PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans Discovery 2022
Data Response

PG&E Data Request No.:	OEIS_002-Q01		
PG&E File Name:	WMP-Discovery2022_DR_OEIS_002-Q01		
Request Date:	February 22, 2022	Requester DR No.:	Data Request OEIS-PG&E-22-002
Date Sent:	March 4, 2022	Requesting Party:	Office of Energy Infrastructure Safety
PG&E Witness:		Requester:	Kevin Miller

QUESTION 01

As a follow up to the answer received from DR-001, which asked:

> In PG&E's cover letter to its Submission of 2022 Wildfire Mitigation Plan Maturity Model Assessment submitted February 4, 2022, PG&E states: "in addition to our internal review of the questions and the scores, this ear we were also able to benchmark with Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E) regarding the Survey. These benchmarking discussions were very helpful, especially to understand how the other utilities were interpreting certain questions and approaching the response to those questions. This benchmarking resulting in a re-evaluation of some of our scores based on feedback from the other utilities." Energy Safety would like to know the following: To which questions of the 2022 Wildfire Mitigation Plan Maturity Model Assessment answered by PG&E does this above notice apply?

Please answer the below questions:

Energy Safety requires like data for comparison across a three-year Maturity Survey for the years 2020, 2021, and 2022 to determine whether the utility has truly progressed or regressed. To help ensure accuracy in comparison of re-interpretated responses to the same questions from the 2020 and 2021 surveys, for each of the 41 questions re-interpreted in answering the 2022 Maturity Survey, please provide the following:

a. How was this specific question re-interpreted?
b. What would PG&E's answer to the question have been had it been answered in the same way it was interpreted in the 2020 and 2021 Maturity Surveys submitted by PG&E?

ANSWER 01

a. PG&E reviewed each of the 2022 WMP survey questions and prepared responses based on the best judgment of our subject matter experts (SME). In the response

below, we provide for each of the 41 questions identified in our response to WMP-Discovery2022_DR_OEIS_001_Q01(a): (1) the question number, survey capability description, and question; (2) the 2022 WMP survey current and future state scores; and (3) the explanation of our response to the same question from the 2020 and 2021 WMPs[1] and the interpretation and explanation for the 2022 WMP score.

In cases where the explanation for the 2020 and 2021 WMP survey scores are the same, a single explanation is provided. In cases where there are different explanations for the 2020 and 2021 WMP scores, separate explanations are provided. For the 2022 WMP survey scores, we have provided different explanations for current and future state where applicable. We are also providing information regarding our assumptions for certain survey questions where assumptions were identified by our SME teams.

1 Information for 2020 WMP from Attachment 5 to the 2020 WMP. To the extent the 2021 WMP information is different, it is noted in the table below.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
1	A.I.c	For planning purposes, the ability of the utility to reliably model various climate scenarios. The ability to understand how changing weather patterns impact wildfire and PSPS risk across their grid. Higher scores are achieved for incorporating a wider range of inputs and having more granularity. How granular is utility's ability to model scenarios?	Current State: iv. Span based Future State: iv. Span based	**2020-2021 WMP:** PG&E currently models scenarios at a regional level using California Energy Commission (CEC) climate scenario analyses, which are mapped by county. PG&E has and will continue to make efforts to model scenarios at the circuit level. **2022 WMP:** Assumptions: The survey capability description for A.I uses the term "climate" and "weather." As we explained in our 2022 WMP, these terms have two very distinct meanings. *See* 2022 WMP, p. 25. Because this capability description refers to planning, which is a shorter-term activity, PG&E answered the A.I questions under the assumption that they are intended to address if and how PG&E is using weather data to better characterize and manage the risk of utility-caused wildfire ignition through its planning processes. Current and Future State: PG&E's 30+ year, hour by hour, 2 x 2 kilometer (km) weather, dead and live fuel moisture, FPI and IPW climatology allow PG&E to access scenarios on an hour-by-hour basis. For planning purposes, the climatology data is downscaled to 100 meter (m) pixels at present and aggregated to asset spans. The 2 x 2 kilometer data is the granularity used for operational scenarios and the 100 meter pixel is the granularity used for planning scenarios.
2	A.I.e	For planning purposes, the ability of the utility to reliably model various climate scenarios. The ability to understand how changing weather patterns impact wildfire and PSPS risk across their grid. Higher scores are	Current State: v. weather measured at circuit level, how weather effects failure modes and propagation, existing	**2020-2021 WMP:** 2020 WMP: PG&E currently looks at failure modes in asset management, spread analysis in Technosylva, and weather scenarios to help inform the basis of inspections. In the future, PG&E plans to integrate these three components into a single model to estimate risk.

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		achieved for incorporating a wider range of inputs and having more granularity. What additional information is used to estimate model weather scenarios and their risk?	hardware, level of vegetation Future State: v. weather measured at circuit level, how weather effects failure modes and propagation, existing hardware, level of vegetation	2021 WMP: PG&E has constructed a robust 30 year climatology of weather and fuels at a 2 km resolution and has modeled fire spread simulations across the worst >450 days since January 1, 2020. The climatology contains every weather scenario and storm event of the past 30 years to perform analysis and construct models, such as FPI and OPW. In order to help set PSPS guidance and understand the impact to customers, PG&E back-casts PSPS guidance through this climatology to simulate the number of PSPS events at various levels to assess PSPS impacts to customers. **2022 WMP:** Assumptions: The survey capability description for A.I uses the term "climate" and "weather." As we explained in our 2022 WMP, these terms have two very distinct meanings. *See* 2022 WMP, p. 25. Because this capability description refers to planning, which is a shorter-term activity, PG&E answered the A.I questions under the assumption that they are intended to address if and how PG&E is using weather data to better characterize and manage the risk of utility-caused wildfire ignition through its planning processes. Current State: PG&E has constructed a robust 30+ year climatology of weather and fuels at a 2 km resolution and has modeled fire spread simulations across the worst >450 days since January 1, 2020. The climatology contains every weather scenario and storm event of the past 30+ years hour-by-hour to perform analysis and construct models, such as FPI and OPW. In order to help set PSPS guidance and understand the impact to customers, PG&E back-casts PSPS guidance through this climatology to simulate the number of PSPS events at various levels to assess PSPS impacts to customers. Future State: PG&E interprets "Climate Scenario" modeling to mean "Weather Scenario" modeling based on the detailed questions. PG&E considers weather and other meteorological elements at the pixel and circuit level when considering wildfire mitigation and PSPS actions. Each year, PG&E meteorology adds the prior year to the climatology of weather and fuels at the 2 km

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				resolution to capture new events and add additional data points for future model training and analysis.
3	A.II.e	Having tools and capabilities to assess ignition risk across the utility's grid based on the combination of electric lines and equipment, vegetation, and weather/climate. Higher scores are achieved for having greater automation, with tools that take utilize a wider range variables to more accurately estimate ignition risk. What confidence interval, in percent, does the utility use in its wildfire risk assessments?	Current State: ii. >80% Future State: ii. >80%	**2020-2021 WMP:** 2020 WMP: PG&E assesses wildfire risk using a relative risk methodology that does not include the use of a quantified confidence interval. Specifically, PG&E calculates risk scores by multiplying the expected consequence of a risk event by the likelihood of a risk event occurring (consistent with D.18-12-014). PG&E also factors in high consequence, low relative frequency events (i.e., tail events) using a Multi-Attribute Value Function that associates up to 10 times more "importance" to tail events than relatively common events. In the future, PG&E plans to continue using this methodology. 2021 WMP: PG&E measures the confidence of a risk model output as the X% confident that Y amount of risk is concentrated in the top 20% of pixels identified by the model output. The Wildfire Distribution Risk Model (WDRM) v3 currently has a concentration factor of 4:1 in the top 20% of prioritized locations. This corresponds to concentration percentage of 80%. PG&E recommends that the OEIS modeling workshop address and refine this metric so that all utilities are reporting consistently. **2022 WMP:** Assumptions: PG&E measures the confidence of a risk model output as the X% confident that Y amount of risk is concentrated in the top 20% of pixels identified by the model output. With this approach PG&E does not utilize a traditional statistical confidence interval in developing wildfire risk estimates. The WDRM v3 currently has a concentration factor of 4:1 in the top 20% of prioritized locations. This corresponds to concentration percentage of 80%. PG&E recommends that the OEIS modeling workshop

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				address and refine this metric so that all utilities are reporting consistently. Current State: PG&E continues to use the Area Under the Curve (AUC) Receiver Operator Characteristic (ROC) to characterize the predictive power of the machine learning models. PG&E has also developed a concentration factor measuring the concentration of true positives in the top 20% of prioritized locations. The use of this metric prompted a change in scoring. Future State: With the anticipated refinements from the OEIS working group on this metric, PG&E will hold on a target of 80% concentration until a reassessment can be developed with a metric consistently utilized across all utilities.
4	A.III.e	Having tools and capabilities to assess how communities would be affected, given an ignition. Higher scores are achieved for having more highly-automated tools that take into account more variables and more granular data to accurately estimate the consequence of wildfire. How granular is the ignition risk estimation process?	Current State: v. Asset-based Future State: v. Asset-based	**2020-2021 WMP:** Granularity for ignition risk estimation processes are done at the asset level for distribution and at the circuit level for transmission. No change is expected in the future. **2022 WMP:** Current State: Wildfire Consequence values are developed for every 200 meters along the electric lines. Future State: Wildfire Consequence will continue to be produced every 200 meters along the electric system and then attributed to assets within that length. Combined with the probability of ignition which is produced ever 100 meters along the electric system, wildfire risk is produced at a granularity of 100 meters.
5	C.III.b	The level of redundancy and resilience in the utility's grid to avoid leaving customers without any electricity supply, should a line be de-energized, and to confine any	Current State: ii. n-1 redundancy covering at least 50% of customers in HFTDs	**2020-2021 WMP:** PG&E's level of redundancy for distribution architecture is not n-1 redundant. PG&E is minimizing PSPS impacts through microgrids, distribution segmentation, and increasing right of way clearance. PG&E feels these mitigation efforts are the most practical strategy.

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		PSPS to a limited number of customers. Higher scores are awarded for more redundant grid topologies, and for greater sectionalization. What level of redundancy does the utility's distribution architecture have?	Future State: ii. n-1 redundancy covering at least 50% of customers in HFTDs	**2022 WMP:** Current and Future State: PG&E interprets redundancy at the distribution level to mean quick restoration of service to customers during outages. Many of our main lines in High Fire Threat District (HFTD) areas have single or multiple ties to an adjacent feeder. Depending on the location of the outage, the ties can be used to quickly restore the customers. However, most of the Distribution lateral tap lines are designed as a radial system with no back-tie.
6	C.III.c	The level of redundancy and resilience in the utility's grid to avoid leaving customers without any electricity supply, should a line be de-energized, and to confine any PSPS to a limited number of customers. Higher scores are awarded for more redundant grid topologies, and for greater sectionalization. What level of sectionalization does the utility's distribution architecture have?	Current State: ii. Switches in HFTD areas to individually isolate circuits Future State: ii. Switches in HFTD areas to individually isolate circuits	**2020-2021 WMP:** PG&E aims to use switches in HFTD areas to individually isolate circuits such that no more than 2,000 customers sit within one switch, however in some parts of its service territory, in particular those that are radially fed, it cannot isolate less than 2,000 customers within one switch. Also, PG&E cannot minimize impact to customers just on sectionalization, another supply source is needed. **2022 WMP:** PG&E aims to use switches in HFTD areas to individually isolate circuits such that no more than 2,000 customers sit within one switch, however in some parts of its service territory, in particular those that are radially fed, it cannot isolate less than 2,000 customers within one switch. Also, PG&E cannot minimize impact to customers just on sectionalization, another supply source is needed. *See also* PG&E's response to OEIS_002-Q06 for more information regarding circuits with switching devices.
7	C.IV.b	The degree to which the utility's grid is built using ignition prevention equipment. Higher scores are awarded to utilities that use	Current State: iii. Future State:	**2020-2021 WMP:** While PG&E can currently prepare risk based grid hardening and cost efficiency estimates at the protection zone level (which can be a subset of a circuit), PG&E has a standard approach for

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		more risk spend efficient ignition prevention equipment. At what level can estimates be prepared?	iii.	comparing initiatives and does not always estimate at the circuit level. PG&E believes increasing granularity to the span or asset base in the future would not be appropriate and presents difficulty in estimating risk levels. PG&E plans to use a circuit based risk estimate or more granular as necessary (e.g. protection zone). **2022 WMP:** While PG&E can currently prepare risk based grid hardening and cost efficiency estimates at the protection zone level (which can be a subset of a circuit), PG&E has a standard approach for comparing initiatives and does not always estimate at the circuit level. PG&E believes increasing granularity to the span or asset base in the future would not be appropriate and presents difficulty in estimating risk levels. PG&E plans to use a circuit based risk estimate or more granular as necessary (e.g. protection zone). As such RSE estimates can be produced at the circuit level.
8	C.IV.d	The degree to which the utility's grid is built using ignition prevention equipment. Higher scores are awarded to utilities that use more risk spend efficient ignition prevention equipment. What grid hardening initiatives does the utility include within its evaluation?	Current State: ii. Some Future State: iii. Most	**2020-2021 WMP:** PG&E currently includes some grid hardening initiatives within its risk spend efficiency evaluation. For example, replacing non-exempt equipment with system hardening. In the future, PG&E will focus on identifying the components that yield the highest risk and will include more initiatives that are aimed to remediate these high risks in its risk spend efficiency evaluation. **2022 WMP:** PG&E currently includes some grid hardening initiatives within its risk spend efficiency evaluation. For example, replacing non-exempt equipment with system hardening. In the future, PG&E will focus on identifying the components that yield the highest risk and will include more initiatives that are aimed to remediate these high risks in its risk spend efficiency evaluation. Currently, the following grid hardening initiatives are included within PG&E's risk spend efficiency evaluations: covered conductor, individual component replacement, and undergrounding.

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				See also PG&E's response to OEIS_002-Q08.
9	C.V.a	The program in place by the utility to evaluate and develop new design and hardening initiatives. Higher scores are awarded to utilities that have more robust processes for evaluating new technologies and evaluating their risk spend efficiency. How are new hardening solution initiatives evaluated?	Current State: iii. New initiatives evaluated based on installation into grid and measuring direct reduction in ignition events, and measuring reduction impact on near-miss metrics Future State: iii. New initiatives evaluated based on installation into grid and measuring direct reduction in ignition events, and measuring reduction impact on near-miss metrics	**2020-2021 WMP:** 2020 WMP: PG&E currently evaluates new hardening solution initiatives based on installation into grid and measuring direct reduction in ignition events. For example, PG&E is conducting a pilot in Calistoga using Rapid Earth Fault Current Limiter (REFCL) program which has been conducted with Siemens and a utility in Australia. PG&E has an ATS team that is very adept in assessing viability of initiatives. Moving forward, PG&E will leverage independent third party evaluation when deemed appropriate. For example, PG&E is testing an ultrasound inspection methodology in South Korea that is being evaluated by a third party. 2021 WMP: PG&E is currently required to receive independent audits as part of probation, but this does not specifically cover new initiatives. PG&E has a technically adept ATP team that is able to provide a significant amount of oversight internally to understand the effectiveness (or lack thereof) of new initiatives. In the future, PG&E will continue to use independent audits when deemed necessary and financially appropriate for new initiatives. **2022 WMP:** Current and Future State: We have now included near miss data into the WDRM v3, including a risk reduction per hardening initiative. Hardening solutions also been examined against near miss data to measure reduction impact.
10	C.V.b	The program in place by the utility to evaluate and develop new design and hardening initiatives. Higher scores are awarded to utilities that have	Current State: i. No Future State:	**2020-2021 WMP:** PG&E does not share pilot and commercial deployment project data with other utilities. In the future, PG&E will focus on sharing such data with the state and utilities with similar operating

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		more robust processes for evaluating new technologies and evaluating their risk spend efficiency. Are results of pilot and commercial deployments, including project performance, project cost, geography, climate, vegetation etc. shared in sufficient detail to inform decision making at other utilities?	i. No	environments (e.g., Australia). PG&E will continue to share information with industry and academia, but not extensively drive socialization. **2022 WMP:** Current and Future State: PG&E does not share pilot and commercial deployment project data with other utilities. In the future, PG&E will focus on sharing such data with the state and utilities with similar operating environments (e.g., Australia). PG&E will continue to share information with industry and academia, but not extensively drive socialization.
11	D.I.a	Having an accurate inventory database of utility lines and equipment by asset type across the grid, as well as the condition of each component. Higher scores are achieved by recording more wildfire-related attributes of each piece of equipment, with greater frequency. What information is captured in the equipment inventory database?	Current State: i. There is no service territory wide inventory of electric lines and equipment including their state of wear or disrepair Future State: iii. There is an accurate inventory of equipment that may contribute to wildfire risk, including age, state of wear, and expected life cycle, including records of all inspections and repairs	**2020-2021 WMP:** 2020 WMP: PG&E currently maintains an inventory of equipment that may contribute to wildfire risk. The inventory reports equipment age, condition, and life cycle. In the future, PG&E plans to further digitize this effort to include equipment inspection records and repairs in one central database. 2021 WMP: PG&E currently maintains an inventory of equipment that may contribute to wildfire risk. The inventory reports equipment age, condition, and life cycle. In the future, PG&E plans to further digitize this effort to include equipment inspection records and repairs. **2022 WMP:** *See* PG&E's response to OEIS_002-Q09.

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12	D.I.b	Having an accurate inventory database of utility lines and equipment by asset type across the grid, as well as the condition of each component. Higher scores are achieved by recording more wildfire-related attributes of each piece of equipment, with greater frequency. How frequently is the condition assessment updated?	Current State: ii. Annually Future State: ii. Annually	**2020-2021 WMP:** 2020 WMP Assumption: "Condition assessment" means the time it takes to update the systems after the inspections are completed. 2020 WMP: PG&E does not update condition assessments in the database system outside the HFTDs. In the HFTDs, PG&E updates the system after inspections and on an annual basis. In the future, PG&E plans to update the system on a quarterly basis. 2021 WMP Assumption: Updates collected upon completion of patrol or inspection task. 2021 WMP: Detailed inspections still planned for no less frequently than annual cadence. **2022 WMP:** *See* PG&E's response to OEIS_002-Q10.
13	D.II.b	How the utility determines the cycle with which inspections of the utility's grid are conducted. Higher scores are achieved by understanding equipment failure probability, and timing inspections accordingly to maximize risk mitigation efficacy. How are patrol inspections scheduled?	Current State: i. Based on annual or periodic schedules Future State: ii. Based on up-to date static maps of equipment types and environment	**2020-2021 WMP:** PG&E currently schedules patrol inspections based on annual schedules outlined in guidance documents and in accordance with regulatory requirements GO 165. PG&E will be scheduling patrol inspections on up-to date static maps of equipment types and environment and is working towards developing predictive modeling capabilities. **2022 WMP:** PG&E currently schedules patrol inspections based on annual schedules outlined in guidance documents and in accordance with regulatory requirements GO 165. PG&E will be scheduling patrol inspections on up-to date static maps of equipment types and environment and is working towards developing predictive modeling capabilities.

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14	D.III.c	The depth and detail to which inspections are performed and recorded. Higher scores are achieved by having greater ability to identify higher risk areas and assets and conducting more in-depth inspections to maximize risk mitigation efficacy. At what level of granularity are the depth of checklists, training, and procedures customized?	Current State: v. At the asset level Future State: v. At the asset level	**2020-2021 WMP:** PG&E currently customizes checklists, trainings, and procedures across its service territory. PG&E uses different methods for access, however the inspection tasks are consistent. In the future, PG&E would like to move to a 'smart form' approach, which would be more conditions driven rather than geographically driven as they don't believe geographically driven variability leads to greater execution risk. **2022 WMP:** Assumptions: Inspection checklists with asset level detail refer to the enhanced inspections only. Other inspection methods, such as line infrared, may be at a circuit level. PG&E currently customizes checklists, training, and procedures based on the specific type and method of inspection being performed. For example, the distribution checklist and training will look different than the checklist and training for a transmission ground inspection vs a transmission climbing inspection. PG&E uses different methods for access and vantage point, however the inspection tasks are consistent. Substation currently customizes and informs its supplemental inspection program including guidance documents using results of FMEA conducted on asset and component failure risks. Current State: Enhanced inspections are completed against the individual asset, with checklists specific to various components. Future State: Going forward, enhanced inspections will continue to be captured on an asset level.
15	D.IV.a	The approach taken by the utility to maintain and repair equipment in higher risk areas. Higher scores are awarded to utilities that maintain equipment in better	Current State: i. Electric lines and equipment not consistently maintained at required	**2020-2021 WMP:** 2020 WMP: PG&E aims to maintain its electrical lines and equipment as required. However, PG&E recognizes that it needs to work to improve the progress towards that goal. PG&E has prepared a compliance plan, which it has presented to the CPUC,

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		condition in areas with the highest wildfire risk. What level are electrical lines and equipment maintained at?	condition over multiple circuits Future State: ii. Electrical lines and equipment maintained as required by regulation	which PG&E will attempt to execute. PG&E does and will continue to do additional maintenance in areas of grid with the highest wildfire risk. 2021 WMP: Assuming that "maintained as required by regulation" is referring to completing maintenance tags by their due date. PG&E strives for risk-based maintenance, which may be above current regulation. However, there exists today a backlog of tags. Please refer to the CPUC Tag Compliance quarterly report for more information on the state of Transmission Line, Distribution Line and Substation maintenance tags. It is important to note that the backlog is due to the enhanced inspections finding more tags - which is good for risk identification and eventual remediation. Substation - The maintenance program defined in TD-3322S and TD-3322M meet GO174 requirements and the supplemental inspection program defined in TD3328S requires additional inspections in areas of high wildfire risk. PG&E is moving from A/B/E/F hierarchy to Level 1/2/3 and should be able to be in compliance by assigning the true priority level. For prioritizing repair work, we will use the p90 confidence score with takes into account more granularity than just HFTD Tier 2/3. Finally, we may also use equipment outage history as part of the inspection frequency. Current Score: • Distribution: i. Based on wildfire risk in relevant area • Transmission Line: ii. Based on wildfire risk in relevant circuit • Substation: ii. Based on wildfire risk in relevant circuit Future Score: • Distribution: ii. Based on wildfire risk in relevant area • Transmission Line: ii. Based on wildfire risk in relevant

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				circuit • Substation: ii. Based on wildfire risk in relevant circuit **2022 WMP:** PG&E strives for risk-based maintenance, which may be above current regulation. In regard to the backlog of tags, the backlog is due to the enhanced inspections finding more tags, which is helpful for proactive risk identification and eventual remediation. Current Score: Distribution: i. Prioritization of maintenance is based on factors such as prioritization of the tag condition (A, B, E, F), wildfire risk, time-dependency of the maintenance, and ignition potential of the tag. Transmission Line: i. Prioritization of maintenance is based on factors such as prioritization of the tag condition (A, B, E, F), wildfire risk, time-dependency of the maintenance, ignition potential of the tag, and length of time the tag has been open. Substation: ii. Substation equipment maintenance and inspection requirements are detailed in TD-3322S "Substation Equipment Maintenance Requirements" based on time-based and condition-based triggers. Future Score: Distribution: ii. Prioritization of maintenance is based on factors such as prioritization of the tag condition (A, B, E, F), wildfire risk, time-dependency of the maintenance, ignition potential of the tag, and length of time the tag has been open. Transmission Line: ii. Prioritization of maintenance is based on factors such as prioritization of the tag condition (A, B, E, F), wildfire risk, time-dependency of the maintenance, ignition potential of the tag, and length of time the tag has been open.

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				Substation: Substation equipment maintenance and inspection requirements are detailed in TD-3322S "Substation Equipment Maintenance Requirements" based on time-based and condition-based triggers. *See also* PG&E's response to OEIS_002-Q11.
16	E.I.b	Having an accurate inventory database of vegetation along rights of way, and vegetation with strike potential, including the condition of each vegetation. Higher scores are achieved by more granular information and having a more up-to-date database. How frequently is inventory updated?	Current State: v. Within 1 day of collection Future State: v. Within 1 day of collection	**2020-2021 WMP:** PG&E currently employs an annual pruning cycle, and, as a result, holistically updates [] its Vegetation Management Database (VMD) on an annual basis. However, in some cases, the inventory can be updated more often frequently (e.g., for the Enhanced Vegetation Management program which uses more mobile data capture methods). In the future, PG&E projects that it will evolve to monthly updates more consistently, as the utility aims to utilize mobile data capture in both its Routine and Enhanced Vegetation Management programs. **2022 WMP:** Assumption: PG&E assumes that individual inspectors are uploading their data collections daily, especially when out of cellular service while patrolling. Current and Future State: PG&E updates the inventory within 1 day of collection and in most cases, immediately at the time of collection from the field.
17	E.II.b	How the utility determines the cycle with which inspections of the vegetation are conducted. Higher scores are achieved by understanding vegetation growth, characteristics, and failure	Current State: i. Based on annual or periodic schedules Future State:	**2020-2021 WMP:** Assumption: "Environment" means scheduling around high elevation snow, orchard bloom periods and limited operating periods for agency lands. 2021 and 2022 WMP: PG&E inspections are performed annually to allow adherence to the annual pruning cycle. PG&E will pursue a

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		probability and timing inspections accordingly to maximize risk mitigation efficacy. How are vegetation inspections scheduled?	i. Based on annual or periodic schedules	continued evolution of its vegetation management program (including routine inspections, tree mortality inspections and EVM) to further support risk-informed decision making, but annual inspections are expected to remain as the inspection cycle. **2022 WMP:** Current and Future State: PG&E inspections are performed annually to allow adherence to the annual pruning cycle. PG&E will pursue a continued evolution of its vegetation management program (including routine inspections, tree mortality inspections and EVM) to further support risk-informed decision making, but annual inspections are expected to remain as the inspection cycle.
18	E.II.c	How the utility determines the cycle with which inspections of the vegetation are conducted. Higher scores are achieved by understanding vegetation growth, characteristics, and failure probability and timing inspections accordingly to maximize risk mitigation efficacy. What are the inputs to scheduling vegetation inspections?	Current State: i. At least annually updated static maps of vegetation and environment Future State: iii. Predictive modeling of vegetation growth	**2020-2021 WMP:** PG&E inspections are performed annually to allow adherence to the annual pruning cycle. PG&E will pursue a continued evolution of its vegetation management program (including routine inspections, tree mortality inspections and EVM) to further support risk-informed decision making, but annual inspections are expected to remain as the inspection cycle. **2022 WMP:** Current State: PG&E's Distribution Vegetation Management inspection frequency is annual for all lines energized under 60kV. The inspection ground patrols assess tree condition to identify needed tree work. Tree Mortality (Second Patrol) is performed in HFTD/HFRA, SRA/FRA, and wildland-urban interface (WUI) to address dead/dying trees along with priority trees. We inspect in HFTD twice a year and we plan both inspections once a year. These two inspections inform us about the growth patterns in our service territory. PG&E's Transmission Vegetation Management inspection frequency is annual for all lines energized at 60kV or greater. We collect remote sensing data with LiDAR beginning in the summer

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				and finishing up data delivery in the Spring. Follow up ground patrols assess tree condition and identify needed tree work. A second patrol is performed limited to HFTD/HFRA areas (Tree Mortality) This patrol too utilizes remote sensing technology, LiDAR, as well as follow up ground patrols that assess tree condition to identify needed tree work. Further, beginning in 2022, the Tree Mortality patrol will address dead/dying trees along with tree growth. As previously mentioned, both the annual inspection and Tree Mortality inspection rely on follow-up ground patrols that assess tree condition to then prescribe tree work. In summary, each year transmission Non-HFTD inspections of system mileage plan a LiDAR inspection and a follow up ground patrol on the basis of the LiDAR data and HFTD/HFRA inspections of system mileage plan two LiDAR inspections and follow up ground patrols on the basis of LiDAR data. Future State: Inspections planned annually and twice annually in HFTD/HFRA, SRA/FRA and WUI.
19	E.III.b	The depth and detail to which inspections are performed and recorded. Higher scores are achieved by having greater ability to identify higher risk areas and vegetation and conducting more in-depth inspections to maximize risk mitigation efficacy. How are procedures and checklists determined?	Current State: i. Based on statute and regulatory guidelines only Future State: i. Based on statute and regulatory guidelines only	**2020-2021 WMP:** Procedures and checklists are determined by the requirements of [General Order (GO)] 95, Rule 35, and [California Public Resources Code (PRC)] 4292 & 4293. PG&E eventually plans to develop a predictive modeling capability that would include data analytics and creating a risk informed process, but this is not likely to be in production by 2023**.** **2022 WMP:** Current State: Procedures and checklists are determined by the requirements of GO95 Rule 35, PRC 4292 and PRC 4293. Procedure and checklists are not the place for "modeling." Process and checklists should be driven by regulation and data-driven internal guidance, situational awareness and site-based risk

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
				analysis. Models will help with prioritization and calibration of the risk environment but procedure and process should capture the full range of risks low-high to set appropriate guidance. Future State: Procedures and checklists are regularly revised and updated to ensure regulatory and risk reduction goals are addressed. Procedure and checklists are not the place for "modeling." Process and checklists should be driven by regulation and data-driven internal guidance, situational awareness and site-based risk analysis. Models will help with prioritization and calibration of the risk environment but procedure and process should capture the full range of risks low-high to set appropriate guidance.
20	E.III.c	The depth and detail to which inspections are performed and recorded. Higher scores are achieved by having greater ability to identify higher risk areas and vegetation and conducting more in-depth inspections to maximize risk mitigation efficacy. At what level of granularity are the depth of checklists, training, and procedures customized?	Current State: iii. At the circuit level Future State: iii. At the circuit level	**2020-2021 WMP:** PG&E currently uses standardized checklists, trainings, and procedures in its vegetation inspection process. In the future, PG&E would like to move to a 'smart form' approach, which would be more conditions driven rather than geographically driven, as PG&E does not believe a geographically driven variability leads to greater execution risk. **2022 WMP:** Current and Future State: Where feasible, PG&E will use standardized checklists, trainings and procedures in its vegetation inspection at a minimum circuit level, but often down to the asset as well.
21	E.IV.c	The utility's standards and actions for treating vegetation that has grow-in potential around lines and equipment. Higher scores are awarded for utilities that use ignition risk modeling and vegetation	Current State: iii. None of the above Future State: iii. None of the above	**2020-2021 WMP:** PG&E adheres to [California Public Utilities Commission (CPUC)] standards when determining clearances around lines and equipment. PG&E uses ignition risk modeling for fall-in and blow-in scenarios. PG&E species growth rates utilizes modeling for

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
		growth rates to determine appropriate vegetation clearances and trim cycles. What modeling is used to guide clearances around lines and equipment?		vegetation grow-in mitigation, and will continue to do so for the foreseeable future. **2022 WMP:** Current and Future State: PG&E adheres to CPUC standards when determining clearances around lines and equipment. PG&E uses ignition risk modeling for fall-in and blow-in scenarios.
22	E.IV.g	The utility's standards and actions for treating vegetation that has grow-in potential around lines and equipment. Higher scores are awarded for utilities that use ignition risk modeling and vegetation growth rates to determine appropriate vegetation clearances and trim cycles. How long after cutting vegetation does the utility remove vegetation waste along right of way?	Current State: iii. Within 1 week or less Future State: iii. Within 1 week or less	**2020-2021 WMP:** Assumption: This question applies to areas where PG&E performs waste removal. 2020 and 2021 WMP: PG&E is able to remove some waste within a week, however, there are constraints that make removing vegetation within the week across the entire grid unobtainable. For example, if permitting is required to remove waste, the removal may take over a week. **2022 WMP:** Assumption: Most vegetation waste is removed same day and certainly within a week, but there could be a circumstance where for either safety or environmental reasons, vegetation waste could presumably sit for longer than one week. Current and Future State: PG&E is able to remove most waste within a week and often removes waste same day where feasible.
23	E.V.b	The utility's processes for treating vegetation that has strike potential on its grid. Higher scores are awarded to utilities that treat vegetation based on a granular understanding of individual vegetation strike potential.	Current State: ii. Based on the height of trees with potential to make contact with electric lines and equipment Future State:	**2020-2021 WMP:** PG&E's vegetation management personnel identify potentially threatening vegetation and add it to the online ARCGIS tool. In the future, PG&E will explore using LiDAR to identify strike potential with hyperspectral techniques and Technoslyva to overlap the spread risk to model risk. **2022 WMP:**

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
		How is potential vegetation that may pose a threat identified?	iii. Based on the probability and consequences of impact on electric lines and equipment as determined by risk modeling	Current and Future State: PG&E will continue to explore using LiDAR in Transmission to identify strike potential and to model risk.
24	E.V.e	The utility's processes for treating vegetation that has strike potential on its grid. Higher scores are awarded to utilities that treat vegetation based on a granular understanding of individual vegetation strike potential. How long after cutting vegetation does the utility remove vegetation waste outside its right of way?	Current State: iii. Within 1 week or less Future State: iii. Within 1 week or less	**2020-2021 WMP:** Assumption: This question applies to areas where PG&E performs waste removal. 2020 and 2021 WMP: PG&E is able to remove some waste within a week, however, there are constraints that make removing vegetation within the week across the entire grid unobtainable. For example, if permitting is required to remove waste, the removal may take over a week. **2022 WMP:** Assumption: Most vegetation waste is removed same day and certainly within a week, but there could be a circumstance where for either safety or environmental reasons, vegetation waste could presumably sit for longer than one week. Current and Future State: PG&E is able to remove most waste within a week and often removes waste same day where feasible.
25	F.III.c	The utility's ability to implement PSPS events including accurate predictions, customer communication, and mitigation activities. Higher scores are awarded to utilities that better predict,	Current State: i. 1% or more Future State: i. 1% or more	**2020-2021 WMP:** Assumption: PG&E includes both formal complaints to the CPUC and PSPS-related calls into the customer care line in its count of complaints. 2020 WMP: During the 2019 wildfire season, <0.5% of PG&E customers complained during PSPS events. During this time period, PG&E received 136 such complaints. PG&E hopes to lower complaint rates year over year by collaborating more effectively

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		communicate, and mitigate consequences of PSPS. During PSPS events, what percent of customers complain?		with public agencies, developing more two-way dialogues with communities, and mitigating PSPS impacts in general. 2021 WMP: During the 2020 wildfire season, <0.5% of PG&E customers complained during PSPS events. During this time period, PG&E received 136 such complaints. PG&E hopes to lower complaint rates year over year by collaborating more effectively with public agencies, developing more two-way dialogues with communities, and mitigating PSPS impacts in general. **2022 WMP:** Assumption: PG&E includes both formal complaints to the CPUC and informal complaints from various PG&E sources. In accordance with D.21-06-014, PG&E interpreted customer complaints as any "expression of grief, pain, or dissatisfaction." Current and Future State: During the 2021 wildfire season, >1% of PG&E customers complained during PSPS events. During this time period, PG&E received 1083 such complaints. PG&E hopes to lower complaint rates year over year by collaborating more effectively with public agencies, developing more two-way dialogues with communities, and mitigating PSPS impacts in general. Current State: In 2021 there was an expansion of included complaints. We expanded the # of complaints reported in the 10 day reports and it is no longer just "PSPS-related calls into the customer care line in its count of complaints." We include all of the sources listed below in our 10 day reports. These sources include: • Complaints from our customer-facing Wildfire Safety and Customer Relations Teams; • Contact Center Intake; • Complaints from commercial customers received by our Operational Emergency Centers (OECs); • Complaints received by our Business Energy Solutions

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
				team, made up of reps assigned to commercial customers; • Complaints posted to social media; and • Complaints received by our Emergency Operations Center (EOC) Liaison Officer team Future State: The future state will include the expansion of included complaints. We expanded the # of complaints reported in the 10 day reports and it is no longer just "PSPS-related calls into the customer care line in its count of complaints." We include all of the sources listed below in our 10 day reports. These sources include: • Complaints from our customer-facing Wildfire Safety and Customer Relations Teams; • Contact Center Intake; • Complaints from commercial customers received by our Operational Emergency Centers (OECs); • Complaints received by our Business Energy Solutions team, made up of reps assigned to commercial customers; • Complaints posted to social media; and • Complaints received by our Emergency Operations Center (EOC) Liaison Officer team
26	F.V.b	The utility's approach to inspecting circuits after they have been de-energized and prior to a re-energization. Higher scores are awarded to utilities that have faster inspection processes and use technologies to complete these inspections cost-effectively.	Current State: i. Manual process, not automated at all Future State: i. Manual process, not automated at all	**2020-2021 WMP:** PG&E's current process for inspecting de-energized sections of the grid prior to re energization is manual. In the future, PG&E plans to move to a partially automated process which may include the use of LiDAR, satellite imagery and programmable camera technology. **2022 WMP:** Future State: Current technology does not allow for automated determination of circuits that are safe to energize. Manual patrols via ground or air are the current and future processes.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
		How automated is the process for inspecting de-energized sections of the grid prior to re energization?		
27	F.VI.b	The utility personnel's ability to prevent and suppress ignitions caused by their activities. Higher scores are awarded for utilities that provide personnel with more robust training, tools, and explicit policies about what activities that they should be undertaking. What training and tools are provided to field workers?	Current State: iii. All criteria in option (ii) met; In addition, suppression tools and training to suppress small ignitions caused by workers or in immediate vicinity of workers are provided Future State: iii. All criteria in option (ii) met; In addition, suppression tools and training to suppress small ignitions caused by workers or in immediate vicinity of workers are provided	**2020-2021 WMP:** 2020 WMP: PG&E provides training and communications tools to immediately report ignitions caused by workers or in immediate vicinity of workers. In addition, suppression tools and training to suppress small ignitions are provided to some workers. In the future, PG&E foresees the use of SIPT crew and/or public safety specialists as trainers; however, PG&E is not sure they will have communication tools functioning without cell reception and training by suppression professionals provided by 2023. 2021 WMP: PG&E provides training to all employee and contractors who perform work that has a risk of starting an ignition. This training reviews required prevention and mitigation measures required by PRC, tooling requirements and tool safety. SIPT Crews and Public Safety Specialists are trained to be trainers in a review of these requirements. **2022 WMP:** Current and Future State: PG&E continues to provide training to all employee and contractors who perform work that has a risk of starting an ignition. This training reviews required prevention and mitigation measures required by PRC, tooling requirements and tool safety. Field Safety Specialists, SIPT Crews and Public Safety Specialists are able to coach employees on the TD1464s requirements. The team reevaluated our response in 2021 related to communications tools. Because of the communications challenges in certain parts of our service territory, the current and future state scores were reduced back to iii. We believe the 2021 score of 5 was incorrectly assigned. *See also* PG&E's response to OEIS_001-Q05.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
28	G.I.f	The ability of the utility to track and retrieve a variety of situational, operational, and risk data to drive decisions. Higher scores are awarded for utilities that have the capabilities needed to handle large amounts of data, conduct sophisticated analytics, & share real time data. Does the utility share best practices for database management and use with other utilities in California and beyond?	Current State: i. No Future State: ii. Yes	**2020-2021 WMP:** 2020 Assumptions: PG&E assumes "database management" refers to how PG&E decides which types of data should be collected and how they should be collected, not how the database itself should be structured. 2020 WMP: PG&E is not currently sharing data around near misses, causes, or failures. This is largely due to the fact that PG&E is collecting different types of data than the other IOUS, making it hard to share on the data attribute level. PG&E is able to share event-based data learnings. In the future, PG&E would need support to define consistent data attributes that can be captured and shared across the IOUS. PG&E and other IOUs will be collecting standardized data in fire spread modeling (using the same tool - Technosylva). 2021 Assumptions: PG&E is ramping up a benchmarking group and will be thoroughly documenting best practices and lessons learned from increased focus on database management through 2021-2022. 2021 WMP: PG&E intends to participate in open discussions with other utilities to gather and share best practices and lessons learned in database management. **2022 WMP:** Current and Future State: As part of the IWRMC, PG&E has shared its practices with respect to leveraging an enterprise data platform to bring together situational intelligence and operational data to help manage wildfire risk and PSPS. PG&E intends to support the establishment of and participate in regular forums with other utilities to gather and share best practices and lessons learned in database management.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
29	H.I.b	The ability of the utility to understand and explain the incremental risk reduction potential that incremental funding would enable. Higher scores are provided to utilities that are able to show the incremental risk reduction potential at a more granular level. For what level of granularity is the utility able to provide projections for each scenario?	Current State: iii. Circuit level Future State: iii. Circuit level	**2020-2021 WMP:** PG&E's granularity in providing projections for different scenarios is done at the program level. PG&E plans to provide projections at the circuit level. This will be done by tracking operational and financial data differently. **2022 WMP:** Current and Future State: Given that our WDRM model is at a circuit segment level, the incremental risk reduction can be computed at the circuit segment level. Same applies for PSPS at the isolation zone.
30	H.II.b	The utility's ability to estimate the degree of wildfire risk reduction achieved by specific wildfire risk management initiatives and weigh these reductions against the cost of those initiatives, across the utility's grid. Higher scores are provided for increased granularity by location and the frequency with which these estimates are updated. What initiatives are captured in the ranking of risk spend efficiency?	Current State: iii. All commercial initiatives and emerging initiatives Future State: iii. All commercial initiatives and emerging initiatives	**2020-2021 WMP:** Assumptions: Commercial is defined as initiatives that are already market tested 2020 and 2021 WMP: PG&E captures common commercial initiatives in the ranking of risk spend efficiency. By 2023, controls and mitigations will be included. **2022 WMP:** Current State: PG&E has already captured common initiatives as part of our WMP and General Rate Case (GRC) filings, controls and mitigations. Additionally, PG&E has presented emerging technology risk spend efficiencies, with the recognition that the technology and costs are less accurate measurements but directionally helpful to produce.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
31	H.II.e	The utility's ability to estimate the degree of wildfire risk reduction achieved by specific wildfire risk management initiatives and weigh these reductions against the cost of those initiatives, across the utility's grid. Higher scores are provided for increased granularity by location and the frequency with which these estimates are updated. At what level of granularity is the utility able to provide risk efficiency figures?	Current State: iii. Circuit level Future State: iii. Circuit level	**2020-2021 WMP:** 2020 WMP: PG&E currently provides risk efficiency figures for different scenarios at the program level, however, in the future, PG&E plans to increase RSE granularity to the circuit level. PG&E currently has the ability to estimate risk mitigation at the protection zone level (i.e., more granular than circuit level, but not as granular as span level), however, measuring cost at this level is a challenge. PG&E aims to attain this level of cost granularity by 2023. 2021 WMP Assumptions: 2021 workplans will be based off new Circuit Protection Zone (CPZ) model. 2021 WMP: PG&E developed an updated CPZ level model for Vegetation and Equipment Failure and measures risk consistent with SMAP and MAVF principles as defined by CPUC. This allows PG&E to produce risk scores at the CPZ level and measure risk reduction accordingly. **2022 WMP:** PG&E developed an updated CPZ level model for Vegetation and Equipment Failure and measures risk consistent with SMAP and MAVF principles as defined by CPUC. This allows PG&E to produce risk scores at the CPZ level and measure risk reduction accordingly.
32	H.III.b	The utility's ability to estimate the degree of wildfire risk reduction achieved by specific vegetation management initiatives and weigh these reductions against the cost of those initiatives, across the utility's grid. Higher scores are provided for increased granularity by location and	Current State: iii. Circuit-based Future State: iii. Circuit-based	**2020-2021 WMP:** 2020 WMP: PG&E currently evaluates vegetation management initiatives at the program level. In the future, PG&E plans to evaluate vegetation management initiatives at the circuit level. This is consistent with other PG&E goals with respect to RSE granularity. 2021 WMP Assumptions: New CPZ model sufficiently shows estimates

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
		the frequency with which these estimates are updated. At what level can estimates be prepared?		2021 WMP: New CPZ model shows vegetation probabilities at the circuit protection zone level. **2022 WMP:** New CPZ model shows vegetation probabilities at the circuit protection zone level.
33	H.IV.b	The utility's ability to estimate the degree of wildfire risk reduction achieved by specific system hardening initiatives and weigh these reductions against the cost of those initiatives, across the utility's grid. Higher scores are provided for increased granularity by location and the frequency with which these estimates are updated. At what level can estimates be prepared?	Current State: iii. Circuit-based Future State: iii. Circuit-based	**2020-2021 WMP:** 2020 WMP: PG&E can prepare estimates for determining risk spend efficiency of system hardening initiatives at the project level. In the future, PG&E will be preparing estimates at the circuit level. 2021 WMP Assumptions: New CPZ model sufficiently shows estimates 2021 WMP: New CPZ model shows equipment failure probabilities at the circuit protection zone level. **2022 WMP:** New CPZ model shows equipment failure probabilities at the circuit protection zone level.
34	H.IV.d	The utility's ability to estimate the degree of wildfire risk reduction achieved by specific system hardening initiatives and weigh these reductions against the cost of those initiatives, across the utility's grid. Higher scores are provided for increased granularity by location and the frequency with which these estimates are updated.	Current State: iv. All commercially available grid hardening initiatives Future State: iv. All commercially available grid hardening initiatives	**2020-2021 WMP:** Assumption: Initiative level refers to a mitigation program 2020 and 2021 WMP: PG&E's grid hardening initiatives are currently grouped by underground, overhead, and asset removal. Some grid hardening initiatives have risk spend efficiency analysis at the individual initiative such as system hardening (which includes covered conductor, pole replacement, open wire secondary, and non-exempt equipment replacement) and lightning/surge arrestors. In the future state, PG&E intends to conduct risk spend efficiency analysis for each mitigation program. **2022 WMP:**

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
		What grid hardening initiatives are included in the utility risk spend efficiency analysis?		Current State: PG&E already calculates all commercially available system hardening initiatives as identified in the decision tree, including line removals, remote grid, overhead and undergrounding options.
35	H.V.a	The utility's ability to efficiently and effectively decide which initiatives should be applied and to which part of its grid. Higher scores are provided for increased granularity and use of risk spend efficiency calculations. To what extent does the utility allocate capital to initiatives based on risk-spend efficiency (RSE)?	Current State: ii. Utility considers estimates of RSE when allocating capital Future State: ii. Utility considers estimates of RSE when allocating capital	**2020-2021 WMP:** PG&E uses the RIBA 2.0 process to allocate budget across initiatives, which does not align with how risk spend efficiency is used to assess initiatives. PG&E sees the benefit to estimate of risk spend efficiency when allocating capital and will consider these estimates moving forward. **2022 WMP:** Current State: We do use RSE in consideration for capital allocation. For example, when projects are reviewed for hardening, various capital alternatives are considered, whether the project should be removed, remote grid, overhead (OH) or underground (UG). RSE is part of that decision tree in support of recommendation for capital allocation.
36	H.V.b	The utility's ability to efficiently and effectively decide which initiatives should be applied and to which part of its grid. Higher scores are provided for increased granularity and use of risk spend efficiency calculations. What information does the utility take into account when generating RSE estimates?	Current State: ii. Specific information by initiative, including state of equipment and location where initiative will be implemented Future State: ii. Specific information by initiative, including state of equipment and location where	**2020-2021 WMP:** PG&E currently takes into account the average estimate by initiative category. PG&E plans to get to the circuit level, so estimates in the future, should provide specific information, including state of equipment and location where initiative will be implemented**.** **2022 WMP:** Current State: With the expansion of the probability of ignition (POI) models, risk buydown curves to delineate risk and risk reduction of asset across our system territory has been developed. Given the mapping, this can be matched to tranches for RSE calculation.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
			initiative will be implemented	
37	H.VI.a	The program in place by the utility to evaluate and develop new initiatives across the entire portfolio, including inspection, grid operations, simulation, etc. Higher scores are awarded to utilities that have more robust processes for evaluating new technologies and evaluating their risk spend efficiency. How does the utility develop and evaluate the efficacy of new wildfire initiatives?	Current State: iii. Utility uses pilots and measures direct reduction in ignition events and near-misses. Future State: iii. Utility uses pilots and measures direct reduction in ignition events and near-misses.	**2020-2021 WMP:** PG&E currently uses pilots and measures reduction in ignition events when assessing the efficacy of new wildfire initiatives. Recent efforts related to PG&E's re-closer reduction initiative illustrate this practice. Similarly, future efforts related to the REFCL initiative will measure direct reduction ignition events. However, PG&E does not currently measure near-misses in a deliberate manner (see explanation for G.III.b). Consistent with other goals outlined in this survey, PG&E aims to develop more deliberate measurement of near-miss events and will incorporate such data in future assessments of wildfire initiative efficacy. **2022 WMP:** Current State: As the ignition tracker has matured, in order to capture more data points, we have included "near miss" like CPUC non-reportables. For example, for the veg contact incidents, regardless if it is reportable or not, we are using that data set to assess effectiveness.
38	H.VI.c	The program in place by the utility to evaluate and develop new initiatives across the entire portfolio, including inspection, grid operations, simulation, etc. Higher scores are awarded to utilities that have more robust processes for evaluating new technologies and evaluating their risk spend efficiency.	Current State: ii. Entire territory Future State: iii. Circuit	**2020-2021 WMP:** PG&E's level of granularity to measure the efficacy of new wildfire initiatives is done at the program level for the entire territory. In the future, PG&E plans to measure the efficacy of new wildfire initiatives at the circuit level. **2022 WMP:** PG&E's level of granularity to measure the efficacy of new wildfire initiatives is done at the program level for the entire territory. In the

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
		At what level of granularity does the utility measure the efficacy of new wildfire initiatives?		future, PG&E plans to measure the efficacy of new wildfire initiatives at the circuit level.
39	I.II.e	The extent and sophistication of utility's plans to restore electric service after a wildfire-related outage. Higher scores are awarded for a greater granularity at which plans are customized. Is there an inventory of high risk spend efficiency resources available for repairs?	Current State: ii. Yes Future State: ii. Yes	**2020-2021 WMP:** 2020 and 2021 WMP Assumptions: Risk spend efficiency is defined as the calculated risk reduction for each mitigation per dollar spent on an initiative and considers the most cost effective and most qualified initiatives. 2020 WMP: PG&E has not identified any risk spend efficiencies at this time. In the future, PG&E will identify which resources (between mutual aid, contractors, employees) are the most effective in terms of quality, safety, and timeliness compared to their cost. 2021 WMP: PG&E has not identified any risk spend efficiencies at this time. **2022 WMP:** An RSE is not required for resource allocation because resources are sequentially obtained. Internal, contract and then mutual aid.
40	I.III.b	The utility's ability to clearly and effectively communicate information to affected communities. Higher scores are awarded for the utility's ability to reach vulnerable populations, the use of multiple channels, and the relevance and usefulness of the information communicated.	Current State: iii. >98% of customers Future State: iii. >98% of customers	**2020-2021 WMP:** 2020 WMP Assumption: "Customers" means PG&E customers affected by a wildfire, with up-to-date customer accounts. 2020 WMP: Greater than 95% of affected customers receive complete details of available information during and after a wildfire. In the future, PG&E plan to obtain more complete and updated data, and will enhance public messaging, so this percentage should surpass 99% by 2023.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
		What percent of affected customers receive complete details of available information?		2021 WMP Assumption: "Customers" means PG&E customers affected by a natural disaster including a wildfire, with up-to-date customer accounts. 2021 WMP: Greater than 98% of affected customers receive complete details of available information during and after a wildfire or other natural disasters/emergencies. PG&E continues to improve on the completeness and accuracy of updated customer contact data and will continue public messaging. PG&E anticipates that this percentage should surpass 99% by 2023. **2022 WMP:** Current and Future State: PG&E utilizes a variety of outreach activities to contact customers both through indirect and direct customer communications. In 2021 PG&E has reached over 79% of customers directly regarding an unplanned outage related to a wildfire and an increased percentage for planned related activities such as PSPS. In the event that a customer's property has been damaged by a wildfire, PG&E will reach out to the customer regarding the continuation of their service. Additional supplemental customer communications provide a wide variety of possibilities to engage with customers, such as: dedicated web content, Outage Maps, Address Alerts for both customers and non-customers alike, broadcast media and social media. Additionally, with the involvement of Community Based Organizations and Agency partners PG&E has enabled an additional avenue of indirect communications, through Center for Independent Living Center (CFILC), In Language Community Based Organizations, 211 referral services, along with information regarding resources shared directly at PG&E Community Resource Centers. To further ensure communications are accessible, PG&E has recently partnered with DeafLink with plans to expand PSPS notifications to include ASL approved content to further reach the AFN community in 2022. Use of both indirect and direct customer communications allows PG&E to reach >98% of customers.

No.	Question Number	2022 Survey Capability Description and Question	2022 WMP Survey Score	Explanation for Response for 2020-2021 WMP and 2022 WMP Surveys
41	I.III.c	The utility's ability to clearly and effectively communicate information to affected communities. Higher scores are awarded for the utility's ability to reach vulnerable populations, the use of multiple channels, and the relevance and usefulness of the information communicated. What percent of affected medical baseline customers receive complete details of available information?	Current State: iii. >99.5% of medical baseline customers Future State: iii. >99.5% of medical baseline customers	**2020-2021 WMP:** Assumptions: "Customers" means PG&E customer with up-to-date customer accounts. 2020 and 2021 WMP: Less than 99% of affected medical baseline customers receive complete details of available information during and after a wildfire. The percentage is based on the known population of medical baseline customers in PG&E's customer system. To calculate this percentage, PG&E used PSPS data for medical baseline notification success rates. This is the same data that is used for wildfire notifications. In the future, PG&E expects this percentage will increase to over 99.9%, as some of the reported missed notifications were incorrectly tagged as 'missed'. **2022 WMP:** PG&E utilizes a variety of outreach activities to contact customers both through indirect and direct customer communications. In 2021 PG&E has reached over 79% of customers directly regarding an unplanned outage related to a wildfire and an increased percentage for planned related activities such as PSPS. In the event that a customer's property has been damaged by a wildfire, PG&E will reach out to the customer regarding the continuation of their service. Additional supplemental customer communications provide a wide variety of possibilities to engage with customers, such as: dedicated web content, Outage Maps, Address Alerts for both customers and non-customers alike, broadcast media and social media. Additionally, with the involvement of Community Based Organizations and Agency partners PG&E has enabled an additional avenue of indirect communications, through Center for Independent Living Center (CFILC), In Language Community Based Organizations, 211 referral services, along with information regarding resources shared directly at PG&E Community Resource Centers. To further ensure communications are accessible, PG&E has recently partnered with DeafLink with plans to expand PSPS notifications to include ASL approved content to further reach the

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				AFN community in 2022. Use of both indirect and direct customer communications allows PG&E to reach >98% of medical baseline customers.

b. PG&E is unable to provide what its answer would have been to the questions identified above “had it been answered the same way it was interpreted in the 2020 and 2021 Maturity Surveys submitted by PG&E” because the answers to the 2022 WMP survey questions were based on a number of factors including, as explained in our response to WMP-Discovery2022_DR_OEIS_001_Q01(b):

For clarification, as we indicated in the cover letter to our 2022 Wildfire Mitigation Plan Maturity Model Assessment (2022 Maturity Model Survey), when we prepared our 2022 Maturity Model Survey responses, we reviewed past responses, evaluated our current and future state, benchmarked with the other utilities, and used our best judgment to respond as accurately and completely as possible. In 2020 and 2021, PG&E provided accurate responses to the Maturity Model Survey using the best information available to us at the time. Our responses to the 2022 Maturity Model Survey are similarly accurate, but we now have additional information as result of benchmarking with other utilities to better align our understanding of Energy Safety’s questions as well as the substantive maturing and evolution of our wildfire mitigation programs. Submission of our 2022 Maturity Model Survey responses does not affect the accuracy of prior responses.

No one factor, such as benchmarking with the other utilities, impacted our 2022 WMP survey scores. Instead, these scores were based on a thorough review of the questions, current and future state of our wildfire mitigation programs, and benchmarking with the other utilities. We cannot, however, go back in time to determine how we would have answered the same question in 2020 or 2021 in light of changes that have occurred since that time. However, above in part (a) we have provided our understanding of each of the 41 questions and an explanation of our response.