above are inaccurate, please provide corrected figures. b) Please explain the apparent discrepancy between the failed inspection numbers provided in response to data request CalAdvocates-PGE-2023WMP-05, question 3, and the critical pass rate provided in Table 8-7-2 on page 446 of PG&E's WMP.	a) All numbers in the table above have been verified and are accurate per our 2022 data and dashboards. b) Critical pass rate is a subset of the overall pass rate, looking at specific, Critical priority ranked attributes. o Pass rate, in this example, is defined as "The number of inspections that failed QC review was derived from the count of inspections with a Cause Code Description, compelling abnormal condition missed during inspection, or a maintenance notification was not created." o Critical pass rate for this specific subset of work, which included only distribution, is defined as:	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.6.2	Grid Design and System Hardening	Quality Control
321	CalPA	Set WMP-22	CalPA_Set WMP-22	9	CalPA_Set WMP-22_Q9	In response to data request CalAdvocates-PGE-2023WMP-06, question 6, PG&E provided a list of incidents in 2022 where the actions of a VM contractor posed a safety risk to workers or the public. Please fill out the spreadsheet "CalAdvocates-PGE-2023WMP-23_Atch01.xlsx" with the number of miles worked by each VM contractor in 2022 for each VM program/initiative. Note: the lists of contractors and programs come from columns L and G, respectively, of the attachment to PG&E's response to CalAdvocates-PGE-2023WMP-06, question 6. Please make any additions that are necessary for completeness and accuracy.	PG&E does not track the number of miles worked by each VM contractor. PG&E tracks the number of trees worked by vendor, or poles worked by vendor depending on the program in question. Please see " WMP-Discovery2023_DR_CalAdvocates_022-Q009Atch01.xlsx" spreadsheet for the number of trees worked by vendor for Routine/CEMA, EVM, Pole Work, and Wildfire Rebuild. The Systems Inspections program does not work with VM contractors.	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	1	N/A	8.2	Vegetation Management and Inspections	various
323	CalPA	Set WMP-22	CalPA_Set WMP-22	11	CalPA_Set WMP-22_Q11	Table PG&E-8.1.2-3 on page 349 of PG&E's WMP lists the number of undergrounding miles to be performed in "Top 20 percent Risk-Ranked Circuit Segments" in 2023, 2024, 2025, and 2026. The table notes, "The 2023 risk rank for segments is based on the 2021 WDRM v2. The 2024-2026 risk rank for segments is based on the 2022 WDRM v3." a) Please define "Top 20 percent Risk-Ranked Circuit Segments" for each year from 2023-2026. b) How many circuit miles are contained within the "Top 20 percent Risk-Ranked Circuit Segments" for each year from 2023-2026? c) How many circuit segments are contained with the "Top 20 percent Risk-Ranked Circuit Segments" for each year from 2023-2026? d) Does the phrase "Top 20 percent Risk-Ranked Circuit Segments" refer to the top 20 percent of circuit segments across PG&E's entire service territory, across the HFTD, or another categorization? Please explain your answer.	a) As indicated in Table PG&E-8.1.2.3, the "Top 20% Risk-Ranked Circuit Segments" miles can come from either the WDRM V2 or V3 Risk Rank Models. The 2023 risk rank for segments is based on the 2021 WDRM v2. The 2024-2026 risk rank for segments is based on the 2022 WDRM v3. The "V3 Top 20% Risk-Ranked Circuit Segments" are miles selected from the WDRM V3 risk model with a V3 Risk Rank between 1 and 720. Any miles with a V3 Risk Rank above 720 that are completed as part of the program would then be considered outside "the top 20 percent of risk-ranked circuit segments". The "V2 Top 20% Risk-Ranked Circuit Segments" are miles selected from the WDRM V2 risk model with a V2 Risk Rank between 1 and 727. Any miles with a V2 Risk Rank above 727 that are completed as part of the program would then be considered outside "the top 20 percent of risk-ranked circuit segments." b) Based on WDRM v2, the total overhead HFTD circuit miles that are in the top 20% Risk-Ranked Circuit Segments is 8,780. Based on WDRM v3, the total overhead HFTD/HFRA circuit miles that are in the top 20% Risk-Ranked Circuit Segments is 8,876 miles. c) Based on WDRM v2, there are 727 total circuit segments that are in the top 20% Risk-Ranked Circuit Segments. Based on WDRM v3, there are 720 total circuit segments that are in the top 20% Risk-Ranked Circuit Segments. d) The "Top 20 percent of Risk-Ranked Circuit Segments" refers the top 20% of circuit segments as set forth below: -For WDRM v2, this is inclusive of HFTD miles only. -For WDRM v3, this is inclusive of HFTD + HFRA miles.	Holly Wehrman	5/2/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution

203	CalPA	Set WMP-16	CalPA_Set WMP-16	8	CalPA_Set WMP-16_Q8	8.1.2.3 - Distribution Pole Replacements and Reinforcements Page 352 of PG&E's WMP states, "Pole replacement and reinforcement reduce outage likelihood which decreases the chances of the area being impacted in future PSPS events. These programs also support public and employee safety because they improve the overall health of the distribution poles." Please provide the average, median, minimum and maximum age of poles that PG&E: a) Replaced in 2020 b) Repaired in 2020 c) Replaced in 2021 d) Repaired in 2021 e) Replaced in 2022 f) Repaired in 2022	a) The average, median, minimum and maximum age of poles (in years) replaced in 2020, 2021, and 2022 are as follows: 2020 2021 2022 Average 49 48 49 Median 49 47 48 Minimum 4 6 7 Maximum 95 97 98 b) PG&E's form of pole repair discussed in Section 8.1.2.3 of the WMP is to reinforce the pole with a steel truss. As such, the age of poles provided below is specific to poles reinforced. 2020, 2021, and 2022 are as follows: 2020 2021 2022 Average 51 50 51 Median 51 51	Holly Wehrman	4/18/2023	5/5/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_016.zip	0	N/A	8.1.2.3	Grid Design and System Hardening	Distribution Pole Replacements and Reinforcements
324	CalPA	Set WMP-23	CalPA_Set WMP-23	1	CalPA_Set WMP-23_Q1	PG&E states in its WMP p. 751, "Based on our updated 2021 PSPS Protocols, some of the circuits below would not have been de-energized three or more times in any calendar year from 2019 to 2022. These circuits are noted below as 'mitigated with PSPS Protocols'." Please explain in detail how circuit ID 152481106 (circuit name Brunswick 1106) would have been mitigated by PSPS Protocols.	See response to WMP-Discovery2023_DR_CalAdvocates_012-Q004Supp01, subparts b, c, and d. Additionally, see WMP-Discovery2023_DR_CalAdvocates_012-Q001Supp01Atch01 full list of circuits mitigated by PSPS Protocols and the Distribution customer-events that would have been mitigated.	Holly Wehrman	5/3/2023	5/8/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_023.zip	0	N/A	9.2	Public Safety Power Shutoff	Protocols on PSPS
325	CalPA	Set WMP-23	CalPA_Set WMP-23	2	CalPA_Set WMP-23_Q2	Regarding PG&E's October 26-29, 2019, Post-PSPS Event Report4, Please explain in detail how PG&E's 2021 PSPS Protocols, as mentioned in Question 1, would have mitigated customers served by each of the affected circuits during this PSPS de-energization event.	See response to question 1 in this data request set for explanation on how the current PSPS Protocols would mitigate customers.	Holly Wehrman	5/3/2023	5/8/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_023.zip	0	N/A	9.2	Public Safety Power Shutoff	Protocols on PSPS
326	CalPA	Set WMP-23	CalPA_Set WMP-23	3	CalPA_Set WMP-23_Q3	Regarding PG&E's AFN Plan5, Appendix C "Program/Assistance Participation by Census Tract", p. A-9, please provide the demographics (especially racial/ethnic breakdown and income distribution), if known, for each census tract that received benefits of the following programs: a) Self-Generation Incentive Program b) Portable Battery Program c) Generator and Battery Rebate Program (GBRP).	PG&E does not collect demographic data, such as racial/ethnic breakdown or income distribution, from its customers. The only proxy that PG&E is aware of is participation in the California Alternate Rates for Energy (CARE) program, which qualifies customers based on income. PG&E provides three tables – one for each of the Self-Generation Incentive Program, Portable Battery Program, and Generator and Battery Rebate Program – that provides the number of CARE participants within the total number of Service Point IDs (SPIDs) for each census tract. See: • WMP-Discovery2023_DR_CalAdvocates_023-Q003Atch01.csv for the Self-Generation Incentive Program • WMP-Discovery2023_DR_CalAdvocates_023-Q003Atch02.csv for the Portable Battery Program • WMP-Discovery2023_DR_CalAdvocates_023-Q003Atch03.csv for the Generator and Battery Rebate Program Note that the tables in this response reflect customer account statuses as of May 4, 2023, and therefore may not match the customer counts and census tracts in the AFN Plan (effective as of January 2023) due to accounts becoming established and closed since that time	Holly Wehrman	5/3/2023	5/8/2023	5/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_023.zip	3	N/A	8.5.3	Community Outreach and Engagement	Engagement with Access and Functional Needs Population
311	TURN	011	TURN_011	3	TURN_011_Q3	3.Regarding DR response TURN-7, attachment, "WMP-Discovery2023_DR_TURN_007-Q001Atch01CONF.xlsx": a.Please add a column to this spreadsheet, for tab "PG&E UG Workplan 2023-26_Conf," with the unique identifier for each circuit segment provided in 1(b)(i) and 2(a) above. b.Please provide the supporting data and calculations for tab "PG&E UG Workplan 2023-26_Conf" column AC "HF_WFE Score." The formula looks up a value in a confidential data request sent to Cal PA. Please provide in Excel with formulas intact and with internal references to calculations, not external workbooks. c.Please provide "WMP_Discovery2023_DR_CalAdvocates_009-Q016Atch01CONF" in Excel if not provided in response to part (b) of this question. Please provide in Excel with formulas intact and with internal references to calculations, not external workbooks.	a. The circuit segment identifier is the name of the circuit segments as previously shared in our workplan. In attachment "WMPDiscovery2023_DR_TURN_007-Q001Atch01CONF.xlsx", see column O for WDRM v2 circuit segment identifiers, and column R for WDRM v3 circuit segment identifiers. b. Please see attachment "WMPDiscovery2023_DR_TURN_010-Q004Atch01.xlsx". Note, the calculation to determine High Fire WFE score is as follows: High Fire WFE score (column E, "HF WFE score") = Line Weighted Risk per Mile (column B, "v3_line_weighted_risk_per_hf_mile") / High Fire Feasibility Cost Multiplier (column C, "hf_feasibility_score"). c. Please see "WMP_Discovery2023_DR_CalAdvocates_009-Q016Atch01CONF.xlsx"	Tom Long	5/1/2023	5/8/2023	5/8/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_011.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
312	TURN	011	TURN_011	4	TURN_011_Q4	4. Regarding Attachment 2023-04-06_PGE_2023_WMP_R2_Section 6.4.2_Atch01, an earlier version of which is referenced on page 195, fn. 77 of the WMP (R1): a. Please add a column to this spreadsheet and provide the unique circuit segment identifier requested in 1(b)(i) above and 2(a) and 3 above. b. In Excel, please provide all supporting data and properly link cells in this spreadsheet to support the "mitigated risk" calculations in tab "Data_RR" (columns L, O, R, and U for undergrounding). Many of them link to documents on PG&E's internal server/workbooks. c. Please define and explain the following column headings on the "Data_RR" tab: i. "weighted_composite_for_system_hardening_wildfire_risk_mean;" ii. HFTD mileage (please indicate whether this is overhead or underground mileage); iii. Baseline wildfire risk (and please indicate if this is the same as the WDRMv3 model). d. If "HFTD Mileage" is not overhead circuit miles, please add a column to this spreadsheet that provides overhead circuit miles for each circuit segment. e. Please explain how, and whether, PG&E has incorporated an overhead to underground conversion ratio in its calculation of mitigated risk. Please provide cell references for where this is incorporated. f. Please confirm that the sum of all risk mitigated for undergrounding in 2023, 2024, and 2025, is 2,321 units, which represents 10 percent of baseline wildfire risk. i. If not confirmed, please provide a corrected calculation, and an explanation of the percentage of total wildfire risk mitigated by undergrounding indicated by these calculations. ii. If confirmed, does PG&E agree that this means these calculations indicate PG&E will reduce wildfire risk by 10 percent through its undergrounding program from 2023-2025? Please explain why or why not. 1. If PG&E disagrees with the 10 percent figure, please provide the correct percentage of wildfire risk PG&E expects to mitigate through its undergrounding program. Please provide all supporting workpapers, calculations, and assumptions in Excel.	a) Please see sheet "Model Data", Column B, in attachment "WMP Discovery2023_DR_TURN_011-Q004Atch01.xlsx". b) Please see attachment "WMP-Discovery2023_DR_TURN_011-Q004Atch01.xlsx". Data_RR links to Model Data sheet in this attachment. The "Model Data" tab summarizes the calculation of risk reduction per circuit segment based on the workplans in sheet "Workplan". To prevent overcounting the risk reduction, the UG workplan needs to be adjusted for the overhead to underground conversion rate of 1.25 as well as the workplan miles exceeding the workplan target. As an example, below is a sample calculation: An individual CPZ has 10 miles of UG planned work in 2023, with 20 miles of overall mileage and 100 points of risk. In 2023, PG&E's workplan has 534 miles, but only 350 miles are in the workplan target. As such, each UG plan work on a CPZ is multiplied by 350/534. Additionally, 350 UG miles is expected to be realized by UG replacing 280 miles of overhead. Both these measures are used to ensure not to overcount the risk reduction realized. The resulting calculation would be as follows: (10 miles)*(350/534)*(1/1.25)= 5.25 / 20 miles = 26.25% The risk reduction calculation would be as follows: 26.25% * 100 risk points * 99% = 26 risk reduction points c) i. Weighted_composite_for_system_hardening_wildfire_risk_mean is the column field name from WDRM v3. This is more commonly referred to as "Mean Risk" in discussion about risk from the Wildfire Distribution Risk Model. ii. HFTD mileage represents the HFTD overhead conductor mileage iii. Baseline wildfire risk is represented as the WDRM v3 * enterprise MAVF calibration factor (11.41) as discussed in Section 7.2.2.2. d) Not applicable. e) Yes. This is incorporated into the calculation of mitigated risk. Please see tab "Workplan" Cells B3:E3 with the reduction by the OH-to-UG factor on cells H4:K4. For example, the 2023 WMP target is 350 miles of Underground; therefore, the total OH miles impacted in 2023 is 350/1.25 = 280 miles	Tom Long	5/1/2023	5/8/2023	5/8/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_011.zip	1	N/A	6.4.2	Risk Methodology and Assessment	Top Risk-Contributing Circuits/Segments
327	OEIS	004	OEIS_004	1	OEIS_004_Q1	Regarding Ignition Probability Weather Model In PG&E's WMP, it states its "IPW framework analyzes positive and negative changes in grid performance and reliability year-over year and applies a timeweighted approach to weigh more recent years of learned performance more heavily in the final model output." (p. 769). a. What metrics are used to analyze the year-over-year changes in grid performance and reliability? b. Provide a description (i.e. changes in event, ignition, and outage numbers) and locations of changes PG&E has observed in grid performance based on implementing system hardening mitigations, including the amount of time it took to observe any statistical changes that would account for changes in PSPS decision-making. c. How is year-to-year weather variation accounted for in the analysis of year-over-year changes in grid performance and reliability?	a. The IPW model learns changes in performance through the hourly relationship between outage occurrence and the weather conditions present. We use evaluation metrics like the AUROC values as published in our WMP to assess model skill for model deployment. b. To date, system hardening is not an explicit feature, or input, of the IPW model. Any changes in the current model due to system hardening would come from the outage occurrence to weather relation changing rather than from an engineering, subject matter expertise or presumed change. We are currently exploring new features for future IPW models such as the age of the assets. For example, when a line with old poles is replaced with new poles, as occurs under the system hardening program, changes in the outage to weather relation due to age would be reflected in the model for this line. c. The IPW model is trained with hourly weather data from each POMMS 2x2 km grid cell and whether an outage occurred or not at that time and area. Thus, the IPW model is not learning annual variation in weather, but learning hourly variation in outage occurrence given the hourly weather conditions present. The time-weighted averaging approach of the IPW model balances learning any changes in the outage to weather relation over time with preserving information of historic events. For example, the IPW model will learn positive changes where one area has had significant asset replacement and the observed outage to weather relation has improved. In another example, the IPW model will learn negative changes in an area (e.g., an area that has had significant tree mortality or ageing assets) and if the resulting observed outage to weather relation has worsened	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	9.2.1	Public Safety Power Shutoff	Risk Thresholds (e.g., WS, FPI, etc.) and Decision-Making Process That Determine the Need for a PSPS.
328	OEIS	004	OEIS_004	2	OEIS_004_Q2	Regarding EPSS in IPW Model PG&E discusses its Ignition Probably Weather (IPW) Model on p. 769 of its WMP. a. How does the IPW Model analyze and consider outages from EPSS (i.e. differentiating analysis completed)? b. How does the IPW Model account for EPSS-enabled circuits?	a. The OPW-IPW model does not differentiate between circuits that had or have EPSS enabled currently.The EPSS program is not expected to create additional outages; outage activity over the past 5 years on these circuits during the May to November time frame has been essentially flat, including in 2022 when EPSS was fully rolled out. The outages that do occur tend to impact more customers since the protection scheme over-reaches fuses by design; faults that cause an EPSS enabled device to operate typically would have caused either a sustained or momentary outage without EPSS enabled. The OPW-IPW model is trained on all sustained and momentary outage activity historically, thus we do not differentiate between when EPSS is enabled or not. b. Please see response to A	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	9.2.1	Public Safety Power Shutoff	Risk Thresholds (e.g., WS, FPI, etc.) and Decision-Making Process That Determine the Need for a PSPS.
329	OEIS	004	OEIS_004	3	OEIS_004_Q3	Regarding After Action Reports for Emergency Preparedness Provide the most recent After Action Report from emergency training exercises for the following exercises: a. Table 8-39 Personnel Training • EP&R Emergency Preparedness Training Program • PSPS Restoration Process • PSPS Execution for Distribution Control Center (DCC) Operators b. Table PG&E 8-40 External Contractor Training • TD-1464S c. Table 8-41 Internal Drill, Simulation, And Tabletop Exercise Program • Operations Based Wildfire FE • Operations Based PSPS FSE d. Table 8-42 External Drill, Simulation, And Tabletop Exercise Program • Operations Based Wildfire FE • Operations Based PSPS FSE	The confidential attachments are being provided pursuant to the accompanying confidentiality declaration. a. After Action Reports are not created for Personnel Training, including the items identified in Table 8-39. b. After Action Reports are not created for External Contractor Training, including the item in Table PG&E 8-40. c. Please see attachments "WMP-Discovery2023_DR_OEIS_004-Q003Atch01CONF.pdf" and "WMP-Discovery2023_DR_OEIS_004-Q003Atch02CONF.pdf" for the PSPS/Wildfire Full Scale Exercise After Action Report and the PSPS Tabletop Exercise After Action Report. Internal drills and external drills are not separate, components of the exercises include both internal and external entities. d. Please see the attachments provided in our response to Q003 Subpart (c) above. As internal drills and external drills are not separate, the exercises included both internal and external entities.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	2	N/A	8.4.2.2.2	Emergency Preparedness	Personnel Training
330	OEIS	004	OEIS_004	4	OEIS_004_Q4	Regarding Customer Group in PSPS Objective PS-05 In PSPS objective PS-05, PG&E states that it will focus on a group of customers "not limited to AFN, MBL and self-identified vulnerable populations." a. How does PG&E define this group of customers it is focusing on? b. What is the size of this group of customers that PG&E is focusing on?	a. In addition to access and function needs (AFN), medical baseline (MBL), and self identified vulnerable (SIV) populations, PG&E intends to focus on customers more frequently impacted by PSPS and/or EPSS. Additionally, since permanent batteries are more costly to implement than portable batteries, PG&E intends to additionally focus on lower-income customers (i.e. CARE and FERA participants)1 and other customers who may lack the financial means to acquire backup power. Currently, PG&E is planning to support permanent batteries for customers who have experienced the greatest number of EPSS outages in recent years. Greater levels of financial support would be provided to CARE, FERA, MBL, and SIV customers. While these characteristics may be adjusted over the ten-year outlook, PG&E envisions continuing to focus on the groups more frequently impacted by outages and who lack the means to acquire backup power. b. As mentioned in part a., PG&E is focusing on customers who were more frequently impacted by EPSS outages in recent years. Currently, this population is estimated to be approximately 19,000 customers, approximately 4,000 of which are CARE, FERA, MBL, or SIV customers. These customer counts may vary over time based on customers' evolving resiliency needs and experience of EPSS impacts	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	8.5.3	Community Outreach and Engagement	Engagement With Access and Functional Needs Populations
331	OEIS	004	OEIS_004	5	OEIS_004_Q5	Regarding Areas of Concern and Focused Tree Inspections (FTI) a. How will PG&E address risk from green hazard trees (those not obviously dead, dying, or declining) in non-Areas of Concern? b. P-WMP_2023-PG&E-003, Question 7, PG&E indicated that ISA TRAQ form is not digitized and will be used as a guide for FTI. During FTI, what information is inputted into OneVM? Provide a copy of the form(s) within OneVM inspectors are required to populate during FTI. c. During FTI, are all overstrike trees within the AOC inspected? a. If so, are inspectors required to perform both a level 1 and level 2 inspection on each overstrike tree? b. If not, what overstrike trees are inspected and how is the level of inspection determined? d. How many circuit miles within PG&E's AOCs were treated under the EVM program? e. On page 56 of PG&E's WMP it states, "Our Operational Mitigations include programs such as Enhanced Powerline Safety Settings (EPSS) and Focused Tree Inspections." FTI is not described as an "operational mitigation" elsewhere in the WMP. Clarify this statement	The confidential attachment is being provided pursuant to the accompanying confidentiality declaration. a. As outlined in PG&E's Vegetation Management Distribution Inspection Procedure, provided as "WMP-Discovery2023_DR_OEIS_004-Q005Atch01CONF.pdf," if a VMI identifies a hazard tree during a Level 1 inspection, a Level 2 inspection will be performed to determine if tree work is required to maintain compliance. b. At this time, PG&E does not have a finalized inspection procedure for FTI. Once that is available, we can provide the fields that will be entered into OneVM. c. No. ii. Level 1 inspections are performed on all trees within the AOC. If a Level 1 assessment cannot sufficiently determine the severity of conditions or defects, a Level 2 inspection is performed. d. Approximately 815 miles within the AOCs were treated under the EVM program. e. As defined in the 2023 WMP, PG&E's Operational Mitigations provide on-going risk reduction and influence how we manage the environment around the electric grid. This includes, but is not limited to, EPSS and FTI.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	1	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections

332	OEIS	004	OEIS_004	6	OEIS_004_Q6	Regarding Enhanced Vegetation Management a. Populate the following table with information regarding EVM: Year HFTD Miles Completed Inspected Strike Potential Trees Trees Worked Average Trees Per Miles % of Miles in Top 20% of Risk 2019 2020 2021 2022 Total b. Provide a GIS layer of line features showing where EVM work was completed.	Year HFTD Miles Completed Inspected Strike Potential Trees Trees Worked Average Trees Per Miles % of Miles in Top 20% of Risk 2019 2494 miles 1,119,969 196,243 79 55% 2020 1878 miles 1,192,342 167,221 89 43% 2021 1983 miles 1,246,174 336,018 169 98% 2022 1924 miles 1,519,099 271,420 141 99.9% Total a. Please note, for column "average trees per mile", we interpreted that as average number of trees worked per mile. We obtained this number by taking the number of trees worked divided by HFTD Miles completed for the corresponding year. Please note, for "% of Miles in Top 20% of Risk", the 2019 percentage was based upon 2019-2020 risk ranking and the 2020 percentage was based upon 2020 risk ranking.. b. Please see supporting attachment "WMP-Discovery2023_DR_OEIS_004-Q006Atch01.gdb.zip" for GIS file of EVM work completed between 2019 to 2022.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	1	N/A	8.2.2.2.6	Vegetation Management and Inspections	Discontinued Programs
333	OEIS	004	OEIS_004	7	OEIS_004_Q7	Q7. Regarding Vegetation-Caused Outages a. Populate the following table of vegetation-caused outages by mode of failure in the HFTD between 2015 and 2022, broken out by year. PG&E may add additional rows (i.e., mode of failure) if needed. VEGETATION CAUSED OUTAGE MODE OF FAILURE 2015 2016 2017 2018 2019 2020 2021 2022 Branch (radial, > 12ft) Branch (within radial, 4-12ft) Branch (radial, < 4ft) Branch (radial, distance Unknown) Branch (overhang) Dead Tree Tree Fall (moderate-severe defect) Tree Fall (slight defect) Tree Fall (no defect) Tree Grow Into Other/Unknown TOTAL	PG&E does not capture the HFTD tier in outage reports therefore the data being provided cannot be filtered to only include outages in HFTD areas. Please see attachment "WMP-Discovery2023_DR_OEIS_004-Q007Atch01.xlsx" for the system wide vegetation-caused outage by mode of failure from 2015-2022 as recorded by PG&E	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-28 – Progression of Effectiveness of Enhanced Clearances Joint Study
334	OEIS	004	OEIS_004	8	OEIS_004_Q8	Regarding Vegetation Hazards Mitigated by PSPS a. Does PG&E have data on vegetation hazards mitigated by PSPS? If so, populate the following table of vegetation hazards mitigated by mode of failure in the HFTD between 2015 and 2022, broken out by year. PG&E may add additional rows (i.e., mode of failure) if needed. MODE OF FAILURE FOR VEGETATION HAZARDS MITIGATED BY PSPS 2015 2016 2017 2018 2019 2020 2021 2022 Branch (radial, > 12ft) Branch (within radial, 4-12ft) Branch (radial, < 4ft) Branch (radial, distance Unknown) Branch (overhang) Dead Tree Tree Fall (moderate-severe defect) Tree Fall (slight defect) Tree Fall (no defect) Tree Grow Into Other/Unknown TOTAL	PG&E interprets this question as identifying vegetation related damages and hazards after patrolling and inspecting circuits impacted by PSPS. PG&E started implementing PSPS in 2018, therefore, did not collect data prior from 2015-2018. While PG&E records whether or not a PSPS damage or hazard is vegetation-related, because the powerlines are de-energized to prevent potential ignitions from vegetation contact, PSPS patrollers do not assess vegetation failure modes. PSPS is designed to prevent and mitigate against potential fire ignitions from any vegetation related damages or hazards regardless of failure mode. PG&E does include PSPS vegetation-related damages or hazards when submitting 10-Day Post-Event Reports to the CPUC and on the Quarterly Data Standard Filing to OEIS.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	9.2.2	Public Safety Power Shutoff	Method Used to Compare and Evaluate the Relative Consequences of PSPS and Wildfires
335	OEIS	004	OEIS_004	9	OEIS_004_Q9	Regarding Coordination with Other Utilities on PSPS Wind Thresholds In its response to ACI PG&E-22-31, PG&E states: "In collaboration with the joint IOU team, PG&E has performed effectiveness studies to evaluate how covered conductors can reduce ignition risk compared to bare conductor." a. Is the collaboration referenced the Covered Conductor Effectiveness Study (Table 8-63, Line 1)? i. List PG&E's other, if any, collaboration efforts with the investor-owned utilities at evaluating the effect of covered conductor on PSPS risk. b. Has PG&E specifically discussed raising of PSPS wind thresholds in any of its covered conductor collaboration efforts? i. List the collaboration efforts, if any, where adjusting PSPS wind thresholds for covered conductor was discussed. c. Provide a list of PG&E's circuits that are fully hardened with covered conductor.	a. The Joint IOU Covered Conductor Working Group Report was provided in the original submission as part of attachment "Attachment 2023-03-27_PGE_2023_WMP _R0_Appendix D ACI PG&E-22-11_Atch01.pdf". i. PG&E did not collaborate with the investor-owned utilities to evaluate the effectiveness of covered conductors related to PSPS. b. As stated in response to ACI PG&E-22-31 in the 2023-2025 WMP, due to our PSPS modeling approach, we would not adjust our final PSPS risk thresholds to account for covered conductor. Our Catastrophic Fire Probability model (discussed in Section 9) is a risk-based assessment of the probability of ignition given an outage multiplied by the probability of catastrophic fires (Fire Potential Index). Thus, we would not adjust the threshold at which PSPS is executed (each area is scoped for PSPS at the same risk threshold) based on covered conductor. PG&E does, however, incorporate new outage data each year into our Outage Producing Winds (OPW) and Ignition Probability Weather (IPW) machine learning models. These updates account for any updated wind to outage to ignition responses in local areas of the grid, including those due to asset upgrades like covered conductor. In addition, PG&E is also exploring if adding covered conductor as a feature of the IPW model in future iterations provides benefits (see Objective SA-04). c. Please reference "WMP-Discovery2023_DR_OEIS_004-Q009Atch01.xlsx" for a list of historical OH covered conductor projects as well as a list of forecasted projects to harden covered conductors.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-31 – PSPS Wind Threshold Change Evaluations
336	OEIS	004	OEIS_004	10	OEIS_004_Q10	Regarding Tree Fall-In and PSPS In its response to ACI PG&E-22-31, PG&E states "based on collaboration with the joint IOU team, one of the biggest hazards during PSPS event is the potential for tree fall into line" (p. 956). a. Explain "one of the biggest hazards during PSPS event" in terms of risk (e.g., likelihood, consequence).	Based on PG&E's review of potential ignition events during a PSPS event, vegetation related hazards pose the highest risk for ignitions. Please reference Table 5 and Table 6 of the Quarterly Data Report PG&E submits to the OEIS, where all of the ignitions are listed, including those that pose the highest risk for ignition. PG&E has incorporated tree strike potential and vegetation tags into its PSPS guidance (Catastrophic Fire Probability (CFP)). Please see WMP Section 9.2.1 "Risk Thresholds and Decision-Making Process that Determine the Need for a PSPS" for additional information regarding PG&E's CFP.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-31 – PSPS Wind Threshold Change Evaluations
340	OEIS	004	OEIS_004	14	OEIS_004_Q14	Regarding PG&E's Use of Downed Conductor Detection (DCD) and Partial Voltage Detection (PVD) a. Provide any analysis completed on reliability impacts due to DCD, including: i. The number of outages that occurred due to DCD in 2022 and 2023 ii. The number of outages broken down by cause (based on ignition drivers listed in Table 6 of the QDR) that occurred due to DCD in 2022 and 2023 iii. Criteria used for DCD enablement (if applicable) iv. The number of total customer minutes interrupted from DCD outages v. Any mitigations PG&E is using to reduce reliability impacts from DCD implementation, including lessons learned from any piloting b. Provide any analysis completed on reliability impacts due to PVD, including: i. The number of outages that occurred due to PVD in 2022 and 2023 ii. The number of outages broken down by cause (based on ignition drivers listed in Table 6 of the QDR) that occurred due to PVD in 2022 and 2023 iii. Criteria used for PVD enablement (if applicable) iv. The number of total customer minutes interrupted from PVD outages v. Any mitigations PG&E is using to reduce reliability impacts from PVD implementation, including lessons learned from any piloting c. When evaluating outages due to EPSS, are DCD and PVD outages included as part of that evaluation? i. If so, what is the number of additional outages caused by PVD and DCD respectfully in 2022? ii. If not, how does PG&E account for and track any associated reliability and safety impacts from DCD and PVD implementation, and how does that inform changes to the two programs?	a. Data as of May 4th, 2023 for 2022-2023 DCD Outages: i. 17 outages have occurred with DCD settings enabled. ii. The table below matches outage causes to the Ignition Drivers used in Table 6 of the 2022 Q4 Quarterly Data Report. iii. DCD is an additional protection element as part of EPSS. PG&E will enable DCD on capable devices when EPSS is enabled to help detect lower current fault conditions. iv. 4,732,936 Minutes. v. DCD outages and circuits are already considered in our existing EPSS Reliability program. Specific to DCD, PG&E is adding more DCD capable devices on circuits to, where feasible, increase sectionalization of DCD protection that will reduce outage size and restoration patrol areas while maintaining the ignition reduction benefit. Furthermore, in cases of unknown cause DCD outages, or with multiple DCD outages on a single device, our engineering and system protection team may conduct specific reviews of the protection settings of these devices. b. Data as of May 4th, 2023 for 2022-2023 Partial Voltage Force Outages (PVFO): i. 33 outages have occurred from PVFO. ii. The number of outages broken down by cause (based on ignition drivers listed in Table 6 of the QDR) that occurred due to PVFO in 2022 is shown below. WMP-Discovery2023_DR_OEIS_004-Q014 Page 3 iii. Partial Voltage Force Out is a manual action taken by a distribution control center operator in response to more than one partial voltage alarms detected at the fuse level or above. iv. 9,488,701 minutes v. These circuits are included in the scope of PG&E's existing EPSS Reliability Mitigation programs. In addition, PG&E's PV alarm configuration is designed to prevent nuisance alerts from transient conditions by sending the distribution control center operator a PV alarm when multiple meters aggregating to a fuse level indicate a partial voltage condition, and further we will clear PV alarms if normal voltage returns. c. Yes. A "DCD outage" is an EPSS outage. PG&E also evaluates PVFO outages, even though these are manual actions taken as part of a defense in depth strategy.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	8.1.2.10.1	Grid Design and System Hardening	Downed Conductor Detection Devices
341	OEIS	004	OEIS_004	15	OEIS_004_Q15	Regarding Feasibility Constraints PG&E must provide an explanation of how, if at all, feasibility constraints impact the decision making of its Wildfire Governance Steering Committee in selecting a portfolio of mitigation measures that deviates from the risk informed prioritization. This should include: a. A flowchart or explanation of decision-making as processed by the Wildfire Governance Steering Committee, including where feasibility constraints are accounted for b. The correlation between raw V3 risk outputs and WFE c. The correlation between WFE and feasibility d. Any associated shifts in prioritization due to implementing feasibility constraints e. A list of any projects not included within UG scope due to feasibility constraints	PG&E respectfully objects to this request to the extent the request incorrectly implies PG&E does not use a "risk-informed prioritization" when selecting wildfire mitigations. As described throughout the 2023-2025 WMP, and specifically in Section 7.1.4.2, we begin developing our list of proposed mitigations by analyzing risk events, risk drivers, and consequences. Subject to and without waiving these objections, PG&E responds as follows: a. Please see attachment "WMP-Discovery2023_DR_OEIS_004-Q015Atch01.pdf." This decision tree reflects the process we followed to further analyze our highest risk undergrounding circuits included in the WMP. The process, as shown on the decision tree attachment and described below, is split into four key phases. 1. Circuit Segment Risk Ranking (purple box): First prioritize circuit segments in the locations where wildfire risk is the highest based on the latest wildfire distribution risk model (currently WDRM v3). 2. Circuit Selection Prioritization Process (blue boxes): Then identify potential environmental conditions that impact feasibility of undergrounding WMP-Discovery2023_DR_OEIS_004-Q015 Page 2 (water crossing, rock type, gradient), and calculate wildfire feasibility efficiency (WFE) by circuit segment to prioritize undergrounding in the locations where WFE is the highest. 3. Feasibility Study (green boxes): First, we confirm the segment identified is not already completed or included in existing work. Then, engineering review identifies opportunities to improve efficiencies and mitigate additional impacts, including adjusting the project to mitigate PSPS or EPSS impacts, determining if undergrounding is unfeasible (if so, identifying alternatives such as overhead, remote grid or hybrid), and confirming if there are any recent changes to the electric assets. 4. Field Scoping (orange boxes): Field scoping then takes place, which is focused on identifying impediments to the proposed project route and determining if a route or scope change is needed. If so, an alternative route is developed. Then, we sequence bundled miles and begin the planning phase of work. b. As discussed in the 2023 WMP Pg. 968, PG&E evaluated the statistical significance and influence of risk compared to feasibility, and based on the Pearson correlative	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-34 – Revise Process of Prioritizing Wildfire Mitigations

342	OEIS	004	OEIS_004	16	OEIS_004_Q16	Regarding Effectiveness of EPSS a. Provide the formulas and calculations used by PG&E to determine the effectiveness of EPSS. b. Provide analysis demonstrating adequate overlap between EPSS risk and wildfire risk to ensure PG&E's mitigations are directly addressing wildfire risk opposed to reliability. c. Provide PG&E's workplan for resourcing EPSS-directed mitigation measures, including ratios and work hours shifted around from wildfire risk mitigations. This should also include asset management related mitigations.	a. The 2022 EPSS Ignition Reduction is calculated using the formula below: 1 − 2022 (2018 − 2020) Ignitions avg Ignitions Where the applicable ignitions are CPUC HFTD Reportable Fire Ignitions in High Fire Threat Districts (HFTD) on primary conductor with EPSS enabled, or for 2018-2020, during the weather-conditions when EPSS would have been enabled (i.e., the ignition reduction calculation is weather-normalized). b. We understand "EPSS Risk" to be the aggregated risk of unplanned outages resulting from EPSS enablement. EPSS is a wildfire mitigation that is targeted only in PG&E's high fire-risk areas (HFRA) as well as select HFRA-adjacent areas where, if an ignition were to occur, could propagate into the HFRA. By definition, since the HFRA represents places that have high wildfire risk, this scoping already demonstrates that EPSS as a mitigation is directly addressing places of wildfire risk. WMP-Discovery2023_DR_OEIS_004-Q016 Page 2 c. Please reference "WMP-Discovery2023_DR_OEIS_004-Q016Atch01.xlsx." PG&E has identified the Circuit Protection Zones (CPZs) to be addressed as part of the Vegetation Management and Animal Mitigation EPSS CEMI 8+ proactive mitigation programs. Resources to support EPSS proactive vegetation management work on CEMI 8+ circuit protection zones are being redirected as part of the transition of Enhanced Vegetation Management to more effective wildfire mitigation strategy, as noted in the 2023 WMP. The workplan for Animal Mitigation and identification of the minimal number of required resources to support the plan is currently being finalized. In addition to vegetation management and animal mitigation on EPSS CEMI 8+ CPZs, EPSS targeted equipment repairs are incorporated into the Open Work Orders Tag program as described in Section 8.1.7 of the WMP. EPSS targeted equipment repairs can be either EC, ER, or CE Notification. Work planning and resourcing for this work is managed according to the Open Work Orders Tag program as noted in Section 8.1.7 and is prioritized based on circuit risk rankings. Please also reference "WMP-Discovery2023_DR_OEIS_004-Q016Atch02.xlsx" for PG&E's Fault Indicator Workplan.	Colin Lang	5/4/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	2	N/A	8.1.8.1.1	Grid Design, Operations, and Maintenance	Protective Equipment and Device Settings
343	OEIS	004	OEIS_004	17	OEIS_004_Q17	Regarding PG&E's Undergrounding Program a. Provide the cumulative V2 and V3 risk scores of the 2022 WMP vs. 2023 WMP undergrounding scope for 2023-2026. This should not include nor account for feasibility. b. Provide the analysis on the remaining risk of the miles no longer scoped for undergrounding, including: i. Interim mitigations being put into place if scoped for undergrounding in the future ii. The number of miles scoped for the future (past 2026) iii. Alternative mitigations being used if no longer scoped for undergrounding	a. PG&E interprets cumulative risk score as total risk score of each circuit segment based on the 2021 WDRM v2 and the 2022 WDRM v3. Please note, for the 2022 WMP and 2023 WMP workplans, the total risk scores are provided at the CPZ-level, however, the entire CPZ may not be scoped in the workplan. For the 2023 WMP, please reference "WMP-Discovery2023_DR_OEIS_004-Q017Atch01CONF.xlsx" for the project workplan of the undergrounding scope for 2023-2026 with total risk scores from v2 (column AC) and v3 (column AB) provided. Applicable Risk Model (column M), indicates if the project was selected based on WDRM v2 or WDRM v3. For the 2022 WMP, please reference attachment "WMP-Discovery2023_DR_OEIS_004-Q017Atch02CONF.xlsx." Please reference column J and K that identify the forecasted miles by 2023, and 2024-2026, respectively. PG&E added the total risk scores from v2 (column AC) and v3 (Column AB) to the originally submitted 2022 WMP Undergrounding workplan. Some circuit segments show a blank in total risk score based on WDRM v2 (column AC) where those projects were not in an HFTD and therefore were not included in the WDRM v2 model (i.e., projects in an HFRA, and community rebuild projects). WMP-Discovery2023_DR_OEIS_004-Q017 Page 2 b. i. The following interim mitigation measures are used as on-going wildfire safety work on all assets in HFTD areas, including those scoped for undergrounding in the future: • Using enhanced powerline safety settings (EPSS) that automatically turn off power within one-tenth of a second if a wildfire threat is detected, • Deploying PSPS to reduce wildfire risk during extreme weather conditions while reducing impacts from PSPS outages through targeted grid sectionalizing and reconfiguration in weather-impacted areas, thereby preventing power outages for customers who are not directly impacted, and • Conducting asset inspections and repairs, and vegetation management. ii. At the time of filing the WMP and preparing the workplan dated January 3, 2023, we did not have any projects planned in 2027. Based on continued scoping of additional future undergrounding projects, the projects completed to date this year, and the on-going review of the undergrounding portfolio, there are approximately 350 miles under consideration for 2027 as of the end of April	Colin Lang	5/4/2023	5/9/2023	5/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	2	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
309	TURN	011	TURN_011	1	TURN_011_Q1	1.PG&E's WMP (R1) at page 4 references WDRM v3. a.Please explain and quantify the difference in risk ranking results between WDRM v2 and WDRM v3. Please provide all supporting data and analysis in Excel with working formulas. b.Please provide all results of WDRM v3 in Excel at the circuit segment, circuit protection zone, or most granular level available. This should include, at minimum, the following information in separate columns for all overhead HFTD and self-identified HFRA miles that have been evaluated: i.A unique circuit segment identifier that can be used to cross-reference with PG&E's undergrounding workplan, provided in workpaper "2023-04-06_PGE_2023_WMP_R1_Appendix D ACI PG&E-22-16_Atch01." Please add this unique identifier to the workplan if necessary and provide in Excel if not already available. This unique identifier should also be incorporated into the response to question 2. ii.Total wildfire risk score; iii.Total overall risk score (wildfire + PSPS) iv.Total PSPS risk score; v.Mean wildfire risk score (please explain in the response how this is calculated); vi.Mean PSPS risk score (please explain in the response how this is calculated); vii.Risk Rank (please explain in the response how this is determined); viii.Overhead circuit miles of the circuit segment; ix.Expected number of underground miles to underground the circuit (if available for currently scoped projects). c.Please add 4 columns to the spreadsheet provided in part (b) for the number of overhead miles expected to be underground in 2023, 2024, and 2025, respectively, corresponding to each circuit segment.	a) A explanation and quantification of the differences between the top 20% risk ranked circuit segments between WDRM v2 and WDRM v3 models is provided in the response to ACI 22-09 on pages 885-892 of the 2023 PG&E WMP. The worksheet supporting this work is provided in attachment "WMP Discovery2023_DR_TURN_011-Q001Atch01.xlsx." Within the worksheet the Readme tab directs the reader through the analysis supporting ACI 22-09 and specifically the waterfall chart and circuit segment counts provide on page 889 of the 2023 PG&E WMP. b) Please see attachment "WMP-Discovery2023_DR_TURN_011-Q001Atch02.xlsx," workbook SH_composite_cs_summary. i. See Column A ii. See Column P • Note, in the context of the request, the total wildfire risk score for the overall risk score is calibrated by the Enterprise MAVF factor. As reference, Column O shows the Wildfire Risk scores from WDRM v3 without the MAVF calibration. iii. See Column R iv. See Column Q v. See Column M • This is the sum of the wildfire risk for all pixels along that circuit segment divided by the number of pixels along that circuit segment, which was previously presented on column M. • Note, this column is not MAVF calibrated for risk scoring, since this value is only used for risk ranking. vi. N/A, added as Column T • PSPS risk scores are not calculated at a risk pixel level since the PSPS risk scores are calculated at the customer level and aggregated to the circuit segment level. vii. See Column N • The Risk Rank order is described in Section 6.4.2 of the 2023 WMP. PG&E ranked circuit segments from highest to lowest mean wildfire/ignition risk. By sorting in this method, the risk of a circuit segment is indifferent to the length of the circuit segment. Alternatively, this can be sorted in other methods like by total overall utility risk, however, the results would be impacted by the length of the circuit	Tom Long	5/1/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_011.zip	2	N/A	6.2	Risk Methodology and Assessment	Risk Analysis Framework
310	TURN	011	TURN_011	2	TURN_011_Q2	2.Re PG&E's undergrounding workplan, "2023-04-06_PGE_2023_WMP_R1_Appendix D ACI PG&E-22-16_Atch01." a.Please add a column that provides the unique circuit segment identifier requested in 1(b)(i) above. b.Please add a column to this spreadsheet that provides the total wildfire risk of each circuit segment as calculated by WDRMv3. c.Please add a column to this spreadsheet that provides the total wildfire risk of each circuit segment as calculated by WDRMv2. d.Please add a column that provides the total overhead circuit miles of each circuit segment. e.Please explain why PG&E ranks circuit segments by "mean risk" rather than total risk of each segment. f.Please provide the total number of overhead miles that correspond to each year's total underground miles (cells W4:AA4). g.Column U provides the "feasibility score by CPZ" which is defined in the definitions tab as a "Cost multiplier indicating the difficulty of undergrounding the circuit segment (Circuit Protection Zone (CPZ))." i.Please explain what the multiplier is applied to. For example, what is the baseline cost of undergrounding per mile (multiplier of 1.0) for 2023, 2024, 2025, and 2026, respectively? ii.Please provide an illustration of how the multiplier is used to estimate costs. For example, if a CPZ has a feasibility score of 2.0, what is the estimated total cost? Please explain and provide the calculation for this example. h.Please provide the estimated costs forecast related to this workplan for 2023-2026, annually. Please provide at the circuit segment level if available, and in total. Please provide all supporting workpapers and calculations in Excel. i.Please provide recorded 2022 costs for undergrounding miles shown here.	The confidential attachment is being provided pursuant to a signed NDA with PG&E. For subparts A-D, please see attachment "WMP-Discovery2023_DR_TURN_011-Q002Atch01CONF.xlsx". a. See column N for WDRM v2 circuit segment identifiers. See column Q for WDRM v3 circuit segment identifiers. b. See column AB. c. See column AC. d. See column AD. e. The Risk Rank order is described in Section 6.4.2 of the 2023 WMP. PG&E ranked circuit segments from highest to lowest mean wildfire/ignition risk. By sorting in this method, the risk of a circuit segment is indifferent to the length of the circuit segment. Alternatively, circuit segments can be sorted in other methods such as total overall utility risk; however, the results would be significantly impacted by the length of the circuit segment (i.e. longer circuit segments would have larger total risk scores in general). f. We currently do not track the overhead miles removed and replaced through undergrounding. g. As described in more detail in response to TURN Data Request 09, PG&E's Wildfire Feasibility (WFE) scores incorporate the elements of RSE calculations with the feasibility element used to modify the spend factor to account for operational and executability factors. For example: Location 1 = 1.0 feasibility, Location 2 = 1.2 feasibility. The forecasted cost is expected to be 20% higher in Location 2 than in Location 1 due to feasibility impacts (e.g. hard rock, water crossing, or gradient). Because the unit cost of undergrounding can vary year to year, this is treated as 1 and does not impact the calculation of WFE. Overall, it is expected that the average feasibility across the entire portfolio will be managed within the expected unit cost, as PG&E optimizes based on operational and executability factors. After miles are selected based on WFE, locations are assessed in further detail during the project design (or later) phases. h. Please see attachment "WMP-Discovery2023_DR_TURN_011-Q002Atch03.xlsx"	Tom Long	5/1/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_011.zip	3	Yes	Appendix D	Areas for Continued Improvement	ACI PG&E-22-16 – Progress and Updates on Undergrounding and Risk Prioritization
296	MGRA	Data Request No. 4	MGRA_Data Request No. 4	3	MGRA_Data Request No. 4_Q3	Explain why the polygons do not cover all of the primary distribution lines in the HFTD. Example below:	Upon review, PG&E has confirmed that the original Attachment 2023-03-27_PGE_2023_WMP_R1_Appendix C_Atch01\Section_6.gdb file inadvertently dropped some risk pixels. Please see "WMP-Discovery2023_DR_MGRA_004-Q003Atch01.zip" for an updated GDB file. We will reach out to Energy Safety to provide this updated information pursuant to Energy Safety's guidelines.	Joseph Mitchell	4/28/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	1	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
298	MGRA	Data Request No. 4	MGRA_Data Request No. 4	5	MGRA_Data Request No. 4_Q5	Please provide an alternative and more complete version of this data set in which: a. Raw numeric data is provided rather than a 5% binning. This will allow a rescaling of "low" and "high" risks to be more relative and show any gradients across the PG&E territory. b. Coverage extends to all circuits in the HFTD.	a. Please find the requested data in "WMP-Discovery2023_DR_MGRA_004-Q003Atch01.zip." Results from analysis at the pixel level will provide a different assessment of the spatial pattern of risk than at the aggregated level. b. Specific to this request, the attached file provides risk pixels and associated requested values for all locations in the HFTD and HFRA.	Joseph Mitchell	4/28/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
300	MGRA	Data Request No. 4	MGRA_Data Request No. 4	7	MGRA_Data Request No. 4_Q7	If possible, provide two additional sets of GIS data in identical format to the original, one representing the POI component of the WDRM model and a separate set showing the consequence component of the WDRM score. Output should be in numerical format and not binned.	The file provided in "WMP-Discovery2023_DR_MGRA_004-Q003Atch01.zip" contains the additionally requested Risk, POI, and Wildfire Consequence data.	Joseph Mitchell	4/28/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_004.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD

291	CalPA	Set WMP-21	CalPA_Set WMP-21	2	CalPA_Set WMP-21_Q2	Per Table 2 in PG&E's Revised Quarterly Data Report for quarter 4 of 2022, PG&E had the following numbers of level 2 and level 3 findings from distribution inspections in the HFTD in 2020, 2021, and 2022: Distribution Inspection Findings in HFTD 2020 2021 2022 Detailed Inspection Level 2 findings 48,309 21,193 4,542 Detailed Inspection Level 3 findings 13,024 823 107 Patrol Inspection Level 2 findings 200 104 20 Patrol Inspection Level 3 findings 15 2 0 Other Inspection Level 2 findings 10,131 12,195 3,031 Other Inspection Level 3 findings	After reviewing the data to provide a response to this request, PG&E realized that the data provided in our prior submission was incorrect. This discrepancy was the result of an Excel error that occurred when PG&E revised Table 2 with the additional inspection type details required for Q4 2022. Please see attachment "WMPDiscovery2023_DR_CalAdvocates_021-Q002Atch01.docx" for updated distribution inspection findings in HFTD from 2020 to 2022. Based on this corrected data, PG&E address the patterns in the findings below. (a) & (b) For our detailed ground inspections, increases in findings over these three years (particularly in 2022) in both Tier 2 and Tier 3 HFTD areas can be attributed to our renewed focus on training and quality of inspections. These key improvements to our inspection process included the following: • The addition of indicators for ignition risk conditions on training material • Fully deployed desk and field review by the in-house inspection team • Weekly sessions with supervisors to review findings and misses • The increased prominence of certain questions on the inspection checklist in 2022 likely increased certain level 2 findings (c) & (d) For our patrol inspections, given the overall very low numbers of L2 and Level 3 findings in HFTD areas from patrols, we cannot conclude that there are any patterns over these three years in Tier 2 or Tier 3. (e) & (f) For our other inspections, the increases in tag findings in 2021 were a result of two inspection validation efforts: • PG&E inspectors field validated a tree connect inventory and identified dead and dying trees for replacement; and • PG&E troubleshooters field checked inventoried idle facilities. (g) "Other Inspections" include distribution notifications generated from PG&E's pole test and treat inspection and aerial pilot as well as notifications that are not from inspection programs, which include notifications generated by the construction, restoration, estimating, and work verification teams.	Holly Wehrman	4/27/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_021.zip	1	N/A	QDR	N/A	N/A
187	OEIS	002	OEIS_002	10	OEIS_002_Q10	a.Provide an Excel sheet listing all work orders closed by PG&E in 2022 following the same format and information as Table 13 of the QDR, with the additional columns: i.Date the work order was closed ii.PG&E Priority (A, B, E, H, and F) iii.Whether or not the infraction qualified as an "Ignition-Risk HFTD/HFRA" tag iv.Whether the infraction is Non-Pole or Pole b.Provide an updated Excel sheet listing all current open work orders following the same format and information as Table 13 of the QDR, with the additional columns: i.PG&E Priority (A, B, E, H, and F) ii.Whether or not the infraction qualifies as an "Ignition-Risk HFTD/HFRA" tag iii.Whether the infraction is Non-Pole or Pole	a. Please see the "Table 13 - Closed" tab in attachment "WMP-Discovery2023_DR_OEIS_002-Q010Atch01.xlsx" for the requested information. Please note, this data was pulled on January 31, 2023. b. Please see the "Table 13 – Open" tab in attachment "WMP-Discovery2023_DR_OEIS_002-Q010Atch01.xlsx" for the requested information. Please note, this data was pulled on February 20, 2023.	Colin Lang	4/13/2023	5/9/2023	5/9/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_002.zip	1	N/A	8.1.7	Open Work Orders	N/A
317	CalPA	Set WMP-22	CalPA_Set WMP-22	5	CalPA_Set WMP-22_Q5	In response to data request CalAdvocates-PGE-2023WMP-19, question 3, PG&E stated: In addition, our GIS system does not include an attribute to distinguish between covered and bare conductor. As a result, we are only able to provide the total overhead distribution line circuit-miles, not the breakdown between covered and bare conductor. a) Is PG&E unable to determine the number of circuit miles of covered conductor in its system? Please explain your answer. b) Does PG&E plan to modify its GIS system to include an attribute that distinguishes between covered and bare conductor? c) How does PG&E currently validate its estimates of the effectiveness of covered conductor in its system? d) How does PG&E plan to validate its estimates of the effectiveness of covered conductor in its system over the 2023-2025 WMP period?	PG&E is amending CalAdvocates-PGE-2023WMP-19, Question 3, subparts b, d and f of our original response. Although there is not a specific attribute in GIS to distinguish covered and bare conductors, we were able to utilize the conductor type codes to differentiate between covered and bare conductors. a) Please reference PG&E's revision to CalAdvocates-PGE-2023WMP-19, Question 3, where PG&E has provided the volume of circuit-miles of distribution covered conductor lines from January 2022. b) No, PG&E currently does not plan to add a specific attribute to GIS because we are able to utilize the conductor type codes to differentiate between covered and bare conductors. c) As most distribution outages typically involve a fault condition, PG&E assumes that all distribution outages can potentially result in an ignition, regardless of other prevailing conditions. Therefore, PG&E is measuring the recorded effectiveness of WMP-Discovery2023_DR_CalAdvocates_022-Q005 Page 2 CC by comparing the outages on the circuit segments with CCs to outages on circuit segments with bare conductors. PG&E has further validated its effectiveness studies by looking at ignitions caused by CC compared to results of the Joint IOU testing efforts. In the Joint IOU testing effort, data was gathered of possible fault conditions of CC in a controlled lab environment. PG&E's analysis of ignition data has further informed the testing results of tree fall-in failure modes. This is reflected in PG&E's contribution of the Covered Conductor Recorded Effectiveness section (p. 901 - 902) of the 2023-2025 Wildfire Mitigation Plan, Revision 1, and the Joint IOU Covered Conductor Report. As stated in the Joint IOU Covered Conductor Report, the number of ignitions observed on the CC lines do not provide statistically significant data for calculating effectiveness with respect to ignitions. d) As discussed in the Joint IOU Covered Conductor Report, in 2023, the utilities will continue meet on a regular basis, provide updates on risk event recorded data, discuss the methods used to measure the effectiveness of CC in the field, and continue to work towards developing consistent methods to measure the effectiveness of CC for better comparability. The utilities also plan to discuss outage data, causation identification and reporting. These efforts will require SME discussions and review of outage, wire-down, and ignition data across the utilities	Holly Wehrman	5/2/2023	5/10/2023	5/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	0	N/A	8.1.2.1	Grid Design and System Hardening	Covered Conductor Installation – Distribution
305	TURN	010	TURN_010	4	TURN_010_Q4	Re Figure 22-34-1 on p. 969 (R1): a. Please provide this Figure in Excel with supporting data and calculations. b. Please explain what "line weighted risk per mile" means and how it is calculated. c. If not provided in part (a), in Excel please provide all circuit segments in PG&E's HFTD and HFRA and the corresponding WFE score and simplified WFRSE. Please provide supporting data and calculations in Excel. Please include as part of the response to part (a).	) Please see "WMP-Discovery2023_DR_TURN_010-Q004Atch01.xlsx". Please note, the results and visual do not match identically due to the number of data points and size and scaling of the chart. This does not impact the Pearson coefficient results. b) Historically, PG&E has risk scored our circuit segments by "total risk" (the sum total of all risk pixels occupied by the circuit segment) or the "mean risk" (the sum total of all risk pixel occupied by the circuit segment, divided by the count of pixels in the sum). In this case, the "line weighted risk per mile" is the "total risk" in high fire areas, divided by the mileage of the circuit segment in high fire risk areas. c) Please see "WMP-Discovery2023_DR_TURN_010-Q004Atch01.xlsx", column E, with the underlying inputs of WFE/SWRSE as shown on column B and C. High Fire (HF) is the union of HFTD and HFRA miles on each circuit segment	Tom Long	4/28/2023	5/10/2023	5/8/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_010.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-34 – Revise Process of Prioritizing Wildfire Mitigations
261	CalPA	Set WMP-19	CalPA_Set WMP-19	3SUPP	CalPA_Set WMP-19_Q3SUPP	a) State the total costs that PG&E incurred in 2022 for asset inspections and maintenance on covered conductor distribution lines installed in the HFTD. b) State the total number of circuit-miles of covered conductor distribution lines that PG&E had in the HFTD as of January 1, 2022. c) State the total costs that PG&E incurred in 2022 for asset inspections and maintenance on underground distribution lines installed in the HFTD. d) State the total number of circuit-miles of underground distribution lines that PG&E had in the HFTD as of January 1, 2022. e) State the total costs that PG&E incurred in 2022 for asset inspections and maintenance on bare overhead distribution lines installed in the HFTD. f) State the total number of circuit-miles of bare overhead distribution lines that PG&E had in the HFTD as of January 1, 2022.	PG&E is amending subparts b, d and f of our original response. Although there is not a specific attribute in GIS to distinguish covered and bare conductors, we were able to utilize the conductor type codes to differentiate between covered and bare conductors. a) In 2022, we spent $241 million for asset inspections and maintenance on distribution overhead lines installed in the HFTDs. We do not differentiate costs between covered and bare conductor, so these costs are for all assets in the HFTDs. Further, we only included the maintenance costs associated with general overhead Electric Corrective (EC) Notifications. These costs are tracked at the Maintenance Activity Type (MAT) level, not detailed by asset type, so we could not extract the costs associated with conductor only EC Notifications. In addition, the costs for our proactive asset replacement programs were not included. b) PG&E utilized the data pulled in January 2022 for the Energy Safety's Spatial Quarterly Data Report (SQDR). PG&E had 799 circuit-miles of distribution covered conductor lines in the HFTDs in January 2022. WMP-Discovery2023_DR_CalAdvocates_019-Q003Rev01 Page 2 c) In 2022, we spent $109 million for asset inspections and maintenance on distribution underground lines system-wide. We do not track whether costs for distribution underground line inspections and maintenance occur in HFTD and non-HFTDs. d) PG&E utilized the data pulled in January 2022 for the Energy Safety's SQDR. PG&E had 2,788 circuit-miles of distribution underground lines in the HFTDs in January 2022. e) See the response to subpart (a). f) PG&E utilized the data pulled in January 2022 for the Energy Safety's SQDR. PG&E had 24,294 circuit-miles of distribution bare conductor lines in the HFTDs in January 2022.	Holly Wehrman	4/25/2023	5/10/2023	5/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_019.zip	0	N/A	8.1.2	Grid Design, Operations, and Maintenance	Grid Design and System Hardening
224	OEIS	003	OEIS_003	10	OEIS_003_Q10	Regarding PG&E's Asset Inventory a. Provide a list of all fields that PG&E's asset inventory captures (i.e. equipment, equipment type, age, installation date). b. Provide a list of all types of equipment captured within PG&E's asset inventory. c. Provide a percentage in which PG&E is missing data for each data field listed in part (a) within its asset inventory. d. Provide an estimated percentage for the amount of assets missing from PG&E's asset inventory.	As outlined in Section 8.1.5 Asset Management and Inspection Enterprise System(s) of PG&E's 2023-2025 WMP, PG&E uses several asset inventory databases. Geographic Information System (GIS) is the primary system of record for electric asset inventory (Asset Registry), spatial location, electrical connectivity, and attribute data. Asset Registry data is generally stored in GIS databases that are specific to Electric Distribution and Electric Transmission, also known as Electric Distribution Geographic Information System (EDGIS), and Electric Transmission Geographic Information System (ETGIS). The asset inventory attributes captured as fields in the Asset Registry systems vary by asset type. Not all fields are considered critical or mandatory. In Q4 of 2021, PG&E initiated an Asset Registry Data Quality (ARDQ) program with the objective of identifying all Critical Data Elements (CDEs, generally aligned with attributes) for all asset types that are managed in the Asset Registry systems. The initial focus of the ARDQ program was in support of nine Transmission Overhead and Distribution Overhead asset types that represent approximately 86% of asset failure risk, including wildfire. PG&E is providing attachment "WMP-Discovery2023_DR_OEIS_003-Q010Atch01.xlsx" which contains a list of the 669 Critical Data Elements (CDEs) that have been identified and are being tracked as of May 9, 2023 under the ARDQ Program, organized by Asset Family, Asset Type, Asset Component, and Attribute (CDE). Column E indicates alignment with Energy WMP-Discovery2023_DR_OEIS_003-Q010 Page 2 Safety GIS Spatial Quarterly Data Report class (if applicable), and Column F identifies if there is a mapping to an attribute in the OEIS GIS reports. Should the requestor be interested in reviewing our complete definition of all Electric asset inventory attributes, we would be happy to meet and confer to better understand the request and timing. b. PG&E currently manages the following primary equipment types (asset types) within its Electric asset inventory (Asset Registry) systems. Please note that there may be multiple sub-types (sub-components) under any one primary Asset Type. The asset types highlighted in AMBER are included in the ARDQ program and represented in the data tables provided in response to questions a. and c. Asset Family Asset Type (Equipment Type) Distribution Network Network Protector Distribution Network Primary Cable	Colin Lang	4/21/2023	5/10/2023	5/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_003.zip	2	N/A	8.1.5	Asset Management and Inspection Enterprise System(s)	N/A
344	TURN	012	TURN_012	1	TURN_012_Q1	1. Please confirm that the Simplified Wildfire Risk Spend Efficiency (SWRSE) and Wildfire Feasibility Expenditure (WFE) measures discussed on page 968 of PG&E's WMP: a. Are only calculated by PG&E for undergrounding projects; and b. Cannot be used to compare the cost-effectiveness of undergrounding projects with any other projects. c. If PG&E does not unequivocally agree with "a" and "b" above, please explain why it does not.	a) Yes. b) Correct, the intent of calculating SWRSE and WFE was to support the selection process for targeted undergrounding projects only. c) We agree with a and b as stated above, with additional clarification about how WFE may result in the deployment of other mitigation approaches. The WFE score is used to prioritize and select highest risk-cost effectiveness circuit segments with the expectation that the circuits will be placed underground. During the detailed project scoping performed by PG&E's engineering team, portions of circuit segments may be identified as infeasible to be placed underground for various environmental, operational, or technical reasons. In those cases, portions of the circuit segments selected using WFE may be hardened through line removal and/or overhead hardening, instead of undergrounding	Tom Long	5/5/2023	5/11/2023	5/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_012.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-34 – Revise Process of Prioritizing Wildfire Mitigations

352	CalPA	Set WMP-24	CalPA_Set WMP-24	1	CalPA_Set WMP-24_Q1	In reference to your response to Question 11 of DR CalAdvocates-PGE-2023WMP-16, on the excel spreadsheet WMP-Discovery 2023_DR_016-Q011Atch01, a) On tabs (a) through (e), please identify the circuits with OH to UG conversion projects that have no adjacent circuit ties. b) On tabs (f) and (g), please identify the adjacent circuits that tie to the circuits with OH to UG conversion projects in Tabs (a) through (e).	In the referenced attachment, columns (f) and (g) are the average loading for individual circuits that are adjacent to circuits in (d) and (e) respectively. For example, Anderson 1101 is adjacent to a circuit being undergrounded. The average loading is provided for Anderson 1101 in (f), but Anderson 1101 is not listed in (a) through (e) because Anderson 1101 is not being undergrounded in those years. a) Please reference "WMP-Discovery2023_DR_CalAdvocates_024-Q001Atch01.xlsx" which includes a new column on tabs (a) through (e) of the referenced attachment identifying if the circuits with OH to UG conversion projects have an adjacent circuit. b) Please reference "WMP-Discovery2023_DR_CalAdvocates_024-Q001Atch02.xlsx" for a list of all circuit pairs for circuits in (a) through (e). All circuits in (a) through (e) are listed as Circuit 1, and their corresponding circuit pair is in Circuit 2.	Holly Wehrman	5/9/2023	5/12/2023	5/11/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_024.zip	2	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment
345	TURN	012	TURN_012	2	TURN_012_Q2	2. Comparing the wildfire mitigation work proposed in PG&E's WMP with the wildfire mitigation work proposed in PG&E's test year 2023 GRC (A.21-06-021): a. Please describe any differences in wildfire mitigation programs proposed or volume of wildfire mitigation work proposed between the WMP and GRC for the years 2023-2025; and b. For any differences (as described in subpart "a"), please provide a table that shows, on a program by program basis, the WMP proposal, the GRC proposal, and a description of the difference(s) between the two, including without limitation differences in volume or units of work. The table should include any wildfire mitigation programs that are proposed in one of the proceedings but not in the other.	The table below lists the wildfire mitigation programs proposed in the WMP and the GRC for the years 2023-2025 and describes differences between the two. The information provided below consists of summaries of longer discussions provided in either the WMP or the GRC. The population of wildfire mitigation programs includes: • The WMP Comprehensive Monitoring and Data Collection Mitigations (2023-2025 WMP, R1, pages 265-268); • The WMP Operational Mitigations (2023-2025 WMP, R1, pages 268 -271); • The WMP System Resilience Mitigations (2023-2025 WMP, R1, pages 271 -274); and • Wildfire mitigations included in PG&E's Test Year (TY) 2023 GRC but not included in the 2023-2025 WMP. The information in the table demonstrates that PG&E's wildfire mitigation plans continue to evolve from the time we first filed our TY2023 GRC (June 30, 2021) to when we submitted our 2023-2025 WMP.1 Most of the mitigation programs forecast in the TY 2023 GRC are also included in the 2023-2025 WMP. The table shows that there are some differences in the volume of work between the GRC and the WMP. From late 2020 (when PG&E developed our GRC forecasts) through early 2023 (when PG&E filed our WMP), PG&E continued to revise our wildfire mitigation strategy by phasing out programs such as Enhanced Vegetation Management (VM) and replacing it with new VM programs that are designed to target vegetation risk more efficiently in the highest risk areas of the High Fire Threat District/High Fire Risk Area (HFTD/HFRA). Additionally, PG&E refined the scopes of work for other mitigations, as information from risk models were updated and/or we learned more about the interactions of combined mitigation strategies. For example, in the GRC, PG&E noted that we planned to install 100 remote operated SCADA sectionalizing devices each year between 2023 and 2026, but that plans could change pending results of our assessment to address the risks of Motor Switch Operator (MSO) and integration with other enhanced automation and wildfire mitigation efforts. Wildfire Mitigation Program Mitigation Description 2023-2025 WMP 2023 GRC Comprehensive Monitoring and Data Collection Mitigations Detailed Asset Inspections Transmission – Ground	Tom Long	5/5/2023	5/12/2023	5/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_012.zip	0	N/A	7.2.1	Wildfire Mitigation Strategy Development	Overview of Mitigation Initiatives and Activities
322	CalPA	Set WMP-22	CalPA_Set WMP-22	10	CalPA_Set WMP-22_Q10	In response to data request CalAdvocates-PGE-2023WMP-02, question 1, PG&E provided its 2022 Quality Verification Distribution Audit report (WMP-Discovery2023_DR_CalAdvocates_002-Q001Atch02CONF.pdf). a) For each of the 15 "zero tolerance & high-risk findings" identified on page 4 of the above report, what actions has PG&E taken to mitigate these nonconformances in the future? b) For each of the 15 "zero tolerance & high-risk findings" identified on page 4 of the above report, describe when and how PG&E addressed the nonconformances to mitigate wildfire risk. c) For each category of the "Top three Critical attribute findings" identified on page 4 of the above report, what actions has PG&E taken to mitigate these nonconformances in the future? d) For each category of the "Top three Critical attribute findings" identified on page 4 of the above report, describe how PG&E addressed the nonconformances to mitigate wildfire risk. e) For each category of the "Top three non-Critical attribute findings" identified on page 4 of the above report, what actions has PG&E taken to mitigate these nonconformances in the future? f) Please describe all actions PG&E has taken to reduce the rate of critical attribute nonconformances in future distribution system inspections. g) What is PG&E's target Quality Pass Rate for 2023? h) Please compare and contrast the 2022 Quality Verification Distribution Audit mentioned above and the QA program for systems inspections that PG&E plans to implement (section 8.1.6.1 in PG&E's WMP).	The CONFIDENTIAL attachments are being provided pursuant to the accompanying confidentialty declaration. a) The zero tolerance and high-risk findings were (page 4 of the report): 1. (5) Zero Tolerance – Work Not Done (WND): (4) Missed Inspections; (1) Unsafe conductor dead-end (10) High-Risk – (5) Exposed/damaged conductors (potential fire hazard); (3) Wrong pole inspected; (2) PCB transformers leaking oil To mitigate the non-conformances in the future, below are some of the actions taken by PG&E for the zero-tolerance findings: • Missed Inspections – PG&E performs quality reviews and dispatches any missed assets for urgent inspections. PG&E provides annual reporting to the CPUC on any and all late or missed GO165 Inspections. • Unsafe Conductor dead-end – Based on page 15 of "WMP-Discovery2023_DR_CalAdvocates_022-Q010Atch01CONF.pdf", the guidance for the field employees is to visually check for excessively corroded or damaged connectors and dead-end hardware which has a potential to fail, drop conductor, or cause an ignition. If observed, create EC Notification to replace connectors or dead-end hardware. • Exposed/Damaged Conductors (Potential fire hazard) – Based on page 14 of "WMP-Discovery2023_DR_CalAdvocates_022-Q010Atch01CONF.pdf," the guidance for the field employees is to visually check all the conductors (primary/secondary/service), associated attachments and dead-ends for damage from the structure being inspected to mid-span in all directions or the weather-head or to the conductor's termination point. If observed, create EC notification to repair or replace the conductor. Additionally, if the conductor has 40% or more of broken stands, a company representative stands by until a crew arrives to complete the work. • Wrong Pole Inspected – If the field employees inspect a wrong pole or made an error during pole inspection, they have 48 hours to re-submit the inspection for the pole in inspect app. If beyond 48 hours, field employees must reach out to the Systems Inspection Team to have them reset the halo and perform re-inspection again. • PCB Transformers leaking oil – Based on the TD-2305 EDPM Manual-Assessments and Notifications section for information about addressing oil in the field, the guidance for the field employees is that IF you observe a stain or leak, THEN 1) Look for exposure or contamination. Field employees can refer to the PCB Spill/Leak Category Response Matric to determine the appropriate action and priority. Field employees must comply with the oil spill matrix table for how to handle oil conditions. Field employees should use the oil "indicator" language from the oil spill matrix table to describe the oil condition in the comments of the EC notification. b) Please see attachment "WMP-Discovery2023_DR_CalAdvocates_022-Q010Atch02.pdf" for the requested information. Please note, there is one location highlighted in orange in the attachment that we could not identify the corrective action for, and additional research is needed. The two highlighted in yellow are duplicate line items for the same issue with different risk ranks. c) The top three Critical attribute findings were: 1. 4 (87) OH-C49: Line splices are present less than 2 ft. from conductor support. 2. 4 (72) OH-J59: Broken or slack guy wire. 3. 4 (65) OH-C97: The insulator or pin is broken or damaged / corroded / contaminated as noted. To mitigate the non-conformances in the future, below are some of the actions taken by PG&E for the "Top three critical attribute findings:" • Line splices are present less than 2 ft from the conductor support – As described in attachment "WMP-Discovery2023_DR_CalAdvocates_022-Q010Atch01CONF.pdf," the guidance for the field employees is to visually check all splices for all conductors inside the scope of the inspection. If observed splices are damaged, corroded, cracked, tied into the insulator or underneath the tie wire, installed underneath the vibration dampener that prevent free movement of the splices with the conductor. Use	Holly Wehrman	5/2/2023	5/12/2023	5/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_022.zip	2	N/A	8.1.6.1	Grid Design and System Hardening	Quality Assurance and Quality Control
353	MGRA	Data Request No. 5	MGRA_Data Request No. 5	1	MGRA_Data Request No. 5_Q1	Is the sole source of this POI data the machine learning algorithm described in WDRM documentation? If not what other inputs go into the POI?	Yes, the POI data shown is the result of the process and data described in section 6.2.1 and shown in Table PG&E 6.2.1-1.	Joseph Mitchell	5/10/2023	5/15/2023	5/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_005.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
354	MGRA	Data Request No. 5	MGRA_Data Request No. 5	2	MGRA_Data Request No. 5_Q2	Is the fine-grained POI distribution a result of the localization of specific historical outages, characteristics of assets or environment, or both?	The fine-grained features (sharp contrasts in values between neighboring pixels) in PG&E's risk model outputs are a product of finely varying predictive covariates, including asset characteristics and environmental attributes. Please see PG&E's response to Question 4 of this Data Request for an explanation of how historical outages may influence fine-grained localization. As mentioned in the response to MGRA 004 Q004, "At the pixel-by-pixel level, the model does exhibit some level of noise that can result in high-risk hot spots in an area of generally lower risk pixels. For this reason, workplan development is generally guided by circuit segment level aggregations that provide an improved indication of risk level."	Joseph Mitchell	5/10/2023	5/15/2023	5/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_005.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
355	MGRA	Data Request No. 5	MGRA_Data Request No. 5	3	MGRA_Data Request No. 5_Q3	Which of the following characteristics is known or suspected to contribute to the fine-grained localization of POI shown above, and to what degree: a. Vegetation b. Tree density and height c. Asset health d. Asset age e. Asset type f. Hardening/Mitigation history	The data representing the items listed in parts a through e all contribute, in varying degrees depending on location and geography, to the fine-grained localization seen in PG&E's risk modeling outputs, including the spatial view provided by MGRA. Fine grained localization may result where locations of significant covariate variability exist in PG&E's service territory (e.g. a heavily forested area next to a non-forested area). The causal effects of part f, hardening/mitigation history, were not directly estimated for the WDRM V3. To the extent an asset is replaced as part of a wildfire mitigation project, the asset health, age, and type would be reflected in WDRM v3 and may contribute to fine grained localization.	Joseph Mitchell	5/10/2023	5/15/2023	5/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_005.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
356	MGRA	Data Request No. 5	MGRA_Data Request No. 5	4	MGRA_Data Request No. 5_Q4	As an example of "localized outage" effects, if a vehicle were to collide with a utility pole and cause an outage in the boundary of the image above, and if the POI were to be recalculated, would the area where the outage occurred show an elevated POI? Or would conversely the incremental increase risk of vehicle collision outage be generally distributed over the entire landscape, or a portion of the landscape?	This type of outage would be classified into the Contact From Object "third party vehicle" subset as listed in Table PG&E-6.2.1-1. In reality, a single accident does not have very much sway over the third-party vehicle model one way or another because there are hundreds of historical events already contributing to the result. However, we can say that the additional data point would enhance the POI in locations that share the same covariate characteristics as the accident location. So, the resulting adjustments would not be localized to the accident location, but they would not be spread evenly across all locations either.	Joseph Mitchell	5/10/2023	5/15/2023	5/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_005.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
357	MGRA	Data Request No. 5	MGRA_Data Request No. 5	5	MGRA_Data Request No. 5_Q5	Are fire weather winds included in the WDRM v3 POI model in any other manner than that described in WDRM v2 discussion, in which aggregated yearly variables such as annual maximum or annual days over peak are used as explanatory variables?	Yes. In WDRM v3, day-of-event wind speed and fuel conditions are significant covariates in the probability of ignition given an outage model, which is trained on the conditions at the locations and on the day of each outage. Wind and other contributors to "fire weather" conditions are also prominent in the consequence calculations in WDRM v3.	Joseph Mitchell	5/10/2023	5/15/2023	5/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_005.zip	0	N/A	Appendix C / 6.4.1.1, 6.4.1.2	Risk Methodology and Assessment	Geospatial Maps of Top Risk Areas Within the HFRA Proposed Updates to HFTD
332	OEIS	004	OEIS_004	6REV	OEIS_004_Q6REV	Regarding Enhanced Vegetation Management a. Populate the following table with information regarding EVM: Year HFTD Miles Completed Inspected Strike Potential Trees Trees Worked Average Trees Per Miles % of Miles in Top 20% of Risk 2019 2020 2021 2022 Total b. Provide a GIS layer of line features showing where EVM work was completed.	We would like to amend our response to "WMP-Discovery2023_DR_OEIS_004Q006.pdf," submitted to the Office of Energy Infrastructure Safety on May 9, 2023. In our response, we miscalculated the number of "Trees Worked" and the "Average Trees Per Miles" in 2022. Please see revised chart below with the updated numbers highlighted. Year HFTD Miles Completed Inspected Strike Potential Trees Trees Worked Average Trees Per Miles % of Miles in Top 20% of Risk 2019 2494 miles 1,119,969 196,243 79 55% 2020 1878 miles 1,192,342 167,221 89 43% 2021 1983 miles 1,246,174 336,018 169 98% 2022 1924 miles 1,519,099 396,502 206 99.9% Total a. Please note, for column "average trees per mile", we interpreted that as average number of trees worked per mile. We obtained this number by taking the number of trees worked divided by HFTD Miles completed for the corresponding year. Please note, for "% of Miles in Top 20% of Risk", the 2019 percentage was based upon 2019-2020 risk ranking and the 2020 percentage was based upon 2020 risk ranking.. b. Please see supporting attachment "WMP-Discovery2023_DR_OEIS_004-Q006Atch01.gdb.zip" for GIS file of EVM work completed between 2019 to 2022.	Colin Lang	5/4/2023	5/15/2023	5/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	8.2.2.2.6	Vegetation Management and Inspections	Discontinued Programs
359	OEIS	005	OEIS_005	1	OEIS_005_Q1	Regarding Maturity Survey response to Sec 6.1.2 Question #8 Regarding the Maturity Survey response to Section 6.1.2. Question #8, PG&E answered "yes". What sections of its Company Emergency Response Plan (CERP) does PG&E provide a discussion of gaps, limitations, and improvement areas with remedial or corrective action plans as it relates to wildfire and PSPS? If its discussion is contained in other documents, provide those and clarify what sections the discussion is contained in.	The CONFIDENTIAL attachments are being provided pursuant to the accompanying confidentiality declaration. Please reference Section Six "After Action Reports" in the 2022 CERP Wildfire Annex (published April 1, 2022), included as attachment "WMP-Discovery2023_DR_OEIS_005-Q001Atch01CONF.pdf." Additionally, please reference the 2022 version of PG&E's PSPS Annex, included as attachment "WMP-Discovery2023_DR_OEIS_005-Q001Atch02CONF.pdf." Please see section 8.1.2, the After Action Report, which highlights gaps and limitations. Lastly, please also reference the After Action Report Standard, included as attachment "WMP-Discovery2023_DR_OEIS_005-Q001Atch03CONF.pdf" for a further discussion of gaps, limitations, and improvement areas.	Colin Lang	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_005.zip	3	N/A	Maturity Survey	Maturity Survey	Maturity Survey
360	OEIS	005	OEIS_005	2	OEIS_005_Q2	Regarding Maturity Survey response to Sec 6.1.4 Question #2 Regarding the Maturity Survey response to Section 6.1.4 Question #2, PG&E answered "yes" that an external third party evaluation is conducted every five years. Please provide a copy of the most recent third party evaluation.	PG&E conducts biannual public meetings with public safety partners, elected officials, and other interested parties, to solicit feedback related to the company's emergency response plan (CERP). Although feedback has been solicited no formal evaluations have been received. Please reference Section 1.9 of the CERP, located on PG&E's website at the following link: www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/supporting-documents/emer-3001m-2023-cerp.pdf for additional information regarding the CERP review.	Colin Lang	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_005.zip	0	N/A	Maturity Survey	Maturity Survey	Maturity Survey
361	OEIS	005	OEIS_005	3	OEIS_005_Q3	Regarding Maturity Survey response to Sec 6.1.4 Question #7 Regarding the Maturity Survey response to Section 6.1.4 Question #7, PG&E answered "yes" that Subject Matter Expert (SME) partners review and evaluate its plan every five years. Please provide a copy of the most recent SME evaluation(s).	PG&E conducts annual reviews with Subject Matter Experts to evaluate the CERP and its associated functional and hazard specific annexes. The process for this annual review is documented in "WMP-Discovery2023_DR_OEIS_005-Q003Atch01CONF.pdf" Please note, these review sessions are considered working meetings and do not result in a formal evaluation or report.	Colin Lang	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_005.zip	1	N/A	Maturity Survey	Maturity Survey	Maturity Survey
362	TURN	013	TURN_013	1	TURN_013_Q1	1. Following up on TURN DR 10-2(b) and PG&E's response: a. Please explain how PG&E determined that a risk rank per the V3 risk model above 720 constitutes the top 20% of risk ranked segments? Why does 720 represent the 20% threshold? Please explain. Please provide workpapers, calculations, and data in Excel that support your response. b. Please explain how PG&E determined that a risk rank per the V2 risk model above 727 constitutes the top 20% of risk ranked segments? Why does 727 represent the 20% threshold? Please explain. Please provide workpapers, calculations and data in Excel that support your response.	a. The top 20 percent of risk ranked circuit segments is dependent on the number of circuit segments analyzed in each WDRM model. For WDRM v3, the model includes all circuit segments across PG&E's entire overhead distribution system, which is 11,172 circuit segments (see WMP-Discovery2023_DR_TURN_011-Q001Atch01, tab: SH_composite_cs_summary). To determine a comparable methodology as shown in WDRM v2 (described in part (b) below), PG&E identified the number of HFTD and HFRA circuit segments which equaled 3,583 at the time of the analysis. The top 20 percent of risk ranked circuit segments in this instance is 717 which PG&E rounded up to 720. PG&E's response to WMP-2023_DR_TURN-010-Q004Atch01 lists the 3,583 circuit segments in HFTD and HFRA. b. Similar to the response to subpart a, the top 20 percent of risk ranked segments is dependent on the number of circuit segments in each WDRM model. Unlike WDRM v3 that included both HFTD and HFRA (and non-HFTD line segments as well), WDRM v2 only included HFTD circuit segments which totaled 3,635 circuit segments – see WMP-Discovery2023_DR_TURN_011-Q001Atch01, tab: conductor_pz_summary_hftd_23_re). The top 20 percent of the WDRM v2 circuit segments is 727.	Tom Long	5/11/2023	5/16/2023	5/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_013.zip	0	N/A	8.1.2.2	Grid Design, Operations, and Maintenance	Undergrounding of Electric Lines and/or Equipment

363	Green Power Institute (GPI)	002	Green Power Institute (GPI)_002	1	Green Power Institute (GPI)_002_Q1	Please provide: - The number of trees removed in each year from 2019-2022 and the program under which the removals occurred. - The number of planned tree removals for 2023, 2024, and 2025, and the program under which the removals will occur. - The number of remaining trees in PG&Es tree inventory that are listed for removal.	a. Year Routine Second Patrol EVM 2019 187,357 45,600 116,491 2020 191,728 65,402 120,979 2021 179,908 22,416 278,336 2022 191,538 41,100 346,535 b. As of February 2022, our forecast for Distribution program tree removals is approximately 332,000 trees in 2023, 331,000 trees in 2024, and 329,000 trees in 2025. For our Tree Removal Inventory Program, we are planning to remove 15,000 trees in 2023, 20,000 trees in 2024, and 25,000 trees in 2025. c. Please see table below for the count of trees in PG&E tree inventory that are listed for removal: Year Routine Second Patrol EVM 2019 187,357 45,600 116,491 2020 191,728	Zoe Harrold	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/GPI_002.zip	0	N/A	8.2.2.2.4	Vegetation Management and Inspections	Tree Removal Inventory
364	Green Power Institute (GPI)	002	Green Power Institute (GPI)_002	2	Green Power Institute (GPI)_002_Q2	Please provide the number of distribution line miles PG&E will perform trimming on to achieve enhanced clearances (> 12').	There are approximately 40,000 HFTD and HFRA miles in PG&E service territory. PG&E performs inspection on all line miles within HFRA and HFTD areas. While PG&E does not have a program dedicated to enhanced clearances, we are following the prescription in General Order 95, Rule 35 and our Distribution Standards which recommends a minimum 12-feet of clearance at time of trim in High Fire-Threat District (HFTD). PG&E also extends this minimum clearance recommendation to tree work within HFRA.	Zoe Harrold	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/GPI_002.zip	0	N/A	8.2.3.3	Vegetation Management and Inspections	Clearance
365	Green Power Institute (GPI)	002	Green Power Institute (GPI)_002	3	Green Power Institute (GPI)_002_Q3	Please provide any existing quantitative metrics (e.g. kg, truckloads, etc.) on the total amount of vegetation management "waste" (or residues) produced each year from 2020 – 2022, and the annual amounts that are disposed of at recycling facilities, landfills, biomass facilities, or other facilities.	PG&E does not track vegetation management "waste" data for all VM programs. Vegetation management "waste" data is available for PG&E contracted wood yards, which include wood debris from various programs, and the Wildfire Wood Management program. This data is not available prior to 2021. The following is the existing data on tonnage of waste wood that came through PG&E's contracted wood yards: • 2022: 152,321 tons • 2021: 151,033 tons Specific to Wildfire Wood Management, we estimate the following volumes of waste wood have been managed based on the conversion rate of 1.6 tons per unit: • 2022: 39,067 tons • 2021: 35,890 tons	Zoe Harrold	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/GPI_002.zip	0	N/A	8.2.3.2	Vegetation Management and Inspections	Wood and Slash Management
366	Green Power Institute (GPI)	002	Green Power Institute (GPI)_002	4	Green Power Institute (GPI)_002_Q4	Please provide the number of customer requests to retain woody biomass resulting from vegetation management activities on private property, state property, and federal property.	We do not track customer requests to retain woody biomass resulting from Vegetation Management activities.	Zoe Harrold	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/GPI_002.zip	0	N/A	8.2.3.2	Vegetation Management and Inspections	Wood and Slash Management
367	Green Power Institute (GPI)	002	Green Power Institute (GPI)_002	5	Green Power Institute (GPI)_002_Q5	Please describe current agreements and any recent (2021-Present) communications with state and federal agencies regarding fuels and slash management practices on state and federal lands, respectively.	The U.S. Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS), and California State Parks (CASP) have the authority to require specific wood and debris management (e.g., wood or log removal, decking, chipping up to a certain diameter, piling) be incorporated into proposals for Vegetation Management work on their lands. Several public agencies, including USFS, have provided PG&E with their expectations for wood and debris management, which are included in our Land Management Agreements. In addition to written specifications, some agencies have provided GIS files showing locations where all debris must be removed. We communicate regularly with our agency partners to address any immediate questions, requests or concerns. We also hold comprehensive annual coordination meetings to ensure continuous improvement	Zoe Harrold	5/11/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/GPI_002.zip	0	N/A	8.2.3.2	Vegetation Management and Inspections	Wood and Slash Management
338	OEIS	004	OEIS_004	12	OEIS_004_Q12	Regarding the PG&E framework for PSPS risk The sections that relate to models PSPS-L, PSPS-C, PSPS-V and PSPS-R do not sufficiently describe the calculations that ultimately result in a PSPS Risk Score. The Guidelines for section 6.2 Risk Analysis Framework require detailed discussion of likelihood, consequence, exposure potential and vulnerability for Public Safety Power Shutoffs (PSPS) Risk: 6.1.1 Overview The electrical corporation must provide a brief narrative describing its methodology for quantifying its overall utility risk of wildfires and Public Safety Power Shutoff (PSPS). 6.2.2.1 Likelihood The electrical corporation must discuss how it calculates the likelihood that its equipment (through normal operations or failure) will result in a catastrophic wildfire and the resulting likelihood of issuing a PSPS. 6.2.2.2 Consequence The electrical corporation must discuss how it calculates the consequences of a fire originating from its equipment and the consequence of implementing a PSPS event. In order to understand PG&E's step-by-step calculations that ultimately result in the PSPS Risk Score, please provide the following, including via Excel file as applicable: a. Regarding PSPS Likelihood: i. Provide details on the inputs to the PSPS-L model, and calculation. (a) Is the LoRE framework (depicted in Figure 6-2-1) used to calculate likelihood of a PSPS event? ii. The PSPS Likelihood section briefly discusses applying current PSPS protocols against historical climatological data set informed by FPI and IPW models, and refers to the WTRM data flow in Figure 6.2.2-3. (a) Explain how PSPS protocols, FPI and IPW models and the WTRM data flow are combined to produce the likelihood of a PSPS event. (b) In particular, how the historical backcast is used to predict future likelihood of a PSPS event b. Regarding PSPS Consequence: i. Provide details on the inputs to the PSPS-C model. ii. Provide explanation on the PSPS Consequence schemata, Figure 6.2.1-3. (a) How is Enterprise PSPS Consequence Risk Score calculated? (b) Describe the output of the PSPS lookback (provide an example of "12-year customer distribution"). iii. How does Customer Classification & Weighting affect the results? iv. Provide more detailed schematics similar to the CoRE Process Steps (Figure 6.2.2-5) to illustrate model flow. v. Please provide a PSPS Consequence section with a similar level of detail as the Wildfire Consequence section; integrating figures and tables for transparency (using common keys etc).	a. (i) The details on the inputs to the PSPS-L model are shown in Appendix B figures PG&E-B-3 and PG&E-B-4 and full documentation provided as part of "WMP-Discovery2023_DR_OEIS_001-Q007Atch03CONF.pdf," submitted to the Office of Energy Infrastructure and Safety on April 10, 2023. The LoRE framework used to calculate likelihood of a PSPS event is conceptually similar to WMP Figure 6-2-1 as shown below. While they are conceptually similar, the inputs into the LoRE calculation for PSPS (shown in the figure below) are different from the inputs into the wildfire LoRE calculation. (ii)(a) During an operational event, if the conditions forecasted in the FPI and IPW models exceed the threshold conditions to consider PSPS, based on the established PSPS protocols, the preparation for a PSPS event begins. These models are updated throughout the days leading to a projected PSPS event to see if the conditions still warrant PSPS. The PSPS protocols are described in the documentation provided as part of WMP data request "WMP Discovery2023_DR_OEIS_001-Q007Atch04CONF.pdf." For planning purposes, we evaluate the likelihood of initiating a PSPS event in a historical period, by analyzing the weather and fuel conditions to determine if they meet the thresholds for initiating a PSPS event. This historical analysis is referred to as a lookback event. From a planning model perspective, the historical analysis allows PG&E to understand how often PSPS would have been used by looking back at a historical period and helps us to better identify the circuits and customers that may be impacted by various weather events. The WTRM model does not impact PSPS likelihood. (ii)(b) Historical backcast does not predict the future likelihood of a PSPS event. The historical backcast is a representation of the expected number of PSPS events per year based on historical weather conditions. This PSPS likelihood allows PG&E to better plan and prioritize locations and customers expected to be most impacted by a PSPS event based on looking back on historical conditions. (i) The details about the inputs into the PSPS Consequence (PSPS-C) model are shown in WMP Appendix B, figures PG&E-B-3 and PG&E-B-4 and in the PSPS model documentation provided as part of data request "WMP Discovery2023_DR_OEIS_001-Q007Atch03CONF.pdf." The CoRE framework used to calculate likelihood of a PSPS event is conceptually similar to WMP Figure 6-2-2 as shown below. While they are conceptually similar, the inputs into the CoRE calculation for PSPS (shown in the	Colin Lang	5/4/2023	5/16/2023	5/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	0	N/A	6.2	Risk Methodology and Assessment	Risk Analysis Framework
383	CPUC - SPD (Safety Policy Division)	007	CPUC - SPD (Safety Policy Division)_007	1	CPUC - SPD (Safety Policy Division)_007_Q1	1.What types of covered conductor (size of conductor, material of conductor, voltage rating of conductor – if PG&E can point to product data from a manufacturer, this would be preferred) does PG&E use and does PG&E choose different types of covered conductor types near coastal areas?	The CONFIDENTIAL attachments are being provided pursuant to the accompanying confidentiality declaration. Please refer to Table 18 – Primary Aluminum ACSR and Copper XLPE Tree Wire (page 10 of 12) in PG&E standard 059626, "Conductors for Overhead Lines" (WMP Discovery2023_DR_SPD_007-Q001Atch01CONF.pdf) for the types of covered conductor we use in the primary voltage system. We use #2 HD CU in moderate and severe corrosion areas in place of 1/0 ACSR. The larger conductor sizes (397.5 and 715.5) are all aluminum and approved for use in both corrosive and non-corrosive environments. The PG&E primary covered tree wires are designed for nominal 21kV line-to-line and 12 kV line-to-ground operating voltage. Please refer to PG&E EMS 83, "Specification for Cross-Linked Polyethylene (XLPE) Covered Tree Wire" (WMP Discovery2023_DR_SPD_007-Q001Atch02CONF.pdf). The ampacity ratings will be used to determine the conductor's maximum allowable continuous load. Please refer to PG&E standard 076251, "Ampacity of Overhead Distribution Line Conductors" (WMP Discovery2023_DR_SPD_007-Q001Atch03CONF.pdf)	Henry Sweat	5/17/2023	5/18/2023	5/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_007.zip	3	N/A	8.1.2.1	Grid Design and System Hardening	Covered Conductor Installation – Distribution
368	MGRA	Data Request No. 6	MGRA_Data Request No. 6	1	MGRA_Data Request No. 6_Q1	PG&E was requested to provide an Excel spreadsheet containing outage IDs. These were delivered with an OutageID totally unrelated to the DOutageID that it lists in its outage data provided as a result of DR1. Please provide the file sent in reponse to DR4-08 as soon as possible.	"WMP-Discovery2023_DR_MGRA_006-Q001Atch01.xlsx" contains a new column called "DOutageID" that will align with the same outage identifier (ID) from DR1.	Joseph Mitchell	5/15/2023	5/18/2023	5/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_006.zip	1	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
369	MGRA	Data Request No. 6	MGRA_Data Request No. 6	2	MGRA_Data Request No. 6_Q2	Please add (or re-add) a simple "cause" attribute to this outage file.	"WMP-Discovery2023_DR_MGRA_006-Q001Atch01.xlsx" contains a new column called "basic_cause" as requested.	Joseph Mitchell	5/15/2023	5/18/2023	5/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_006.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
370	MGRA	Data Request No. 6	MGRA_Data Request No. 6	3	MGRA_Data Request No. 6_Q3	Likewise, please add a 'cause' attribute to the outage data in the GIS files issued in response to MGRA DR1. Alternatively, provide an Excel file in which cause is cross-referenced to DoutageID.	"WMP-Discovery2023_DR_MGRA_006-Q001Atch01.xlsx" includes both "basic_cause" and "DOutageID" for cross-referencing.	Joseph Mitchell	5/15/2023	5/18/2023	5/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_006.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
371	MGRA	Data Request No. 6	MGRA_Data Request No. 6	4	MGRA_Data Request No. 6_Q4	If there are refusals or delays to the above please provide the EPSS data in a kmz format similar to that provided in response to MGRA DR2-Question 8.	Not applicable.	Joseph Mitchell	5/15/2023	5/18/2023	5/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/MGRA_006.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
358	CalPA	Set WMP-25	CalPA_Set WMP-25	1	CalPA_Set WMP-25_Q1	With reference to Question 10 of data request CalAdvocates-PGE-2023WMP-16, please augment your response by including partial outages as well as circuit outages (see definitions above). Specifically: please provide an Excel sheet listing each circuit that had outages (including both circuit outages and partial outages) that occurred from 2020 to 2022 in any HFTD area. The sheet should list each outage as a row. Please provide the following additional information (in columns): a) ID number of the circuit affected b) Name of the circuit c) The date of the outage d) Whether the outage was a circuit outage or a partial outage e) Cause of outage f) For all equipment failure outages, please state the specific type of failure (i.e.: OH transformer failure, overload, cross arms, UG transformer failure, cable failure, splice failure etc.) g) The outage duration in minutes h) The total number of customers impacted i) If all or part of the circuit is currently undergrounded, provide the date that OH to UG conversion was completed. j) If all or part of the circuit is within the scope of a planned undergrounding project, the forecast completion date of the OH to UG conversion project.	Please see "WMP-Discovery2023_DR_CalAdvocates_025-Q001Atch01.xlsx" for information responsive to items (k)-(q).	Holly Wehrman	5/11/2023	5/18/2023	5/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_025.zip	1	N/A	QDR	N/A	N/A
346	CPUC - SPD (Safety Policy Division)	004	CPUC - SPD (Safety Policy Division)_004	1	CPUC - SPD (Safety Policy Division)_004_Q1	Provide updated CPUC-reportable ignition data. SPD's current data set is attached for 2014-2021. The current data is an aggregated data set based on the data found here, under Fire Ignition Data. WSPS is requesting an updated data set to resolve four potential issues: 1.WSPS generally understands that some ignitions may have been excluded at the time the data was submitted if the cause of the fire was unclear. 2.Data may have been corrected once additional information was acquired. 3.Data may have been entered inconsistently between years which makes it difficult to perform analysis. 4.Update the data to the actual number of acres burned rather than a range of acres. Before submitting final, agreed-upon data to WSPS, please set up a conference call to discuss the ignition data available and the potential ways the data may be formatted to be more useful to WSPS.	Please find the requested information attached as "WMP-Discovery2023_DR_SPD_004-Q001Atch01.xlsx." Please Note: For column E (FPI), the Fire Potential Index (FPI) rating is only assigned to locations in a Fire Index Area (FIA), which are polygons that typically (but not always) align with HFTDs. The ignitions that have blanks in column E did not occur on a circuit segment located in a FIA polygon and therefore do not have associated Fire Potential Index ratings. For column L (Acreage), this field is used to capture acreage for wildfires (i.e. fires greater than 10 acres). It will not typically be populated if the fire is less than 10 acres unless the acreage is listed in a report from a fire suppressing agency.	Henry Sweat	5/5/2023	5/19/2023	5/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_004.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-06 – Addressing Increase in Risk Events
347	CPUC - SPD (Safety Policy Division)	004	CPUC - SPD (Safety Policy Division)_004	2	CPUC - SPD (Safety Policy Division)_004_Q2	In addition to the data requested above, please add the following data columns for each ignition: 1."HFTD" – Classify each ignition as whether it was located in a "Zone 1," "Tier 2" or "Tier 3", or "Non-HFTD" 2."Fire Potential Index" – Provide the Fire Potential Index for the location on the day of each ignition.	Please find the requested information attached as "WMP-Discovery2023_DR_SPD_004-Q001Atch01.xlsx." a. The requested information is identified in column H. b. The requested information is identified in column E. Please Note: For column E (FPI), the Fire Potential Index (FPI) rating is only assigned to locations in a Fire Index Area (FIA), which are polygons that typically (but not always) align with HFTDs. The ignitions that have blanks in column E did not occur on a circuit segment located in a FIA polygon and therefore do not have associated Fire Potential Index ratings. For column L (Acreage), this field is used to capture acreage for wildfires (i.e. fires greater than 10 acres). It will not typically be populated if the fire is less than 10 acres unless the acreage is listed in a report from a fire suppressing agency.	Henry Sweat	5/5/2023	5/19/2023	5/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_004.zip	0	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-06 – Addressing Increase in Risk Events

348	CPUC - SPD (Safety Policy Division)	004	CPUC - SPD (Safety Policy Division)_004	3	CPUC - SPD (Safety Policy Division)_004_Q3	Provide the total number of circuit mile-days for each Fire Potential Index rating per year starting in 2014.	Please find the requested information below. This analysis was completed by first counting the number of days each Fire Index Area (FIA) was forecast at a certain rating per year. Those day counts were then multiplied by the number of OH line miles in each FIA to provide the circuit mile-days. Please note that between 2014 and 2016 we did not record FIA ratings below R4, and between 2014 and 2017 we did not record FIA ratings R5+ in our databases. Also, 2023 contains data only through the first few weeks of May. FPI Rating Circuit Mile Days: Total OH lines Year R0-1 R2 R3 R4 R5 R5+ 2014 NA NA NA 577211 128930 NA 2015 NA NA NA 559593 70280 NA 2016 NA NA NA 1258768 202687 NA 2017 2214672 2275475 752606 1191245 745236 NA 2018 3526258 3947490 1618139 594085 701764 10756 2019 4953574 1677284 1663034 1711536 216173 176891 2020 3290003 2799966 1526189 1986777 576737 161844 2021 3463673 2572673 2374143 1845844 114406 27754 2022 5303007 1587787 2015280 1351493 112436 0 2023 3618417 84145 1011 0 0 0	Henry Sweat	5/5/2023	5/19/2023	5/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_004.zip	0	N/A	8.3.6	Situational Awareness and Forecasting	Fire Potential Index
349	CPUC - SPD (Safety Policy Division)	004	CPUC - SPD (Safety Policy Division)_004	4	CPUC - SPD (Safety Policy Division)_004_Q4	Provide the total number of days per year for each Fire Potential Index rating for each Fire Index Area starting in 2014.	Please find the requested information below. This analysis was completed by counting the number of days each Fire Index Area (FIA) was forecast at a certain rating per year. Please note that between 2014 and 2016 we did not record FIA ratings below R4, and between 2014 and 2017 we did not record FIA ratings R5+ in our databases. Also, 2023 contains data only through the first few weeks of May. year R0-1 R2 R3 R4 R5 R5+ 2014 NA NA NA 2916 857 NA 2015 NA NA NA 2432 349 NA 2016 NA NA NA 3651 725 NA 2017 10698 7907 2604 4094 2141 NA 2018 17047 13958 4959 2054 1755 12 2019 22800 5664 5543 4629 800 349 2020 18621 8076 4855 5884 1803 328 2021 15219 7755 7611 6016 550 78 2022 16374 4955 5923 5081 791 0 2023 11520 390 11 0 0 0	Henry Sweat	5/5/2023	5/19/2023	5/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_004.zip	0	N/A	8.3.6	Situational Awareness and Forecasting	Fire Potential Index
350	CPUC - SPD (Safety Policy Division)	004	CPUC - SPD (Safety Policy Division)_004	5	CPUC - SPD (Safety Policy Division)_004_Q5	Provide the total number of circuit mile-days for each Fire Potential Index rating in the HFTD per year starting in 2014.	Please find the requested information below. This analysis was completed by first counting the number of days each Fire Index Area (FIA) was forecast at a certain rating per year. Those day counts were then multiplied by the number of OH line miles in each FIA and the HFTD to provide the circuit miledays. This is a slight variation of question 3 that includes all circuit miles in each FIA, as this analysis only counts OH circuit miles in a FIA and HFTD area and excludes HFRA. Please note that between 2014 and 2016 we did not record FIA ratings below R4, and between 2014 and 2017 we did not record FIA ratings R5+ in our databases. Also, 2023 contains data only through the first few weeks of May. FPI Rating Circuit Mile Days: OH lines in HFTD Year R0-1 R2 R3 R4 R5 R5+ 2014 NA NA NA 513132 114195 NA 2015 NA NA NA 493563 60420 NA 2016 NA NA NA 1092511 169465 NA 2017 1950276 1970025 647958 1023609 637454 NA 2018 3100004 3409489 1396299 503334 604203 9301 2019 4307924 1457219 1432900 1488217 181817 154554 2020 2868950 2427287 1311293 1730358 494517 140786 2021 3463673 2572673 2374143 1845844 114406 27754 2022 4605610 1373894 1731644 1185705 98852 2207 2023 YTD 3138132 74591 816 0 0 0	Henry Sweat	5/5/2023	5/19/2023	5/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_004.zip	0	N/A	8.3.6	Situational Awareness and Forecasting	Fire Potential Index
351	CPUC - SPD (Safety Policy Division)	004	CPUC - SPD (Safety Policy Division)_004	6	CPUC - SPD (Safety Policy Division)_004_Q6	Explain how the utility is normalizing for the effect of weather and fuel conditions when understanding its performance each year on ignitions relative to changing weather and fuel conditions year over year.	In general, we have been evaluating our performance metrics against indicators of elevated FPI days (e.g., R3 and above) for the last several years as well as red flag warning days. To provide a more specific example, we are normalizing for weather in the EPSS effectiveness/performance in the following ways: • For 2022, EPSS effectiveness was calculated by comparing the number of current-year ignitions that occurred while EPSS was enabled, divided by the average number of ignitions that occurred each year from 2018-2020 that would have met EPSS criteria using an FPI back cast. • In order to normalize for variances in fire potential conditions (as quantified by the Fire Potential Index), ignition counts for each year are divided by the total number of "Circuit Mile Days" for the year. • Circuit Mile Days are defined as the circuit miles in HFTD/HFRA for a circuit, multiplied by the number of days the circuit had EPSS activated (or would have met EPSS criteria). This calculation is performed for every day of the year, for every EPSS circuit, and added together to determine the total Circuit Mile Days for the year. • Note: If this calculation was performed mid-year, the normalization calculation was only performed through the target date used. E.g., if effectiveness was measured through 6/30/22, prior years would only be normalized by Circuit Mile Days through 6/30/18, 6/30/19, and 6/30/20 respectively. • This calculation accounts for the increased fire potential risk exposure on the system for each year, using the same criteria used to determine when EPSS activation is appropriate.	Henry Sweat	5/5/2023	5/19/2023	5/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_004.zip	0	N/A	8.3.6	Situational Awareness and Forecasting	Fire Potential Index
337	OEIS	004	OEIS_004	11	OEIS_004_Q11	Regarding RSE (Risk Buy-down) information required by the WMP Guidelines The 2023-2025 WMP Guidelines make specific requests for RSE, optimization of risk reduction and cost, and prioritization decisions: 7.1.4.1 Identifying and Evaluating Mitigation Initiatives (a) The procedures for identifying and evaluating mitigation initiatives (comparable to 2018 S-MAP Settlement Agreement, row 26), including the use of risk buy-down estimates (e.g., risk-spend efficiency) and evaluating the benefits and drawbacks of mitigations. 7.1.4.2 Mitigation Initiative Prioritization (b) Explain how the electrical corporation is optimizing its resources to maximize risk reduction. Describe how the proposed initiatives are an efficient use of electrical corporation resources and focus on achieving the greatest risk reduction with the most efficient use of funds and workforce resources. (c) The electrical corporation must describe how it prioritizes mitigation initiatives to reduce both wildfire and PSPS risk. This discussion must include the following: (i) A high-level schematic showing the procedures and evaluation criteria used to evaluate potential mitigation initiatives. At a minimum, the schematic must demonstrate the roles of quantitative risk assessment, resource allocation, evaluation of other performance objectives (e.g., cost, timing) identified by the electrical corporation, and SME judgment. PG&E does provide a graph of HFRA WDRM v3 System Hardening Buydown; Figure 6.6.1-1, but the detail provided does not allow an evaluator to reconcile with content from section 7 and it is also missing important components of RSE. In particular, a detailed description of RSE (the risk buy-down process) is needed to reconcile with the information provided in tables 7-2 and 7-4. Please complete the following, including via Excel file as applicable: a. Provide RSE (Risk buy-down) information in a new RSE table as follows, ranked in descending order of RSE. Mitigation (reference Section 2, Table 7-3-1) Initiative Tracking ID WMP Category Circuit Segments Impacted (reference Table 7-2) Estimated Risk Reduction Estimated Cost RSE:(Risk Reduction/Cost) b. Update Table 7.4 to cross-reference the new RSE table. This can be completed by adding an index number to each Mitigation initiative, where the index number is the RSE rank of the initiative from the RSE table. c. Add a narrative explanation of how the RSE table informed the mitigation decisions, in particular where lower	a. PG&E met with Energy Safety to discuss this data request on May 11, 2023. During that meeting, PG&E confirmed that "RSE" and "risk buydown" are distinct terms with different meanings. In its request, Energy Safety used the term "RSE" to describe the calculation of the total risk reduced divided by the cost of the mitigation in a given year. PG&E discussed how this version of RSE considers risk reduced for one year, but it does not take into account the length of each mitigation's benefit life. PG&E agreed to provide RSEs using Energy Safety's definition by aggregating the risk reduction from the work completed from 2023-2025 and dividing by the total cost from 2023-2025. These RSEs are incorporated into the chart below. PG&E notes that the definition of RSE used for purposes of this request is not the same as the regulatory definition of RSE from the S-MAP Settlement Agreement. "Risk buydown" refers to the total risk reduction from investment in a particular mitigation. The chart below ranks mitigations by their estimated total risk reduction (Risk Buydown). As part of the meeting with Energy Safety, PG&E agreed to identify the circuits segments impacted from among the top 41 risk segments identified in the 2023-2025 WMP in Tables 7-2 and 7-4. PG&E is unable to isolate the costs for each mitigation for work only on the 41 circuit segments. Therefore, the costs and the RSEs identified in the table below reflect the total program costs and total number of circuit segments in HFTD. Mitigation (Reference Section 2, Table 7-3-1) Initiative Tracking ID WMP Category Circuit Segments Impacted (Reference Table 7-2) Est. Total Risk Reduction (Risk Buydown) Estimated Total Cost ($000s) RSE: (Risk Reduction/ Cost $M) RSE Rank	Colin Lang	5/4/2023	5/19/2023	5/19/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	1	N/A	7.1.4	Wildfire Mitigation Strategy Development	Identifying and Evaluating Mitigation Initiatives
381	CPUC - SPD (Safety Policy Division)	006	CPUC - SPD (Safety Policy Division)_006	1	CPUC - SPD (Safety Policy Division)_006_Q1	1.After it was pointed out by SPD that there appeared to be a discrepancy in the methodologies used to calculate the risk mitigation effectiveness of EPSS, Undergrounding and Covered Conductor (CC), PG&E stated that CC is probably the most "mature" mitigation effectiveness as the effectiveness based on empirical data and cross utility collaboration, EPSS is the second most as it is based on empirical data, and that UG is the least mature mitigation effectiveness as its based purely on SME judgement. PG&E agreed to update its undergrounding mitigation effectiveness percentage calculation to account for secondary/service drop ignitions. a.Provide this analysis or provide an update on when this analysis will be finished and submit the analysis when it is finished.	PG&E notes that the calculation of risk mitigation effectiveness can be computed in various ways, and taking different approaches to calculate effectiveness for different mitigations does not necessarily constitute a discrepancy. The mitigation effectiveness calculation for covered conductor was articulated as being the most "mature" because the joint IOUs agreed upon a common methodology of using a combination of estimated effectiveness based on SME input against historical data and recorded effectiveness based on analysis of overhead hardened locations across multiple years of installation. At this time, the mitigation effectiveness estimate for undergrounding is considered the least "mature" because there is not a common approach employed by the joint IOUs, and none of the utilities have yet deployed undergrounding as a wildfire mitigation measure on a large scale. As a result, PG&E's wildfire risk effectiveness assessment for undergrounding is predominantly SME-informed and was validated when reviewing the ignition rate per mile for overhead and underground circuits. PG&E is currently developing an updated wildfire mitigation effectiveness analysis for undergrounding in HFTD or HFRA areas, including to account for the impact of secondary lines and service drops, for inclusion in its SB-884 10-Year Undergrounding Plan filing, which PG&E is preparing to file in 2023. PG&E anticipates the analysis will be complete and validated in 2023 and included in the filing of PG&E's 10-year Undergrounding Plan.	Kevin Miller	5/17/2023	5/22/2023	5/22/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_006.zip	0	N/A	8.1.8.1.1	Grid Design, Operations, and Maintenance	Protective Equipment and Device Settings
382	CPUC - SPD (Safety Policy Division)	006	CPUC - SPD (Safety Policy Division)_006	2	CPUC - SPD (Safety Policy Division)_006_Q2	2.PG&E asserted that PG&E is addressing the risk from secondary lines and service drops in part via replacing the secondary with covered aerial conductor and breakaway connectors at service drops [see PG&E's response to Question 4.b of SPD_PG&E_2024_003 for additional description]. PG&E also stated that there may need to be a messaging update because the 99% mitigation effectiveness is only meant to apply to primary lines not their entire wildfire risk. a.How does PG&E foresee clarifying this information in its messaging? b.To whom?	a. As discussed during a staff meeting with SPD on May 3, 2023, PG&E currently states in talking points, the PG&E website, and in customer materials that "Placing overhead powerlines underground reduces ignition risk by approximately 99% in that location." PG&E intended the phrase "in that location" to articulate that the 99% risk mitigation applied to the areas, or the circuit segments, actually being undergrounded, and not to other areas beyond where the undergrounding takes place. This would not apply to lateral secondary lines and service drops because they are not being undergrounded. PG&E has considered providing more specificity to this talking point, such as "undergrounding is 99% effective in mitigating wildfire risk on the electric distribution primary lines being undergrounded." However, PG&E routinely receives feedback from customers, advocacy groups, regulators, and others to keep customer-facing language simple and easy to digest. Semi-technical language like "electric distribution primary lines," or other variations of that phrase, may not be ideally suited for customer-facing communications and will have to be tested and reviewed to ensure it is helpful and does not add confusion for the customers, communities, and other stakeholders that PG&E serves. PG&E will evaluate this language through testing upon completion of the mitigation alternatives analysis as described below. In alignment with PG&E's response to SPD_006_Q001, PG&E is completing an analysis of alternative combinations of multiple wildfire mitigations, including the consideration of undergrounding secondary lines and services for inclusion in our SB 884 10-year Undergrounding Plan filing. Pending the results of the new analyses for the SB 884 Plan, the various communication channels that carry PG&E's undergrounding messaging will be updated, as needed. PG&E will also update future relevant filings with any updated language or findings, including the SB 884 10-Year Undergrounding Plan and future WMP updates. b. If necessary, based on the new analysis described above, PG&E will update future communications on the undergrounding program to optimize clarity on the scope and impact of its undergrounding effort. Future communications will likely include communications to many interested stakeholders including regulators and intervenors, customers, communities, and the media.	Kevin Miller	5/17/2023	5/22/2023	5/22/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_006.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution

384	OEIS	006	OEIS_006	1	OEIS_006_Q1	Regarding PG&E's response to OEIS DR 2 Question 10, Attachment 1: a. Explain the difference between a Field Safety Reassessment and a Planned Field Safety Reassessment. b. In what instances would PG&E extend a work order due date through a Field Safety Reassessment? Provide all supporting documentation and criteria, including any procedures and inspection protocols demonstrating decision-making. c. In what instances would a Standards Change lead to extending a work order due date? Provide all supporting documentation and criteria, including any procedures and inspection protocols demonstrating decision-making. Additionally, provide examples in which this has occurred, including any sweeping changes. d. Include any criteria that would fall under "Other reassessment" as seen in Column I "Reason for reinspection (if applicable)". e. PG&E included three Priority A level work orders within the tab labeled "Table 13 – Open". i. Provide the work order documentation associated with each of these tags (i.e. Electric Corrective notification). ii. Are these tags still open? If not, provide the respective completion date for when each tag was closed, as applicable. f. Within non-HFTD, PG&E included 13 Priority H level work orders that were closed in 2022 and 52 that are still open. i. Explain what circumstances would lead to a Priority H tag within non-HFTD. ii. Provide a list of the projects in which the 13 closed work orders were associated with, including details on the associated mitigation being used. iii. Provide a list of the projects in which the 52 work orders were associated with, including details on the associated mitigation being used. g. Regarding PG&E's ignition risk notifications: i. Provide documentation and/or procedures PG&E uses to determine whether or not a work order meets ignition risk criteria, including any relevant thresholds (equipment type, risk score, etc.). This should also include an explanation as to how PG&E prioritizes within the categorization of ignition risk tags (i.e. planning for timing of correction based on known risk). ii. Provide PG&E's list of Facility-Damage-Action (FDA) codes for determining which ones present an ignition risk, as discussed in response to CalAdvocates Data Request 19 Question 8.	The CONFIDENTIAL attachments are being provided pursuant to the accompanyng confidentiality declaration. a. There is no difference between the terms "Field Safety Reassessment" and "Planned Field Safety Reassessment." The transmission team used the term "Planned Field Safety Reassessment" in their QDR reporting while the distribution team used the term "Field Safety Reassessment." We will align our terminology for future reporting by using the term "Field Safety Reassessment." b. Due to the current tag backlog, PG&E's execution of some notifications may not meet GO 95, Rule 18 compliance 100% of the time. As a result, we have focused our efforts on risk ranking the outstanding tags and working the riskiest tags first. FSRs are an internal containment activity we perform to mitigate potential safety and wildfire impacts by conducting an additional field visit (FSR) to check if the identified condition requires escalation. Additionally, as part of our 2023 WMP, we committed to closing all newly identified ignition risk tags in HFTD/HFRA in accordance with GO 95, Rule 18 timelines (steady-state). For distribution tags, if the condition in the field has deteriorated, the priority of the tag can be escalated to complete the work as a Level 1 Emergency (A Tag) or set a revised due date to complete the work within 90 days as a B Tag. When a condition is determined not to require escalation, the work order date is not extended, and the tag is then worked according to the tag's risk ranking. We have committed to reduce the wildfire risk associated with our distribution tag backlog by 48% in 2023 and by 68% by the end of 2024. Please also note that the work order date change is used for internal tag execution planning; the FSR does not extend the GO 95, Rule 18 due date of a tag, which can only be changed by a recognized exemption to GO 95, Rule 18. For more information, please see procedure TD8123P-200 (WMP-Discovery2023_DR_OEIS_006-Q001Atch01CONF.pdf), which is the procedure that is relevant to distribution FSRs. For transmission tags, the priority of the tag can also be escalated as determined by the FSR if the condition in the field has deteriorated. However, the FSR process does not extend the work order due date (SAP Required End Date). The FSR sets the SAP Funded Repair Date according to Sections 4.4 and 4.5 of TD-8123P-101 (WMP-Discovery2023_DR_OEIS_006-Q001Atch03CONF.pdf), which defines the date at which the tag is to be repaired or reassessed again. The funded repair date does not represent an extension of the due date unless it also is accompanied by a	Dakota Smith	5/18/2023	5/23/2023	5/25/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_006.zip	8	N/A	8.1.7	Open Work Orders	N/A
385	OEIS	006	OEIS_006	2	OEIS_006_Q2	Regarding PG&E's Other Data Requests: a. Provide the following confidential attachments from CalAdvocates Data Requests: i. Attachment 1 in response to Data Request 19 Question 13. ii. Attachment 1 in response to Data Request 21 Question 3. iii. Attachment 1 in response to Data Request 22 Question 7. b. Provide the following confidential attachments from TURN Data Requests: i. Attachment 1 in response to Data Request 4 Question 1. ii. Attachment 1 in response to Data Request 7 Question 1. iii. Attachment 1 in response to Data Request 7 Question 3. iv. Attachment 1 in response to Data Request 10 Question 2. v. Attachment 1 in response to Data Request 10 Question 7. vi. Attachment 3 in response to Data Request 10 Question 7.	The CONFIDENTIAL attachments are being provided pursuant to the accompanying confidentiality declaration. a. Please see "WMP-Discovery_DR_OEIS_006-Q002Atch01CONF.zip" for the requested confidential attachments previously provided to Cal Advocates. b. Please see "WMP-Discovery_DR_OEIS_006-Q002Atch02CONF.zip" for the requested confidential attachments previously provided to TURN.	Dakota Smith	5/18/2023	5/23/2023	5/23/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_006.zip	2	N/A	N/A	N/A	N/A
386	OEIS	006	OEIS_006	3	OEIS_006_Q3	Regarding PG&E's response to TURN's Data Request 7, Question 3: a. For each of the circuit segments listed in part (b), provide the following via Excel: i. WFE score ii. SWRSE iii. Feasibility scores iv. V3 risk score v. V3 risk ranking vi. V2 risk score vii. V2 risk ranking viii. PG&E's plans to mitigate risk, including mitigation type(s) ix. Year(s) of mitigation implementation, as applicable.	Please see attachment "WMP-Discovery2023_DR_OEIS_006-Q003Atch01.xlsx" for the requested circuit segment detail. Please note the following: • There are differences between the WDRM v2 and the WDRM v3 and, as a result, there are five circuit segments that have a V3 risk score but do not have a V2 risk score. • The SWRSE and the WFE Score are the same as described on page 968 of the WMP. • In the previous TURN response, CAMP EVERS 2101BL2101 was referenced incorrectly and has been corrected to CAMP EVERS 2105BL2101. • Data values were rounded to three decimal places for consistency. Values that display 0.000 may have additional digits past the three decimal points and can be found in the cell.	Dakota Smith	5/18/2023	5/23/2023	5/23/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_006.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
339	OEIS	004	OEIS_004	13	OEIS_004_Q13	Regarding PG&E's Asset Tracking Database While PG&E provided information in the 2023-25 WMP's Appendix F on its overall progress in Asset Inventory Data Gaps, it is not clear what PG&E's progress is on the high-risk electric distribution assets, such as primary conductors and poles, that are not in the Asset Registry and therefore not included in the WMP's initiatives. In regards to PG&E's plans and progress on the Asset Registry Data Quality Program (ARDQ), please provide the following, including via Excel file as applicable: a. Greater detail on plans for identifying and correcting missing electric distribution asset types in High Fire Risk Districts (HFRD). b. Greater details regarding plans and timelines on the known gaps on the twelve T&D risk prioritized asset types (Footnote 217, pg. 966) in the HFRD. The content provided should address specific actions being taken and the timeline to address the gaps in the historical data on service-aged poles and primary conductor risk-prioritized asset types located in the HFRD. c. Does the Asset Data Quality Remediation initiative (pg. 966) include a discrete project aimed at addressing specific gaps in the high-risk electric distribution asset types in the HFRD? d. On pg. 966, it states that in 2022 "…over 570 Critical Data Elements (CDE)" were identified. Did this number include any poles and/or primary conductors in HFRD? e. Please describe what actions are taken after missing assets are found, i.e., are immediate field inspections performed? Does the ARDQ Program expedite entering the assets found into the Asset Registry? f. Is the data shown in "Appendix F.5.1 – PG&E-22-33 Progress on Filling Asset Inventory Data Gaps" include electric assets in PG&E's entire service territory? If so, please provide a breakdown of the number of assets in the HFRD. g. Which of the Data Quality Programs (Table 22-33-2) are responsible for finding the missing historical high-risk asset types in the HFRD? h. What is PG&E's estimated number of poles and primary conductors that are missing from the "Asset Count -All" in Table 22-33-1 "Current Fill Rates"? Of the poles and primary conductors that are missing, how many are in the HFRA? TABLE PG&E-22-33-1: CURRENT FILL RATES 168 ID Asset Family Asset Type Asset Component Asset Count• All Install Date Fill Rate	In responding to this request, PG&E is unfamiliar with the term "High Fire Risk Districts" and assumes this is a reference to "High Fire Risk Areas" (HFRA). a. As stated in response to Subpart (d) of "WMP-Discovery2023_DR_OEIS_003-Q010.pdf", PG&E is not presently able to quantify the number of assets missing from the asset inventory. However, when missing assets are identified, the assets are added to the inventory. PG&E's asset registry program identifies and addresses asset inventory completeness (missing asset) improvements in the following ways: • Timely processing of as-built documents associated with completed construction work into the asset registry; • Asset data inventory corrections (Map Corrections) provided by field inspections, and • Asset data projects designed to assess and improve the completeness of records and attribute data for critical assets. Due to the criticality of distribution primary structure assets to wildfire risk management activities and historical mapping practices, PG&E's primary focus has been to ensure the completeness of that asset registry. To date, greater than 98% of PG&E wildfire areas (HFTD and HFRA) have undergone an assessment using LiDAR data to identify any missing distribution primary structures (poles). Approximately 3,000 structures have been added to the asset registry as part of this four-year project. The remaining approximately 2% of wildfire areas not yet completed are planned for completion in 2023. As referenced above, PG&E also leverages inspection activities to identify and correct any critical missing or inaccurate asset data attributes. b. In its response to the 2023 WMP Utility survey, PG&E made a commitment (AI-11: Data Fill Rates) to increase the fill rate for missing age data from 88% to 90% (weighted average) across 12 asset component types by end of 2025. These component types are: Transmission Poles, Transmission Towers, Transmission Conductors, Transmission Insulators, Distribution Poles, Distribution Primary Overhead Conductor, Distribution Dynamic Protective Device, Distribution Fuse, Distribution Surge Arrester, Distribution Capacitor Bank, Distribution Voltage Regulator, and Distribution OH Transformer. Also, in the 2023 WMP filing, PG&E outlined an objective to increase the	Colin Lang	5/4/2023	5/23/2023	5/23/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_004.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-33 – Progress on Filling Asset Inventory Data Gaps
387	OEIS	007	OEIS_007	1	OEIS_007_Q1	Q1. Regarding Services provided to customers due to PSPS and wildfire emergencies In Section 8.4.6, the full extent of services PG&E provides to customers due to PSPS and wildfire emergencies is unclear. Describe PG&E's full scope of services for each service listed (a, b, c, etc.) below as it relates to PSPS and wildfire emergencies and the segment of customers served for that service. In its discussion of each service, address the questions under each listed service. If a service is provided due to a regulation, reference the governing rule. Where applicable, reference the customer class (residential, business, etc.) to which the service is offered. a. Support for Low Income Customers PG&E discusses its services for red tagged customers. i. What service(s) does PG&E provide to non-red tagged customers if their service has been disrupted or degraded? b. Suspension of Disconnection and Non-payment Fees PG&E discusses its services for red tagged customers if an emergency proclamation is made. i. What service(s) does PG&E provide to non-red tagged customers if their service has been disrupted or degraded? ii. What service(s) does PG&E offer if an emergency proclamation is not made? c. Repair Processing and Timing i. Demonstrate how PG&E offered "repair processing and timely assistance" for each wildfire from 2020-2022. Its discussion should include a narration of the overall damage to the community including the number of customers impacted. ii. Of those impacted how many of those were red-tagged? iii. What support does PG&E provide to those customers that are not red tagged customers if their service has been disrupted or degraded? d. Medical Baseline Support Services i. How does PG&E communicate with Medical Baseline (MBL) customers before and during Wildfire and PSPS events? ii. How does PG&E communicate with MBL customers outside of Wildfire and PSPS events? iii. What PG&E emergency-related programs are MBL customers eligible for? Describe the programs. iv. What agencies or partners does PG&E work with to support the needs of its MBL customers? v. List what follow up services PG&E provides its MBL customers after it makes a referral to an outside agency or partner during a Wildfire or PSPS emergency event. e. Access to PG&E Representatives i. During Wildfire and PSPS events, how can customers communicate with PG&E representatives? In responding	a. i. The CPUC issued (D.) 19-07-015, adopting an emergency disaster relief program for utility customers. The trigger to implement the program is an emergency declaration by the governor of California or president of the United States. We Red-Tag customers when the "…disaster has resulted in the destruction or damage of a structure, such that utility service is disrupted voluntarily or involuntarily due to safety concerns or reconstruction activities to address damages…". Customers who experience service disruptions or degradations but are not red-tagged also have their California Alternate Rates for Energy Program (CARE) / Family Electric Rate Assistance Program (FERA) Post Enrollment Verification (PEV) recertification process postponed for 12 months, and PG&E contacts Community- Based Organizations to share the impacted customers for prioritized support with assistance programs, such as Relief for Energy Assistance through Community Help (REACH)) Program and Low Income Home Energy Assistance Program (LIHEAP) for payment/pledge support. All customers (residential or non-residential) would be offered flexible payment arrangements. For non-residential, the payment arrangement is for up to 8 months (associated with the consumer protections decision) and residential customers would be offered up to a 12-month payment arrangement (a result from the disconnection OIR D.20-06-003) PG&E also offers residential customers any applicable programs and services that they may be eligible for AMP, CARE, FERA, LIHEAP, etc. Lastly, during large emergency incidents, such as a wildfire, additional customer and community support offerings may be considered when our Emergency Operations Center is activated for a level 4 'Severe' event or higher and the county or local agency in command is requesting additional support. Enhanced Customer and Community Support offerings may include: • Supplemental communications via additional channels, such as email, text • Temporary backup power support to County/Agency operated warming/cooling/evacuation centers • Local PG&E staff deployed remote or in-person to support these County/Agency centers for customer escalations, and targeted event	Alan Solomon	5/24/2023	5/30/2023	5/30/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_007.zip	0	N/A	8.4.6	Emergency Preparedness	Customer Support in Wildfire and PSPS Emergencies
392	CPUC - SPD (Safety Policy Division)	008	CPUC - SPD (Safety Policy Division)_008	1REV	SPD (Safety Policy Division)_008	SPD appreciates the timely response and provision of ignition data as requested, via "WMP-Discovery2023_DR_SPD_004-Q001Atch01." However, it appears the data in Columns U ("Outage Date") and V ("Outage Time") were provided in an incorrect format for rows beyond row 469. PG&E needs to resubmit the data with correct outage date and time information. Please provide a corrected data file with rows beyond row 469 in the correct formats (U as date format; V as time format). Rows 1-469 of the spreadsheet are in the correct format. Provide corrections in the spreadsheet and resubmit.	Please see "WMP-Discovery2023_DR_SPD_008-Q001Atch01.xlsx" for the updated spreadsheet with the requested corrections to columns U and V.	Kevin Miller	5/26/2023	5/31/2023	5/31/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_008.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-06 – Addressing Increase in Risk Events
388	OEIS	008	OEIS_008	1	OEIS_008_Q1	Regarding Vegetation Management Objectives In Table 8-12 of PG&E's 2023-2025 WMP, it states that one of its objectives is to "Determine value of a multi-year historical tree data set." a. Expand on what is meant by "a multi-year historical tree data set." b. How might the data for this set be gathered? (e.g., inspection reports, remote sensing, etc.) c. Would this data set be like SCE and SDG&E's tree inventories?	a. A multi-year historical tree data set in this context is a data set compiled from all relevant year-over year tree data available over a period of time. This would be intended to inform decision makers at various steps of the vegetation management cycle, for trees that remain unmitigated through removal. The tree data can inform risk analyses, planning, and forecasting. This information can inform inspectors on tree response to previous pruning activities. It can provide insight on various factors such as (but not limited to) growth rates of specific individual trees based on historical inspection. The tree specific data can also improve remote sensing data or outage trend or more broadly, observed failure patterns at the species level. b. This data initially would be gathered by utilizing inspection records and coordinates. This data will get updated with each tree's next inspection(s). Tree-specific data captured through other remote sensing would require subsequent field verification to confirm accuracy before the data could be relied upon for multi-year historical analysis. c. The utilities would need to benchmark in order to accurately address this question. The desired outcome would align datasets for meaningful comparative analysis.	Dakota Smith	5/25/2023	5/31/2023	5/31/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_008.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections

389	OEIS	008	OEIS_008	2	OEIS_008_Q2	Regarding Undergrounding Workplan Targets a. Explain why PG&E has reduced undergrounding targets provided within its workplan when comparing PG&E's 2022 WMP to the 2023-2025 WMP. b. Provide two versions of an updated Table PG&E-8.1.2-3 from PG&E's 2023-2025 WMP in which the Top 20% is based on risk model output scores from V2 and V3 respectively, opposed to WFE. Both mileage and % of Portfolio columns should be updated for each respective year and total.	a. In the 2022 WMP, PG&E introduced its plan to underground 10,000 distribution circuit miles in and near high wildfire risk areas which included an initial goal of undergrounding 3,400 miles from 2023-2026. PG&E submitted a workplan that included 3,716 miles for that time period. (2022 WMP Table RN-PG&E-22-03-02). In the 2023-2025 WMP, PG&E has reiterated its commitment to underground 10,000 circuit miles in and near high wildfire risk areas. In the 2023-2025 WMP, PG&E has targeted undergrounding 2,100 miles from 2023-2026. The plan it submitted contains 2,687 miles to ensure it can meet its targets. (2023-2025 WMP, Table PG&E-8.1.2-3). Along with the 2022 WMP and 2023 WMP, PG&E also presented its 10,000 mile undergrounding plan in its Test Year 2023 General Rate Case (TY 2023 GRC, A. 21-06-021). Similar to the update from our 2022 WMP to our 2023 WMP, PG&E reduced its forecast mileage (and cost) targets for 2023-2026 in its TY2023 GRC (A. 21-06-021, PG&E's Reply Brief, Table 4-8 and Table 4-9). The mileage targets in PG&E's Reply Brief are aligned to the mileage targets in its 2023-2025 WMP. PG&E recognizes, and has stated from the beginning, that its 10,000 mile undergrounding plan will evolve in light of: (1) the ongoing work and learnings from our project management team, engineers, operators, construction workers, and other experts; (2) input from external stakeholders; (3) the undergrounding plan reviews pursuant to Senate Bill (SB) 884; (4) the permitting process under state, county, and local laws; and (5) other factors such as economic and market conditions, and supply chain dynamics. Commissioner John Reynolds, in his opening remarks at the start of PG&E's TY2023 GRC evidentiary hearings, highlighted, in particular, the timing challenges presented in connection with PG&E's forecasting in the GRC while at the same time submitting annual wildfire mitigation plans for review by the Office of Energy Infrastructure Safety (Energy Safety). Commissioner Reynolds noted that in light of this timing, it is reasonable to expect PG&E's plans to evolve and to allow for potential changes in the GRC: The Wildfire Mitigation Plan process remains relatively new and we expect PG&E, like other utilities, to continue adjusting its approaches to wildfire mitigation in light of developments and learning in the WMP process. (A. 21-06-021, PG&E's Reply Brief	Dakota Smith	5/25/2023	5/31/2023	5/31/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_008.zip	1	N/A	8.1.2.3	Grid Design and System Hardening	Distribution Pole Replacements and Reinforcements
391	OEIS	008	OEIS_008	4	OEIS_008_Q4	Regarding PG&E's response to TURN DR 10 Question 4 a. Provide Attachment 1 with the following additional columns: i. Length of line (mi) ii. V3 Risk Score iii. V3 Risk Rank b. If not included above, provide the V3 risk rank for the following CPZs, and explain why they are not included in the above: i. BRUNSWICK 111063100 ii. GREEN VALLEY 210111054 iii. GREEN VALLEY 210112106 iv. GREEN VALLEY 210136820 v. JAMESON 1105466348 vi. LAURELES 11112020 vii. MADISON 21011606 viii. MC ARTHUR 11011544 ix. MORGAN HILL 2111XR398 x. NARROWS 21022220 xi. NARROWS 21052216 xii. NARROWS 21052426 xiii. NARROWS 21052748 xiv. PANORAMA 11021342 xv. PANORAMA 11021526 xvi. POSO MOUNTAIN 21012181 xvii. SHINGLE SPRINGS 210913322 xviii. SHINGLE SPRINGS 21099372 xix. SILVERADO 210258626 xx. TEMPLETON 2110901690 xxi. WISE 11022230	a. Please see attachment "WMP-Discovery2023_DR_OEIS_008-Q004Atch01.xlsx" for the requested updates. Length of line (mi), V3 Mean Risk Score, V3 Total Risk Score, and V3 Risk Rank can be found in Columns F-I, respectively. Length of line (mi) is represented by the field unhardened overhead high fire (HFTD + HFRA) miles, as the original data request requested for HFTD and HFRA circuit segments. b. Information was included for all the requested CPZs listed in the question, with the exception of the three CPZs listed below. The following three CPZs were not included in the file "WMP-Discovery2023_DR_TURN_010-Q004Atch01.xlsx" because these specific circuit segments have no miles associated in HFTD and HFRA; TURN DR 10. Question 004 specifically asked for HFTD and HFRA circuit segments: iv. GREEN VALLEY 210136820 xiv. PANORAMA 11021342 xv. PANORAMA 11021526	Dakota Smith	5/25/2023	5/31/2023	5/31/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_008.zip	1	N/A	Appendix D	Areas for Continued Improvement	ACI PG&E-22-34 – Revise Process of Prioritizing Wildfire Mitigations
390	OEIS	008	OEIS_008	3	OEIS_008_Q3	Regarding Inspection Find Rates a. Provide PG&E's work order find rate for distribution detailed and patrol inspections respectively, broken down by quarter from 2018 to 2022.	Please find PG&E's find rate for distribution overhead (OH) detailed and patrol inspections in the tables below. Please note that inspections are not evenly distributed by quarter, so PG&E has also provided the annual find rate for each inspection type. PG&E provides a few notes about the data below: • Find rates are counted by unique notifications, so in some cases more than one notification is present for a single structure. • Find rates for 2019 include only findings from PG&E's WSIP inspections, not GO 165 inspections. • Find rates for 2020-2022 for overhead inspections utilize a slightly different set of filters compared to PG&E's QDR reporting. These find rates exclude findings that were made through PG&E's Inspect app but were not part of the inspections program or vice versa. Based on the specific year, this data may also exclude any findings that were made before the first day of inspections each year. We are currently standardizing our find rate reporting for future QDR submissions and data requests by creating a formal Job Aid for this process. We will also create a single source of data for inspections and findings. Patrol Find Rates Q1 Q2 Q3 Q4 Annual Find Rate 2018 0.07% 0.06% 0.07% 0.20% 0.08% 2019 0.11% 0.14% 0.13% 0.21% 0.14% 2020 0.12% 0.11% 0.11% 0.10% 0.11% 2021 0.07% 0.12% 0.10% 0.08% 0.09% 2022 0.14% 0.09% 0.12% 0.06% 0.10% OH Inspections Find Rates Q1 Q2 Q3 Q4 Annual Find Rate 2018 9.33% 7.37% 8.50% 14.08% 9.24% 2019 36.09% 29.04% 48.98% 26.78% 30.82% 2020 34.09% 22.11% 23.61% 22.97% 23.08% 2021 18.08% 18.19% 22.16% 25.93% 20.72% 2022 22.52% 26.58% 31.49% 36.56% 29.35%	Dakota Smith	5/25/2023	6/5/2023	6/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_008.zip	0	N/A	8.1.3.2	Asset Inspections	Distribution Asset Inspections
393	OEIS	009	OEIS_009	1	OEIS_009_Q1	Q01. Regarding PG&E's Secondary and Service Lines a. What percentage of PG&E's scoped 2023-2026 undergrounding projects have associated secondary or service lines? What is the mileage of such lines? b. What is the ratio of undergrounding mileage to secondary or service lines for PG&E's scoped 2023-2026 undergrounding projects? (I.e. for every mile of line undergrounded, how many miles of secondary or service lines remain)	a. Most, if not all, of PG&E's undergrounding projects have associated secondary and service lines because our customers are served through those facilities. PG&E's GIS system does not accurately represent all secondary and service conductors in such a way that we could calculate the mileage of secondary and service conductor adjacent to scoped underground projects. It would be very difficult and of limited value to calculate secondary and service conductor mileage in GIS. b. Please see the response to subpart (a) above. Currently, PG&E is planning to only underground secondary and service where it is adjacent to the existing primary trench and depending on where the new pad-mounted transformer is installed. Remaining secondary and service wire is hardened by replacing open-wire secondary, gray services, tree connects, and installing breakaway connectors with the covered aerial conductor	Dakota Smith	6/1/2023	6/6/2023	6/6/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_009.zip	0	N/A	8.1.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
394	CPUC - SPD (Safety Policy Division)	009	CPUC - SPD (Safety Policy Division)_009	1	CPUC - SPD (Safety Policy Divi	1)On pages 346-347 of the 2023 WMP PG&E discusses its risk reduction from undergrounding work and states "this plan will allow PG&E to target risk reduction in the highest wildfire risk areas to eliminate approximately 18 percent of existing wildfire risk by the end of 2026." Please elaborate and show how PG&E calculated 18 percent in wildfire risk reduction from undergrounding work. a.Which year baseline of risk did PG&E use? b.How much risk reduction was assumed for each year? c.Which version(s) of the WDRM was used? d.Was one version used for some years' risk reduction and another version used for other year(s)'? e.Was any other model used to calculate risk reduction and if so, how?	PG&E calculates the 18 percent risk reduction using the same process as outlined in Section 7.2.2 of the 2023-2025 WMP and as provided in attachment WMP Discovery2023_DR_SPD_009-Q001Atch01.xlsx. The attachment incorporates the 2023-2026 Undergrounding Workplan (filed with the 2023-2025 WMP R1 as attachment 2023-03-27_PGE_2023_WMP _R1_Appendix D ACI PG&E-22-16_Atch01_CONF.xlsx) adjusted to the WMP targets and computes the risk reduction based on WDRM v3. This attachment augments workpaper '2023-03-27_PGE_2023_WMP_R2_Section 6.4.2_Atch01.xls' (provided with PG&E's April 26, 2023 errata submission) with the 2026 risk reduction impacts seen on Tab 'Data_RR' Column EV:EX and the resulting 18% can be seen on cell FD10. Note, this data response relates specifically to wildfire risk, and not to the total overall utility risk as described in the rest of Section 7.2.2 and the 2023-2025 WMP. Also, the annual percentage risk reduction calculation for our undergrounding target (GH-05) in the 2023-2025 WMP is based on total utility risk. a. PG&E used the baseline year of 2023 based on the starting risk scores from the WDRM v3 risk model. Note, WDRM v3 is based on circuit segment geometries of as January 2022. To arrive at the 2023 baseline, PG&E incorporated the known 2022 underground and overhead hardening work in order to calculate the 18 percent wildfire risk reduction. b. Risk reduction was calculated, not assumed, as described in the preface of the response to this question (above). See the following table for the results of the calculations for each year. Year Risk Reduction 2022 0.38% 2023 1.72% 2024 3.38% 2025 4.96% 2026 7.99% Total: 18.42% c. WDRM v3 was used for this calculation. In those instances where an underground project was selected based on WDRM v2, PG&E matched the associated v3 circuit segment and calculated risk reduction based off WDRM v3 risk scores. d. No, all projects in the 2023-2026 workplan were aligned with the appropriate WDRM v3 risk scores in order to compute risk reduction. Note that although a	Kevin Miller	6/2/2023	6/8/2023	6/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_009.zip	1	N/A	8.1.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution

395	CPUC - SPD (Safety Policy Division)	009	CPUC - SPD (Safety Policy Division)_009	2	CPUC - SPD (Safety Policy Divi	2)On page 645 of its 2023 WMP PG&E states there has been a "Reduced size and duration of PSPS events" and claims "This is an indicator of increased operational maturity, flexibility, and system resilience." a.Is that claim directed toward PSPS? b.If yes, is it not at least in part or perhaps implied, that PG&E's increased operational maturity, flexibility, and resilience is also relying on other processes such as EPSS (fast trip)?	a. Yes, the statement is directed towards PSPS. b. No, EPSS operates independently of PSPS and is based on different criteria and thresholds designed to mitigate hazards and threats that can lead to risk of ignitions and fires under non-PSPS conditions. See PG&E's 2023 WMP, Section 8.1.8 PSPS indicators of operational maturity, flexibility, and system resilience is based on but not limited to: Operational Maturity • Developed procedures in the PSPS decision making process by reviewing information provided by our SMEs and determining when there is an imminent and significant risk of strong winds impacting PG&E assets and a significant risk of large, destructive wildfires should ignition occur (see section 9.2.3 of PG&E's 2023 WMP). • Improved our weather forecasting and scoping capabilities by utilizing Catastrophic Fire Probability model which employs granular scoping processes to significantly reduce the public safety impacts of de-energization by de-energizing smaller segments of the grid within the close confines of the fire-critical weather footprint, rather than de-energizing larger amounts of customers in more populated areas (see section 9.2.1 of PG&E's 2023 WMP). • Making extensive use of Advanced Notifications and outreach tools to notify impacted customers of the expected de-energization (see section 8.4.4.2 of PG&E's 2023 WMP). • Using an extensive camera, weather station, and satellite weather monitoring network and on-the-ground personnel to collect real-time observations to inform and speed the identification of Weather "All-Clear" times in more precise, smaller areas, to get customers back in service faster (see section 7.3.2.1 of PG&E's 2023 WMP). • Readying and increasing resources for restoration efforts, including use of helicopters and fixed wing aircraft to conduct line safety patrols after the Weather "All-Clear", restoring service to safe lines as quickly as possible subject to operational safety and ability to access equipment for patrol and any needed repairs (see section 7.3.9.5 of PG&E's 2023 WMP). • Supporting vulnerable customers through California Foundation for Independent Living Centers (CFILC) and Community Based Organizations (CBO) resource partners that offered various services to customers impacted by the event (see	Kevin Miller	6/2/2023	6/8/2023	6/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_009.zip	0	N/A	9.1.2	Public Safety Power Shutoff	Identification of Frequently De-Energized Circuits
396	CPUC - SPD (Safety Policy Division)	009	CPUC - SPD (Safety Policy Division)_009	3	CPUC - SPD (Safety Policy Divi	3)PG&E has less than the required number of personnel with required training for several categories in Table 8-39: PG&E's Personnel Training Programs for Wildfire and PSPS Events. Other tables related to staffing indicate if, for example, all staffing will complete training on time and reasons for not all being completed is the timing of table's required provision. Why are there less than required values of personnel not completing the training?	PG&E has a constant influx and outflow of new personnel in its Emergency Operations Center (EOC). As such, we are at various stages of training completion. In addition, different positions within the EOC require different levels of training. Some of the courses at the more advanced level are instructor led and offered quarterly. PG&E is increasing the number of instructors this year to be able to increase these offerings in 2024	Kevin Miller	6/2/2023	6/8/2023	6/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_009.zip	0	N/A	8.1.8.3	Grid Operations and Procedures	Personnel Work Procedures and Training in Conditions of Elevated Fire Risk
397	CPUC - SPD (Safety Policy Division)	009	CPUC - SPD (Safety Policy Division)_009	4	CPUC - SPD (Safety Policy Divi	4)PG&E provides means to verify message receipt in Table 8-49: PG&E's Protocols for Emergency Communication to Stakeholder Groups. How accurate is this receipt information with regard to verifying messages are reaching intended recipient/resident to aid in intended safety outcomes (e.g., including, but not limited to, messages not being sent to a new number or persons no longer in the household)?	PG&E is able to verify that a message was delivered to the phone number and/or email address on file for the customer of record associated with the premise identified as impacted by a potential PSPS, EPSS outage, and/or outage due to a wildfire. Phone number and/or email address are requested at the time an account is established and are verified when a customer logs into My Account at pge.com on an annual basis and/or if a customer speaks with a Contact Center Customer Service Representative (CSR) and has not verified contact information in the past 60 days via CSR. To ensure we have the most updated contact information for customers of record, wildfire safety-related outreach material includes a standard call to action to update contact information. In addition, Business Energy Solutions Account Reps engage with critical facilities and infrastructure, telecommunications and water providers and transmission level entities in high fire risk areas and likely to be impacted by PSPS and/or EPSS annually to confirm contact information for the purposes of outage notification. Contact information for CBOs and Paratransit agencies is maintained via regular engagement by the AFN Affinity Outreach Principal. For customers that are MBL and/or SIV, in addition to specific campaigns via mail and email to encourage contact information updates, we conduct a weekly review to identify customers with either missing or invalid contact information as documented in our Customer Care and Billing System (CC&B). Additionally, we cross-reference contact information submitted through our other program applications (e.g., CARE/FERA and rebates) to run a daily sync between our Salesforce Application (used to process these program applications) and MBL database within the CC&B system. These weekly and daily processes are conducted year-round to help ensure the MBL and SIV contact information is current. Local and state agencies and first responders are engaged by Local Government Affairs and Public Safety Specialists annually to confirm contact information/identify new contacts for the purposes of outage notification.	Kevin Miller	6/2/2023	6/8/2023	6/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_009.zip	0	N/A	8.4.4.1	Emergency Preparedness	Protocols for Emergency Communications
398	CPUC - SPD (Safety Policy Division)	009	CPUC - SPD (Safety Policy Division)_009	5	CPUC - SPD (Safety Policy Divi	5)PG&E issues notifications to AFN/MB ratepayers. How does PG&E know that these notifications are received and that contact information is up to date? a.Does PG&E have a way to continuously/periodically verify that the contact information on file is current to help ensure such important notices are being received by the intended recipients?	Our MBL and SIV customers are sent annual communication either by email or a postcard (if an email address is not provided by the customer) between March and August, to reinforce the importance of having up-to-date contact information on file and encourage them to provide an alternative means of contact for PSPS notifications. MBL and SIV information is updated automatically and in real-time when a customer logs into their PG&E account and updates their information or when it is provided to a PG&E representative. Requests to change contact information can be submitted via multiple channels, therefore, there is no dedicated staffing member or department that implements changes. For example, contact information can be changed by customers via our website, which updates our systems of record directly. To Quality Assure and Quality Control (QA/QC) the MBL and SIV customer contact information, we conduct a weekly review to identify customers with either missing or invalid contact information as documented in our Customer Care and Billing System (CC&B). Additionally, we cross-reference contact information submitted through our other program applications (e.g., CARE/FERA and rebates) to run a daily sync between our Salesforce Application (used to process these program applications) and MBL database within the CC&B system. These weekly and daily processes are conducted year-round to help ensure the MBL and SIV contact information is current. PG&E considers PSPS notifications for medical baseline customer as "received" if one of the following occurs: Customer answers the phone, text confirmation is received back from the customer, e-mail is opened or a link within the e-mail is clicked, or the customer was successfully contacted during a doorbell ring.	Kevin Miller	6/2/2023	6/8/2023	6/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_009.zip	0	N/A	8.5.3	Community Outreach and Engagement	Engagement With Access and Functional Needs Populations
399	CPUC - SPD (Safety Policy Division)	009	CPUC - SPD (Safety Policy Division)_009	6	CPUC - SPD (Safety Policy Divi	6)PG&E mentions pre-pandemic in-person engagement. Does PG&E have data comparing pre pandemic engagement to pandemic timeframe engagement efforts and among other things, attendance? For instance, are there metrics/data regarding non-AFN/MB and AFN/MB?	For community events and gauging levels of customer attendance/interest, PG&E does not have specifics on customer demographics in terms of who attends our Virtual webinars and town hall events. Registration is optional, and we find the majority of customers elect not to share their personal information (attendees show up as 'anonymous'). Prior to the pandemic (2019), all regional Safety Town Halls were conducted in person, except for all our All-Customer webinars. During and post-pandemic (2020-2023), Regional Town Halls and Safety Webinars were conducted virtually. With that being said, we have seen good attendance throughout the first half of 2023 in our 15 already hosted Webinar events, up from 2021 & 2022. The table below summarizes the attendance of our events by year and the year-over-year percentage change: While in-person events are beneficial for a specific community, virtual events have several advantages that in-person events lack, such as the ability for customers to attend without needing transportation, our inclusion of ASL in the presentation, the ability to zoom in on content to view at a comfortable reading level, and the ability to view at a later date if not available at the broadcasted time. We are also hosting specific webinars for smaller audiences, such as our AFN community, which was held June 7, 2023, and in-language Webinars in July, focusing on programs benefitting those communities.	Kevin Miller	6/2/2023	6/8/2023	6/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_009.zip	0	N/A	8.5.3	Community Outreach and Engagement	Engagement With Access and Functional Needs Populations
400	CPUC - SPD (Safety Policy Division)	009	CPUC - SPD (Safety Policy Division)_009	7	CPUC - SPD (Safety Policy Divi	7)PG&E states that if an AFN customer does not answer the door, the notification is considered successful if a door hanger is left. What industry policy/practice is PG&E following that classifies a door hanger as a successful notification?	During a PSPS event, medical baseline customers receive automated calls, text and e-mails at the same intervals as the general customer notifications. In addition, these customers receive repeat automated calls and texts at hourly intervals until the customer confirms receipt of the notifications by either answering the phone, responding to the text or opening the email. If confirmation is not received, a PG&E representative visits the customer's home to check on the customer in parallel to the continuation of hourly notification retries, referred to as the "doorbell ring process." If the customer does not answer, a door hanger is left at the home, when possible. PG&E's "doorbell ring" and "door hangar" process is above and beyond the guidelines set forth in CPUC's decisions under R. 18-12-005. While PG&E has not specifically benchmarked as an industry practice, the three joint California IOUs have aligned on this process. The door hanger is considered Successful Notification Delivery but is not confirmed as Notification Received. After a door hanger is left, these customers will continue to receive hourly retries until they confirm receipt	Kevin Miller	6/2/2023	6/8/2023	6/7/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_009.zip	0	N/A	8.5.3	Community Outreach and Engagement	Engagement With Access and Functional Needs Populations
372	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	1	CPUC - SPD (Safety Policy Division)_005_Q1	1.Regarding costs inherent in PG&E's undergrounding grid hardening mitigation initiative projects, used in calculating cost efficiency and project feasibility as described in the 2023-2025 WMP (p. 340 and p. 968), to date and looking forward: a.What was the average cost per circuit mile for undergrounding in 2022, 2021, and 2020, in the HFTD, non-HFTD, and territory-wide? b.What is the average cost per circuit mile expected in 2023, 2024, and 2025, in the HFTD, non-HFTD, and territory-wide? c.For sub-parts a. and b., explain expected, average year-over-year cost changes.	a. Please see the following table for average cost per circuit mile for undergrounding, split between base System Hardening undergrounding work and fire rebuild work. All completed undergrounding circuit miles in 2022, 2021, and 2020 are in HFTDs. Year Completed Base UG Total Unit Cost (Average in $M) Fire Rebuild UG Total Unit Cost (Average in $M) Combined UG Total Unit Cost (Average in $M) 2020 $6.21 N/A $6.21 2021 $4.16 $2.21 $2.29 2022 $3.48 $2.16 $2.77 As shown above, the rebuild costs, particularly the rebuild footprints in the Caldor and North Complex, are more inexpensive per mile than the base system hardening undergrounding projects because of less administrative and operational constraints in these environments (e.g., expedited timelines, accelerated permitting, geographic terrain). b. The current forecasted average cost per circuit mile for undergrounding, including Fire Rebuild and Base UG, is $3.26 million in 2023, $3.13 million in 2024, and $2.96 million in 2025. All planned undergrounding projects are in HFTDs or high fire risk areas (HFRAs). c. As shown in the responses to subparts a & b, the year-over-year cost has generally decreased, and is expected to further decrease, due to multiple factors as we scale the program, including but not limited to: • Economies of scale as the program knowledge and familiarity grows with our internal crews, contractors, materials suppliers, designers and many others; • Undergrounding process efficiencies through lessons learned; • Updating standards for design and construction, such as revising the trench depth and width standard to minimize unnecessary excavation;	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
373	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	2	CPUC - SPD (Safety Policy Division)_005_Q2	2.Provide the utility's cost estimate breakdown for undergrounding per mile. Provide the cost estimate in a commonly used cost-estimating format (e.g., Uniformat). If the utility uses a different format, provide internal documentation on that format so SPD can understand the cost estimate.	Please see the following table for each cost component's estimated contribution to the total unit cost. These estimates are based on actual costs for completed undergrounding work in 2023 to date. This year's completed projects are PG&E's best currently available representation of the cost estimating breakdown and is expected to be similar in future years. Cost Component Est. Contribution to Total Cost Labor (internal) 10% Materials 16% Contractor 61% Overhead 10% Other 2% Financing 1% 100%	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution

374	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	3	CPUC - SPD (Safety Policy Division)_005_Q3	3.How is PG&E incorporating subsurface variability (e.g., encountering hard rock, slope, or other conditions presenting significant, physical obstacles) into undergrounding cost calculations? Provide an example.	PG&E recognizes that subsurface variability contributes to undergrounding cost, but does not incorporate a specific subsurface variability factor into its portfolio cost forecasts. For completed work, costs associated with subsurface variability are captured at the individual project level, which is incorporated into the average cost per mile of the portfolio. PG&E describes construction issues related to subsurface variability and how those issues can impact projects costs in PG&E Wildfire Mitigation Plan - WMP Discovery2023_DR_CalAdvocates_022-Q002	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
375	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	4	CPUC - SPD (Safety Policy Division)_005_Q4	4.PG&E has stated that CalTrans trench depth requirements exceeded PG&E trench depth requirements. How has this impacted costs and planning? For planning purposes, what percentage of anticipated underground circuit miles will be impacted by the CalTrans trench depth requirements for 2023-2025?	PG&E has not made changes to our per mile cost forecasts related to CalTrans trench depth requirements. Planning for CalTrans trench requirements is incorporated into individual project design packages. Of the approximately 2,700 circuit miles planned in the 2023-2026 Undergrounding Workplan (filed with the 2023-2025 WMP), 204 circuit miles are on projects where PG&E has determined that the CalTrans trench depth requirements are likely to apply. Currently, this makes up less than 8% of the underground circuit miles planned in our WMP. Engineers incorporate CalTrans trench depth requirements into the individual projects during the project design phase. The cost and planning impacts of the CalTrans requirements to each of these projects is subject to final design of alignment	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
376	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	5	CPUC - SPD (Safety Policy Division)_005_Q5	5.How does service life impact cost calculation?	PG&E's undergrounding cost forecasts represent the capital costs to construct projects. Service life is not considered in these calculations, but is expected to be longer than overhead lines. PG&E also expects that by undergrounding distribution lines, PG&E's long-term costs for operations and maintenance, vegetation management, and other activities will decrease	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
377	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	6	CPUC - SPD (Safety Policy Division)_005_Q6	6.What is the estimated multiplier for conversion from overhead (OH) line to underground (UG) line (e.g., 1.25 Mile OH converts to 1.00 Mile UG)? a.How was this conversion rate derived? b.How was it established as the accepted/operating average for project planning purposes?	a. The original estimated conversion of overhead to underground mileage (1.25) was based on subject matter expertise. In April 2023, PG&E completed a manual review of 19 projects completed in 2022 to validate this estimate. In these 19 projects, we removed approximately 12.7 overhead miles and replaced them with 16.3 underground miles Based on this subset of data, which is generally consistent with the estimated conversion rate for our overall portfolio, the conversion factor from overhead to underground was 1.3. Please also see response to 2023 WMP Discovery TURN 001-001, subpart (d). b. See response to part (a)	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
378	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	7	CPUC - SPD (Safety Policy Division)_005_Q7	7.On pilot projects completed to date: a.What is the total all-in cost per mile? b.What is the breakdown of project costs per mile? SPD expects to see the following components inside of the costs, although SPD understands they may not be broken down in this exact format: i.Scoping (e.g., primary line, secondary line, service drop) ii.Design (e.g., fees for both internal and external designers) iii.Design Estimating (e.g., labor, materials, other costs) iv.Dependencies (e.g., permits, contracts, long-lead materials) v.Construction (e.g., civil construction, electric construction) vi.Other? (e.g., direct payments to homeowners so homeowners may complete work such as landscaping or road repair)	a. In 2019, PG&E completed two pilot projects to convert overhead primary conductor to underground primary conductor. The total all-in cost per mile for each pilot project is noted in the below table: Project Order # 35052718 35089880 Total Unit Cost Per Mile (in $M) $2.11 $4.18 b. PG&E breaks down actual costs slightly differently than the format suggested by SPD in this question. For undergrounding at the project level PG&E uses a format agreed on in partnership with other IOUs. The following components contribute to the total: • Labor (internal) • Materials • Contractor • Overhead (division, corporate, etc.) • Other • Financing Costs The costs for each of the two pilot projects by cost component are shown in the table below. Project Order # 35052718 35089880 Cost Component Labor (internal) $124,386.70 $312,187.82 Materials $84,639.90 $441,554.87 Contractor $508,081.67 $561,087.68 Overhead $126,013.77 $333,701.10 Other $44,967.19 $27,643.32 Financing $16,753.82 - Total Cost $904,843.05 $1,676,174.79 Undergrounded Miles 0.43 0.40 Total Unit Cost Per Mile (in $M) $2.11 $4.18	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
379	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	8	CPUC - SPD (Safety Policy Division)_005_Q8	8.Please provide WMP-Discovery2023_DR_TURN_007-Q001Atch01CONF.xlsx, used to address TURN Data Request 7, Question 1, discussing RSE calculation for system hardening.	Please see "WMP-Discovery2023_DR_TURN_007-Q001Atch01CONF.xlsx."	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	1	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
380	CPUC - SPD (Safety Policy Division)	005	CPUC - SPD (Safety Policy Division)_005	9	CPUC - SPD (Safety Policy Division)_005_Q9	9.On page 151 of the 2023-2025 WMP, PG&E states that the WDRM v3 ignition source is "PG&E's Historical Ignitions Data, 2015-2021 (approximately 2,500 CPUC-reportable ignitions and approximately 1,900 non-reportable ignitions)." a.Describe how PG&E is using the ~1,900 non-CPUC-reportable ignitions in its risk modeling. b.Provide this ~1,900 non-CPUC-reportable ignition data as a spreadsheet in format similar to the existing CPUC-reportable ignitions data (as in DR SPD_PG&E_2023_004 and at Wildfire and Wildfire Safety (ca.gov), under Fire Ignition Data).	a. The PG&E Historical Ignitions Data described on page 151 of PG&E's WMP is used as the training data for the probability of ignition model portion of the WDRM v3. For modeling, the date and time of the reported outage is used when available. b. The approximately 1900 non-CPUC reportable ignitions used in the development of the WDRM v3 is provided in "WMP-Discovery2023_DR_SPD_005-Q009Atch01.xlsx." This information has been aligned with the format used for the CPUC reportable ignitions. In some cases, not all data is available for these additional non-reportable ignitions	Kevin Miller	5/15/2023	6/12/2023	6/12/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_005.zip	0	N/A	6.2.1	Risk Methodology and Assessment	Risk and Risk Component Identification
401	OEIS	010	OEIS_010	1	OEIS_010_Q1	Q01. Regarding Underground Equipment Failures a. Provide a spreadsheet with the following information for all underground equipment/facility failures or damages from 2015 to 2023: i. Equipment type involved in the incident ii. Whether the equipment is subsurface or not iii. Year of incident iv. Whether a fire or ignition occurred v. Whether the location of the incident was urban, rural, or highly rural vi. Whether the location of the incident was WUI or not vii. Whether the location of the incident was non-HFTD, Tier 2, or Tier 3 viii. Whether a root cause analysis or other form of cause analysis was performed b. For any fires or ignitions that occurred from underground equipment, provide any trend data or lessons learned that PG&E has applied, which could include (but not limited to): i. Changes in type/manufacturer of equipment used ii. Changes in configurations (such as number of access points) iii. Changes in installation procedures iv. Changes in inspection procedures v. Changes in maintenance procedures c. How does PG&E track and maintain any underground equipment that poses potential ignition risk, particularly within the HFTD? d. How is PG&E working to minimize ignitions and fires from underground equipment/facility failures or damages for its wildfire risk undergrounding mitigation work?	a. Please see "WMP-Discovery2023_DR_OEIS_010-Q001Atch01CONF.xlsx" for the requested spreadsheet that spans from 2015 – 2023. Please note that specifying which pieces of equipment are subsurface would require a manual review of over 26,000 records for this large dataset and would be unduly burdensome. Therefore, information responsive to subpart ii has not been provided in response to this request. If additional information is needed regarding any specific incident, we are happy to discuss. b. See the table below for changes made to equipment used or operating procedures due to incidents or trends from underground failures. Equipment Issue Change Load Break Oil Rotary (LBOR) Switches Catastrophic failure of LBOR switch(es) • Restricted operation of LBOR switches: o Operation of an LBOR without a sight glass is not allowed unless by use of the remote operator or when de-energized. o When operating an LBOR without a sight glass, perform a "before" and "after" infrared camera reading to determine temperature change after operating the switch, which may indicate low level arcing in the tank. • Proactive replacement of LBOR switches manufactured prior to 1975 as they lack oil inspection sight glasses. Subsurface Oil Switches Proactive safety measure and response to catastrophic failures of subsurface oil-filled	Dakota Smith	7/20/2023	8/3/2023	8/3/2023	N/A	1	Yes	8.3.3.1	Situational Awareness and Forecasting	Existing Systems, Technologies, and Procedures
402	OEIS	010	OEIS_010	2	OEIS_010_Q2	Q02. Regarding Underground Facility Fire Incidents a. Provide a list of any incidents reported to the CPUC involving fires caused by underground equipment/facilities or at PG&E underground vaults from 2015 to 2023. b. Provide any reports completed by PG&E for fires caused by underground equipment/facilities or at PG&E underground vaults from 2015 to 2023.	a. PG&E is providing two lists (1) all CPUC Reportable Ignitions since 2015 associated with underground/subsurface assets in "WMP Discovery2023_DR_OEIS_010-Q002Atch01.pdf" and (2) all incidents that were reported to the Commission as an Electric Incident involving a fire associated with underground assets in "WMP-Discovery2023_DR_OEIS_010-Q002Atch02.pdf". In some instances, an event may meet both criteria and be referenced in both tables. b. Please see "WMP-Discovery2023_DR_OEIS_010-Q002Atch03 – Atch40.pdf" for a copy of all reports completed by PG&E for fires caused by underground equipment/facilities or at PG&E underground vaults from 2015 to 2023. We are including "WMP-Discovery2023_DR_OEIS_010-Q002Atch41.pdf", which will provide the incident location and date for each report being produced.	Dakota Smith	7/20/2023	8/3/2023	8/3/2023	N/A	41	Yes	8.3.3.1	Situational Awareness and Forecasting	Existing Systems, Technologies, and Procedures
403	OEIS	010	OEIS_010	3	OEIS_010_Q3	Q03. Regarding Undergrounding Effectiveness a. How is PG&E taking past underground ignitions and fires into consideration when determining the effectiveness of undergrounding as a mitigation for reducing wildfire risk?	To assess the effectiveness of undergrounding as a wildfire risk mitigation, PG&E analyzed several factors through an engineering review: 1) Historical outage combinations and underground's ability to prevent such failures, 2) Historical overhead vs. underground ignition rate per mile, and 3) Severity of fires associated with overhead vs. underground ignition events. First, to determine the effectiveness of undergrounding as a mitigation for reducing wildfire risk, as compared to the baseline of the existing overhead electric distribution assets, PG&E engineers assess each historic outage type on the overhead system to determine if it would have been prevented by having the line underground. Second, PG&E assesses the likelihood of underground ignitions vs. overhead ignitions per mile to estimate the benefits of converting from an overhead system to an underground system. Based on comparing the likelihood of ignition per mile between overhead and underground, the ignition rate per mile decreases by over 95%. This assessment acknowledges that there are still underground ignition incidents, such as animals getting into underground line assets or customer panel connection incidents. Third, when PG&E assesses the historical fires associated with overhead vs. underground assets, PG&E has not seen an underground ignition spread to a fire of significance. This is largely attributed to the concrete vaults and clearing around underground assets, which minimizes the opportunity for ignition spread. Based on historical fires, undergrounding is nearly 100% effective at mitigating catastrophic wildfires.	Dakota Smith	7/20/2023	8/3/2023	8/3/2023	N/A	0	Yes	8.3.3.1	Situational Awareness and Forecasting	Existing Systems, Technologies, and Procedures

404	OEIS	010	OEIS_010	4	OEIS_010_Q4	Q04. Regarding PG&E's Recent Underground Vault Fires in San Francisco a. Provide the expected cause for each recent underground vault fire that's occurred in San Francisco. b. In terms of the associated equipment in each of the vault fires, is PG&E planning on using such equipment as part of its planned undergrounding for wildfire risk? If so, how is PG&E monitoring and reducing any associated ignition risk?	a. PG&E does not specifically track whether ignition events have occurred in a vault or outside a vault. However, after a review of all ignitions associated with underground equipment in San Francisco, we have identified two 2023 events involving facility ignitions in PG&E's ignition records, occurring on April 26, 2023 and July 8, 2023. PG&E understands this request to be referring to these two recent events involving underground vaults. We provide high-level summaries of each event below. EI230708A: On July 8, 2023, at approximately 2025 hours two vaults fed by the Marina-0404 4kV underground distribution circuit in San Francisco (a non-HFTD) began smoking. One vault cover lifted and damaged the vehicle parked on top of it when an explosion (which also damaged windows on both sides of Pacific Avenue) occurred inside the vault. Troubleshooters deenergized and isolated a section of damaged idle secondary underground distribution cable before restoring customers. The investigation into the cause of this incident is still ongoing. The April 26, 2023 incident is subject to an ongoing privileged legal investigation. As such, we assert our right to withhold information, reports, conclusions, and results based on the attorney-client privilege and/or the work product doctrine. On that basis, PG&E objects to this data request to the extent it calls for such information. Without waiving the foregoing objections, PG&E answers as follows: EI230426A: On April 26, 2023, at approximately 2040 hours two vaults fed by Substation SF J in San Francisco (a non-HFTD) caught fire. The fire at Sansome Street and Halleck Avenue damaged three 12kV primary circuits in the J Group distribution network and all five ZJ tie cables that feed SF J from Substation SF Z. PG&E deenergized SF Z and first responders extinguished the fires. The extensive damage led to a multi-day power outage and repairs that continued into July 2023. The investigation into the cause of this incident is subject to a privileged legal investigation and is ongoing. b. The 10k Undergrounding project utilizes standard PG&E underground enclosures, which are smaller than the PG&E standard vaults found in urban areas such as San Francisco. While some equipment/material, such as cable and cable accessories, may be used in both enclosures and vaults, larger equipment such as switches and transformers will differ. Due to the size limitations and ventilation requirements, vault switches and transformers are not used in underground enclosures and are not expected to be used as part of the	Dakota Smith	7/20/2023	8/3/2023	8/3/2023	N/A	0	Yes	8.3.3.1	Situational Awareness and Forecasting	Existing Systems, Technologies, and Procedures
405	CalPA	Set WMP-26	CalPA_Set WMP-26	1	CalPA_Set WMP-26_Q1	(a) Please describe your general process or strategy for developing load forecasts. (b) Do you have a written process or procedure for developing load forecasts? (c) If the answer to (b) is "yes", provide a copy. (d) If the answer to (b) is "no", explain why not.	a) Please see WMP-Discovery2023_DR_CalAdvocates_026-Q001Atch01 for a description of the Distribution Planning Process. This document was submitted as part of the 2020 GRC Phase II Cost of Service Testimony as Chapter 6, Distribution Expansion Planning Process and Projected Costs. Part C the document includes information regarding load forecasting. b) Yes, PG&E has a written process for producing annual distribution load forecasts. c) Please see WMP-Discovery2023_DR_CalAdvocates_026-Q001Atch02 for a copy of the Distribution Planning Process, 050864 "Guide for Planning Area Distribution Facilities." Section 7 provides information regarding load forecasting. d) Not applicable.	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	2	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
406	CalPA	Set WMP-26	CalPA_Set WMP-26	2	CalPA_Set WMP-26_Q2	(a) Do you consider load growth projections when you determine which system hardening measures to deploy for wildfire mitigation purposes? (b) If the answer to (a) is "yes", explain how load growth projects influence your mitigation selection process. (c) If the answer to (a) is "no", explain why not.	a) No. The choice of which system hardening measure is deployed for wildfire mitigation purposes is not influenced by either load forecasts or load growth projects in an area. b) Not applicable c) System hardening measures are selected based on wildfire risk and ignition risk mitigation needs, not loading. However, any loading concerns (including load growth projections) are addressed during the system hardening project scoping and design phases, such as the application of new mainline cable/conductor, additional reactive power or voltage control equipment, upgraded protection, or additional phases.	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	0	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
407	CalPA	Set WMP-26	CalPA_Set WMP-26	3	CalPA_Set WMP-26_Q3	(a) When you plan system hardening projects for wildfire mitigation purposes, do you design projects to accommodate forecasted load growth? (b) If yes, what degree of load growth do you design for? (c) Describe your process for incorporating forecasted load growth into the design of system hardening projects (for instance, which scenarios of possible load growth are considered).	a) Yes, when we plan system hardening projects for wildfire mitigation purposes the scope and design of the project may be influenced by forecasted load growth. b) The design takes into account a 13-year substation transformer and distribution circuit breaker forecast and a three-year distribution line-section forecast. c) Only one scenario is used for load forecasting. This scenario uses known load applications for service as well as the most-recently-adopted California Energy Commission Integrated Energy Policy Report forecast for load and Distributed Energy Resource growth. Our Electric Distribution Planning team provides input and review for the Grid Design team throughout the scoping process ensuring that adequate capacity, voltage control, and protection is incorporated with the system hardening project scope. There is also an additional touchpoint later in the estimating process where the Electric Distribution Planning and Grid Design engineering teams review the Circuit Map Change Sheet (CMCS) and approve the final design. At that point, if any changes are required due to new forecasted load growth, the design can be updated to support that need.	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	0	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
408	CalPA	Set WMP-26	CalPA_Set WMP-26	4	CalPA_Set WMP-26_Q4	(a) In a typical bare conductor to covered conductor conversion project, is the intention to maintain, increase, or decrease the load capacity at peak operating temperatures? (b) Explain the reasoning for your response to part (a).	a) The intention behind converting bare conductor to covered conductor is to lower the risk of catastrophic wildfire. When converting from bare conductor to covered conductor, we ensure that we maintain the load capacity at peak, at a minimum. We also work with our Distribution Planning team to scale the design for forecasted load growth where required. b) Designing the system to maintain current capacity and voltage systems allows for continuity not only in the load profile and customer service expectations, but also switching capabilities we have established to handle regular operation and system maintenance. PG&E designs for two basic systems in primary electric distribution: tap-line and mainline. Tap-lines are typically served by fuses and interrupters and are generally serving less than 100 amps. Our new minimum wire sizes are 1/0 aluminum conductor steel reinforced (ACSR) XLPE tree wire (non corrosion), #2 copper (CU) XLPE tree wire (corrosion), and 1/0 aluminum (AL) EPR for UG. Each of these conductor sizes can serve greater than 150 amps so typically all that is required if load is forecasted higher is a change in protection either to a larger fuse or through the application of a recloser or interrupter. If the load forecast is greater that what can be solved through protection upgrades alone, we would consider extending additional mainline conductor through the area to offload the tap-lines and providing a system capable of handling that load. Mainlines are typically the backbone of the system served by circuit breakers and line reclosers. Our wire sizes are 715.5 all aluminum conductor (AAC) XLPE tree wire, 397.5 (AAC) XLPE tree wire, 1,100 AL EPR for UG, and 600 AL EPR for mainline UG further out on the circuit. Each of these conductor/cable choices can serve more than 400 amps and are typically based on their forecasted load, voltage needs, reactive power flow, and operational capacity requirements in the area. Additional measures included in mainline design are voltage regulators, capacitors for reactive power management, mainline protection and SCADA, as well as considerations for new ties and mainline to manage customer count and new business/forecasted improvements. In addition, where the load forecast may exceed our maximum wire size or capability of the circuit, we may choose to install spare UG conduit along-side the new underground systems to support future	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	0	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
409	CalPA	Set WMP-26	CalPA_Set WMP-26	5	CalPA_Set WMP-26_Q5	(a) Are all new covered conductor installation projects designed to accommodate loads greater than current capacity for the same circuit? (b) If the answer to (a) is "yes", explain how. (c) If the answer to (a) is "no", explain why not.	a) In general, new covered conductor systems are designed to accommodate forecasted growth in an area, where applicable, and for operational capacity requirements to support switching and regular maintenance. However, not all areas are forecasted to require additional capacity for regular or emergency loads. b) Please see our response to subpart (a). c) Please see our response to subpart (a).	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	0	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
410	CalPA	Set WMP-26	CalPA_Set WMP-26	6	CalPA_Set WMP-26_Q6	(a) Are all overhead to underground conductor conversion projects designed to accommodate loads greater than current capacity for the same circuit? (b) If the answer to (a) is "yes", explain how. (c) If the answer to (a) is "no", explain why not.	a) In general, new underground systems are designed to accommodate forecasted growth in an area, where applicable, as well as for operational capacity requirements to support switching and regular maintenance. However, not all areas are forecasted to require additional capacity for regular or emergency loads. b) Please see our response to subpart (a). c) Please see our response to subpart (a).	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	0	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
411	CalPA	Set WMP-26	CalPA_Set WMP-26	7	CalPA_Set WMP-26_Q7	Describe the challenges or advantages entailed in increasing load capacity on a circuit that has previously been hardened with covered conductor.	There are no significant differences to increasing load capacity on a circuit that has been hardened with covered conductor as compared to one that has not been hardened. In each case, the systems' structures and components will have to be replaced as required to support larger conductor or an additional underbuilt circuit. It might be possible for a hardened system to require fewer protection upgrades and, to a lesser extent, pole replacements to increase load capacity. It might also be possible for new load growth not to require physical system changes on a hardened system if it was already upgraded to support forecasted growth.	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	0	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
412	CalPA	Set WMP-26	CalPA_Set WMP-26	8	CalPA_Set WMP-26_Q8	Describe the challenges or advantages entailed in increasing load capacity on a circuit that has previously been hardened with underground conductor.	The challenges or advantages associated with increasing capacity on an underground electric distribution system will differ depending on whether the underground system was built recently or in the past under different engineering and design standards. Based on current design standards and practices, it is likely that recent undergrounding projects include physical capacity to support forecasted load growth in the sense that spare conduits or larger cable may have already been installed. However, if load capacity above the design of a recently built underground system is required, then additional cable systems and enclosures would likely need to be installed. In these cases, digging near existing underground infrastructure can be more difficult than installing underground assets in the first place, and finding locations for additional enclosures may be challenging. Lastly, in some limited cases, a higher capability compact cable can be pulled through the existing conduit system to support additional load growth without having to do additional trenching or installing additional conduits. If load capacity needs to increase on an underground system built before our current engineering and design standards, then any potential challenges would depend on the health of the existing underground system. If the existing conduit is compromised then it may not be possible to pull new cable through the existing conduit, and a more extensive rebuild would be required involving installing new conduit and, potentially, new enclosures as well. If the existing conduit is generally intact, it may be possible to pull new cable through that conduit to facilitate some load growth without significant rebuild.	Holly Wehrman	7/27/2023	8/10/2023	8/10/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	0	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
422	CalPA	Set WMP-28	CalPA_Set WMP-28	1	CalPA_Set WMP-28_Q1	RN-PG&E-23-02 Page 35 of PG&E's response states, "PG&E is currently working to integrate QC with our execution processes to drive quality during initial work execution." a) Describe how PG&E will integrate QC with execution processes. b) Describe the QC and QA processes in place at the beginning of 2023 for a detailed distribution inspection. Describe the process from start to finish, from any QA actions that occur prior to the inspection, continuing through the inspection, and ending when QC and QA are both complete. c) Describe the QC and QA processes that PG&E is proposing—in which QC will be integrated with execution processes—for a detailed distribution inspection. As specified in the previous part, describe the process from start to finish. d) State the percentage of distribution asset inspections that will undergo the integrated QC process that PG&E is proposing.	a) QC is integrating with execution processes by completing QC on a shorter timeline than has been historically executed, allowing for timelier opportunities for re-training inspectors, sharing learnings, and making corrections, as necessary. By targeting shorter timelines to review and identify issues, PG&E can work with stakeholders while work has been recently completed, enabling both more timely corrective actions and additional operational efficiencies (e.g., bringing the prior inspector back to a failed location before the inspector has departed the area). b) Below is the process that QC and QA follow in 2023: o System Inspections (SI) execution completes the scheduled distribution asset inspection; o Completed inspection locations enter the queue of QC-eligible locations; o QC completes their review of the QC-eligible locations through desktop and/or field reviews; QC shares any QC failures with the SI execution team; o QC completed locations become eligible for QA sampling; WMP-Discovery2023_DR_CalAdvocates_028-Q001 Page 2 o QA performs statistical sampling of QC completed locations per the 95% confidence and 5% margin of error criteria described in the WMP; o QA auditors perform the field audits as identified during the sampling process; o QA audits are reviewed by QA subject matter experts (SME) for accuracy and completeness; o Once approved by a QA SME, a QA audit location is marked as complete; QA shares any findings data back to the SI QC and SI execution teams. c) Please see the responses to subparts (a) and (b) for a description of our QC and QA processes. We intend to further integrate QC with execution, as described in subpart (a), during the second and third bullets of the processes described in subpart (b). PG&E is continuing to explore additional opportunities for further integration of the execution and QC functions. d) PG&E is pursuing QC on 30% of all System Inspections following the to-be integrated model within HFTD, barring external factors.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A

423	CalPA	Set WMP-28	CalPA_Set WMP-28	2	CalPA_Set WMP-28_Q2	RN-PG&E-23-02 Page 35 of PG&E's response states, "PG&E is currently working to integrate QC with our execution processes to drive quality during initial work execution." a) How will PG&E track the quality of asset inspection work under the integrated QC process (which was previously tracked as a QC pass rate)? b) What metrics or measures will PG&E use to identify a possible downward trend in the quality of asset inspection work?	a) The quality of asset inspection work is being tracked by using data on QC failures to inform dashboards and plans which give visibility into opportunities for improvement in initial work execution, driving quality at the source. Where applicable, PG&E will also continue to track QC pass rates as we have done previously. b) PG&E utilizes pareto charts, among other tools, to track top finding types which are reviewed with stakeholders to formulate data-driven plans of action. Where applicable, PG&E will also continue to review QC pass rates.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
424	CalPA	Set WMP-28	CalPA_Set WMP-28	3	CalPA_Set WMP-28_Q3	RN-PG&E-23-02 Table 8-7-1 (Revised) on page 35 of PG&E's response states that PG&E will perform field QA audits on 500 transmission locations and 1500 distribution locations. a) Provide a breakdown of the 500 transmission locations by inspection type. For example, how many of these locations will audit detailed ground inspections, how many will audit aerial inspections, etc. b) Provide a breakdown of the 1500 distribution locations by inspection type. For example, how many of these locations will audit detailed ground inspections, how many will audit aerial inspections, how many will audit patrol inspections, etc.	a) All QA audit locations are sourced from completed QC ground or desktop audit locations. Both ground and desktop QC locations have an equal but random likelihood of appearing in the QA sample. Due to the random nature of the sampling, it is not possible to determine in advance the quantities of each inspection type which may appear in the QA sample. b) Please see the response to subpart (a) for an explanation of how distribution locations are sourced. The process is the same for distribution locations as it is for transmission locations.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
425	CalPA	Set WMP-28	CalPA_Set WMP-28	4	CalPA_Set WMP-28_Q4	RN-PG&E-23-02 Table RN-PG&E-23-02-1 on page 36 of PG&E's response shows higher QC pass rates in 2023 (as of July 25, 2023) than in 2022. a) For each of the four QC categories displayed in Table RN-PG&E-23-02-1, provide the sample size (as both a number and percentage of total) that has undergone QC in 2023 as of July 25, 2023. b) List all factors to which PG&E attributes the improved QC pass rates. This may include changes to inspection programs, changes to training, changes to the QC process, different personnel/contractors, etc.	a) Type Type of Audit 2022 Pass Rate Results 2023 YTD Pass Rate Results (Data as of 7/25/2023) QC Complete Quantity as of 7/25/2023 QC Complete of System Inspections Total as of 7/25/2023 Transmission Field 80.9% 98.4% 2,040 50.05% Desktop 92.1% 98.7% 22,920 76.48% Distribution Field 79.3% 87% 22,430 56.07% Desktop 85.5% 94.0% 83,000 41.5% WMP-Discovery2023_DR_CalAdvocates_028-Q004 Page 2 b) Our improved pass rates are the result of the continuous improvements our teams have made since Energy Safety issued the 2022 Revision Notice and which are described in both our 2022 and 2023 WMPs. In particular, the system inspections and QC organizations have weekly collaboration sessions to explore improvement opportunities, identify gaps in our processes, address challenges. and review trends. Furthermore, in addition to the internal improvements we have made, as of July 10, 2023, we have created 74 additional PG&E compliance inspector positions across our service territory, as well as six supervisor positions Inspection to oversee the added headcount. This increased headcount and reduction in the	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
426	CalPA	Set WMP-28	CalPA_Set WMP-28	5	CalPA_Set WMP-28_Q5	RN-PG&E-23-02 Page 2 of PG&E's response states, "By being flexible with how we deploy our quality management resources, we can mitigate $20 million in annual costs to our customers in 2024 and 2025 and yet achieve comparable quality performance results." a) State the basis for PG&E's estimate that its proposed QC process will mitigate $20 million in annual costs to customers. 8 b) State the basis for PG&E's statement that its proposed QC process will achieve comparable quality performance results. c) Please describe the methods PG&E will use to track and compare the quality performance between its proposed QC process and the QC process in place at the beginning of 2023.	a) By pushing Quality Control closer to the work and enabling existing personnel to address and mitigate issues faster, we will ensure that less formal sampling of locations through QC will need to occur and issues will be identified up front. This $20 million efficiency is a forecast based on the savings we anticipate through needing to sample less locations, and improvements to the quality of work up front which will cause a reduction in re-work and QC costs. b) Please see the response to subpart (a) above for an explanation as to how our new QC process will achieve comparable, or improved, quality performance results. Please also see our response to Question 4(b) of this data request for additional information regarding how we are improving our QC pass rates. c) Quality is being tracked by using data on QC failures to inform dashboards and plans which give visibility into opportunities for improvement in initial work execution, driving quality at the source. Where applicable, PG&E will also continue to track QC pass rates as we have done previously. PG&E utilizes pareto charts, among other tools, to track top finding types which are reviewed with stakeholders to formulate data-driven plans of action. Where applicable, PG&E will also continue to review QC pass rates.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
427	CalPA	Set WMP-28	CalPA_Set WMP-28	6	CalPA_Set WMP-28_Q6	RN-PG&E-23-02 Table 8-18-1 (Revised) on page 37 of PG&E's response states that: • 28,516 distribution locations underwent field QA audits in 2022, and • 2,500 distribution locations in the HFTDs will undergo field QA audits in 2023. Given that approximately one third of PG&E's overhead distribution lines are in the HFTDs (per Table 5-2 in PG&E's 2023-2025 WMP), please explain why the proposed audit sample size in 2023 is approximately one tenth of the actual audit sample size in 2022.	The locations that underwent QV/QA audits in 2022 were not solely focused on HFTD. In addition, the ability to discern between HFTD and non-HFTD, or the various VM programs that were reviewed on distribution (pre-inspection, second patrol, etc), was limited in 2022. This means that the identified number of 2022 QV/QA audits is not directly comparable to the planned 2023 sample audits. Given the implementation of the Quality Management System (QMS) in the first months of 2023, and the statistically valid QA sampling methodology, PG&E is focusing quality oversight where it will deliver the greatest value in the areas of highest risk.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
428	CalPA	Set WMP-28	CalPA_Set WMP-28	7	CalPA_Set WMP-28_Q7	RN-PG&E-23-03 Page 41 of PG&E's response states, "The likelihood of experiencing an extended outage (i.e., an outage of 12 hours or more) on EPSS enabled lines was 29% lower than for all PG&E outages in 2022, and for Medical Baseline or Vulnerable customers the same percentage was 62% lower than for that same population during Non-EPSS outages in 2022." a) Has PG&E conducted a study or analysis of why the likelihood of experiencing an extended outage on EPSS enabled lines was 29% lower than for all PG&E outages in 2022? b) If the answer to part (a) is yes, please provide the results of the study or analysis. c) Per PG&E's 2023-2025 WMP, PG&E responds to most outages on EPSS-enabled lines within 60 minutes. Describe the extent to which this expedited response time contributes to the likelihood of experiencing an extended outage on EPSS enabled lines being 29% lower than for all PG&E outages in 2022.	a) PG&E has not conducted a specific analysis relative to drivers of extended outages between EPSS and Non-EPSS enabled lines. b) N/A c) Given the elevated wildfire risk associated with EPSS enablement, PG&E prioritizes our response procedures to EPSS outages by dispatching the closest available qualified resources to the location of the outage within 60 minutes. While this procedure is first intended to ensure no potential ignitions have occurred, it also contributes to fewer extended outages on EPSS enabled lines given qualified personnel are on site and are capable of initiating restoration patrols, perform damage assessments, and are able to plan or perform repairs and switching in order to restore electric service. In addition, the comparison to "Non-EPSS outages in 2022" includes outages occurring during major storm events, where response and restoration can often be delayed due to safety issues for crews and the public, storm related environmental hazards and access issues, as well as requiring extensive repairs to damaged infrastructure that are typically associated with major storm events.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A
429	CalPA	Set WMP-28	CalPA_Set WMP-28	8	CalPA_Set WMP-28_Q8	RN-PG&E-23-03 Page 44 of PG&E's response states, "PG&E estimates that by the end of this WMP cycle, we will have reduced wildfire risk in the HFTD/HRFA by 94 percent through a combination of permanent risk reduction (system resilience mitigations) and operational mitigations such as EPSS." a) State the basis for the estimate that, by the end of this WMP cycle, PG&E will have reduced wildfire risk in the HFTD/HFRA by 94 percent. b) Provide any supporting data for your response to part (a). c) Please disaggregate the estimated 94 risk reduction figure into the amounts attributable to permanent risk reduction and operational mitigations.	a) The basis for the risk reduction calculations are the mitigations we will apply by the end of this WMP cycle to each circuit segment. The mitigations we are proposing for each circuit segment is and as seen in Attachment "2023-04-06_PGE_2023_WMP_R2_Section 6.4.2_Atch01," submitted with the WMP on April 6, 2023. Attachment "WMP-Discovery2023_DR_CalAdvocates_028-Q008Atch01.xlsb" shows that we may achieve 94 percent risk reduction by the end of the WMP cycle (see tab: Top RiskTable, Cell P11189). Since filing the WMP, we have seen promising results from our wider deployment of Downed Conductor Detection (DCD) protection elements than originally estimated. This may enable us to achieve approximately 94 percent risk reduction by the end of 2023, shown in Cell P11199. b) Please see "WMP-Discovery2023_DR_CalAdvocates_028-Q008Atch01.xlsb" tab 'Top_Risk_Table' rows 11,175:11,200. c) The contribution of permanent risk reduction is approximately 29 percent of the 94 percent risk reduction and the contribution from Operational Mitigations is approximately 71 percent of the 94 percent risk reduction by the end of this WMP cycle.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	1	N/A	8.1.8	Grid Operations and Procedures	N/A
430	CalPA	Set WMP-28	CalPA_Set WMP-28	9	CalPA_Set WMP-28_Q9	RN-PG&E-23-04 Page 55 of PG&E's response states, "Instead, we will eliminate the entire HFTD maintenance tag backlog by 2029." a) Is the above statement intended to refer to the HFTD maintenance backlog, or the HFTD/HFRA maintenance backlog? b) If the answer to part (a) is the HFTD maintenance backlog, state when PG&E will eliminate the entire HFTD/HFRA maintenance backlog. c) Does PG&E's plan for addressing maintenance tag backlogs differentiate between tags in HFTD and tags in HFRA?	a) The above statement refers to the maintenance backlog in HFTD/HFRA locations. b) Not applicable, please see the response to subpart (a) above. c) No, our plan does not differentiate between addressing the maintenance tag backlog in HFTD and HFRA locations, as it is instead based on risk reduction and efficiency.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A
431	CalPA	Set WMP-28	CalPA_Set WMP-28	10	CalPA_Set WMP-28_Q10	RN-PG&E-23-04 Figure RN-PG&E-23-04-1 on page 46 of PG&E's response shows that, under PG&E's proposed plan to address maintenance tags, the average open notification age will remain at or under two years. Under PG&E's previously proposed plan, the average open notification age would reach 4.5 years. a) Has PG&E performed a study or analysis of the average number of days that notifications will be overdue (per GO 95 timelines) under its proposed (in PG&E's response) and previous (in PG&E's March 2023 WMP) plans to address overdue maintenance? b) If the answer to part (a) is yes, please provide a table or figure to show the average number of days that maintenance tags will be overdue under the plans proposed in PG&E's March 2023 WMP and in PG&E's response.	a) No, we have not performed a study or analysis with the specific criteria referenced in subpart (a) of this request. b) Not applicable, please see the response to subpart (a) above.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A
432	CalPA	Set WMP-28	CalPA_Set WMP-28	11	CalPA_Set WMP-28_Q11	RN-PG&E-23-04 Footnote 16 on page 52 of PG&E's response states, "PG&E will develop a risk spend efficiency by isolation zone bundle and not for individual tags. We will identify groupings of EC notifications in an isolation zone (similar to a circuit protection zone) and sum the wildfire risk of those notifications. That sum will be divided by the sum of the average unit cost of those same notifications to get a risk spend efficiency by isolation zone bundle." a) How will PG&E determine the wildfire risk of individual notifications? b) How will PG&E determine the unit cost of individual notifications?	a) The scoring of individual tags is not performed differently than the scoring of tags to be included in isolation zone bundles. The open EC tags WDRM v3 risk scoring methodology begins with all open EC tags, specifically priorities B, E, F, and H. Each tag will concatenate all noted deficiencies (FDAs) associated with it. Once each tag has all the FDAs pertaining to it, the FDAs are matched to the appropriate WDRM v3 sub models to collect the wildfire risk scores from the associated model. Once each ignition FDA has wildfire risk scores, the scores are summed for the individual tag. If there is a single tag on an isolation zone, it is effectively a bundle of one, and therefore a standalone score. b) Unit cost of individual notifications is based on the MAT code in which the notifications will be executed. The unit cost is calculated dividing historical annual total costs by annual total unit completion in a single MAT. In addition to the historical average, PG&E will incorporate planned changes in how we will conduct the work, or known opportunities/risks to component costs such as materials escalation (for example, the cost of poles increasing)	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A
433	CalPA	Set WMP-28	CalPA_Set WMP-28	12	CalPA_Set WMP-28_Q12	RN-PG&E-23-04 PG&E states that an isolation zone is "similar to a circuit protection zone" (footnote 16 on page 52). a) Define "isolation zone." b) Is an isolation zone identical to a circuit protection zone? c) If the answer to part (b) is no, describe the differences.	a) As described in footnote 17 (page 53) of the Revision Notice, we provide the following definition: "An isolation zone is an area between isolation devices that can be de-energized in support of maintenance purposes." To provide further elaboration, an Isolation Zone segments between or below isolation devices, (where an isolation device is a member of the set of Circuit Breaker, Dynamic Protective Device, Fuse, or Switch devices). b) No, an isolation zone is not identical to a circuit protection zone. c) A Circuit Protection Zone (CPZ) is a segment of a distribution circuit between two protection devices. CPZs are also sometimes referred to as circuit segments. As described above, an isolation zone is an area between isolation devices (where a Dynamic Protective Device is one type of isolation device) that can be de-energized. Therefore, an isolation zone can be the same as a CPZ but typically is smaller as there are other types of isolation devices beyond the Dynamic Protective Device which would define the extents of a CPZ.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A

435	CalPA	Set WMP-28	CalPA_Set WMP-28	14	CalPA_Set WMP-28_Q14	RN-PG&E-23-04 Table RN-PG&E-23-04-6 on page 59 of PG&E's response estimates PG&E will create 70,200 level two tags in 2023, 54,000 level two tags in 2024, and 55,700 level two tags in 2025. a) State the basis for the reduced number of level 2 tags PG&E forecasts being created in 2024 and 2025 compared to 2023.	a) There are two main drivers in the forecasted reduction in Level 2 tags: (1) the amount of detailed ground inspections planned in Tier 2; and (2) the expected find rate for 2024 and 2025 versus 2023. TABLE RN-PG&E-23-04-7 (page 61 of the Revision Notice) shows PG&E's planned inspections by inspection type and by HFRA/HFTD tier. For 2023, PG&E is planning 209,600 detailed ground inspections in Tier 2, versus 127,400 in 2024, and 121,500 in 2025 respectively. This reduction in the number of Tier 2 inspections is the main driver for the projected reduction in Level 2 finds for 2024 and 2025 since the tag find rate is lower in Tier 3 than in Tier 2. Secondly, PG&E is using its historic inspection results and asset failure data to improve its inspection programs to be more targeted at identifying and creating tags for compelling asset health conditions that should be addressed through our maintenance program. PG&E anticipates this will align future years find rates with the find rate from 2022	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A
436	CalPA	Set WMP-28	CalPA_Set WMP-28	15	CalPA_Set WMP-28_Q15	RN-PG&E-23-04 Page 63 of PG&E's response states, "For example, we have found certain splices (e.g., splices within two feet of an insulator, and number of splices per span) do not pose an increased risk of ignition. Instead of issuing a non-ignition risk maintenance tag, the splices are better addressed by the asset management team as they are a potential indicator of a holistic asset health issue." a) Describe how the asset management team will track splices if a maintenance tag is not issued. b) Describe the circumstances under which PG&E would repair splices that do not pose an ignition risk, and therefore do not have a maintenance tag. c) How does PG&E's asset management team use splices as an indicator of "holistic asset health" and under what circumstances does the asset management team take action based on this indicator?	a) As described in our response to the Revision Notice, we are analyzing the information collected during inspections and comparing it to the actual failures. If we find that certain conditions, such as splices within two feet of an insulator, are not a good indicator of an actual failure, we will use one of the following options to document the condition as an asset health notification: (1) record the notification as a different priority EC tag (e.g., AH priority); or (2) record the notification as an ER tag instead of an EC tag. ER tags are currently used to track proactive maintenance work that are planned for future years (e.g., planned transformer replacements to address asset health condition). b) PG&E would address asset health conditions by bundling the work with planned projects at the location. As described in response to subpart (c) below, asset health conditions will be one of the inputs for prioritizing circuits for proactive replacements. Once selected for replacement, all asset health conditions at the location will be addressed as part of the replacement project. c) PG&E leverages the conductor composite model to determine which conductors have the highest likelihood of failure. Asset health conditions such as "splices within two feet" and the "number of splices in a span" will become an input data point for the machine learning-based model to improve the risk prioritization of the conductor asset base. The overall conductor asset health risk prioritization is then used as part of the Integrated Grid Planning process to prioritize bundled circuit-based upgrades of PG&E's asset base.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A
437	CalPA	Set WMP-28	CalPA_Set WMP-28	16	CalPA_Set WMP-28_Q16	RN-PG&E-23-05 Page 68 of PG&E's response states, "There are 79 circuit segments that are not included in an underground plan and have not been hardened. In place of these circuit segments, PG&E chose to add different circuit segments to the portfolio that could be undergrounded more efficiently. PG&E manages wildfire risk on these 79 circuit segments through our portfolio of Comprehensive Monitoring and Data Collection and Operational Mitigations described above." a) Has PG&E considered overhead hardening on the 79 circuit segments described in this section? b) If the answer to part (a) is yes, why did PG&E not list overhead hardening as a mitigation for these 79 circuit segments? c) If the answer to part (a) is no, explain why not.	a) PG&E has not considered them for overhead system hardening. Since late 2021 PG&E has prioritized undergrounding as the preferred approach to permanently reduce the most system risk. b) N/A c) PG&E has not ruled out these 79 circuit segments for future undergrounding work after completing projects identified with lower feasibility scores. PG&E also already has overhead hardening projects in scope through the remainder of this WMP period (2023-2025). As stated in response to Revision Notice 23-05, PG&E is in the process of constructing a benefit/cost model that will incorporate several elements of our mitigation selection decision-making process (e.g., underground and overhead hardening) into an analytical tool called the Wildfire Benefit Cost Analysis (WBCA) tool. We will update our future circuit selections, including these 79 circuit segments with higher feasibility scores, using this WBCA tool as we build out our system hardening plans for the future. Until that time, the 79 circuit segments not currently WMP-Discovery2023_DR_CalAdvocates_028-Q016 Page 2 selected for targeted undergrounding or overhead hardening and are protected through our portfolio of Comprehensive Monitoring and Data Collection and Operational Monitoring mitigations.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of electric lines and/or equipment
438	CalPA	Set WMP-28	CalPA_Set WMP-28	17	CalPA_Set WMP-28_Q17	RN-PG&E-23-05 Table RN-PG&E-23-05-2 on page 72 of PG&E's response compares the mileage in the top 20% of WFE, the top 20% of WDRM v3, and the top 20% of WDRM v2. It is our understanding (from PG&E's response to ACI PG&E-22-34 in its 2023-2025 WMP) that the list of circuit segments ranked by WFE is based on the risk score from WDRM v3 and the feasibility score of undergrounding. In other words, in the formula below, the WDRM v3 risk score appears in the numerator and the feasibility of undergrounding appears in the denominator: a) Please confirm or correct the understanding stated above. b) Does the list of circuit segments ranked by WFE incorporate risk scores from WDRM v2? If yes, describe how so.	a) The understanding stated above is correct, the WFE score is based on the WDRM v3 risk model. As noted in the formula pasted above, the numerator of the WFE score is the line-weighted risk value per mile from the WDRM v3 risk model, which is not completely identical to the "mean risk score" from the WDRM v3. At a high level, the purpose of both is to represent the normalized risk for each circuit segment. Mean risk is the average risk per pixel, or the summation of risk score along the circuit segment and dividing that by the number of pixels the line passes through. Line-weighted risk per mile accounts for the length of the unhardened line that crosses within a pixel and normalizes across the risk on each pixel based on the volume of line mileage crossing each pixel to a line weighted risk score per mile. This technical difference in representing risk captures changes in hardened and unhardened miles within a circuit segment. b) No. All circuit segments were ranked by WFE based on the WDRM v3 model results.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.2.2	Grid Design and System Hardening	Undergrounding of electric lines and/or equipment
439	CalPA	Set WMP-28	CalPA_Set WMP-28	18	CalPA_Set WMP-28_Q18	RN-PG&E-23-05 Page 73 of PG&E's response states, "Based on our further evaluation, the preliminary, updated mitigation effectiveness for undergrounding, considering the residual risk from secondary and service lines, is approximately 97.7 percent compared to the 99 percent." a) Describe how PG&E calculated the effectiveness of 97.7 percent. b) Provide supporting data and workpapers for your response to part (a).	a) PG&E developed a preliminary, updated mitigation effectiveness for undergrounding considering the residual risk from secondary and service lines by considering the likely effectiveness of a mitigation consisting of undergrounding the primary line plus overhead hardening secondary and service lines. We considered how effective this combined mitigation would be in mitigating a potential ignition by assessing its likely effectiveness against more than 2,200 outage combinations (excluding planned outages, PSPS and EPSS outages) that occurred in PG&E's HFTD during wildfire season from 2015-2022. b) Please see WMP-Discovery2023_DR_CalAdvocates_028-Q018Atch01 for the supporting data and workpapers for our part a response. The 97.7 percent effectiveness is shown on the tab: Pivot_Outages_HFTD_Adjusted in cell Y14	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	1	N/A	8.2.2	Vegetation Management and Inspections	Vegetation Management Inspections
440	CalPA	Set WMP-28	CalPA_Set WMP-28	19	CalPA_Set WMP-28_Q19	RN-PG&E-23-07 Page 103 of PG&E's response states, "The TAT was developed to fit the scope of the EVM Program. With the conclusion of EVM, PG&E has decided to discontinue the use of the TAT and will be moving forward with industry accepted assessments using the TRAQ form." a) Given that, beginning in 2024, the scope of FTI will be similar to the scope of EVM (approximately 1,800 miles), please explain why the TAT is not appropriate for the scope of FTI. b) Describe the ways in which the TAT and TRAQ form are similar. c) Describe the ways in which the TAT and TRAQ form are different.	a) As previously stated, the TAT was developed to fit the scope of the EVM program. The FTI scope is not the same as the EVM scope however similar the number of miles to be worked are. FTI does not require specifically defined clearance criteria. The Focused Tree Inspection program will require inspection by Tree Risk Assessment Qualification (TRAQ) inspectors utilizing the ISA Basic Tree Assessment Form as needed. Enhanced clearances may be required if the assessment identifies potential for tree-line conflicts. Circumstances where this would lead to enhanced clearances include, but are not limited to, when trimming work needed will result in more than 30% of the canopy being removed, making tree removal a better overall mitigation due to potential tree health impacts, and when lean or other structural defects of an otherwise healthy green tree has potential to strike assets. b) Please see the response to part A of this question. Additionally, please see WMP Discovery2023_DR_CalAdvocates_028-Q19Atch01 for the "TAT How-To" and WMP-Discovery2023_DR_CalAdvocates_028-Q19Atch02 for the 2017 ISA Basic Tree Risk Assessment form for the comparison of the similarities and differences between the two. c) Please see the response to part B of this question.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	2	N/A	8.2.2	Vegetation Management and Inspections	Vegetation Management Inspections
441	CalPA	Set WMP-28	CalPA_Set WMP-28	20	CalPA_Set WMP-28_Q20	RN-PG&E-23-07 Page 104 of PG&E's response states, "Given that we began working with the ISA TRAQ in 2023, data does not exist to objectively compare effectiveness differences between ISA TRAQ and the TAT." a) Does PG&E plan to perform a study or analysis to compare the effectiveness of the TAT and the ISA TRAQ? This may include, for example, performing a subset of FTI work using both tools. b) If the answer to part (a) is yes, please describe the study PG&E plans to perform, and the date PG&E plans to conclude the study. c) If the answer to part (a) is no, please explain why not.	a) At this time PG&E does not plan to perform a study or analysis to compare the effectiveness of the TAT and the ISA TRAQ. We are planning to assess the effectiveness of FTI. b) N/A c) Please see the response to Question 19 of this request.	Holly Wehrman	8/10/2023	8/15/2023	8/15/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.2.2	Vegetation Management and Inspections	Vegetation Management Inspections
434	CalPA	Set WMP-28	CalPA_Set WMP-28	13	CalPA_Set WMP-28_Q13	RN-PG&E-23-04 Page 55 of PG&E's response states, with regard to field safety reassessments, "Inspectors can also recommend that a notification be canceled if they believe it was created in error or if it was already completed." a) Describe the process by which an inspector performing a field safety reassessment can recommend a notification be canceled. b) If an inspector performing a field safety reassessment recommends that a notification be canceled, do any additional checks or verifications take place prior to canceling the notification? c) If the answer to part (b) is yes, describe such additional checks or verifications. d) If the answer to part (b) is no, explain why not.	a) During a field validation of an open EC notification, which can occur during a systems inspection or field safety reassessment, inspectors can recommend that a notification be cancelled by selecting this option in the Inspect App when they are in the field. If this option is selected, inspectors further have an option to select between "Cancel – Duplicate," "Cancel – Not Valid," or "Cancel – all work found completed on arrival (NCOA)." Inspectors are then required to enter comments and attach at least two images that show the current condition of the asset. b) Yes, additional checks or verifications take place. Under PG&E's current practice, if an inspector recommends a cancellation, then an independent review and validation is performed prior to cancelling the tag. c) A Qualified Company Representative (QCR) will review the field inspector's comments and photos, as well as the original photos and comments from the tag, to validate the condition of the asset. After that, the QCR will either agree or disagree with the recommendation and provide any additional supporting comments for transparency. d) Not applicable, please see the responses to subparts (b) and (c) above	Holly Wehrman	8/10/2023	8/16/2023	8/16/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_028.zip	0	N/A	8.1.8	Grid Operations and Procedures	N/A
413	CalPA	Set WMP-26	CalPA_Set WMP-26	9	CalPA_Set WMP-26_Q9	Provide a list of all circuits in your system. For each circuit, provide: (a) Circuit ID Number (b) Peak load in Amperes observed since January 1, 2014. (c) Circuit Capacity in Amperes	The attachment to this response containts confidential material and is provided pursuant to the accompanying confidentiality declaration. In this response, PG&E provides the requested data for the distribution circuits in our system. As agreed to, we plan to supplement this response with available data for the transmission circuits by Thursday, August 24, 2023. Please see "WMP-Discovery2023_DR_CalAdvocates_026-Q009Atch01CONF.xlsx" for list of distribution circuits (subpart (a)), 2022 peak load (subpart (b)), and their capacity (subpart (c)). The list of circuits includes only those circuit included in the distribution planning process. Single-customer circuits, tie cables, and idle circuits are not included. The 2022 data was obtained from SCADA instrumentation at distribution substation meters as part of the annual load forecast process. This data was cleaned by Distribution Engineers to exclude switching anomalies and interpolated and supplemented with AMI data when SCADA data was not present. Please note, peak loads prior to 2022 are, in many instances, no longer relevant because circuit reconfigurations have occurred. In other words, the set of customers presently served by the circuit may not be the same set of customers served by the circuit in previous years. Please note, confidential load data that could reveal individual customer loading is indicated in grey. Please note, we do not model the secondary system nor record secondary distribution loading.	Holly Wehrman	7/27/2023	8/17/2023	8/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	1	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
414	CalPA	Set WMP-26	CalPA_Set WMP-26	10	CalPA_Set WMP-26_Q10	Provide updated GIS layers of primary distribution, secondary distribution, and transmission lines, with the following attributes: (a) Circuit ID Number (b) Peak load in Amperes observed since January 1, 2014. (c) Circuit Capacity in Amperes	The attachment to this response contains confidential material and is provided pursuant to the accompanying confidentiality declaration. Please refer to "WMP-Discovery2023_DR_CalAdvocates_026-Q010Atch01CONF.zip" for the requested GIS attributes for our primary distribution system. Line section attributes may include additional circuits not shown in the response to Q009. The list of circuits in Q009 includes only those circuits that are studied as part the distribution planning process. Single-customer circuits, tie cables, and idle circuits are not included. Please note, this attachment contains confidential information. Also, we do not model the secondary distribution system, nor record secondary distribution loading. As agreed to, PG&E will provide a response to the portion of this request relating to transmission lines in a subsequent response by Thursday, August 24th.	Holly Wehrman	7/27/2023	8/17/2023	8/17/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	1	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
415	CalPA	Set WMP-27	CalPA_Set WMP-27	1	CalPA_Set WMP-27_Q1	The article states the following: The California utility company PG&E spent about $2.5 billion on a yearslong effort aimed at reducing wildfire risk by cutting or clearing more than a million trees growing alongside power lines.3 It now says that work was largely ineffective and is eliminating the program, according to an internal analysis reviewed by The Wall Street Journal and interviews with utility executives. a) Did PG&E provide an internal analysis to the Wall Street Journal as described in the article? b) If the answer to part (a) is yes, please provide a copy of the internal analysis described in the article. c) If the answer to part (a) is yes, please state when PG&E provided a copy of the internal analysis to the Wall Street Journal. d) If the answer to part (a) is no, is PG&E aware of the internal analysis described in the article? e) If the answer to part (d) is yes, please provide a copy of the internal analysis described in the article	) PG&E did not say that the work was largely ineffective. PG&E provided the following materials to WSJ; however, PG&E does not know how they were used by WSJ. Please see attachment "WMP-Discovery2023DR_DR_CalAdvocates_027- Q001Atch01". b) Please see part (a). c) The materials were shared on July 25, 2023. d) Not applicable. e) Please see part (a).	Holly Wehrman	8/4/2023	8/18/2023	8/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_027.zip	1	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections

416	CalPA	Set WMP-27	CalPA_Set WMP-27	2	CalPA_Set WMP-27_Q2	The article states the following: The California utility company PG&E spent about $2.5 billion on a yearslong effort aimed at reducing wildfire risk by cutting or clearing more than a million trees growing alongside power lines. It now says that work was largely ineffective and is eliminating the program, according to an internal analysis reviewed by The Wall Street Journal and interviews with utility executives. a) Please list the utility executives who were interviewed by the Wall Street Journal as described in the article. b) For each executive listed in part (a), provide the date or dates the interview occurred. c) For each executive listed in part (a), please provide transcripts of the interviews, if available.	PG&E did not say that the work was largely ineffective. PG&E provided the following materials to WSJ; however, PG&E does not know how they were used by WSJ. Please see attachment "WMP-Discovery2023DR_DR_CalAdvocates_027-Q001Atch01.m4a". a) The following PG&E executives were interviewed by the Wall Street Journal: • Sumeet Singh, PG&E Executive Vice President, Operations and Chief Operations Officer; • Peter Kenny, Senior Vice President, Major Infrastructure Delivery b) The interviews occurred on July 25, 2023. c) PG&E does not have transcripts of the interviews, but is providing the following audio recording of the interview. Please see attachment "WMP-Discovery2023_DR_CalAdvocates_027-Q002Atch01.m4a"	Holly Wehrman	8/4/2023	8/18/2023	8/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_027.zip	1	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
417	CalPA	Set WMP-27	CalPA_Set WMP-27	3	CalPA_Set WMP-27_Q3	The article states the following: [PG&E] now says that work was largely ineffective and is eliminating the program, according to an internal analysis reviewed by The Wall Street Journal and interviews with utility executives. a) Please explain what is meant by the statement quoted above that the work described in the article was "largely ineffective." b) Please quantify "largely ineffective."	a) PG&E did not say that the work was largely ineffective. PG&E provided the following materials to WSJ; however, PG&E does not know how they were used by WSJ. Please see attachment "WMP-Discovery2023DR_DR_CalAdvocates_027-Q001Atch01.m4a". Please see the recording of the interviews provided in response to question 2. b) See response in a)	Holly Wehrman	8/4/2023	8/18/2023	8/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_027.zip	0	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
418	CalPA	Set WMP-27	CalPA_Set WMP-27	4	CalPA_Set WMP-27_Q4	The article states the following: The California utility giant says the program, which involved creating wide spaces between live wires and potentially hazardous trees, resulted in a 13% reduction in ignitions during periods when fire risk is highest, typically in autumn, according to the company's internal analysis. Measured across a full year, the work resulted in a 7% reduction in ignitions. a) Please provide the analysis and data to support the 13% reduction in ignitions during periods when fire risk was highest. b) Please provide the analysis and data to support the 7% reduction in ignitions across a full year.	a) PG&E arrived at the analysis of 13% based on our risk bow-tie assessment workpapers for the General Rate Case. This analysis reflects the use of year-round ignition data, however, historical ignitions and wildfires tied to more consequential fires occur during the autumn and are reflected in the contribution to the risk. For the purposes of this data request, PG&E summarized the analysis in attachment 'WMP-Discovery2023_DR_CalAdvocates_027-Q004Atch01.xlsx'. Here is a summary of the steps that arrived at such figure. • Based on the Wildfire risk assessment for the years of 2015-2022, PG&E broke apart the HFTD ignitions for Distribution. • Of which, approximately 52% of HFTD ignitions occurred from vegetation contact, contributing to 61% of the risk. • Based on the scope of EVM, its effectiveness to mitigate ignitions occurred only on a subset of sub-drivers of vegetation failure. For example, 'Fell Into (No defect)' is 32% of the vegetation failures but 0% EVM effectiveness. • Based on the weighted effectiveness of the likelihood the type of vegetation failure and the contribution to risk, EVM's effectiveness is expected to be approximately 13%, as seen on cell H31. b) The 7% reduction in ignitions during a full year was based off an ongoing EVM effectiveness study based on actual EVM locations against historical performance. This study (attached WMP-Discovery2023_DR_CalAdvocates_027-Q004Atch02.pdf) examined several datasets including ignition events, PSPS damage and hazard events and outage events. However, due to limited sample size of ignition data at EVM locations, outages and PSPS damages and hazards were used as a proxy for ignition reduction. This assessment done in August 2022 showed that EVM reduced blue-sky outages by 76%. For the other weather outage types, the statistical significance was too small to draw conclusions from the results. PG&E then made an error and multiplied this 76% by the outage-to-ignition ratio of 8.7% to arrive at an incorrect 7% ignition reduction in a year. This multiplication is appropriate to calculate the expected count of ignitions reduced in a year where EVM is performed but not to calculate the percentage of ignitions reduced in a year. The more appropriate way is to factor in the effectiveness of 76% outage reduction (as a proxy to ignition reduction) on blue-sky days multiplied by the scope of EVM per year of 1,800 miles or 7% of HFTD miles. This results in a figure closer to 5%	Holly Wehrman	8/4/2023	8/18/2023	8/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_027.zip	2	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
419	CalPA	Set WMP-27	CalPA_Set WMP-27	5	CalPA_Set WMP-27_Q5	In response to data request CalAdvocates-PGE-2023WMP-14, question 9, on April 17, 2023, PG&E stated that it expected to complete the Substation Animal Abatement Effectiveness Study by July 18, 2023. a) Has PG&E completed the Substation Animal Abatement Effectiveness Study? b) If the answer to part (a) is yes, please provide a copy of any reports or other output from the Substation Animal Abatement Effectiveness Study. c) If the answer to part (a) is no, please state when PG&E currently expects to complete the Substation Animal Abatement Effectiveness Study	a) We have not yet completed our Substation Animal Abatement Effectiveness Study in partnership with Electric Power Research Institute (EPRI). b) Not applicable. c) The EPRI study will incorporate industry benchmark data, which is taking longer than expected. Completion is expected by Q1 of 2024.	Holly Wehrman	8/4/2023	8/18/2023	8/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_027.zip	0	N/A	8.1.2.12.2	Grid Design and System Hardening	Other Technologies and Systems – Substation Animal Abatement
420	CalPA	Set WMP-27	CalPA_Set WMP-27	6	CalPA_Set WMP-27_Q6	In response to data request TURN-PG&E-3, question 2, on April 10, 2023, PG&E stated the following: Additionally, we are in the process of finalizing a study that is planned to be completed by June 30, 2023. This study will assess the recorded reliability improvements at locations that have been undergrounded and/or have been hardened with covered conductor. a) Has PG&E completed the study described above? b) If the answer to part (a) is yes, please provide a copy of any reports or other output from the study described above. c) If the answer to part (a) is no, please state when PG&E currently expects to complete the study described above	a) We have not yet completed the above referenced study. b) Not applicable. c) PG&E currently expects to complete the study in October 2023.	Holly Wehrman	8/4/2023	8/18/2023	8/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_027.zip	0	N/A	N/A	N/A	N/A
421	CalPA	Set WMP-27	CalPA_Set WMP-27	7	CalPA_Set WMP-27_Q7	Please provide a copy of PG&E's 2022 Annual Electric Reliability Report. This should be similar to the documents provided to TURN in response to TURN-PG&E-3, question 2, on April 10, 2023.	Please see "WMP-Discovery2023_DR_CalAdvocates_027-Q007Atch01.pdf" for a copy of our 2022 Annual Electric Reliability Report.	Holly Wehrman	8/4/2023	8/18/2023	8/18/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_027.zip	1	N/A	N/A	N/A	N/A
442	OEIS	011	OEIS_011	1	OEIS_011_Q1	Regarding distribution detailed ground inspections a. On page 464 of its revised WMP, PGE states that it will shift from inspecting all HFTD tier 3 distribution assets annually and tier 2 assets every three years, to inspecting severe and extreme consequence plat maps annually and high consequence plat maps every two years. i. Please provide the number of assets/structures (using the same asset/structure definition as WMP R2 table 8.1.3-3, page 465) located in HFTD tier 3. ii. Please provide the number of assets/structures (using the same asset/structure definition as WMP R2 table 8.1.3-3, page 465) located in HFTD tier 2.	Please see the table below for responses to subparts (i) and (ii). Plat Map Consequence Rank / HFTD Tier Designation Low Medium High Severe Extreme Tier 2 338,988 58,645 37,621 4,205 4,080 Tier 3 138,699 33,724 26,889 2,345 869 The counts in this table represent the number of Tier 2 and Tier 3 structures in plat maps of each consequence rank, as of December 28, 2022. It does not represent the number of structures of each consequence rank. As described in Section 8.1, PG&E designated plat maps as extreme, severe, high, medium, or low based on the average wildfire consequence of the structures within that plat map. Also, please note that non-HFTD/HFRA and Zone 1 data are not shown here, but were included in the WMP R2 table 8.1.3-3. The inspection plan is based on plat maps and some plat maps exclusively contain either non-HFTD/HFRA structures or non-HFTD/HFRA structures in addition to HFTD structures	Dakota Smith	8/18/2023	8/23/2023	8/23/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_011.zip	0	N/A	8.1.3.2.1	Asset Inspections	Detailed Ground Inspection
443	OEIS	011	OEIS_011	2	OEIS_011_Q2	Regarding PG&E's Grid Design and Maintenance Quality Control a. In its Revision Notice Response, PG&E states that it is "working to integrate QC with [its] execution processes… this approach will create real-time learnings to coach and guide workers…" and that minimum sample sizes and pass rate target "would hinder PG&E's flexibility." (Page 35) i. Describe this approach, including the similarities and differences from the current and previous approach to QC. ii. Provide the timeline for integrating this approach. iii. Provide the estimated sample size for this approach. These sample sizes may either represent physical assets PG&E will QC per year (e.g., PG&E will QA/QC 3,000 circuit miles in each year of the WMP cycle), or how PG&E determines the samples size for QC (i.e., the criteria for when and where PG&E performs QC). iv. Describe any performance metrics PG&E has developed related to this approach and any targets for performance for 2023-2025. b. Explain why PG&E can provide year-to-date pass rate results for its QC program (Table RN-PG&E-23-02-1) but not pass rate targets for the 2023-2025 WMP cycle.	a. i. QC is integrating with execution processes by completing QC on a shorter timeline than has been historically executed, allowing for timelier opportunities for re-training inspectors, sharing learnings, and making corrections, as necessary. By targeting shorter timelines to review and identify issues, PG&E can work with stakeholders while work has been recently completed, enabling both more timely corrective actions and additional operational efficiencies (e.g., bringing the prior inspector back to a failed location before the inspector has departed the area). Additionally, PG&E continues to leverage standard work, early alignment on audit criteria, administer trainings, and standardized quality data collection and analysis to inform corrective actions Below is the process that QC follows in 2023: • Execution completes the scheduled work; • Completed work locations enter the queue of QC-eligible locations; • QC completes their review of the QC-eligible locations through desktop and/or field reviews; o QC shares any QC failures with the SI execution team; • QC completed locations become eligible for QA sampling We intend to further integrate QC with execution during the second and third bullets of the processes described above for 2023. PG&E is continuing to explore additional opportunities for further integration of the execution and QC functions. ii. PG&E plans to begin the integrated QC Model in 2024. The specific timing of this action will depend on the System Inspection work execution schedule. Historically, the System Inspection teams start the work execution process near the end of Q1/beginning of Q2. iii. PG&E will determine sample sizes for integrated QC utilizing a statistical sampling methodology of the completed risk-informed execution work product in HFTD areas. As noted in PG&E's response to CalPA-028, Question 1d, PG&E is pursuing QC on 30% of all System Inspections following the to-be-integrated model within HFTD, barring external factors. iv. PG&E does not have a target for 2023 because we are looking to implement this process in 2024. We will evaluate establishing performance metrics and/or targets for 2025 once we have had an opportunity to implement the process in 2024 and can appropriately create a baseline for the program	Dakota Smith	8/18/2023	8/23/2023	8/23/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_011.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
444	OEIS	011	OEIS_011	3	OEIS_011_Q3	Regarding PG&E's Vegetation Management Quality Control a. In its Revision Notice Response, PG&E states that it is "working to integrate QC with [its] execution processes… this approach will create real-time learnings to coach and guide workers…" and that minimum sample sizes and pass rate target "would hinder PG&E's flexibility." (Page 38) i. Describe this approach, including the similarities and differences from the current and previous approach to QC. ii. Provide the timeline for integrating this approach. iii. Provide the estimated sample size for this approach. These sample sizes may either represent physical assets PG&E will QC per year (e.g., PG&E will QA/QC 3,000 circuit miles in each year of the WMP cycle), or how PG&E determines the samples size for QC (i.e., the criteria for when and where PG&E performs QC). iv. Describe any performance metrics PG&E has developed related to this approach and any targets for performance for 2023-2025. b. Explain why PG&E can provide year-to-date pass rate results for its QC program (Table RN-PG&E-23-02-2) but not pass rate targets for the 2023-2025 WMP cycle.	a. i. Please see the approach described in response to Request 2(a)(i). We are applying this same approach to our vegetation management QC. ii. PG&E plans to begin the integrated QC Model in Q2 of 2024. iii. PG&E will continue to integrate QC utilizing statistical sampling methodology of the completed risk-informed execution work product in HFTD areas. iv. Please see the response to Request 2(a)(iv) for a description of why we do not have targets/performance metrics. We are consistently applying this approach to our vegetation management QC program. b. Please see the response to Request 2(b) for an explanation as to why we can provide year-to-date pass rate results for our QC program but not for our 2023-2025 WMP cycle. The explanation for our vegetation management QC program is consistent with our asset inspection QC program.	Dakota Smith	8/18/2023	8/23/2023	8/23/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_011.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
413	CalPA	Set WMP-26	CalPA_Set WMP-26	9SUPP	CalPA_Set WMP-26_Q9SUPP	Provide a list of all circuits in your system. For each circuit, provide: (a) Circuit ID Number (b) Peak load in Amperes observed since January 1, 2014. (c) Circuit Capacity in Amperes	In this response, PG&E provides the requested data for the PG&E owned active transmission circuits in our system that are calculated from telemetry and included in Energy Management System (EMS). Please note, we did not include information that did not match between PG&E's GIS system and the CAISO Transmission Register because the GIS system information included some distribution, idle, inactive, or removed lines. Please see "WMP-Discovery2023_DR_CalAdvocates_026-Q009Supp01Atch01.xlsx" for a list of transmission circuits (subpart (a)), 2022 peak load (subpart (b)), and their capacity (subpart (c)). Where available, we selected the highest telemetered peak value for all line segments and all phases of each segment. Where telemetered values were not available, the calculated readings were selected with the highest reading in the same manner. Please note, peak loads prior to 2022 are, in many instances, no longer relevant because circuit reconfigurations have occurred. In other words, the set of customers presently served by the circuit may not be the same set of customers served by the circuit in previous years. Additionally, blanks in the data set indicate the circuit could not be matched to EMS or an associated device to pull an Amp reading. All rated circuits have at least four rating types that represent Summer Normal (SN), Summer Emergency (SE), Winter Normal (WN), and Winter Emergency (WE) ratings. In cases where peak loading exceeds normal ampacity, it is likely that an emergency condition was present. Please see below for the definitions of rating type terms: • Normal Ampacity: The allowable continuous load that can be carried under normal conductor operating temperature. • Emergency Ampacity: Maximum load permitted for short duration in emergencies resulting from the outage of other facilities. Emergency loading is limited to four hours per day and should not exceed a total time of 100 hours in one year. PG&E also notes that we do not maintain the data provided in this response in the format presented in "WMP-Discovery2023_DR_CalAdvocates_026-Q009Supp01Atch01.xlsx" during the normal course of business. It was cross-referenced manually in response to Energy Safety's request	Holly Wehrman	7/27/2023	8/24/2023	8/24/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	1	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution

414	CalPA	Set WMP-26	CalPA_Set WMP-26	10SUPP	CalPA_Set WMP-26_Q10SUPP	Provide updated GIS layers of primary distribution, secondary distribution, and transmission lines, with the following attributes: (a) Circuit ID Number (b) Peak load in Amperes observed since January 1, 2014. (c) Circuit Capacity in Amperes	The attachment to this response contains confidential material and is provided pursuant to the accompanying confidentiality declaration. Please refer to "WMP-Discovery2023_DR_CalAdvocates_026-Q010Supp01Atch01CONF.zip" for the requested GIS attributes for PG&E's transmission system. Please note, "blanks" identified in "WMP-Discovery2023_DR_CalAdvocates_026-Q009Supp01Atch01.xlsx" are represented with "null" in the attached GIS file. Please also see our supplemental response to Question 9 of this Data Request set for additional context regarding the transmission peak load and circuit capacity data provided in "WMP-Discovery2023_DR_CalAdvocates_026-Q009Supp01Atch01.xlsx."	Holly Wehrman	7/27/2023	8/24/2023	8/24/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_026.zip	1	N/A	8.1.2.2.	Grid Design and System Hardening	Undergrounding of Electric Lines and/or Equipment – Distribution
445	CPUC - SPD (Safety Policy Division)	010	CPUC - SPD (Safety Policy Division)_010	1	- SPD (Safety Policy Division)_0	Populate the attached spreadsheet with information summarized from Table 11 of PG&E's most recently submitted QDR (Q1 2023 submitted Aug 1).	Please see the attached spreadsheet "WMP-Discovery2023_DR_SPD_010-Q001-Atch01.xlsx" with information summarized from Table 11 of PG&E's most recently submitted QDR, the Q2 2023 QDR, which was submitted to Energy Safety on August 1, 2023.	Kevin Miller	8/24/2023	9/1/2023	8/31/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/SPD_010.zip	1	N/A	QDR	N/A	N/A
446	OEIS	012	OEIS_012	1	OEIS_012_Q1	Q01. Regarding PG&E's Response to RN-PG&E-23-07 a. Considering that there are no fields in OneVM to collect Level 2 inspection data,1 the TRAQ form will not be digitized,2 and the Focused Tree Inspection procedure does not require inspectors to take a photo of competed TRAQ forms,3 what data and information do PG&E plan to use to perform field-based quality control on Level 2 inspections performed under Focused Tree Inspections? b. Describe the quality control procedure for Focused Tree Inspections. c. How are the paper TRAQ forms generated through Focused Tree Inspections collected and stored by PG&E? d. For Focused Tree Inspections, Routine, and Second Patrol: i. How and where does the inspector document relevant factors that contributed to an inspector's designation of a tree as a hazard, or not a hazard, and any resulting abatement prescription? ii. If PG&E does not record this information, justify why it does not record this information. e. In response to remedy c, PG&E states that it plans to only inspect part of its Areas of Concern through the Focused Tree Inspections. What is PG&E's purpose in identifying all 4,812 circuit miles that comprise the Areas of Concern if it only plans to perform Focused Tree Inspections on 43% of those miles by the end of 2024? f. In PG&E's response to Data Request P-WMP_2023-PG&E-001, Question 2, PG&E describes updates it made to its Tree Assessment Tool (TAT) in 2022. i. Was this updated TAT ever operationalized? (1) If so, when was it operationalized? (i.e., used by all inspectors in the field to perform tree risk assessment under EVM) (2) If not, why was it not operationalized? ii. Provide the most recent version of the updated TAT, even if that version was not operationalized. iii. Provide any reports regarding the 2022 update of the TAT, including, but not limited, documentation of methodologies, application, internal reviews, and external reviews. g. In response to remedy j, PG&E states that the current residual risk due to Tree Removal Inventory trees is 7% of vegetation risk in the HFTD.4 Does PG&E's analysis regarding the "percent of vegetation risk" assume that 100% of the vegetation risk in the HFTD can be mitigated? i. If so, justify this assumption. ii. If not, what percentage of vegetation risk does PG&E estimate it can mitigate in the HFTD? h. In response to remedy l, PG&E states that it expects its updated Distribution Inspection Procedure to achieve improved risk reduction of approximately 3 percent over the legacy Distribution Inspection Procedure.5 Populate the empty cells of the following table: Scenario Risk Points Reduced	a. PG&E will update our FTI procedure to reflect a change in process for 2024 that will require users to record level 2 inspection data through a digitized Tree Risk Assessment form. The intent is to create a record of every strike potential tree indicating that it has been assessed with a Level 2 inspection. The Quality Management team will use a list of completed Focused Tree Inspection (FTI) locations and completed Tree Risk Assessment forms to perform quality assessments. b. The Major Infrastructure Delivery – Quality Management team performs quality assessments in accordance with the FTI procedure bulletin WMP-Discovery2023_DR_OEIS_012-Q001Atch01.pdf. c. For the 2023 Pilot of FTI, the TRAQ Basic Tree Risk Assessment form was utilized as a reference to perform Level 2 inspections. In 2024, PG&E plans to digitize the Tree Risk Assessment form. In line with our filed WMP, the Tree Risk Assessment Forms will be filled out by our TRAQ certified arborist and will be digitized and stored electronically. Please see response to 'a' for more information. d. i. In 2024, PG&E will be enhancing One VM for Routine, Second Patrol and FTI to include the capability to capture factors for prescribing trees for removal. In addition, the following process change has been implemented: Comments/Reasons are required if a work prescription changes at any time after the initial prescription. ii. Please see response to 'd.i' regarding our planned enhancement. e. The FTI program was derived from Revision Notice PGE-22-09 commitments, which required benchmarking with other IOU's on use of predictive and risk modeling in Vegetation Management. After conducting these sessions PG&E implemented a process like SCE and developed Areas of Concern (AOC). This development process became a WMP commitment which resulted in the initial 4,812 miles being identified within 102 polygons (Areas of Concern) within the service territory where vegetation specific data (outages, ignitions PSPS damage) paired with other risk informed circuit evaluation information available. Following the development of AOC, PG&E also committed to perform a pilot starting in Q2 of what was ultimately called the Focused Tree Inspection (FTI) program. This pilot was implemented to develop initial guidance and scope that would inform process and resources needs to progressively develop the program to full	Dakota Smith	8/30/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_012.zip	4	N/A	8.2.2.2.5	Vegetation Management and Inspections	Focused Tree Inspections
447	OEIS	012	OEIS_012	2	OEIS_012_Q2	Q02. Regarding PG&E's Response to RN-PG&E-23-03 a. In its response relating to EPSS, PG&E states that it "does not have detailed mitigation effectiveness analysis at this time. These analyses are being developed based on subject matter expertise while empirical data is being collected." i. Explain what is meant by this statement, particularly given PG&E Has provided effectiveness estimates for EPSS previously. ii. In PG&E's 2023-2025 WMP, PG&E provides an estimated effectiveness of 68% for EPSS IN 2022. Is this still an accurate effectiveness estimate? If not, why? iii. When does PG&E plan on calculating a more updated effectiveness estimate? What factors is PG&E including for this calculation?	i. This statement was tied to the sentence prior, in which PG&E explains the "EPSS grid-based mitigations provide critical improvement to customer experience and risk reduction for both ignition and reliability risk…" PG&E's reference to "does not have detailed mitigation effectiveness" is referring specifically to and must be read in context with the reliability effectiveness of EPSS mitigation work, for which there is no detailed mitigation effectiveness analysis available at this time. ii. Yes, the 68% ignition mitigation effectiveness value is still accurate. iii. With respect to ignition mitigation effectiveness values for EPSS that have previously been provided, these are point estimate metrics based on empirical data from the implementation of the 2022 EPSS program. We have initiated a more detailed analysis of ignition mitigation effectiveness of EPSS that is currently underway with the UCLA B. John Garrick Institute for Risk Science, which will provide improved controls for variability between years and program criteria along with quantified uncertainty. The first draft of the work with the UCLA B. John Garrick Institute for Risk Science is anticipated to conclude in November of this year. The differences between this calculation and the current approach do not necessarily include additional factors but rather a refined statistical approach.	Dakota Smith	8/30/2023	9/5/2023	9/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_012.zip	0	N/A	8.1.2.10	Grid Design and System Hardening	Downed Conductor Detection Devices
448	OEIS	012	OEIS_012	3	OEIS_012_Q3	Q03. Regarding PG&E's Response to RN-PG&E-23-04 a. Table RN-PG&E-23-04-1 uses "Aged Backlog Units Executed" and "Aged Backlog Units Remaining". Provide these same numbers for each year, broken down by non-pole ignition risk, ignition risk, and non-ignition risk respectively. b. Since PG&E's initiation of FSRs, provide the following data broken down annually: i. The number of instances in which PG&E cancelled a work order in response to an FSR. ii. The number of instances in which PG&E created a new work order in place of an existing work order in response to an FSR. iii. The number of instances in which PG&E combined work orders in response to an FSR. iv. Details on how PG&E tracks the above (i) through (iii) within its databases. If PG&E does not currently track such instances, explain why. c. Will PGE continue to conduct annual FSRs on all Priority E tags? d. Provide all of PG&E's workplans for workforce and resources relating to handling its backlog. This should include, but not be limited to: i. Balancing, retaining, and obtaining workforce and personnel ii. Resource limitations, such as obtaining needed equipment and supply chain issues, and how PG&E intends on handling them iii. Training for personnel working on backlog, including details on how to identify, prioritize, and respond to repairs e. How is PG&E tracking and prioritizing ignition risk tags that are Priority E or F?	a. The table below reflects the current work plan as of September 8, 2023. b. For all of the questions below, the answers provided are based on the best data available. Since there is no specific database for FSRs, certain assumptions and data mining were employed to achieve the best possible results (see part iv.) i. The table below provides the best available data for the number of instances in which PG&E cancelled a work order in response to an FSR. FSR Year Notification # 2020 10,458 2021 4,794 2022 2,406 ii. PG&E typically updates existing notifications and does not create new notifications as part of its FSR process. The exception to this is when the FSR escalates the lower priority tag to an emergency tag. When this occurs, a new Priority A notification is created and the older notification is closed. The table below provides the best available data for the number of instances in which PG&E created a new work order in response to an FSR. FSR Year Notification # 2020 57 2021 43 2022 66 iii. PG&E typically only combines notifications as part of an FSR process when the inspector encounters duplicate notifications. The table below provides the best available data for the number of instances where an inspector recommended a cancellation for a duplicate. FSR Year Notification # 2020 1,087 2021 162 2022 99 iv. All EC notifications are entered in SAP for tracking, work planning, and execution. There is no distinct report or data base dedicated to notifications that are subject to FSR, but PG&E can use a user status to identify which notifications require an FSR and use a task to see which notifications have an FSR completed. However, there is no report to directly see notifications that are	Dakota Smith	8/30/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_012.zip	0	N/A	8.1.7.2	Open Work Orders	Open Work Orders – Distribution Tags
449	OEIS	012	OEIS_012	4	OEIS_012_Q4	Q04. Regarding PG&E's Response to RN-PG&E-23-05 a. For the 79 circuit segments not included in an undergrounding plan and that have not been hardened, provide the following information via spreadsheet: i. Circuit Name ii. Circuit segment/CPZ Name iii. Length of circuit segment iv. V2 Risk Score v. V2 Risk Ranking vi. V3 Risk Score vii. V3 Risk Ranking viii. V4 Risk Score (if available) ix. V4 Risk Ranking (if available) x. WFE Score xi. WFE Ranking xii. Feasibility Score xiii. Reason for why the circuit segment is not included in undergrounding plan xiv. Other mitigation options being used for the circuit segment currently xv. Other mitigation options being considered for the circuit segment in the future, if such differs from (xi)	i – xii. Please see attachment "WMP-Discovery2023_DR_OEIS_012-Q004Atch01.xlsx". Please note that Wildfire Distribution Risk Model v4 scores are not available at this time (as requested in subparts viii and ix). xiii. The 79 circuit segments were not included in an undergrounding plan because PG&E chose to add different circuit segments to the portfolio that could be undergrounded more efficiently (e.g., bundling lower-risk projects with higher-risk ones that are geographically located next to each other). The 79 circuit segments had approximately 30% higher wildfire feasibility scores (e.g., were ~30% more difficult to execute) than other circuit segments, which contributed to why they were not included in the underground portfolio. As described in the 2023-2025 WMP, PG&E balanced harder-to-construct circuit segments with other high risk circuit segments that can be relocated underground more quickly, so that risk reduction work can continue efficiently across the system. xiv. The list of mitigations PG&E is deploying on the 79 circuit segments is provided in attachment "WMP-Discovery2023_DR_OEIS_012-Q004Atch01.xlsx". In this attachment, we list the 79 circuit segments and the mitigations planned for each one in 2023, 2024, and 2025. These circuit segments will continue to be evaluated through our risk analysis process (e.g., periodic updates to the Wildfire Distribution Risk Model (WDRM)) and we may include them in our system hardening program after 2025 if they remain high risk based on the outcome of the risk model updates. xv. PG&E will continue to evaluate the 79 circuit segments through our risk analysis process (e.g., periodic updates to the WDRM) and may include them in our system hardening program after 2025 if they remain high risk based on the outcome of the risk model updates. Once a circuit segment is included in the system hardening program, we conduct additional analysis to determine the appropriate system hardening solution which generally includes undergrounding, line removal with remote grid, or installation of covered conductor (overhead hardening). If a circuit segment is not chosen for the system hardening program, PG&E continues to manage risk on it through programs like Enhanced Powerline Safety Settings (EPSS), Downed Conductor Detection, Partial Voltage, asset inspections and maintenance, Public Safety Power Shutoff (PSPS), and vegetation management	Dakota Smith	8/30/2023	9/5/2023	9/5/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_012.zip	1	N/A	7.2.1	Wildfire Mitigation Strategy Development	Overview of Mitigation Initiatives and Activities
450	CalPA	Set WMP-29	CalPA_Set WMP-29	1	CalPA_Set WMP-29_Q1	Page 35 of PG&E's response states, "PG&E is currently working to integrate QC with our execution processes to drive quality during initial work execution." a) Provide the approximate date by which PG&E plans to implement its integrated QC process, described above. b) Please provide any internal protocols, presentations, reports, or other documentation that describe(s) PG&E's proposed integrated QC process. c) Please provide any procedures, handbooks, checklists, or job aids that personnel will use when implementing PG&E's proposed integrated QC process.	a) – c) PG&E continues to be committed to moving our QC programs closer to the source but does not have requested information to provide at this time. Given the additional details that need to be finalized to complete this process, PG&E has implemented new QC targets—as described in the September 27, 2023 WMP supplemental filing—to help demonstrate our progress in this area and commitment to continuous improvement.	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
451	CalPA	Set WMP-29	CalPA_Set WMP-29	2	CalPA_Set WMP-29_Q2	PG&E's response to Data Request No. Cal Advocates_028-Q001a on August 15, 2023, states "QC is integrating with execution processes by completing QC on a shorter timeline than has been historically executed, allowing for timelier opportunities for re-training inspectors, sharing learnings, and making corrections, as necessary." a) What was the minimum, maximum and average QC completion timeline for detailed ground distribution inspections in 2020? b) What was the minimum, maximum and average QC completion timeline for detailed ground distribution inspections in 2021? c) What was the minimum, maximum and average QC completion timeline for detailed ground distribution inspections in 2022? d) What are the expected/target minimum, maximum, and average QC completion timelines for detailed ground distribution inspections after integration with execution processes?	a) – c) Please see attachment "WMP-Discovery2023_DR_CalAdvocates_029-Q002Atch01.xlsx" for the requested information. d) PG&E continues to be committed to moving our QC programs closer to the source but does not have requested information to provide at this time. Given the additional details that need to be finalized to complete this process, PG&E has implemented new QC targets—as described in the September 27, 2023 WMP supplemental filing—to help demonstrate our progress in this area and commitment to continuous improvement.	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	1	N/A	8.1.6	Quality Assurance and Quality Control	N/A

452	CalPA	Set WMP-29	CalPA_Set WMP-29	3	CalPA_Set WMP-29_Q3	PG&E's response to Data Request No. Cal Advocates_028-Q001a on August 15, 2023, states "QC is integrating with execution processes by completing QC on a shorter timeline than has been historically executed, allowing for timelier opportunities for re-training inspectors, sharing learnings, and making corrections, as necessary." a) Does PG&E have an internal standard for the maximum amount of time between a detailed ground distribution inspection and subsequent QC? b) If the answer to part (a) is yes, provide any procedures, handbooks, checklists, or job aids that define the amount of time between a detailed ground distribution inspection and subsequent QC under PG&E's current QC process. c) If the answer to part (a) is no, how does PG&E determine when to perform QC following a detailed ground distribution inspection?	a) There is no internal requirement/standard for the maximum amount of time between a detailed ground distribution inspection and subsequent QC. b) Not applicable. c) PG&E determines when to perform QC following a detailed ground distribution inspection according to the applicable sampling process within the SIQC procedure. This typically occurs within 14 days but could be sooner or later depending on field conditions, business need, and sampling methodology, but similar to our response to subpart (a), there is no requirement/standard for timing of sampling.	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	0	N/A	8.1.6	Quality Assurance and Quality Control	N/A
453	CalPA	Set WMP-29	CalPA_Set WMP-29	4	CalPA_Set WMP-29_Q4	Page 63 of PG&E's response states, "For example, we have found certain splices (e.g., splices within two feet of an insulator, and number of splices per span) do not pose an increased risk of ignition. Instead of issuing a non-ignition risk maintenance tag, the splices are better addressed by the asset management team as they are a potential indicator of a holistic asset health issue." PG&E's 2021 Electric Asset Management Plan for Electric Distribution Overhead Assets (referred to as AMP, provided in response to Data Request No. GIE004 Cal Advocates-PGE-Down Power Lines, question 3, on June 29, 2022), showed a high correlation between the presence of splices and the likelihood of wires down for small conductor (4 ACSR, 4 Cu, 6 Cu). See slides 12-14 of the AMP. a) Has PG&E performed a study on the correlation between the presence of splices and the likelihood of wires down for larger conductor types? If yes, please provide the results of this study. b) If the answer to part (a) is no, does PG&E plan to perform such a study? If yes, please provide the approximate date the study will be completed. c) If the answer to part (b) is no, please explain why. d) How did PG&E come to the conclusion that splices within two feet of an insulator did not pose an increased risk of ignition? e) How did PG&E come to the conclusion that the number of splices per span did not pose an increased risk of ignition? f) Please provide any studies, analyses, or reports to support your response to part (d). g) Please provide any studies, analyses, or reports to support your response to part (e). h) PG&E's response quoted above refers to "certain splices" and names two examples. Are there other types of splices that PG&E has concluded "do not pose an increased risk of ignition"? i) If the answer to part (h) is yes, please list all such types of splices.	Please note the attachments to this response contain confidential material. a) No, PG&E has not performed a formal study on the correlation between the presence of splices and the likelihood of wires down for larger conductor types. b) The current wire down database tracks conductor attributes for wire down incidents caused due to a conductor equipment failure or a connector/splice equipment failure. Analysis of this dataset has shown that presence of splices is one of the correlating factors for likelihood of equipment failure wire down. Furthermore, data shows that there is a higher failure rate of smaller wire conductors (#6 and #4 Cu) at locations with overlapping correlating conditions: corrosion zone, splices present, and thermal rating exceeded (I2t). Therefore, these asset health attributes are useful in assessing the holistic asset health of conductor segments. This dataset has also shown that the wire down equipment failure per mile per year for small conductor is 0.008 WD/mile/year compared to 0.0034 WD/mile/year for larger conductor (data as of September 2023). Small conductor failure rate is 2.3x times the larger conductors. Over the 5 years approximately 89% (data as of September 2023) of the failed conductor are small wire conductors. Therefore, given the significantly higher rate of failure of small wire conductors, PG&E is currently analyzing and prioritizing replacement of small wire conductors for targeted proactive replacement program. PG&E is currently establishing an Integrated Grid Planning program that assesses the holistic condition of all conductor segment in four categories: wildfire risk, capacity constraint, asset health, and reliability. As part of the IGP process we are establishing an asset health risk score for all conductor segments (smaller conductors and larger conductors). c) Not applicable, please see the response to subpart (b) above. d) In 2023, PG&E completed an analysis of effects of splice location on distribution circuits. The objective of the project was to evaluate the effects of splice proximity to dead ends and insulators, specifically due to aeolian vibration and large displacement cycles from wind sway. The testing was performed for compression splices with #4 ACSR, #2 copper, and #4 copper conductors. Splice locations investigated ranged from 6 inches to 6 feet. The results from the physical testing and modeling shows that splice location did not result in increased maximum displacements across all frequencies tested. In other words, although splices do pose a stress concentration point on conductor spans, that	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	1	N/A	N/A	N/A	N/A
454	CalPA	Set WMP-29	CalPA_Set WMP-29	5	CalPA_Set WMP-29_Q5	a) Please provide a copy of PG&E's 2022 Electric Asset Management Plan for Electric Distribution Overhead Assets, if available. If not available, please provide the date it will become available. b) Please provide a copy of PG&E's 2023 Electric Asset Management Plan for Electric Distribution Overhead Assets, if available. If not available, please provide the date it will become available.	a) PG&E's 2022 Electric Asset Management Plan (AMP) was not published due to internal organizational changes and priorities. As a result, PG&E does not plan to publish the 2022 AMP and will instead publish the 2023 AMP. b) PG&E's 2023 AMP has not yet been approved. We anticipate publication by the end of 2023.	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	0	N/A	N/A	N/A	N/A
455	CalPA	Set WMP-29	CalPA_Set WMP-29	6	CalPA_Set WMP-29_Q6	Page 107 of PG&E's response states, "Detection of partial voltage conditions allows Control Center Operators to dispatch field personnel to locations where equipment may be in a condition that increases wildfire risk. This technology helps PG&E detect and locate a wire down condition within minutes that may reduce the amount of time a line is energized while down (where it can cause an ignition) and allow first responders to extinguish wire-down related ignitions more quickly if they occur." a) Has PG&E performed a study to determine whether detection of partial voltage conditions has reduced the amount of time a line is energized while down? Please provide the results of this study if yes. b) If the answer to part (a) is no, does PG&E plan to perform such a study? Please provide the approximate date the study will be completed if yes. c) If the answer to part (b) is no, please explain why. d) Since January 2022, how many wires down events has PG&E experienced in its HFTD/HFRA areas on lines that have partial voltage detection enabled?4 e) For the events in part (d), what was the average time the lines remained energized while down?4	a) The Partial Voltage Force Out protocol has been utilized for a short time, having been operationalized in PG&E control centers in mid-2022. No formal study has been conducted to determine whether detection of partial voltage conditions has reduced the amount of time a line is energized while down. b) We will evaluate the history of response to wire down conditions in the HFRA/HFTD, occurring during the traditional peak wildfire season of May 1 and November 1, going back to 2020. We can complete that analysis by December 31, 2023. c) See a). d) See a) and b). Data for wire down conditions in the HFRA/HFTD will be included as part of the formal study. While EPSS protection settings have been enabled, Distribution Control Center operators initiated a Partial Voltage Force Out 36 times in 2022 and 17 times, through September 25, 2023. e) The average response time for a control center operator to initiate PVFO was 11 minutes in 2022 and 14 minutes on average, year to date in 2023.	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	0	N/A	8.2.3.4	Vegetation Management and Inspections	Fall-In Mitigation
456	CalPA	Set WMP-29	CalPA_Set WMP-29	7	CalPA_Set WMP-29_Q7	Page 2 of PG&E's reply comments filed on September 1, 2023, state, "EPSS generally does not create outage events that would not have otherwise occurred. EPSS settings enable a line to trip more quickly than standard settings, but EPSS settings do not increase the number of outage events on their own." a) Please state the basis for the above claim that EPSS generally does not create outage events that would not have otherwise occurred. b) Please provide any supporting studies, analyses, reports, or other documentation to support your response to part (a).	a) To achieve EPSS's ignition reduction benefit, EPSS protection settings are designed to provide (1) faster fault detection and clearing within 100ms, (2) reduced fuse single-phase operation, and (3) higher impedance fault detection. Accordingly, by definition our EPSS device protection settings must overreach smaller isolation zones on our circuits (such as fused taps) and detect faults beyond fuses and de-energize all three phases within 100ms when a fault is detected, such as a tree or branch coming into contact with our lines. With EPSS active, outages that would otherwise occur but normally be isolated on smaller zones within our system (e.g., such as fused tap outage) may result in larger zone or circuit-level outages impacting a greater number of customers across a larger geographic area but not necessarily resulting in an increase in the number outage events. Accordingly, these outages generally would occur under normal operating conditions but be electrically isolated to smaller portions of our system. In a small number of instances, we have experienced "nuisance" outages related to switching activities associated with planned work. In those instances, we have protocols in place within our existing patrol and restoration procedures to expedite the restoration of those outages. The number of outages in the HFRA from May to October decreased significantly from 2021 to 2022. Additionally, the number of outages in the HFRA during the same time period was only slightly higher in 2022 (6,140 outage events) than in 2020 (6,128 outage vents) before EPSS was enabled. b) Please see the graphic below showing two example fused taps that, when EPSS settings are enabled and a fault occurs downstream of either of the fuses, the system would de-energize to LR6 level as opposed to limiting the interruption to the respective fuses.	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	0	N/A	8.1.8.1.1	Grid Operations and Procedures	Protective Equipment and Device Settings
457	CalPA	Set WMP-29	CalPA_Set WMP-29	8	CalPA_Set WMP-29_Q8	Page 2 of PG&E's reply comments filed on September 1, 2023, states, The number of outages in the HFRA from May to October decreased significantly from 2021 to 2022. Additionally, the number of outages in the HFRA during the same time period was only slightly higher in 2022 (6,140 outage events) than in 2020 (6,128 outage events) before EPSS was enabled. Per PG&E's quarterly data reports, PG&E generally experienced fewer RFW circuit mile days in 2022 than in 2020: 20205 20226 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Red Flag Warning overhead circuit mile days - HFTD tier 2 0 14,708 85,128 105,136 0.00 38,182 2,774 0 Red Flag Warning overhead circuit mile days - HFTD tier 3 0 3,346 29,214 56,324 0.00 8,339 749 0 a) Has PG&E performed a study to compare the weather-normalized number of outages in 2020, 2021, and 2022 to determine changes in the weather-normalized outage count across the three years? This may include, for example, normalizing the number of outages by RFW days, high wind days, high temperature days, or some other metric or set of metrics. b) If the answer to part (a) is yes, please explain how PG&E normalized the outage counts by weather. c) If the answer to part (a) is yes, please provide the results of any such study or analysis. d) If the answer to part (a) is no, please explain why not.	a) No, PG&E has not performed a study regarding weather-normalized HFRA outage counts in 2020, 2021, and 2022 relative to our EPSS Reliability Mitigation program(s). b) Not applicable, please see the response to subpart (a) above. c) Not applicable, please see the response to subpart (a) above. d) PG&E has been using the method set out in the Institute of Electrical and Electronics Engineers standard 1366 (IEEE 1366) of excluding major event days. This has been PG&E's method of excluding outages that occur on very extreme days, such as very high temperature days, significant storm days, etc. This methodology is the industry standard practice for identifying trends in reliability metrics.	Holly Wehrman	9/7/2023	9/27/2023	9/27/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/CalAdvocates_029.zip	0	N/A	7.2.1	Wildfire Mitigation Strategy Development	Overview of Mitigation Initiatives and Activities
458	OEIS	013	OEIS_013	1	OEIS_013_Q1	Q01. Regarding Section 6.1.1, risk score calculations It is unclear from statements in its revised 2023-2025 WMP (printed 8/7) whether PG&E uses probability distributions or maximum value in its risk score calculations—likelihood (LoRE) multiplied by consequences (CoRE). On pages 173-174 (section 6) PG&E discusses how a classifier system is used to calculate mean (average) MAVs by pixel which are than aggregated to a risk score. These explanations of how consequences are calculated in section 6 appears inconsistent with Table 9.2.2.1 on page 898 (section 9); the table states maximum population impact from Technosylva simulation is used to calculate safety consequence and that maximum buildings impact from Technosylva simulation is used to calculate financial consequence. To address this data request: 1. Please indicate whether the consequence component of PG&E's risk score calculations (CoRE) uses averages or maximum values. 2. If PG&E uses maximum values in the consequence component of its risk score calculations, please indicate which maximum values it uses and explain why maximum values are used instead of averages.	a) As indicated on page 173 of the Second Revised 2023-2025 WMP, the wildfire consequence used in the Wildfire Distribution Risk Model (WDRM) utilizes mean (average) MAVF CoRE values, which are based on historical data. The WDRM provides an annual wildfire risk value and, as such, utilizes mean (average) values to represent the wildfire risk over that period. b) The safety and wildfire consequence values described in Table 9.2.2-1 on page 908 of the Second Revised 2023-2025 WMP are for the PSPS Risk-Benefit Tool to quantify the risk and benefits associated with initiating or not initiating a PSPS during high wildfire risk conditions. As described on page 907, the modeling considerations are to estimate the consequences of wildfire risk and PSPS risk during the high wildfire risk conditions prompting a PSPS event. To better represent those low-frequency/high-consequence conditions, the maximum values for safety and wildfire consequence are used.	Dakota Smith	9/8/2023	9/13/2023	9/13/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/OEIS_013.zip	0	N/A	6.1.1	Risk Score Calculations	
459	TURN	014	TURN_014	1	TURN_014_Q1	On September 11, 2023, PG&E submitted a request to supplement its 2023-2025 WMP submission, to which OEIS responded on September 13, 2023. PG&E's request indicated that PG&E wishes to include additional information responsive to items raised in the 2023-2025 Revision Notice. Please provide all documents (see the instructions above regarding interpreting "documents" broadly) in PG&E's possession that were created on or after August 7, 2023 (the date of PG&E's response to the Revision Notice) that reflect communication between an employee or other representative of PG&E and an employee or other representative of OEIS related to PG&E's 2023-2025 WMP. Please exclude from the response documents that are publicly available through the OEIS website, such as data requests from OEIS and PG&E's responses to such data requests	Please note the attachments to this response contain confidential material. PG&E objects to this request on the grounds that it is overbroad and unduly burdensome. Additionally, PG&E objects to this request to the extent that it requests documents that are protected by the attorney client privilege. Subject to and without waiving these objections, PG&E responds as follows: In "WMP Discovery2023_DR_TURN_014-Q001Atch01CONF.zip", PG&E is producing the communications between PG&E and OEIS related to PG&E's 2023-2025 WMP that were created on or after August 7, 2023 until September 15, 2023, which is the day this data request was received. In this production, PG&E has attempted to avoid producing partial duplicates of the same message by producing longer message threads.	Tom Long	9/15/2023	9/20/2023	9/20/2023	https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/2023/TURN_014.zip	1	N/A	N/A	N/A	N/A