APPENDIX A

Deficiencies and Conditions

PGE-1	PG&E groups initiatives into programs and does not provide granular initiative detail.
Class	A
Deficiency	PG&E groups initiatives into "programs", making it difficult to assess the effectiveness as well as the cost of individual initiatives within these programs. For example, PG&E does not separately report undergrounding from its overall $5.1B system hardening planned spend, making it impossible to determine how much PG&E spends on undergrounding and difficult to assess the various initiatives within this program. Furthermore, PG&E does not break down the outcomes or results of individual initiatives as required by the guidelines. For example, in Table 1, PG&E was required to break down results from inspections over the past five years into each of the following inspection types: Patrol inspections, Detailed inspections, and Other inspections. PG&E reported all inspection types together, providing no basis for comparison of PG&E to its peers by inspection type and making it difficult to determine the effectiveness of PG&E's various inspection types.
Condition	In addition to the requirements of the relevant Condition in the Guidance Resolution, PG&E shall develop and furnish an RCP that includes: i. a detailed break-down of its programs outlined in section 5.3 into individual initiatives, reporting planned spend on each individual initiative, describing the effectiveness of each initiative at reducing ignition risk, outlining outcomes (including providing results of detailed, patrol, and other inspections individually in Table 1, as required in the WMP Guidelines), and providing the information required for each initiative as required in Section 5.3 of the Guidelines; and ii. if PG&E does not have the relevant data in its possession at the initiative level, it shall 1) explain the difference between what it reports and what the WMP Guidelines require, 2) explain why it cannot meet the WMP Guidelines, and 3) develop a plan including a detailed timeline to obtain and share the required information at the initiative level rather than the program level.

PGE-2	Equipment failure.
Class	B
Deficiency	Of all PG&E ignitions on its distribution system, 37% were caused by equipment failures over the last five years with the largest driver being conductor failures at 19% of total PG&E ignitions (or 53% of all equipment failure driven ignitions). Based on normalized data, this rate is almost 50% higher than other large electrical corporations and has a significant impact since PG&E has by far the most overhead conductor miles.
Condition	In its first quarterly report, PG&E shall: i. explain why its equipment failure rate is so high compared to other large electrical corporations; ii. explain how it expects grid hardening, asset management and other initiatives affect the probability of 1) near misses and 2) ignitions; and iii. address whether its prior maintenance history is causing higher rates of equipment failure now. PG&E shall include in this report all instances where a court or other decision making body found fault with PG&E's historical equipment maintenance, either with regard to individual assets or its maintenance policies as a whole.

PGE-3	High incidence of conductor failure.
Class	A
Deficiency	As shown in Appendix B, Figure 2.6a, PG&E has approximately 50% more conductor failure ignitions as a percentage of total ignitions, nearly 2.5 times the number of "conductor failure"-driven ignitions per overhead circuit mile compared to peer utilities. Since PG&E has the most overhead circuit miles and thus conductors compared to peer utilities, the high rate of conductor failure poses a serious risk.
Condition	In its RCP, PG&E shall present a plan for the following: i. presenting the results of a study or analysis showing the root causes of conductor failures on its grid; ii. listing the specific locations and assets that are most likely to experience conductor failure based on: (1) the root cause analysis, (2) attributes of PG&E's conductors (i.e., age, type, condition, etc.) and (3) other relevant factors (e.g. peak wind speeds); and iii. reporting the specific work plan that PG&E plans to undergo (including circuits being addressed, timeline, cost, etc.) to reduce incidents of conductor failure, including the expected impact of this work plan on PSPS and wildfire risk reduction.

PGE-4	Capacitor bank failure.
Class	C
Deficiency	PG&E capacitor bank failures on its distribution system cause 500% higher rates of ignition compared to other large electrical corporations. Although capacitor bank failures only comprise 2% of total PG&E ignitions, the average rate of ignition per incident is high at 15%. This means that 15% of the time a capacitor bank fails, the failure leads to an ignition.
Condition	In its 2021 WMP update, PG&E shall list and describe mitigation measures that it is undertaking to reduce the likelihood of a capacitor bank ignition.

PGE-5	PG&E provides little discussion of how it uses the results of relative risk scoring method.
Class	B
Deficiency	On p. 5-274 of its WMP, PG&E provides Figure PG&E 5-26, which depicts relative risk scores as a function of system hardening in HFTD. The figure and supporting narrative indicate that 95% of PG&E's wildfire risk pertains to approximately 5,500 circuit miles in HFTD areas. PG&E's WMP lacks detail and discussion regarding: (1) how this information was used to prioritize WMP initiatives, (2) how this information was used to target where to implement WMP initiatives, and (3) which and what portion/percentage of its 2020 WMP initiatives are targeted toward these identified 5,500 circuit miles.
Condition	In its first quarterly report, PG&E shall detail: i. where each of these 5,500 miles are located within its grid, including supporting GIS files; ii. how this information was used to prioritize WMP initiatives; iii. how this information was used to target where to implement WMP initiatives; iv. what percentage of its total planned spend for each of the years 2020-2022 are targeted toward these identified 5,500 circuit miles comprising 95% of PG&E's wildfire risk; v. what percentage of total vegetation management personnel hours are targeted toward these identified 5,500 circuit miles comprising 95% of PG&E's wildfire risk; and vi. its rationale for this level of spend and resource allocation to these 5,500 circuit miles and whether PG&E expects to change its allocation of spend and resources from these 5,500 circuit miles.

PGE-6	Discrepancy between ignition reduction projections
Class	B
Deficiency	In its WMP, PG&E estimates a 10% reduction in vegetation-caused equipment failure and animal-caused ignitions from 2019 levels due to its planned system hardening, EVM, and "Tag Repair" work (repair of asset problems discovered during inspections) for 2020 and beyond. It anticipates the same 10% trend in 2021 and 2022. PG&E anticipates approximately an 8% reduction for all HFTD ignitions, year over year, for 2020, 2021 and 2022. However, on p. 5-274 of its WMP, PG&E indicates expectations that its overhead system hardening efforts will reduce ignitions by 56%. Additionally, Table 31 of PG&E's WMP, which reports projected ignitions over the plan period, only reflects a projected 2% annual reduction in ignitions over the plan term assuming 5-year historical average weather. PG&E must explain these discrepancies.
Condition	In its first quarterly report, PG&E shall detail: i. how it arrived at each of these estimates; and ii. how these estimates can be reconciled.

PGE-7	It is not clear if PG&E's line risk scoring sufficiently incorporates all risks that cause ignition and PSPS
Class	B
Deficiency	PG&E appears to primarily rely on outage data and asset condition to conduct line risk scoring. It is therefore not clear whether PG&E's line risk scoring sufficiently incorporates all factors that cause ignition and impact the consequences of a given ignition.
Condition	PG&E shall in a first quarterly report: i. list and describe the inputs to its line risk scoring and summary risk map; ii. if PG&E primarily relies on outage data and asset condition, PG&E shall outline other risks that it does not include; and iii. PG&E shall further explain why those risks are currently excluded, and outline a plan including a detailed timeline to include those risks, if applicable.

PGE-8	Annual risk ranking is quickly out of date.
Class	A
Deficiency	In its response to the WSD's data request 43895-C-321, PG&E states that the wildfire risk ranking for distribution lines is only calculated on an annual basis. The ranking thus may incorporate repairs or other maintenance that occur after the annual ranking. Risks are mitigated by corrective action, and if a static annual calculation of risk causes PG&E to scope PSPS events based on incorrect information, PSPS decision making will be erroneous. For instance, PG&E tags assets requiring repairs with a "Tag Risk Score" in its effort to comply with General Order 95, Rule 18. Needed repairs with an "A" Tag are of immediate risk and require immediate response; "B" Tag items require corrective action within 3 months. By contrast, "E" and "F" Tag items pose lower risk according to PG&E and require correction for "E" Tags in 12 months (6 months if in HFTD Tier 3), and for "F" Tags require action within 5 years (distribution) and 2 years (transmission). Because "A" and "B" Tags require mitigation immediately ("A" Tags) and within 3 months ("B" Tags), repairs made after PG&E's annual risk calculation will not show up. Given that the highest risk tags may be corrected before the subsequent fire season, the risk of a particular circuit may be different from PG&E's annual risk calculation. That is, assets along the circuit should not fail due to recent repairs or replacement. However, PG&E may make PSPS decisions based on a "high risk" score of a circuit that may already be largely mitigated. According to PG&E's responses in the Utility Survey, it is currently updating condition assessments on an annual basis but expects to increase the frequency to quarterly by 2023.
Condition	PG&E shall file an RCP that: i. lists and describes all plans related to timely incorporation of maintenance status across its grid; ii. includes a timeline and sequence of activities that will be required to increase the frequency of these updates; and iii. explains why it will take until 2023 to increase the frequency of its updates from condition assessments to a quarterly basis.

PGE-9	How PG&E weighs egress as a risk factor.
Class	B
Deficiency	While it is good PG&E includes egress, the ability of community members and first responders to leave a community during a wildfire, as one of the factors indicative of risk, it is not clear how PG&E weighs this factor against other factors in its risk modeling and deployment of initiatives.
Condition	In its first quarterly report, PG&E shall detail: i. how egress factors into its risk assessment, including how egress is weighted against other factors; and ii. how egress impacts the prioritization and deployment of initiatives.

PGE-10	PG&E lacks sufficient weather station coverage.
Class	B
Deficiency	PG&E lacks sufficient weather station coverage on U.S. Forest Service National Forest lands relative to other locations. Since a large portion of Tier 2 and 3 HFTD areas are in National Forests, it is important to understand PG&E's methodology for choosing where to put weather stations and its justification of why they are not in National Forests. While PG&E understandably has fewer electric assets in these areas, weather stations in these areas could paint a picture of how weather systems are moving across PG&E's whole territory.
Condition	In its first quarterly report, PG&E shall: i. explain in detail how it chooses to locate its weather stations and explain gaps or areas of lower weather station density, including in the National Forest Areas; and ii. provide a cost/benefit analysis of the impact of having a higher density of weather stations across its territory, including on U.S. Forest Service National Forest lands.

PGE-11	Including additional relevant reports.
Class	B
Deficiency	In Section 5.2.A of its WMP, PG&E identifies several internal reports it generates for its leadership and Board of Directors (a weekly dashboard, status and tracking reports that provide leadership and the Board visibility into the different elements of the WMP). PG&E also makes reports to the federal monitor in its federal criminal probation case before District Judge William Alsup (United States v. PG&E, U.S. District Court Case No. 14-CR-00175-WHA (N.D. Cal).
Condition	In its quarterly reports, PG&E shall append the following: i. all internal reports provided to its executive officers and/or Board of Directors, as described in Section 5.2A of its 2020 WMP, during the previous quarter. In its first quarterly report, PG&E shall also produce all internal reports or other documents provided to its executive officers and/or Board of Directors related to its electric grid from January 1, 2018 to the present; and ii. all reports or other documents related to its electric grid it provided to the federal monitor in the previous quarter. In its first quarterly report, PG&E shall also produce all reports or other documents related to its electric grid provided to the federal monitor from January 1, 2018 to the present.

PGE-12	PG&E's fuse replacement program planned to take 7 years.
Class	B
Deficiency	PG&E estimates it has more than 15,000 "non-exempt" fuse devices located in Tier 2 or 3 of its HFTD. These devices operate on average 2,920 times per year. Operation of these non-exempt devices creates an ignition sources; however, PG&E states it will replace 625 fuse cutouts per year (starting in 2019) for 7 years. It is unclear why the program is so drawn out.
Condition	In its first quarterly report, PG&E shall detail: i. its plans for replacing non-exempt fuses, including the pace of fuse replacements and ii. how this pace is supported by wildfire risk analysis, including providing the cost and benefit estimates of launching a faster fuse replacement program.

PGE-13	PG&E does not explain how the factors limiting microgrid deployment will impact its microgrid plans.
Class	B
Deficiency	PG&E has committed to installing microgrids and switches to sectionalize the grid to mitigate PSPS events. However, PG&E explains that construction resource, land access, permitting, substation upgrades and the presence of interconnection points are limiting factors in microgrid deployment. Further, PG&E does not state how each of these factors will limit microgrid deployment or identify limitations to microgrid deployment posed by its network system design. PG&E also does not explain if it considered microgrid proposals as alternate solutions to traditional grid design.
Condition	In its first quarterly report, PG&E shall: i. state all factors that will limit microgrid deployment or identify limitations to microgrid deployment posed by its network system design; ii. explain if it considered microgrid proposals as alternate solutions to other grid solutions; and iii. address whether options the other large electrical corporations are exploring might be feasible in its territory.

PGE-14	Level 3 findings.
Class	B
Deficiency	In accordance with GO 95, Rule 18, to determine the priority level classification of an inspection finding, a utility must differentiate the potential severity of the risk to safety or reliability, classified as high (i.e., Level 1), moderate (i.e., Level 2) or low (i.e., Level 3). As shown in Appendix B, Figure 2.1a, PG&E's increased inspection efforts in 2019 generated a huge spike in Level 3 findings which it has 60 months or longer to address. Considering that this determination of risk level is made at the discretion of utilities and directly corresponds to the amount of time allowed to address the risk, the lack of parity with SCE and SDG&E in the number of Level 3 findings gives the WSD concern that PG&E may be using the Level 3 category to avoid fixing problems quickly. In notes to Table 7 of its WMP, PG&E indicates it currently utilizes two models to calculate ignition risk, with a third developed in 2019, all of which produce outputs in potential structures damaged or acreage burned should an ignition occur. However, it seems as though PG&E is currently prioritizing utilizing these models to enhance and support its PSPS implementation over grid hardening, asset inspections and vegetation management decision-making. While it is encouraging that PG&E is utilizing its meteorology resources to develop models and analyses to support short-term initiatives such as PSPS, these resources must be equally leveraged for long-term planning and management of its grid.
Condition	In its first quarterly report, PG&E shall detail: i. how it determines the priority level of its inspection findings in accordance with high, moderate, and low risk to safety and reliability, as detailed in GO 95, Rule 18; ii. how it utilizes its models that produce outputs measuring impact to people, structures or the environment, as detailed in Table 7 of its WMP, to assess the potential between high, moderate, and low risk on safety and reliability for the purposes of classifying priority levels in accordance with Rule 18, and iii. if PG&E does not utilize its models for such a purpose, PG&E shall develop a plan for doing so.

PGE-15	It is unclear how PG&E classifies findings at the appropriate level.
Class	A
Deficiency	PG&E classifies inspection findings as primarily lower-risk Level 3 findings. PG&E's inspection programs have resulted mostly in lower-risk Level 3 findings. It is unclear how PG&E classifies findings at the appropriate level. Furthermore, inspections are costly and the effectiveness of each of these inspections should be demonstrated to support PG&E's spend on them.
Condition	PG&E shall develop and furnish an RCP that includes: i. a description of the value and effectiveness of these enhanced inspections in identifying GO 95 violations and safety hazards that present greater than "low" risk of potential impact, including quantitative metrics, and a detailed explanation of how it classifies findings by Level and how it plans to ensure that front-line inspection staff are properly classifying findings; ii. and a description of whether it is more effective in terms of findings per dollar spent to incorporate the enhanced inspection processes and tools into its routine inspection and maintenance program given the program's results.

PGE-16	PG&E's record keeping is deficient.
Class	C
Deficiency	PG&E has a history of poor record keeping. PG&E is only just moving from a paper records system to digitized records. The Commission has found that PG&E's record keeping is deficient in other contexts with serious safety implications, including records on the location of its underground natural gas and electric lines. PG&E should explain whether it has detected errors or other problems with its wildfire mitigation records.
Condition	In PG&E's 2021 WMP update, PG&E shall: i. disclose any problems with its paper record keeping system described in its WMP, and ii. outline any gaps (missing records), inaccuracies (inadvertent or intentional) and other errors.

PGE-17	Effectiveness of inspections using infrared technology.
Class	B
Deficiency	PG&E does not explain in detail how its infrared inspections will incrementally mitigate ignitions, especially since it does not tie its infrared inspections to changes to its existing initiatives or inspection practices or report infrared inspection findings separately.
Condition	In its first quarterly report, PG&E shall: i. provide a detailed description of how its infrared inspections incrementally identify issues or faults along PG&E's grid that lead to ignitions, including evidence for the number of inspection findings uncovered by infrared inspections that would not have been uncovered in detail and patrol inspections; and ii. if it has no evidence that infrared inspections identify findings that would not have been identify in other inspections, describe and provide evidence for the expected outcomes in the context of risk reduction or cost savings that its infrared inspection program is expected to generate.

PGE-18	PG&E does not describe in detail how its hazard tree analysis focuses on at-risk trees.
Class	B
Deficiency	PG&E does not describe in detail how its hazard tree analysis focuses on at-risk areas (based on wind conditions, outage history and the link) and specific species that pose a high risk (due not only to fast growth rate but other risk factors) to focus its current proposal. That is, PG&E's hazard tree program should focus on at risk trees first, rather than on every tree within striking distance. PG&E also now accounts for removal of hazard trees under both its EVM program and an existing Tree Mortality Program. Trees that are dead or that will die as a result of trimming are removed under the Tree Mortality Program. PG&E's memorandum account for Tree Mortality work is separate from the memorandum account allowed in AB 1054 for WMP work.
Condition	In its first quarterly report, PG&E shall detail: i. how it will ensure its hazard tree program prioritizes the highest risk areas and types of trees; and ii. how it accounts for hazard tree programs in its memorandum accounts.

PGE-19	Low pass rate on EVM QA
Class	B
Deficiency	PG&E's is falling far short of meeting its stated 92 percent pass rate in EVM inspections, leading to a large volume of re-work and repetitive QA testing that consumes limited resources and lengthens the time required to complete EVM initiatives.
Condition	In its first quarterly report, PG&E shall detail: i. its enhanced vegetation management QA process, including identifying what type of process was used to determine the 60 percent pass rate and the 98 percent pass rate as well as the credentials and experience of the employees that did the inspections (title, rank and number of employees); ii. how PG&E plans to achieve its stated goal of a 92 percent rate of "meets expectations" on the "first pass" of inspections going forward, including the specific capabilities that PG&E plans to build or acquire and the timeline against which PG&E will build these, and the cost savings and other resource efficiencies that would be achieved by meeting this goal; and iii. when PG&E plans to meet its stated goal of a 92 percent rate of "meets expectations" on the "first pass" of inspections.

PGE-20	PG&E is redistributing resources to focus more on transmission clearances.
Class	B
Deficiency	In a change from its 2019 WMP, PG&E is redistributing resources to focus more on transmission clearances, without sufficient explanation of the impact or benefit of this decision. Some recent wildfires have been attributed to a failure in transmission assets, which could be driving this redistribution
Condition	In its first quarterly report, PG&E shall: i. explain in more detail why it made the change to transmission clearance, including whether the change was caused by recent fire(s) involving PG&E transmission lines; ii. identify all ignitions that resulted in spread on transmission assets; and iii. explain what vegetation management will not occur as result of the change in focus.

PGE-21	PG&E fails to describe why additional programs for transmission clearances are necessary.
Class	B
Deficiency	Vegetation-caused incidents are more common at the distribution level, since lines have shorter required clearances and typically use shorter poles. This fact is verified through data reported in Tables 11-1 and 11-2 in PG&E's WMP, as the five-year annual average of vegetation contact near miss incidents is nearly 5,600 on the distribution system compared to about 61 annual incidents on the transmission system. For some of PG&E's vegetation management measures on transmission lines, especially its Right of Way Expansion program, PG&E fails to adequately describe why additional programs for transmission clearances are necessary or effective.
Condition	In its first quarterly report, PG&E shall explain: i. the reason for PG&E's vegetation management focus on transmission, ii. why this is an effective use of resources, and how PG&E has reached this conclusion, supported by quantitative data; iii. whether the focus on transmission level vegetation management is driven by short-term goals related to PSPS or long-term goals to reduce ignition risk, iv. the amount of labor and resources being allocated to the program, v. and the opportunity costs of its transmission clearance program on its broader vegetation management efforts for the distribution system.

PGE-22	Some of PG&E's vegetation management inspectors may lack proper certification
Class	B
Deficiency	PG&E's vegetation management inspectors may lack proper certification; they may not be certified by the International Society of Arboriculture (ISA). Since the scope of its program is so large, PG&E developed a specific evaluation tool called tree assessment tool (TAT) to be used by inspectors. However, PG&E is not requiring inspectors to be ISA-certified.
Condition	In PG&E's quarterly reports, PG&E shall detail: i. the portion of its inspectors who are ISA certified; ii. the portion of its inspectors who plan to be ISA certified by the time of its 2021 WMP supplement filing; and iii. how it will ensure effective inspection quality control protocols if some inspectors are not ISA certified.

PGE-23	Vegetation waste and fuel management processes unclear.
Class	B
Deficiency	PG&E's description of "Fuel management and reduction of 'slash' from vegetation management activities" states the utility will continue to assess effectiveness to determine whether to continue or adjust work. This response is generic and does not give detail on how much fuel reduction occurs, whether vegetation is cleared to bare soil, or how wide the zone of clearance will be. PG&E also does not discuss the criteria it uses to identify what areas are treated to effectively enhance defensible space. Based on the information given it is not possible to determine how effective this work will be. Finally, PG&E does not discuss how slash is treated during its vegetation management work. PG&E also states in its Utility Survey that it does not remove slash from its right of ways and does not plan to remove vegetation waste from its right of ways across its entire grid, citing constraints. However, PG&E does not describe the practices that it uses to reduce risk where it does not remove slash/vegetation waste.
Condition	In its first quarterly report, PG&E shall: i. the criteria it uses to identify and prioritize areas for fuel management to enhance defensible space, ii. what specific areas were treated during the previous reporting period, including supporting GIS files; iii. what specific areas are planned to be treated during the upcoming reporting period, including supporting GIS files; iv. the types of vegetation waste treatments it uses across its grid, including how it chooses where to use each treatment, and how effective each of these vegetation waste treatments are in the location where they are deployed; and v. its work with federal and state landowners, including the U.S. Forest Service, on fuel reduction programs, including a listing of all programs it has in place with these entities, and the end date of each program, if applicable.

PGE-24	Improving prioritization.
Class	B
Deficiency	While PG&E expresses plans to expand its prioritization capabilities for better targeting mitigation activities, it provides scant information on how this will be achieved or timelines for doing so.
Condition	In its first quarterly report, PG&E shall explain its method and process for: i. prioritizing between system hardening and vegetation management efforts in a single location; ii. leveraging past initiative performance data and lessons learned for improving future prioritization decisions; iii. balancing hardening and remediation work to reduce ignition probability related to asset failure; and iv. determining the quantitative effect on PSPS thresholds from hardening initiatives.

PGE-25	Lack of details in PG&E's WMP on how to address personnel shortages.
Class	A
Deficiency	PG&E has experienced personnel shortages that have had an impact on its wildfire mitigation initiatives, and particularly on vegetation management. During the February 2020 workshops and in its WMP, PG&E has expressed concern regarding talent/workforce shortages for vegetation management. Considering its extensive vegetation management work scale and scope, PG&E does not explicitly discuss a recruitment strategy, which will be critical to its completion of these initiatives. It is important for PG&E to document that it is not trying to mitigate its personnel shortages simply by hiring away workers from other electrical corporations; such a practice will not reduce the state's overall personnel shortages.
Condition	PG&E shall develop and furnish an RCP that includes: i. a description of its recruitment and training for vegetation management talent and how it plans to address this constraining factor in scaling its vegetation management programs; ii. a description of its strategy for direct recruiting and indirect recruiting via contractors and subcontractors; and iii. metrics to track the effectiveness of its recruiting programs, including metrics to track the percentage of recruits that are newly trained, percentage from out of state, and the percentage that were working for another California utility immediately prior to being engaged by PG&E. PG&E may file confidential information under seal so long as PG&E justifies its claim that the material requires such protection.

PGE-26	Effectiveness of increased vegetation clearances.
Class	A
Deficiency	PG&E has numerous vegetation management programs focused on complying with existing requirements as well as "enhanced" vegetation management focused on "at-risk" species and fuel management work. Based on its responses to the Utility Survey, PG&E plans to increase the frequency of vegetation inspections while continuing to schedule them as schedule- and static-map based, and inspection checklists will remain compliance-based. As PG&E's vegetation management programs grow in scope, it provides little discussion or evidence of the effect of increased vegetation clearances on utility ignitions.
Condition	PG&E shall submit an RCP with a plan for the following: i. Comparing areas with and without enhanced post-trim clearances to measure the extent to which post-trim clearance distances affect probability of vegetation caused ignitions and outages ii. Collaborating with SCE and SDG&E in accordance with SCE-12 and SDG&E-13 to develop a consensus methodology for how to measure post-trim vegetation clearance distance impacts on the probability of vegetation caused ignitions and outages

PGE-27	Public safety partner coordination.
Class	A
Deficiency	Poor preparedness and interaction with cities, counties, tribal governments and first responders are areas of continued weakness for PG&E, before, during and after a wildfire and during the 2019 PSPS events. In one sentence, PG&E states it does coordinate, but additional explanation is needed on how its public safety specialists work with counties and incident management teams.
Condition	PG&E shall submit an RCP which does the following: i. provide an updated "coordination with public safety partners" plan that details precisely how PG&E works with cities, counties, tribal governments, incident management teams, and other first responders; ii. include the experience level of its employees that conduct the interaction in emergency management or other public safety functions; iii. provide a list of every PG&E contact and their counterparts and the cities, counties, tribal governments, and first responder entities and description of their interaction; iv. Provide any existing logs or other documents PG&E keeps of its interactions with cities, counties, tribal governments and first responder entities dating back to the beginning of 2020 and on a continuing basis, without redactions. To the extent PG&E does not track this information, PG&E shall provide the following dating back to the beginning of 2020 and on a continuing basis: date of contact, name of department or organization in which individual(s) work, purpose of contact and content of contact. PG&E may file confidential information under seal so long as PG&E justifies its claim that the material requires such protection; v. detail its process for logging all complaints by PG&E employees or their public sector counterparts about poor or problematic interactions between PG&E and their counterparts; vi. provide a description of all complaints logged to date that meet the criteria in (iv); and vii. provide a description of how PG&E surveys public safety partners to ensure its interactions are constructive and useful.

PGE-28	Lack of justification and detail for PG&E's self-assessed stakeholder engagement capabilities.
Class	B
Deficiency	In response to the utility survey for the maturity model, PG&E answered many questions regarding its stakeholder and community engagement capabilities in ways that do not align with PG&E's documented poor coordination and engagement efforts. For example, PG&E's responses indicate that it has a clear and actionable plan to develop and maintain collaborative relationships with local communities; however, continued fallout and harsh criticism for poor coordination and collaboration with local communities during its October 2019 PSPS events, as well as, in preparation for the 2020 wildfire season suggests its "actionable plan" is not sufficient or effective.
Condition	In a quarterly report, PG&E shall: i. list and describe all actions it is taking to coordinate and collaborate with local communities regarding its wildfire mitigation activities and PSPS; ii. the timeline for completion of the actions identified in (i); iii. actions it completed in the previous quarter; and iv. actions planned for completion in the following quarter.

PGE-29	Cooperation and sharing of best practices.
Class	B
Deficiency	PG&E's cooperation and best practice sharing with agencies outside California also does not contain details over the prescribed timeline. PG&E states it will continue to engage partners from inside and outside California to share PG&E's experience and identify tools and technology that are effective at mitigating utility-caused wildfire risk. Such information sharing is useful in allowing PG&E and others to identify new solutions and assess the effectiveness of solutions used by other entities. At the WMP workshops held in February 2020 and described in this Resolution, several parties asked whether the electrical corporations are sharing information about pilots of new technology with each other and with other entities.
Condition	In its first quarterly report, PG&E shall: i. provide a report detailing its progress regarding best practice sharing with entities outside of California; ii. include a description of how such interactions have changed or improved, including specific examples; and iii. include a description of how it has applied lessons learned into its 2020 WMP.

(End of Appendix A)

APPENDIX B

Detailed Figures & Charts

0. Description of Data Sources

All figures reference the latest submitted versions of 2020 WMPs as of April 10th, 2020. Data is pulled from Tables 1-31 of Utility WMPs unless stated otherwise.

By utility, the WMPs referenced in this document are:

PG&E	Update to WMP submitted March 17th, 2020
SCE	Revision 02 to WMP
SDG&E	Update to WMP submitted March 10th, 2020
Liberty CalPeco	Update to WMP submitted February 28th, 2020
PacifiCorp	Update to WMP submitted February 26th, 2020
Bear Valley Electric Service	Update to WMP submitted February 26th, 2020
Horizon West Transmission	Update to WMP submitted February 28th, 2020
Trans Bay Cable	Update to WMP submitted February 28th, 2020

All are available at cpuc.ca.gov/wildfiremitigationplans.

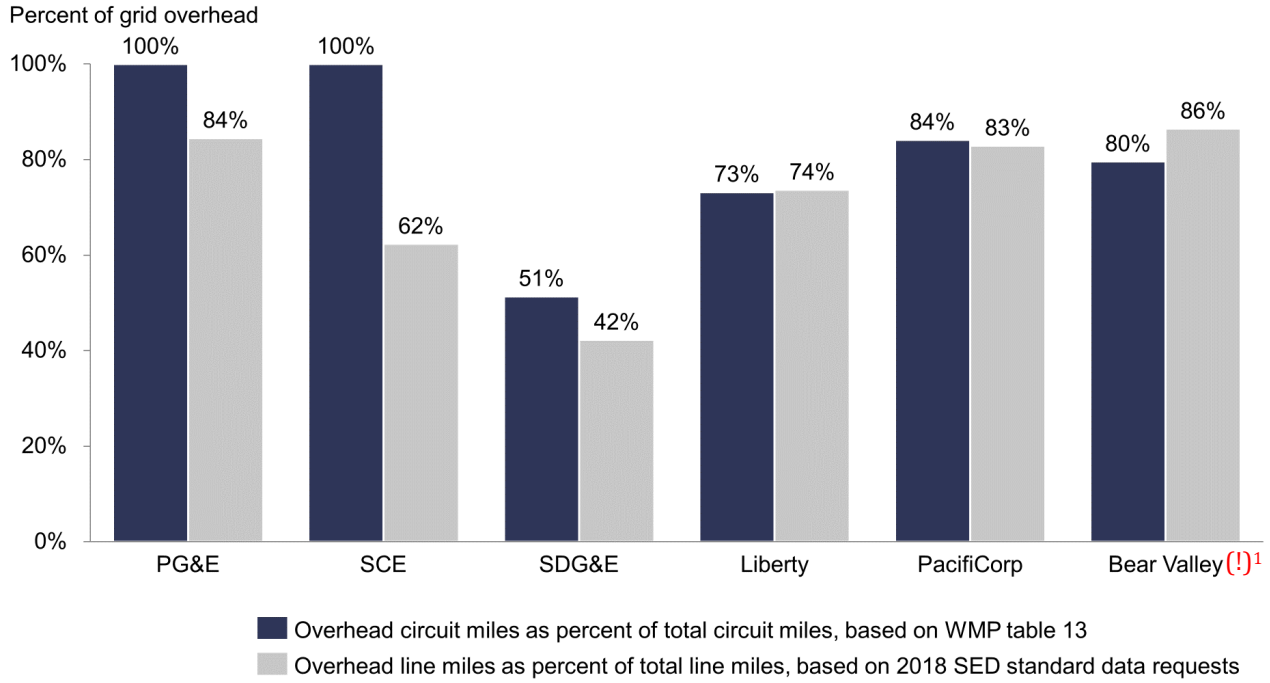
All the analysis and corresponding figures presented in this appendix rely upon data that is self-reported by the utilities. By utilizing and presenting this self-reported data in this appendix, the WSD is not independently validating that all data elements submitted by utilities are accurate. The WSD will continue to evaluate utility data, conduct data requests, and conduct additional compliance activities to ensure that data provided is accurate.

1. Figures

CONTENTS

1.1 Wildfire Risk Exposure

Figure 1.1a: Comparison of data sources for circuit typologies

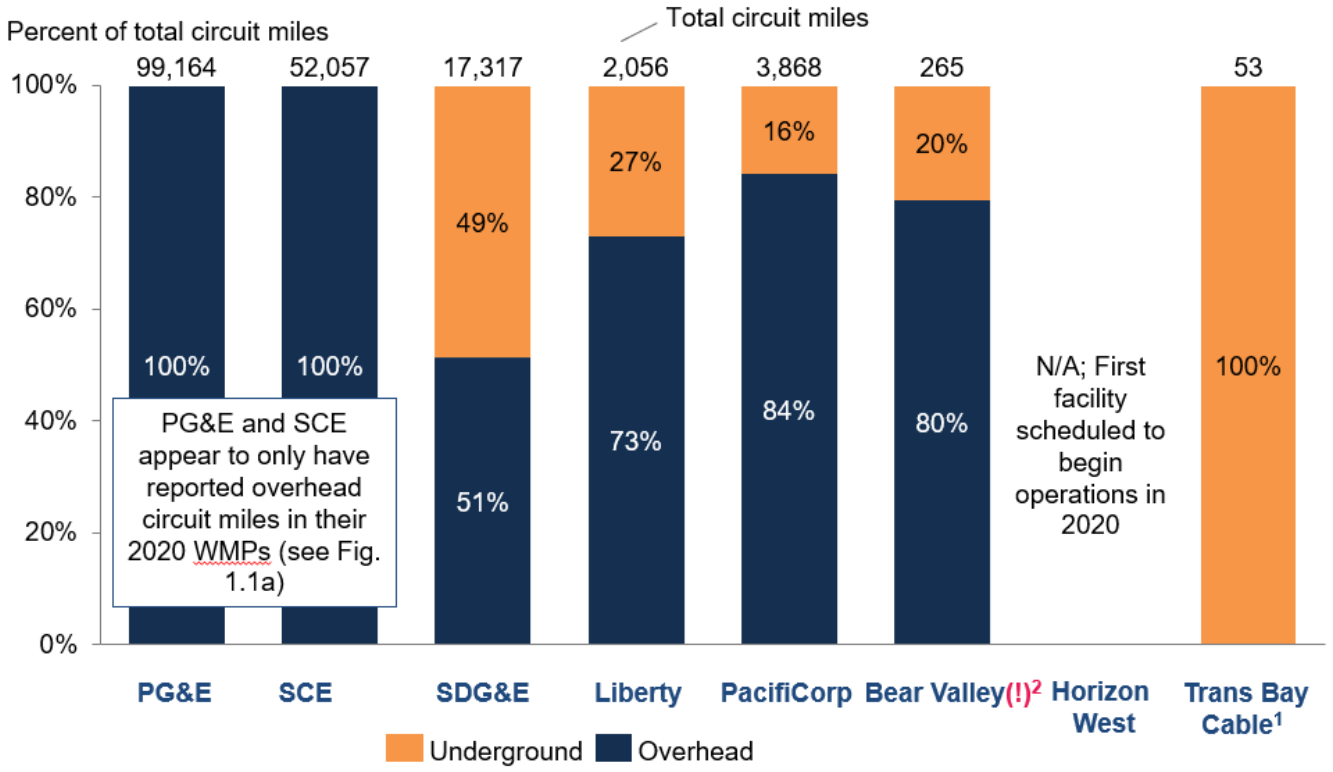


Note: In their 2020 WMPs, PG&E and SCE only reported circuit mileage data for overhead facilities. Based on the best available historical data on circuit mileage and grid topology in the Comission's possession, PG&E is reported to have 84% of its total line miles overhead, and SCE is reported to have 62% of its total line miles overhead. While the 2020 WMP Guidelines directed the utilities to report their grid topology breakdown by circuit miles, rather than line miles, the percentages overhead and underground are expected to be similar. The WSD will issue a data request to confirm accurate underground circuit mileage numbers.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: SED standard data requests for annual grid data (reflect values as of December 2018), WMP Table 13

Figure 1.1b: Circuit topology breakdown by overhead and underground circuit miles

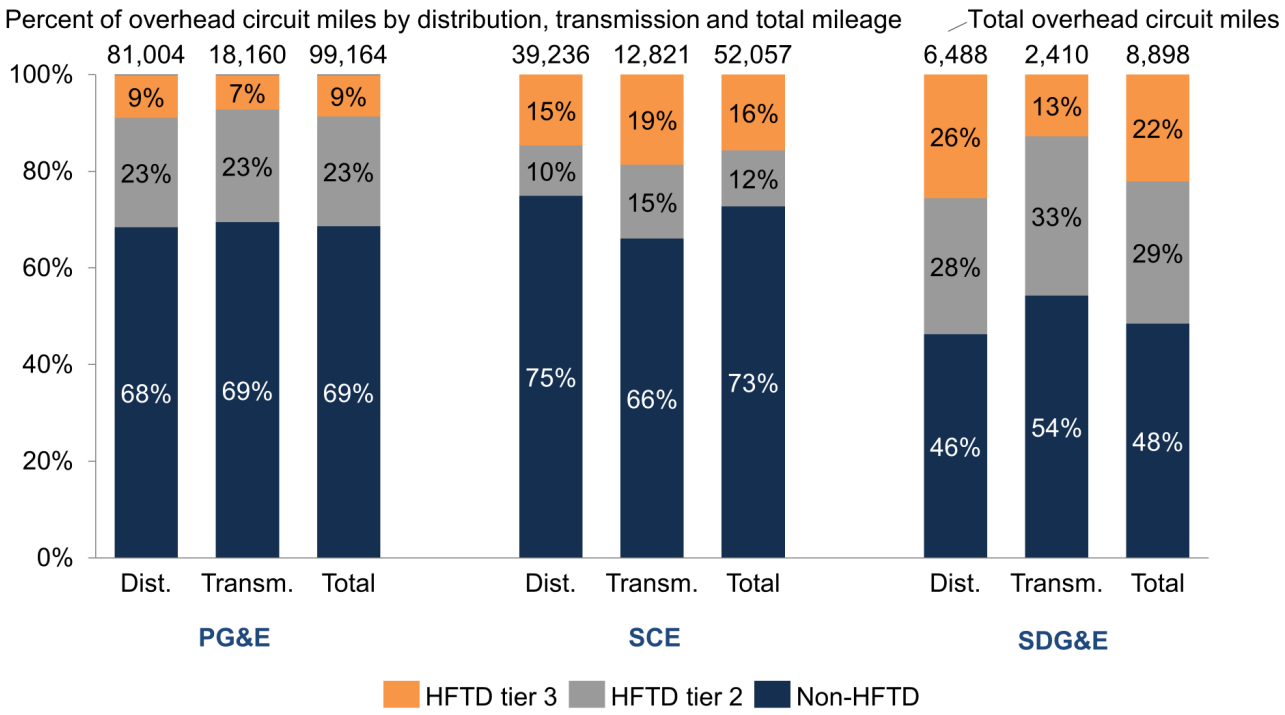


1. Trans Bay Cable did not report underground circuit miles in Table 13 of the WMP, but mentioned on page 8 of its WMP that it had 53 circuit miles of underground submarine cable, which is reflected in this chart.

2. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: WMP Table 13

Figure 1.2a: Overhead circuit miles by HFTD Tier (Large Utilities)
Broken out by distribution (dist.) and transmission (transm.)

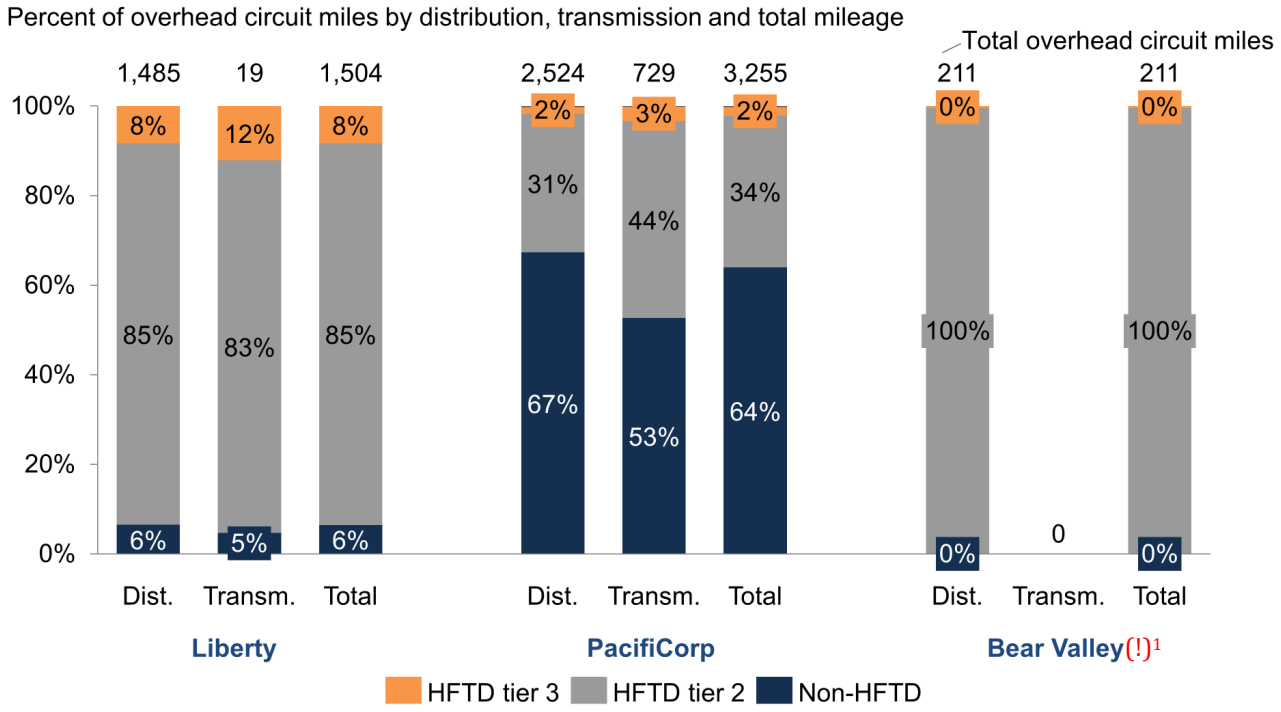


Note: Zone 1 not shown as subtotal.

Source: WMP Table 13

Figure 1.2b: Overhead circuit miles by HFTD Tier (Small Utilities)

Broken out by distribution (dist.) and transmission (transm.)

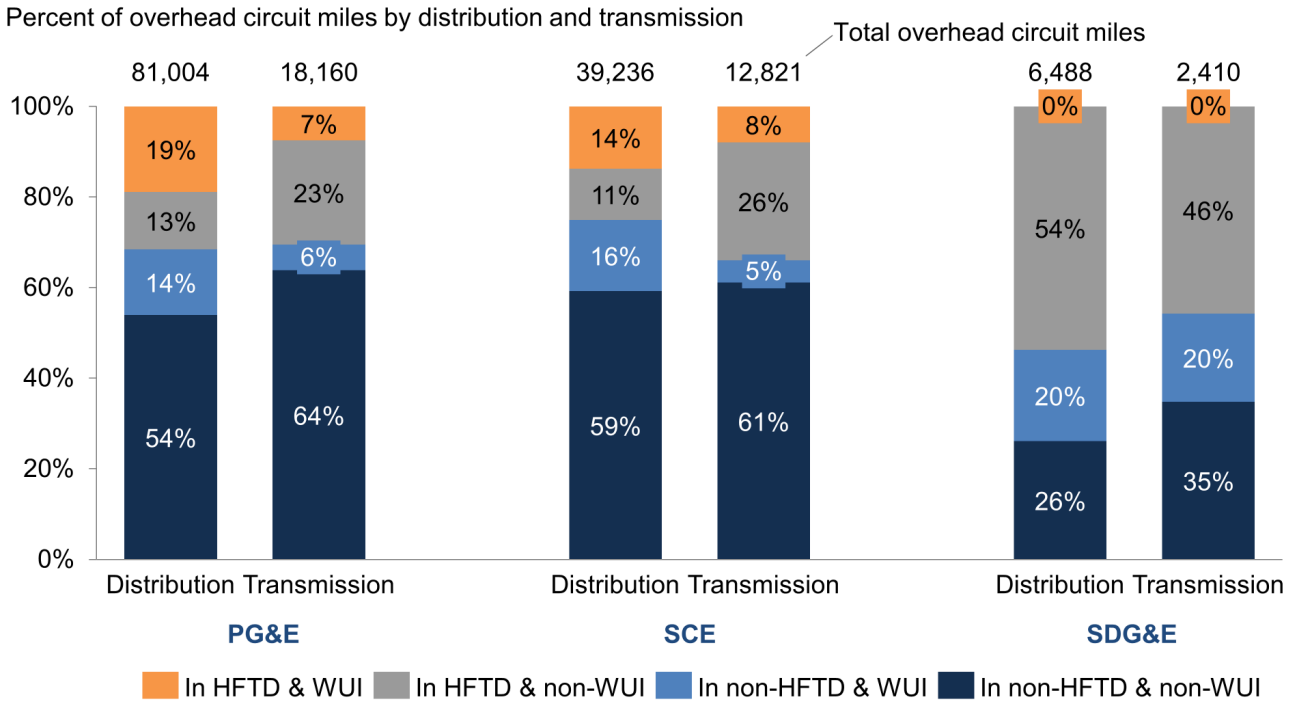


Note: Zone 1 not shown as subtotal.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

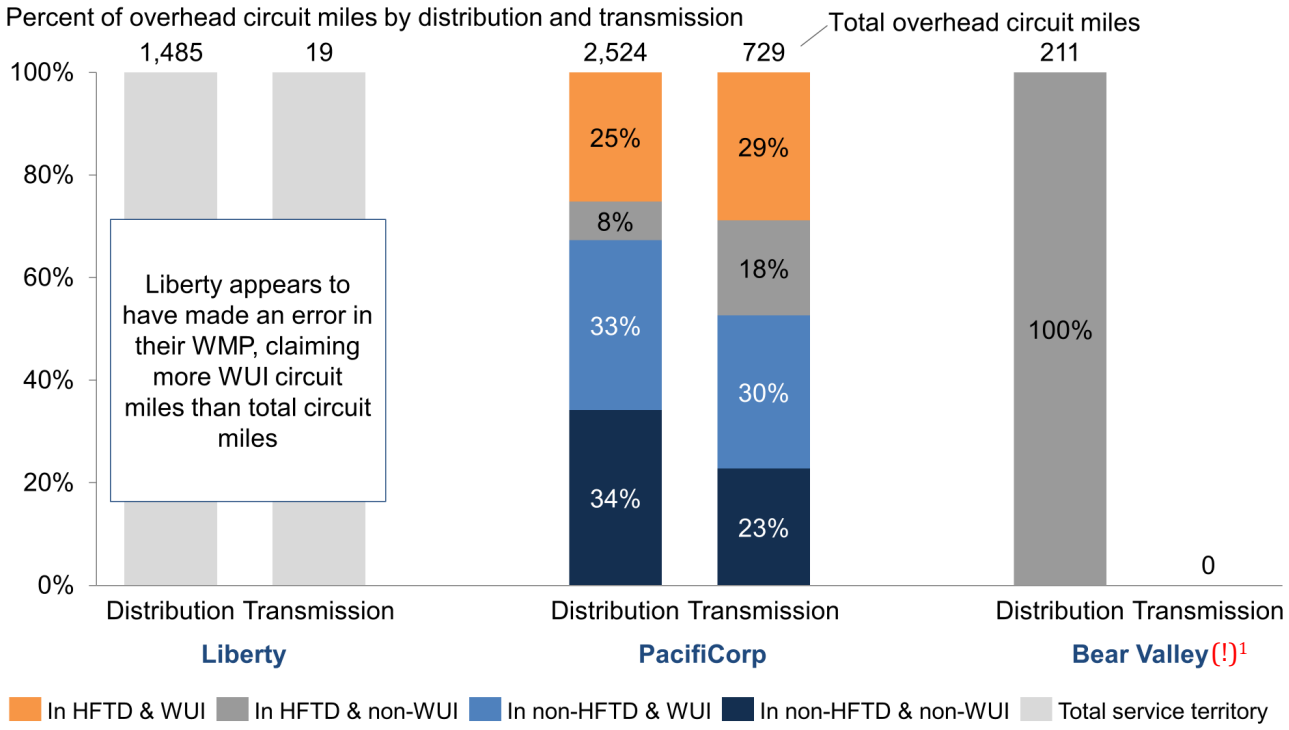
Source: WMP Table 13

Figure 1.3a: Breakdown of overhead transmission and distribution circuit miles by HFTD and WUI location (Large utilities)



Source: WMP Table 13

Figure 1.3b: Breakdown of overhead transmission and distribution circuit miles by HFTD and WUI location (Small utilities)

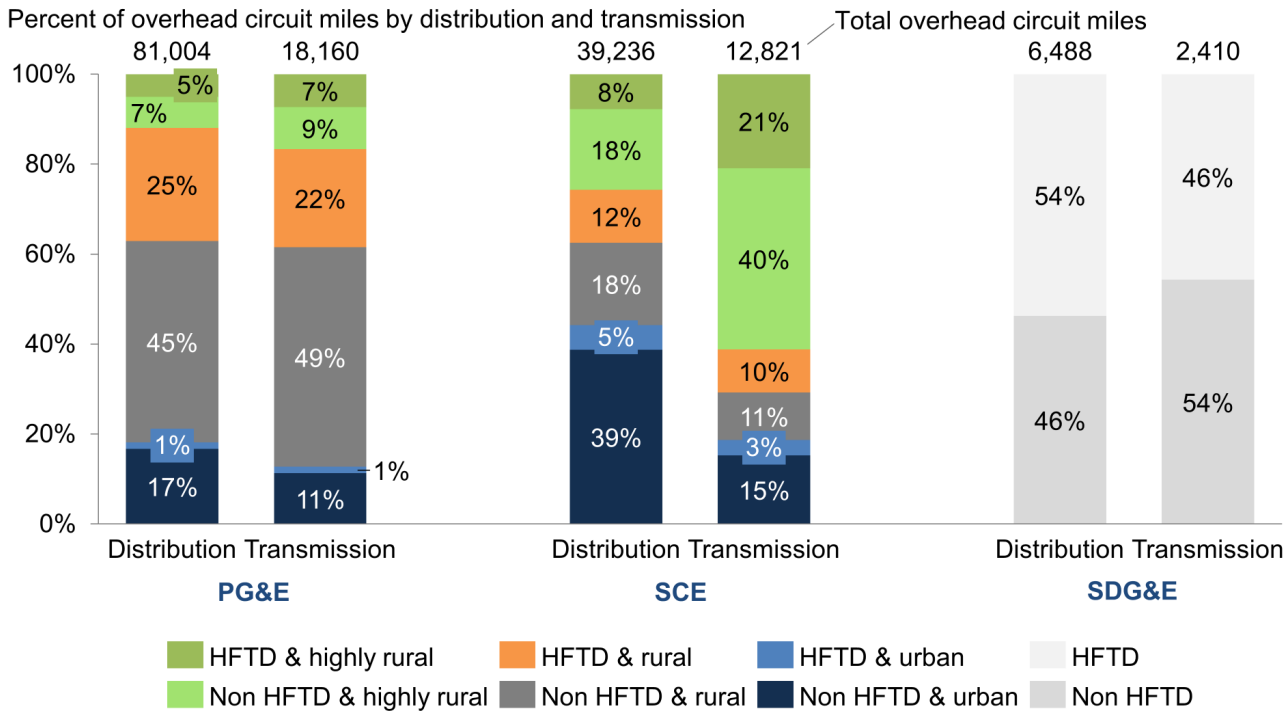


Note: Trans Bay Cable and Horizon West Transmission are not shown. Trans Bay Cable is almost entirely undergroud and submarine, and Horizon West Transmission did not yet have operational facilities at the time it submitted its 2020 WMP.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: WMP Table 13

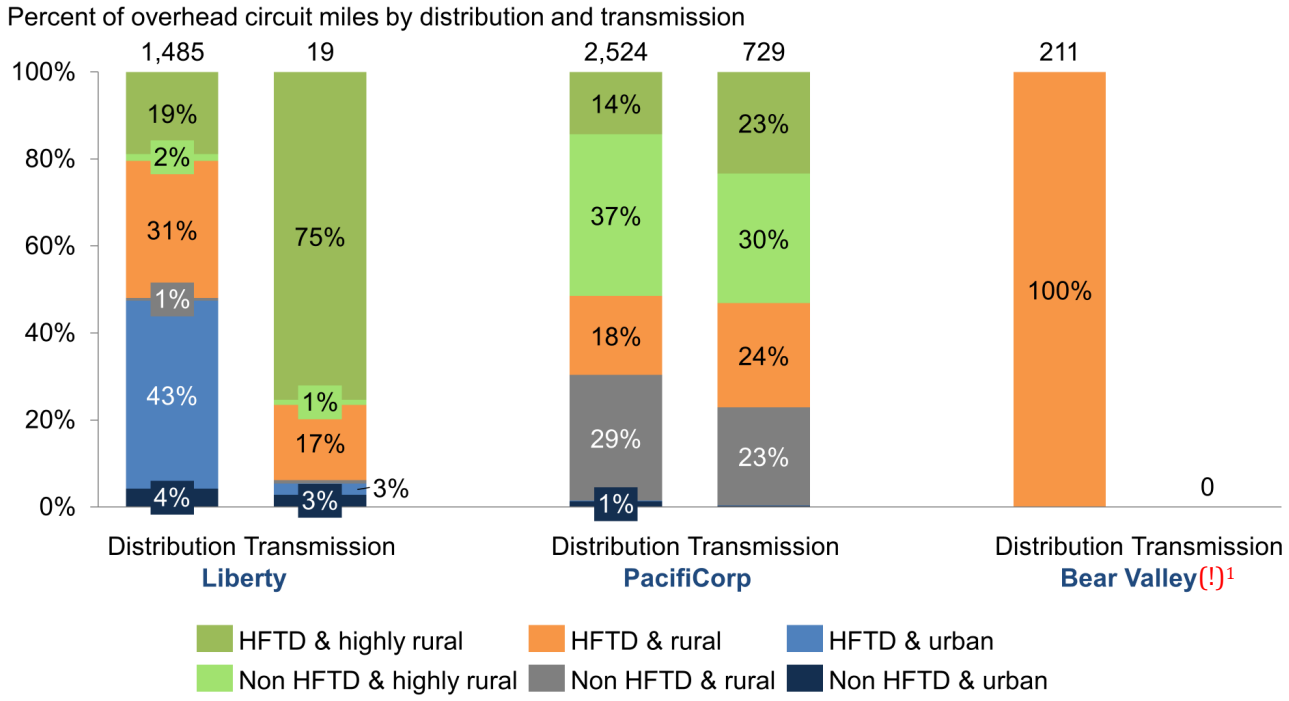
Figure 1.4a: Breakdown of overhead transmission and distribution circuit miles by HFTD and population density (Large utilities)



Note: SDG&E did not report breakdown of circuit mileage between areas of different population densities.

Source: WMP Table 13

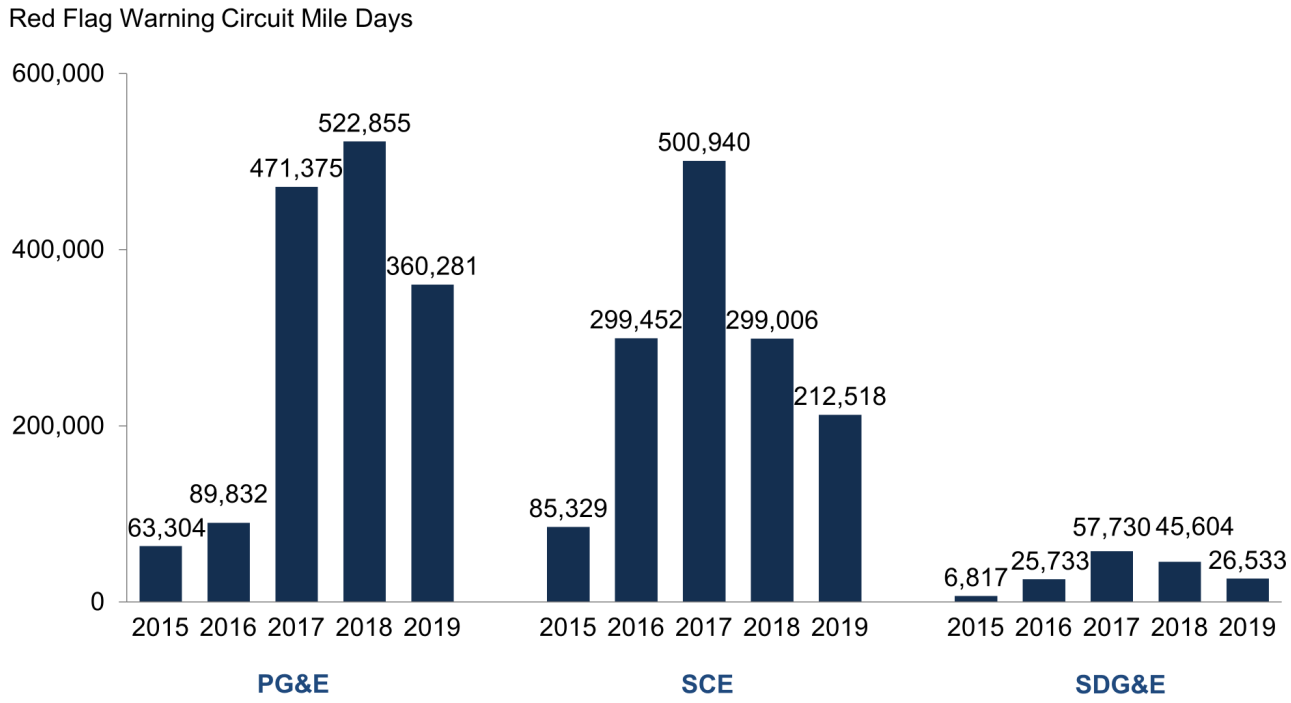
Figure 1.4b: Breakdown of overhead transmission and distribution circuit miles by HFTD and population density (Small utilities)



1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: WMP Table 13

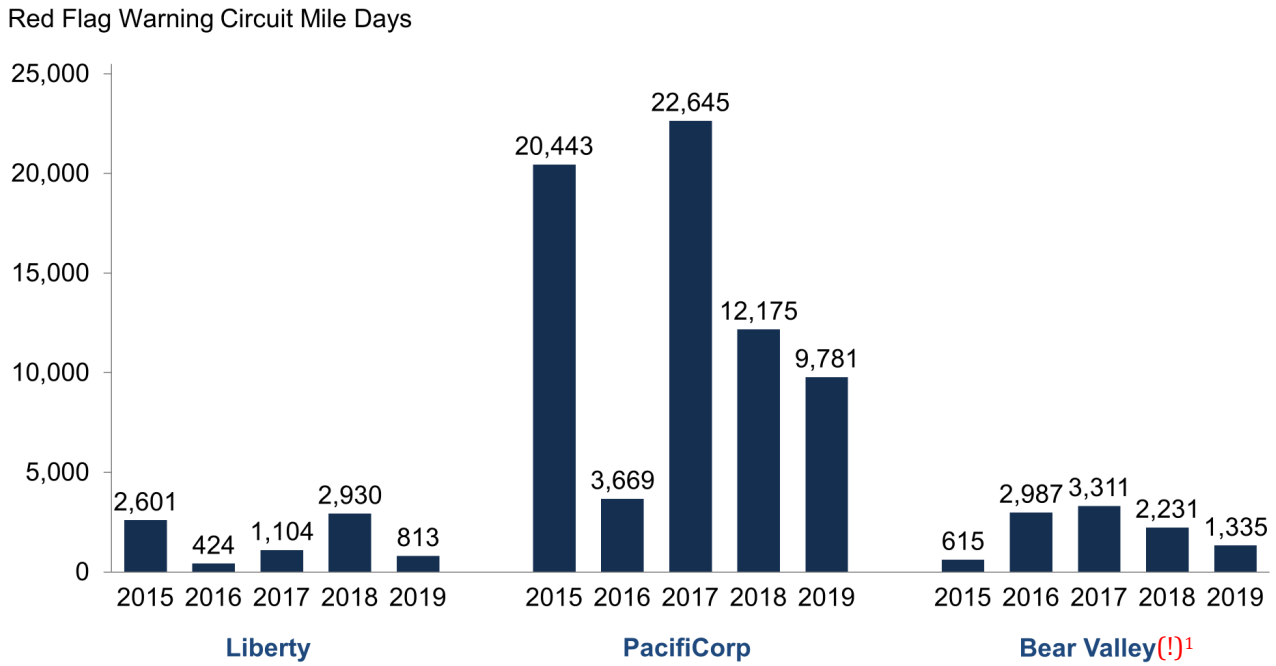
Figure 1.5a: Red flag warning circuit mile days per year by utility (Large utilities)



Note: A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year. It is defined on page 5 of the 2020 WMP Guidelines to be calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW. For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110.

Source: WMP Table 10

Figure 1.5b: Red flag warning circuit mile days per year by utility (Small utilities)

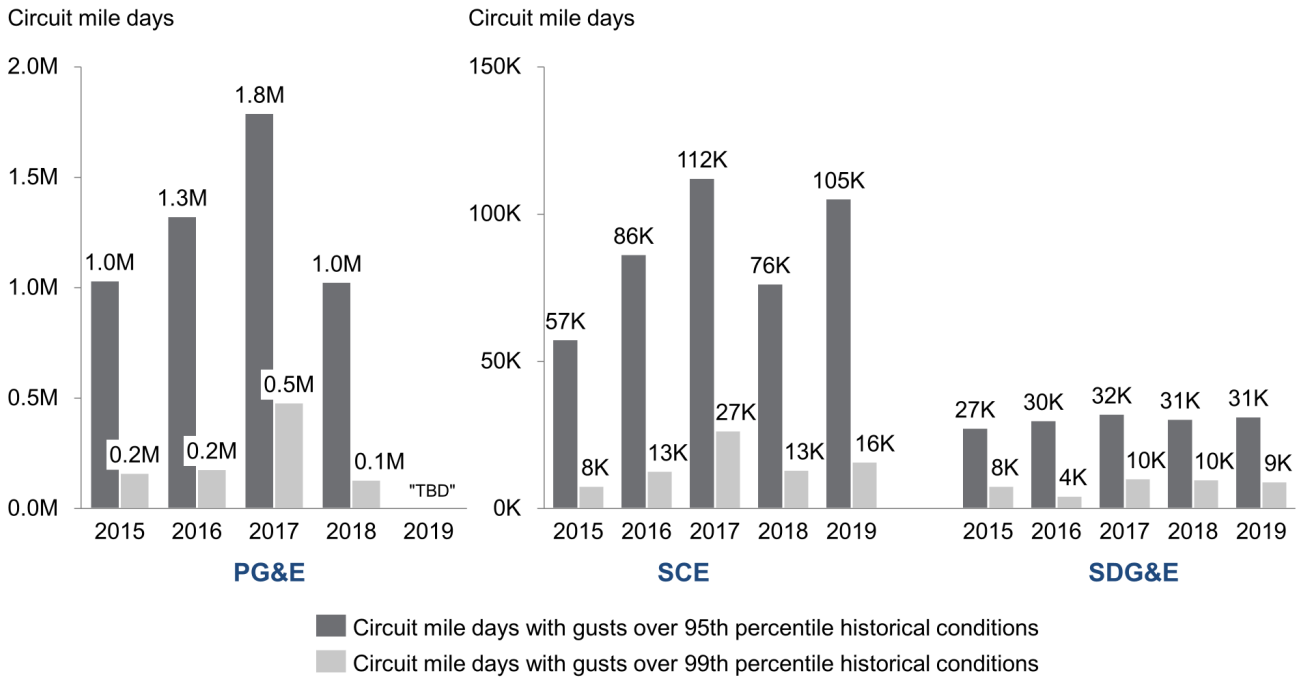


Note: A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year. It is defined on page 5 of the 2020 WMP Guidelines to be calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW. For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: WMP Table 10

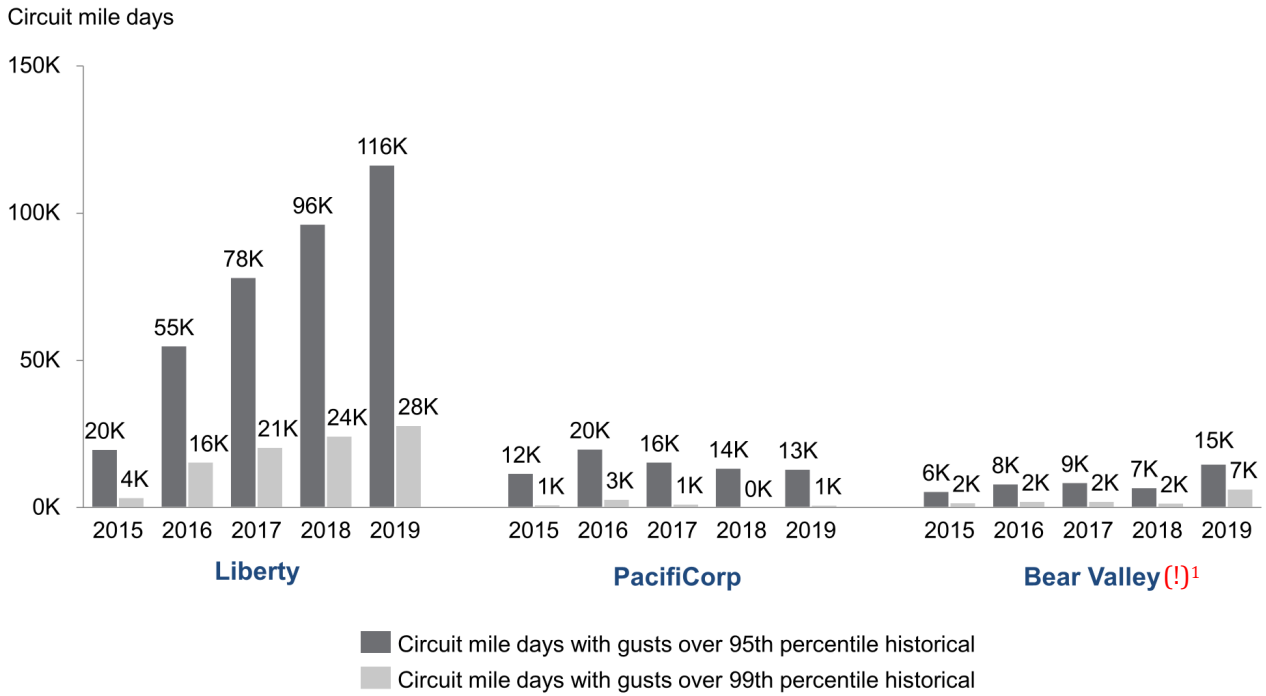
Figure 1.5c: 95th and 99th percentile wind conditions (Large utilities)



Note: Utilities were directed to report historical conditions as conditions over 10 prior years, 2005-2014. SCE appears to have instead reported historical conditions over the 5 prior years, 2009-2014, thus using a different baseline to calculate 95th and 99th percentile wind speeds. More information is needed to fully address potential inconsistencies between utilities. PG&E stated that 2019 data would not be available until late Q2 2020.

Source: WMP Table 10

Figure 1.5d: 95th and 99th percentile wind conditions (Small utilities)



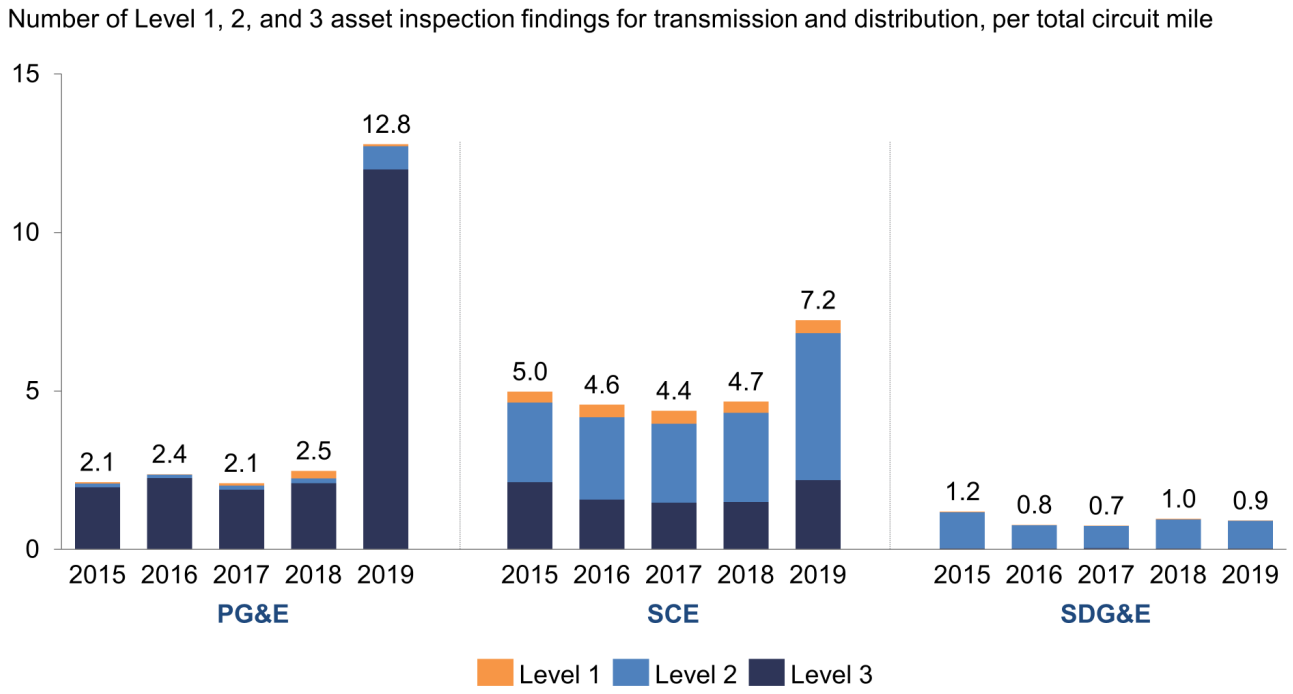
Note: Historical conditions refer to conditions over 10 prior years, 2005-2014.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: WMP Table 10

1.2 Outcome Metrics

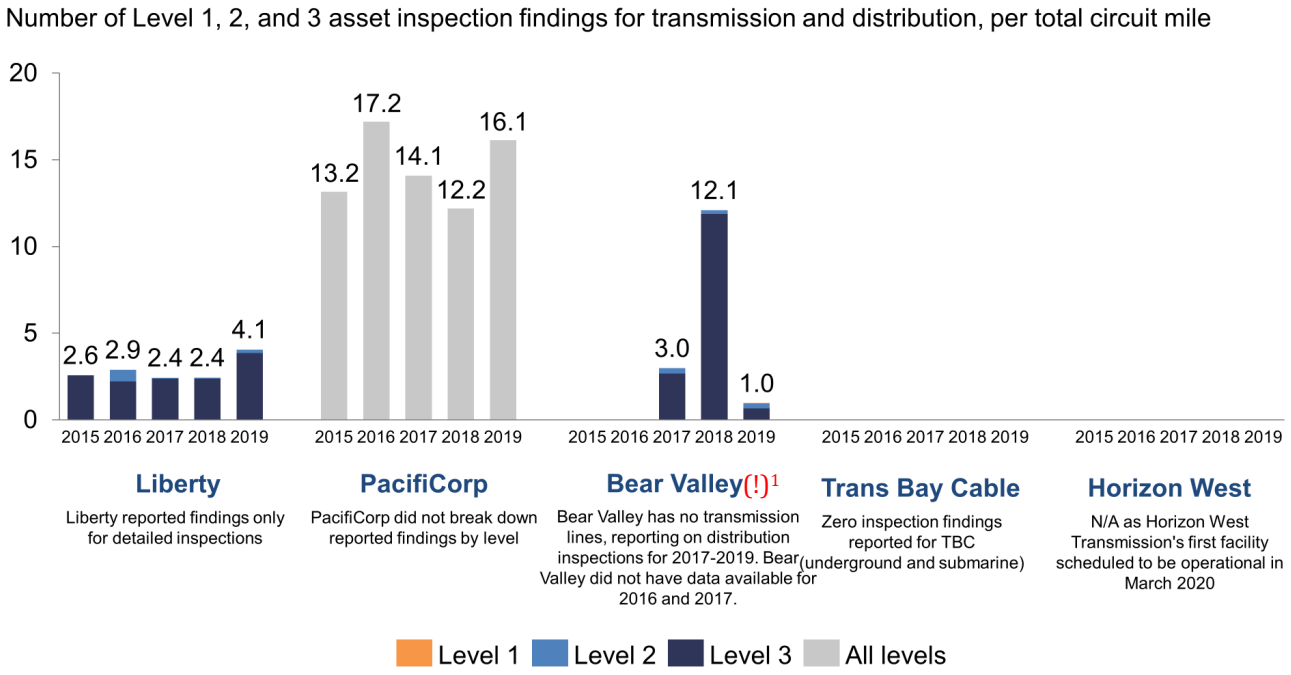
Figure 2.1a: Asset inspection findings normalized by total circuit mileage (Large utilities)



Note: Utilities reported their inspection findings as normalized by total circuit miles in Table 1 of their WMPs.

Source: WMP Table 1

Figure 2.1b: Asset inspection findings normalized by total circuit mileage (Small utilities)

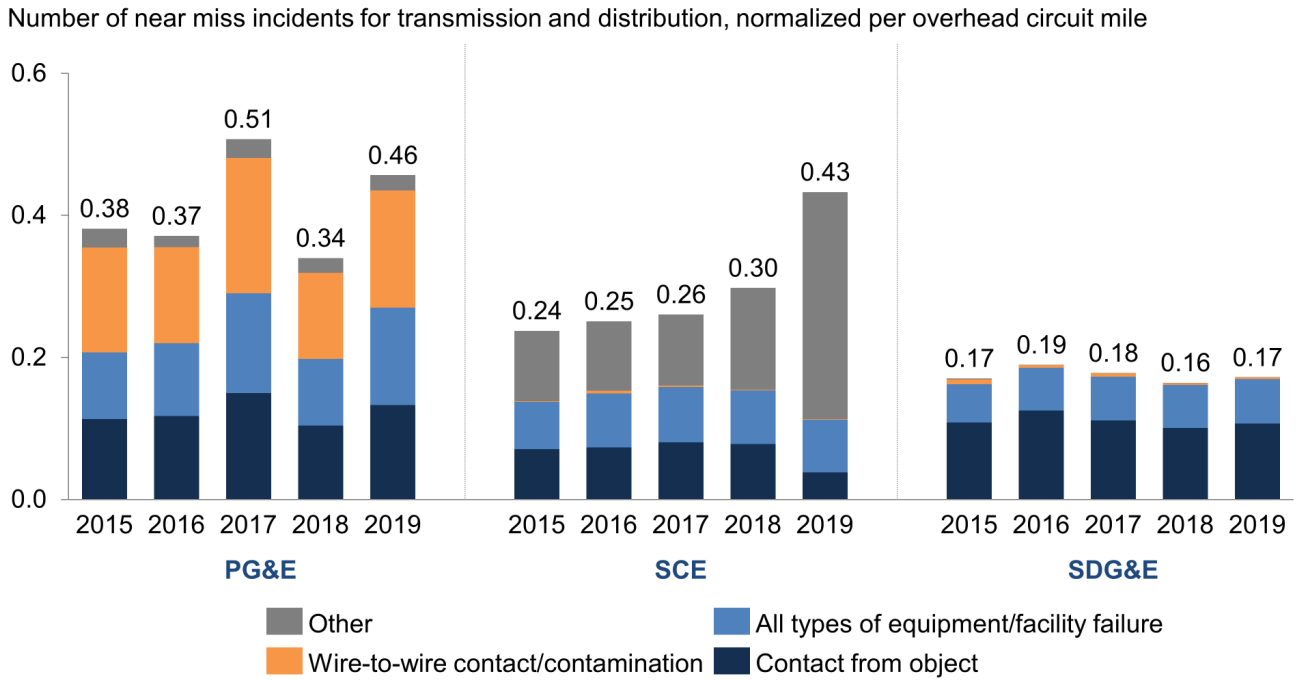


Note: Utilities reported their inspection findings as normalized by total circuit miles in Table 1 of their WMPs. In Table 1, Liberty reported inspection findings in miles between findings rather than in findings per circuit mile as the 2020 WMP Guidelines directed. To represent inspection findings in a way consistent with the reporting of other utilities, the WSD inverted the metric reported by Liberty to show inspection findings in findings per circuit mile in this chart. Bear Valley reported inspecton findings normalized per overhead cirucit mile rather than per total cirucit mile as instructed. For consistency, the WSD re-normalized these findings per total circuit mile using data from Table 13.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: WMP Table 1

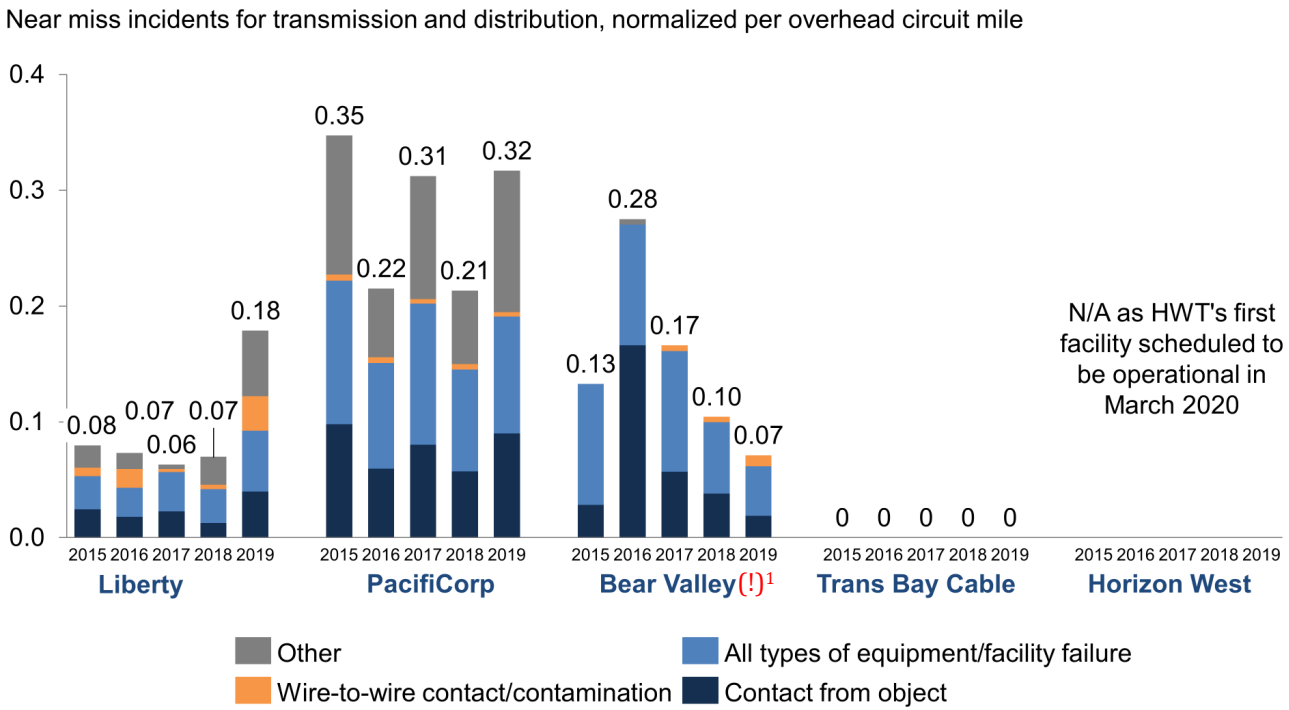
Figure 2.2a: Near miss incidents normalized by overhead circuit mileage (Large utilities)



Note: The measurement of each 'near miss' is not yet perfectly standardized across utilities. The WSD will work toward a more standardized approach for tracking and classifying near miss data for 2021 WMPs. A near miss was defined in the 2020 WMP Guidelines as "An event with significant probability of ignition, including wires down, contacts with objects, line slap, events with evidence of significant heat generation, and other events that cause sparking or have the potential to cause ignition."

Source: Tables 11a and 11b from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs; SDG&E equipment failure numbers adjusted to address inconsistencies in subtotal calculations provided by SDG&E.

Figure 2.2b: Near miss incidents normalized by overhead circuit mileage (Small utilities)



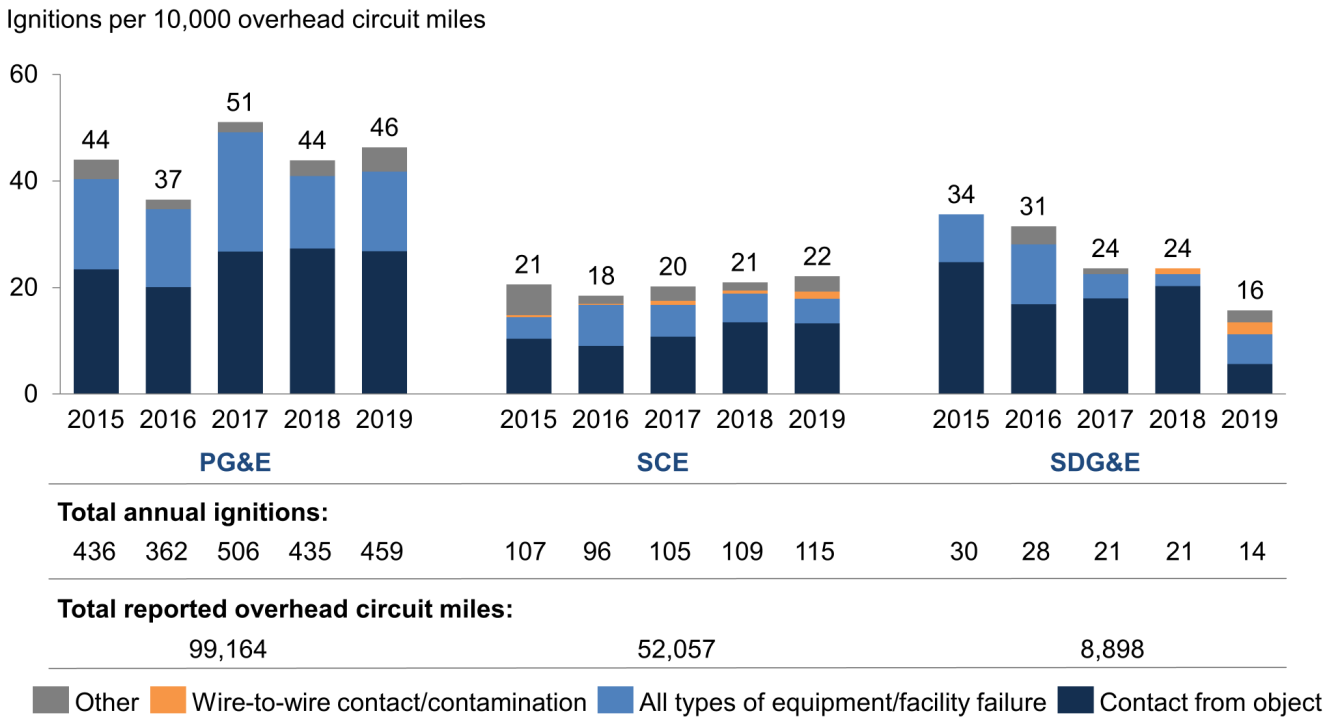
Note: The measurement of each 'near miss' is not yet perfectly standardized across utilities. The WSD will work toward a more standardized approach for tracking and classifying near miss data for 2021 WMPs. A near miss was defined in the 2020 WMP Guidelines as "An event with significant probability of ignition, including wires down, contacts with objects, line slap, events with evidence of significant heat generation, and other events that cause sparking or have the potential to cause ignition."

For PacifiCorp, the largest drivers of "Other" near misses were "Other" (50% on average over the 5 year period) and "Unknown" (42% on average over the 5 year period).

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

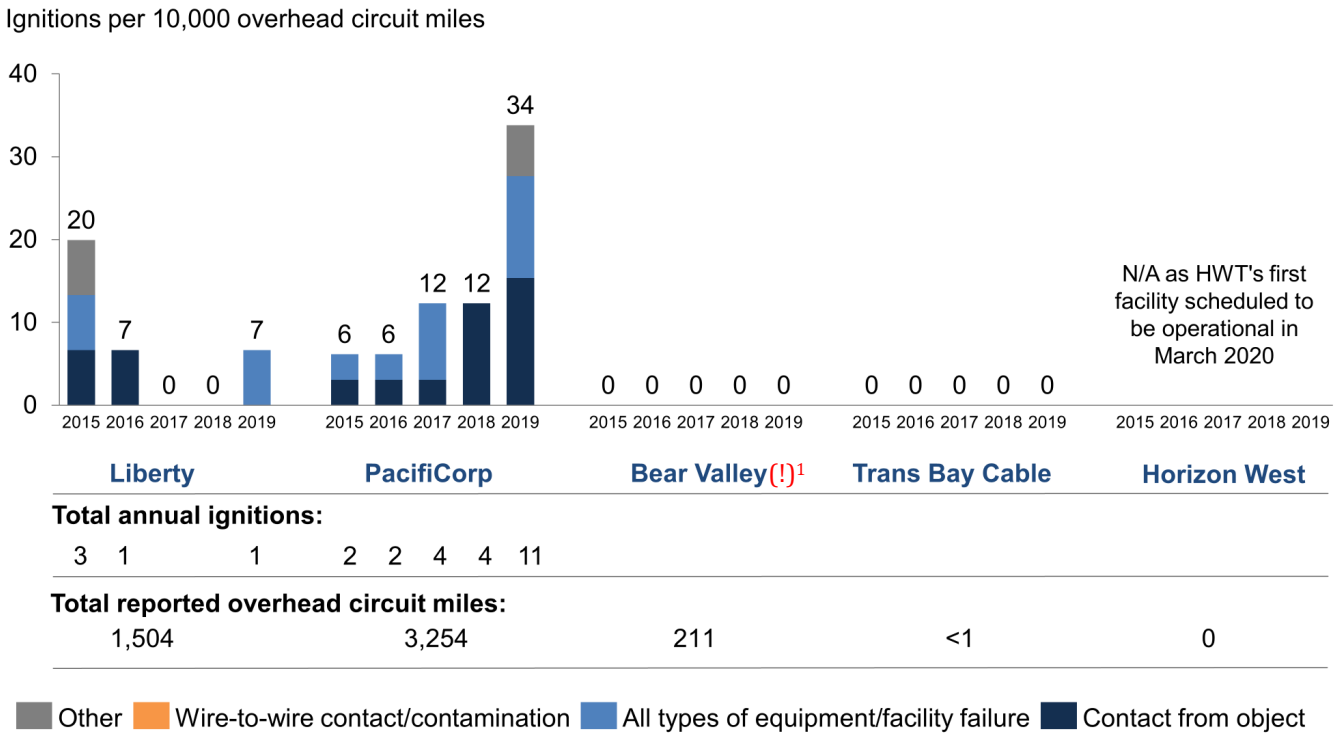
Source: Tables 11a and 11b from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs; BVES numbers adjusted to address inconsistencies in subtotal calculations provided.

Figure 2.3a: Number of ignitions, normalized by overhead circuit mileage (Large utilities)



Source: Tables 11a and 11b from utility WMPs and data requests normalized by data from Table 13 of utility WMPs; SDG&E equipment failure numbers adjusted to address inconsistencies in subtotal calculations provided.

Figure 2.3b: Number of ignitions, normalized by overhead circuit mileage (Small utilities)

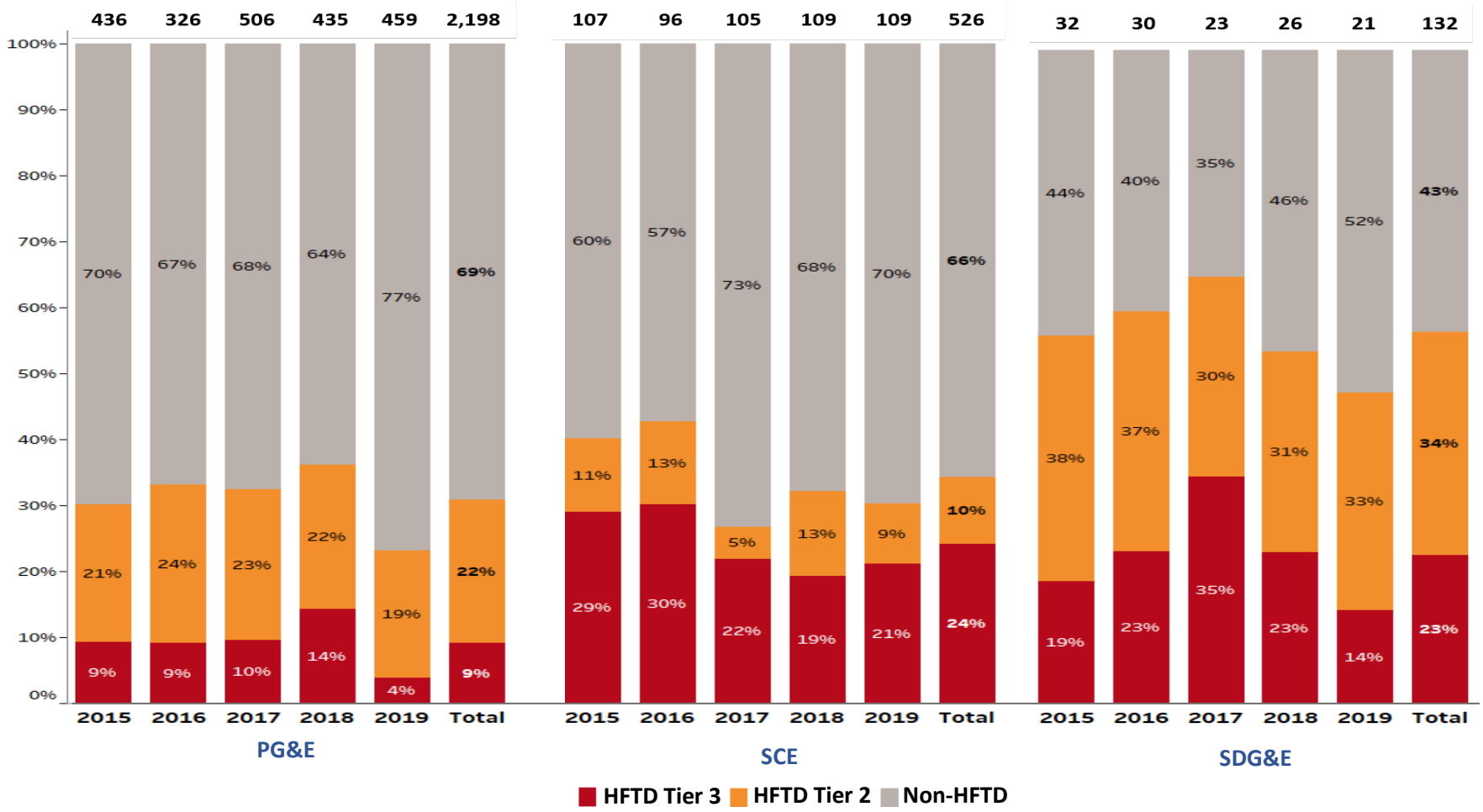


Note: Total number of ignititions only shown for utilities and years where ignitions were greater than zero.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

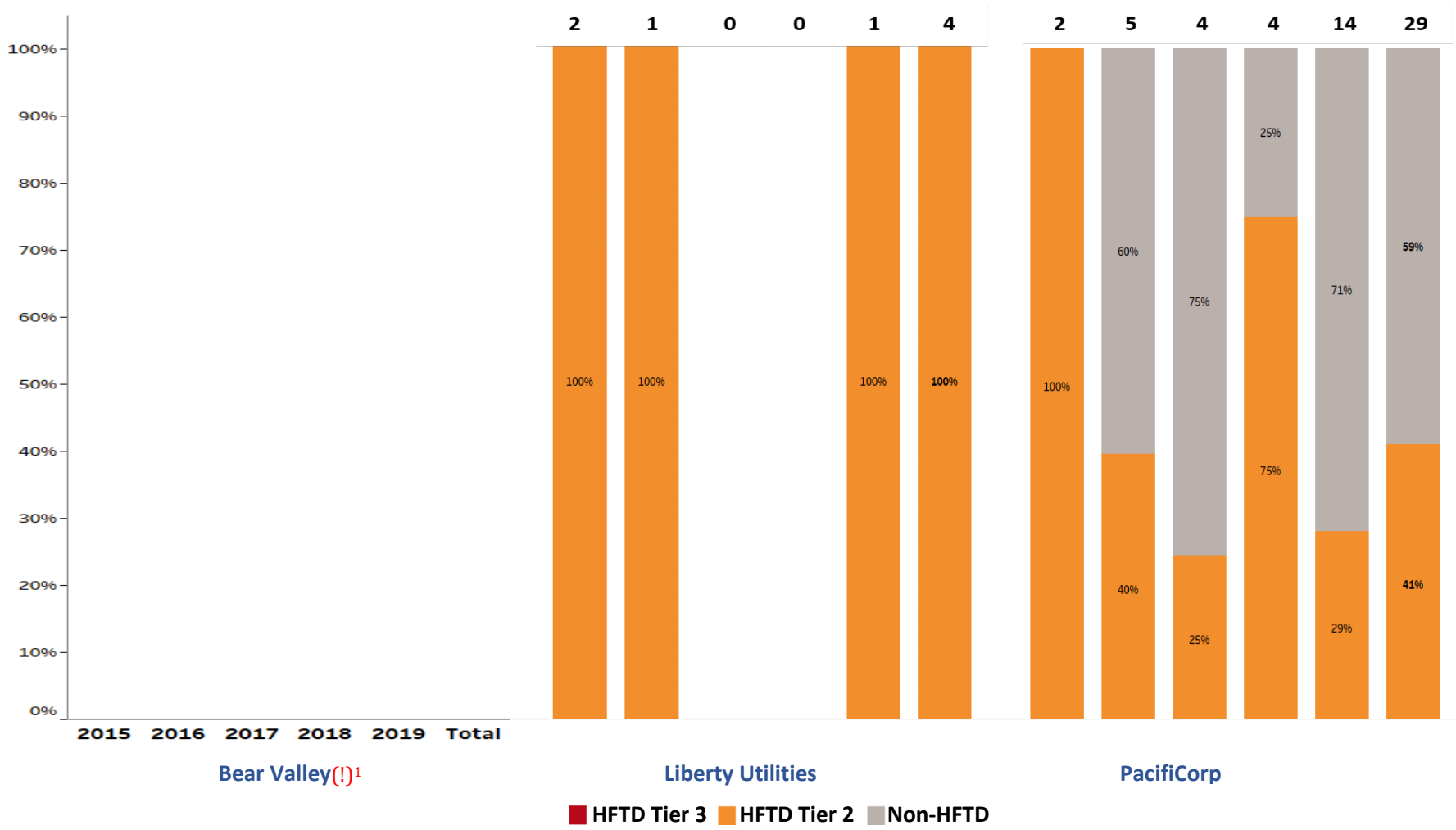
Source: Tables 11a and 11b from utility WMPs and data requests normalized by data from Table 13 of utility WMPs; PacifiCorp numbers adjusted to account for Tables 11c and 11d.

Figure 2.4a: Total ignitions by HFTD location (Large utilities)



Note: Ignitions in Zone 1 HFTD areas make up less than 1% of total ignitions.
Source: Table 2 from utility WMPs

Figure 2.4b: Total ignitions by HFTD location (Small utilities)

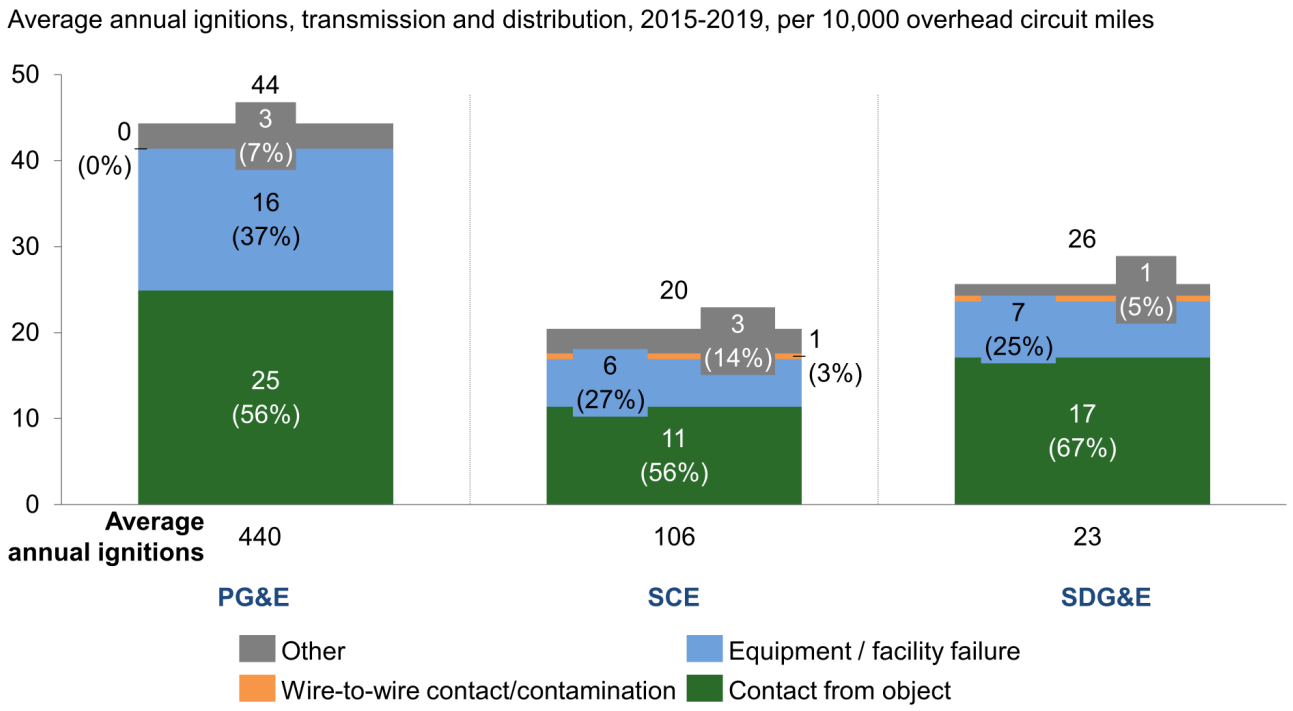


Note: Ignitions in Zone 1 HFTD areas make up less than 1% of total ignitions.

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

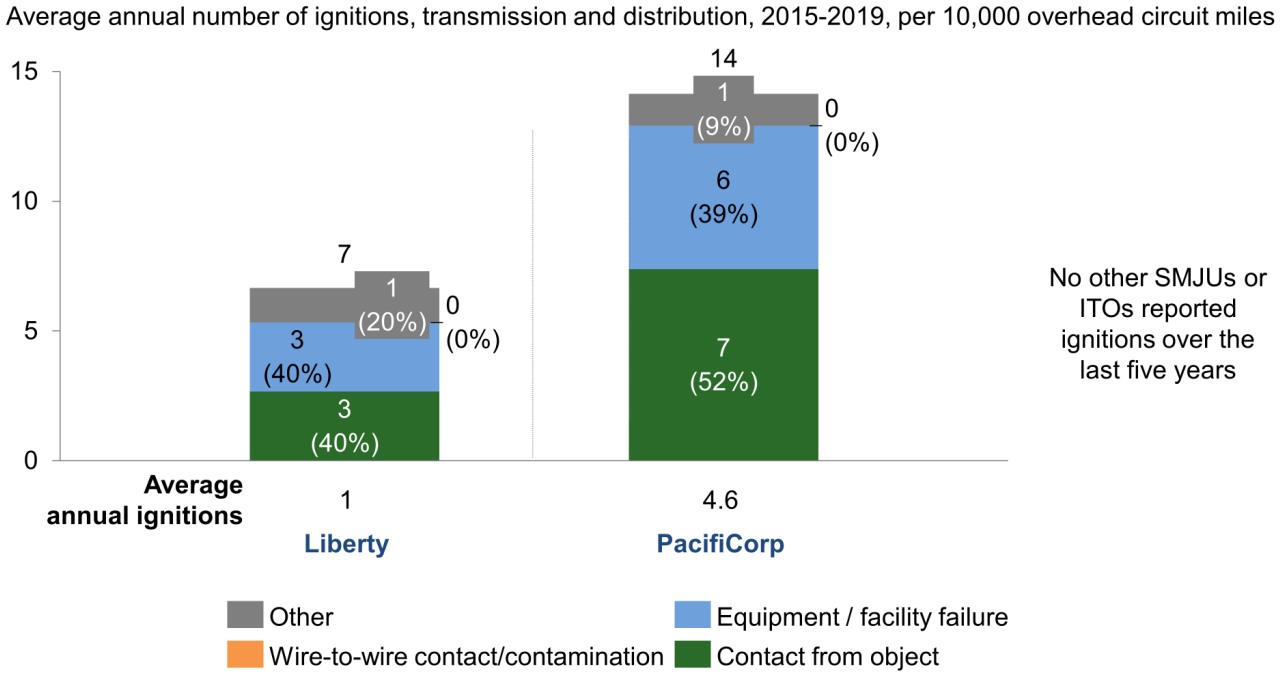
Source: Table 2 from utility WMPs

Figure 2.5a: Ignitions by ignition probability driver type (Large utilities)



Source: Tables 11a and 11b from utility WMPs and data requests normalized by data from Table 13 of utility WMPs; SDG&E equipment failure numbers adjusted to address inconsistencies in subtotal calculations provided.

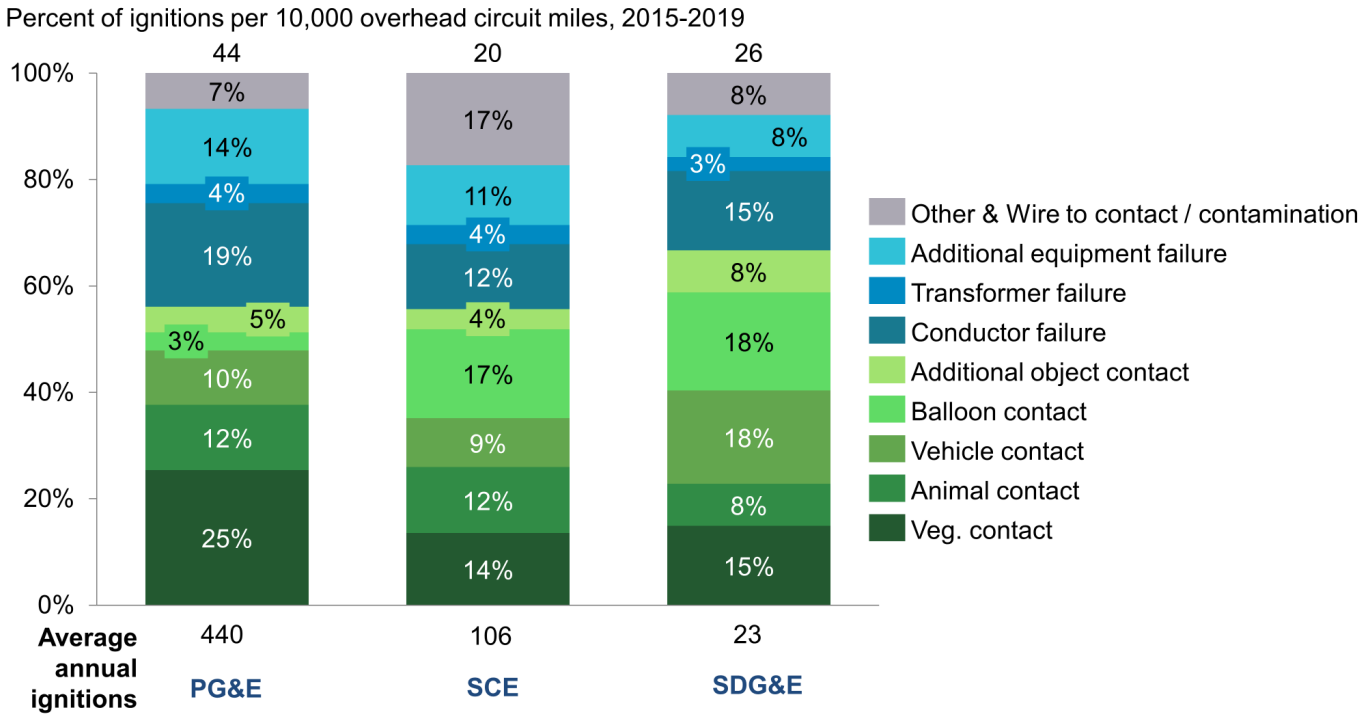
Figure 2.5b: Ignitions by ignition probability driver type (Small utilities)



Note: Since Liberty and PacifiCorp have less than 10,000 overhead circuit miles, their average number of total annual ignitions per 10,000 circuit miles is greater than their average number of total annual ignitions.

Source: Tables 11a and 11b from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs; PacifiCorp numbers adjusted to account for Tables 11c and 11d.

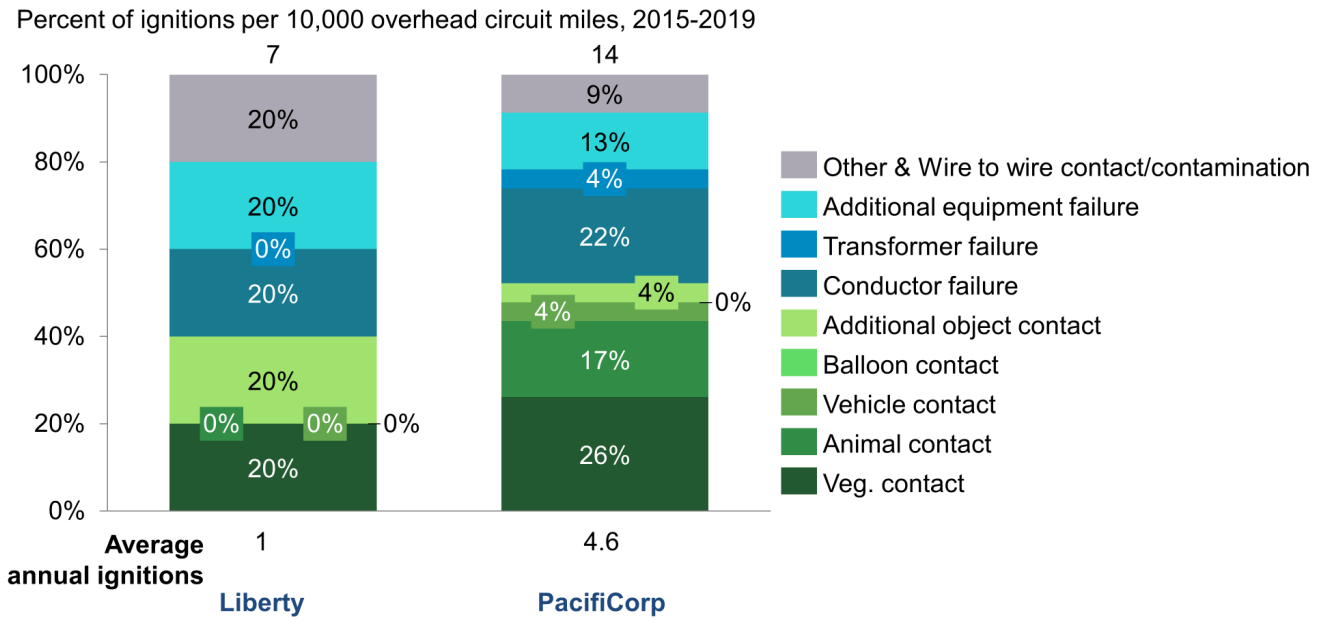
Figure 2.6a: Detail: Share of ignitions due to each ignition probability driver (Large utilities)



Note: Conductor failure includes conductor failure (as reported), splice, clamp and connector. Other includes wire to wire contact / contamination.

Source: Tables 11a and 11b from utility WMPs and data request normalized by data from Table 13 of utility WMPs; SDG&E equipment failure numbers adjusted to address inconsistencies in subtotal calculations provided. Since SDG&E has less than 10,000 overhead circuit miles, its average number of total annual ignitions per 10,000 circuit miles is greater than its average number of total annual ignitions.

Figure 2.6b: Detail: Share of ignitions due to each ignition probability driver (Small utilities)

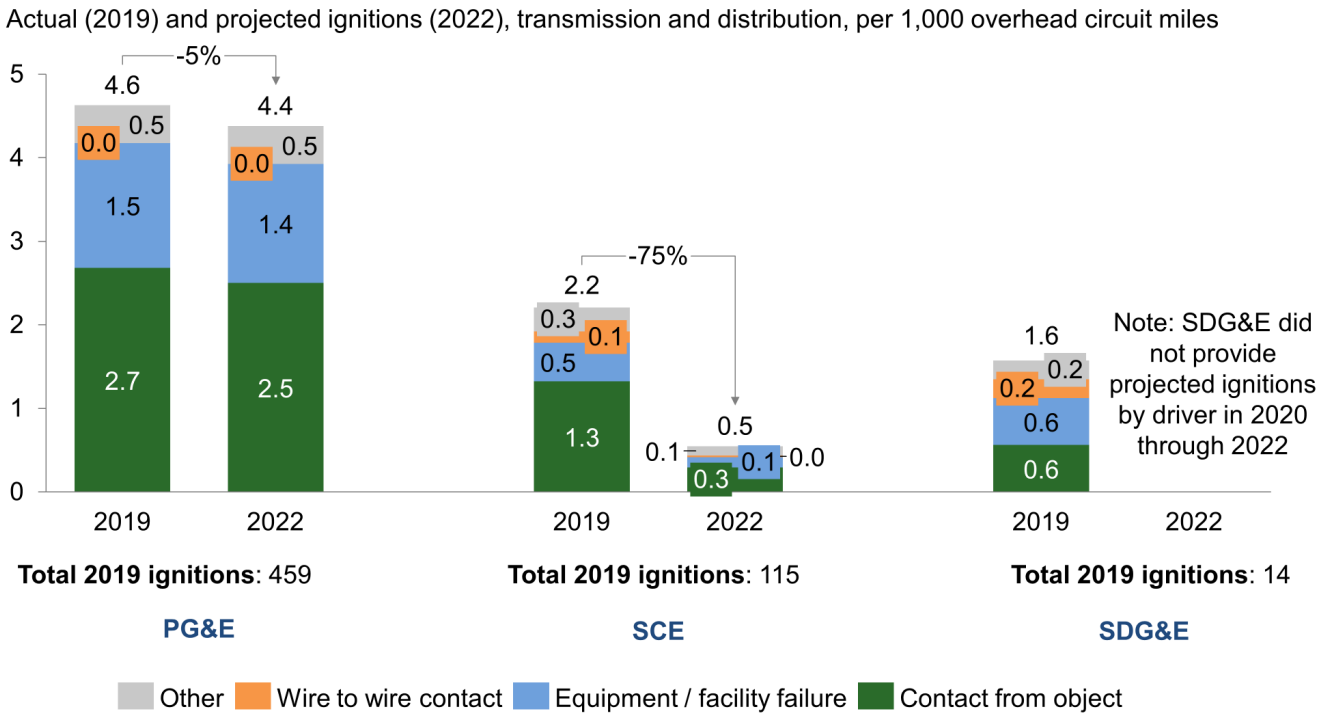


No other small utilities reported ignitions over the last five years

Note: Conductor failure includes conductor failure (as reported), splice, clamp and connector. Other includes wire-to-wire contact / contamination. Since Liberty and PacifiCorp have less than 10,000 overhead circuit miles, their average number of total annual ignitions per 10,000 circuit miles is greater than their average number of total annual ignitions.

Source: Tables 11a and 11b from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs; PacifiCorp numbers adjusted to account for Tables 11c and 11d.

Figure 2.7a: Actual and projected ignitions for top ignition drivers, 2019 and 2022



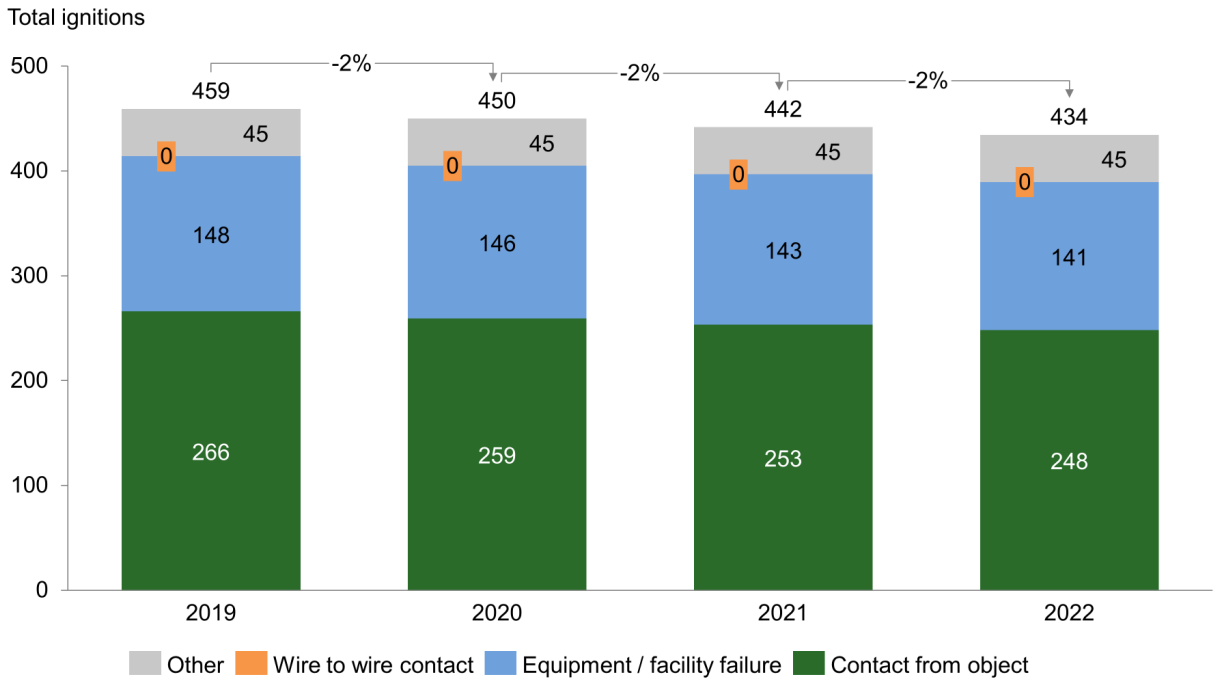
Note: Projections assume WMP implementation acording to plan and weather pattens consistent with 5 year historical average. See the 2020 WMP Guidelines for further detail.

Small utilities populated Table 31 either not at all or with all zeroes. Specifically: Horizon West Transmission left it blank as it did not yet have operational facilities when it submitted its 2020 WMP; Trans Bay Cable and Bear Valley Electric Service reported anticipating no ignitions (having seen no ignitions in the past 5 years); Liberty did not populate Table 31; PacifiCorp reported only a general reducing trend anticipated with no discrete data available.

Source: Tables 11a, 11b, 31a, and 31b from utility WMPs and data requests; SDG&E equipment failure numbers adjusted to address inconsistencies in subtotal calculations provided by SDG&E.

Figure 2.7b: PG&E Detail: Actual and projected ignitions for top ignition drivers, 2019 and 2022

Figure shows reported 2019 ignitions and projected future ignitions by driver category, for transmission and distribution

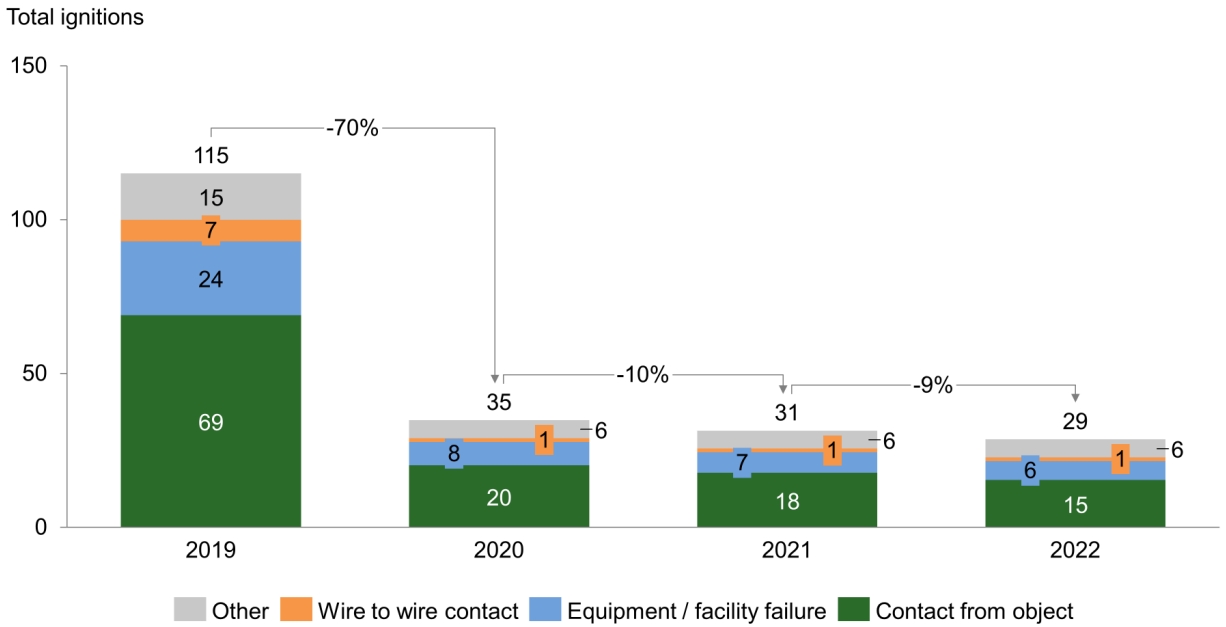


Note: Projections assume WMP implementation according to plan and weather patterns consistent with 5 year historical average. See the 2020 WMP Guidelines for more information on assumptions made.

Source: Tables 11a, 11b, 31a, and 31b from PG&E WMP and data requests

Figure 2.7c: SCE Detail: Actual and projected ignitions for top ignition drivers, 2019 and 2022

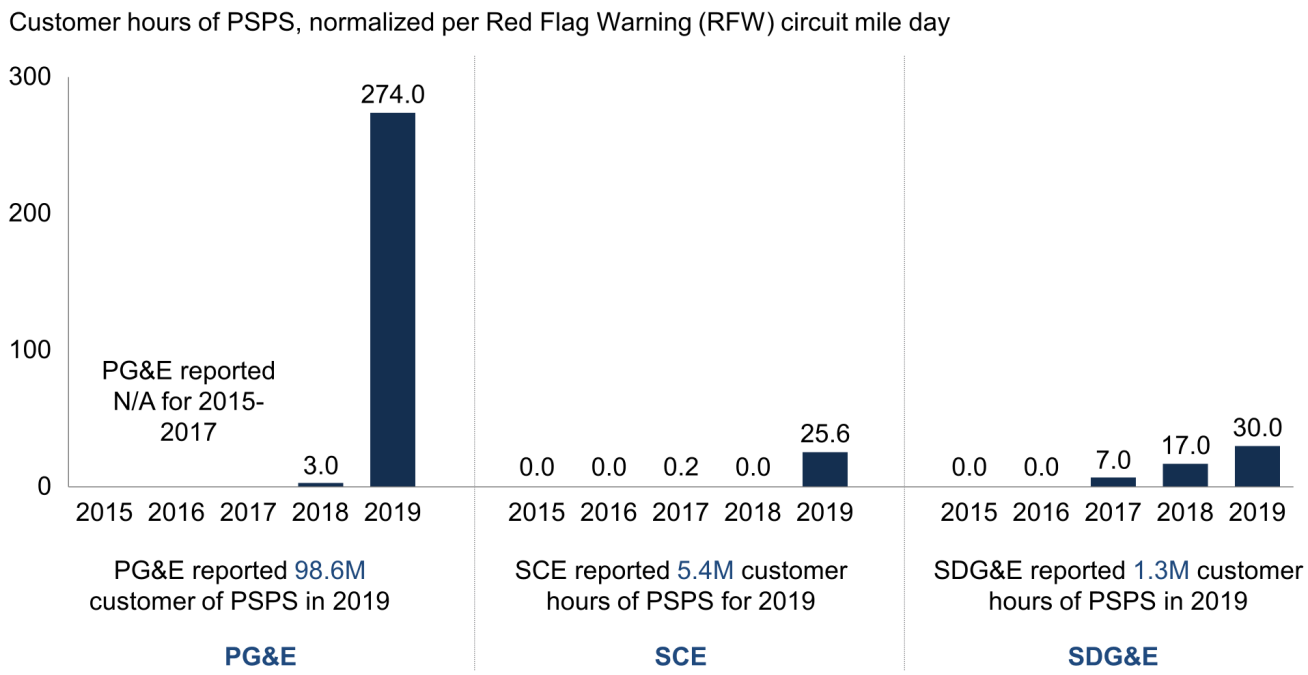
Figure shows reported 2019 ignitions and projected future ignitions by driver category, for transmission and distribution



Source: Tables 11a, 11b, 31a, and 31b from SCE WMP and data requests

Note: Projections assume WMP implementation according to plan and weather patterns consistent with 5 year historical average. See the 2020 WMP Guidelines for more information on assumptions made.

Figure 2.8a: Normalized PSPS duration in customer hours (Large utilities)

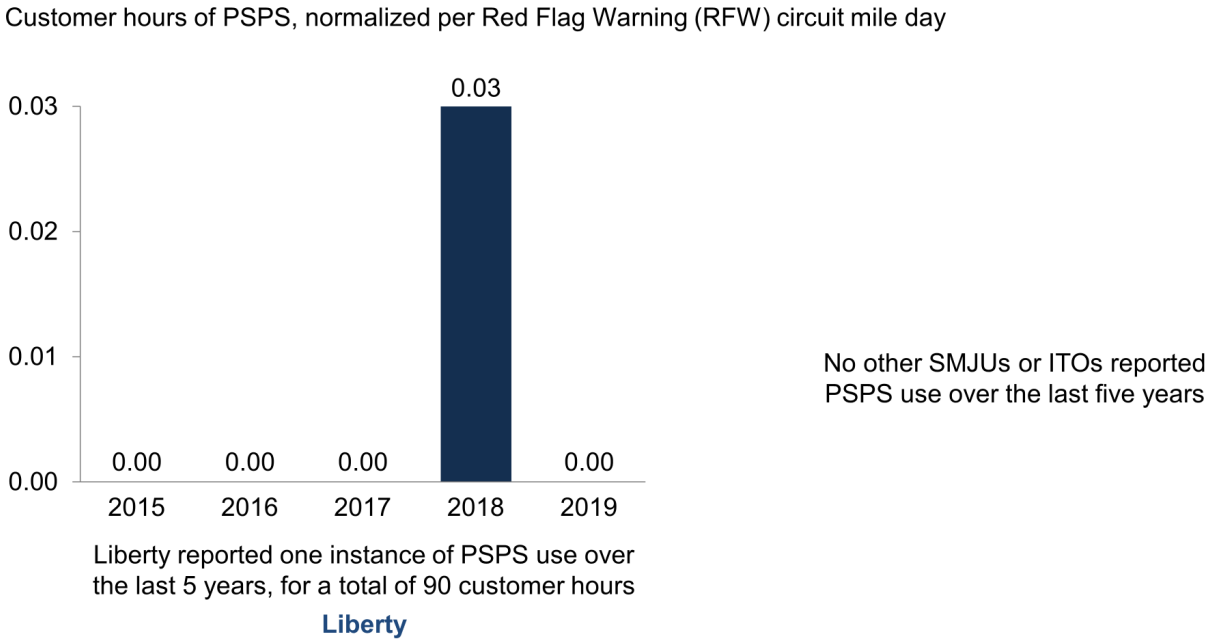


Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric; more detail is necessary to address potential inconsistencies in how each utility calculates this figure. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year and is calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW (per page 5 of the 2020 WMP Guidelines). For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110.

Utilities' ability to implement PSPS (including accurate predictions and customer communication) is captured in the Utility Wildfire Mitigation Maturity Model's "PSPS operating model and consequence mitigation" capability.

Source: Table 12 of utility WMPs.

Figure 2.8b: Normalized PSPS duration in customer hours (Small utilities)

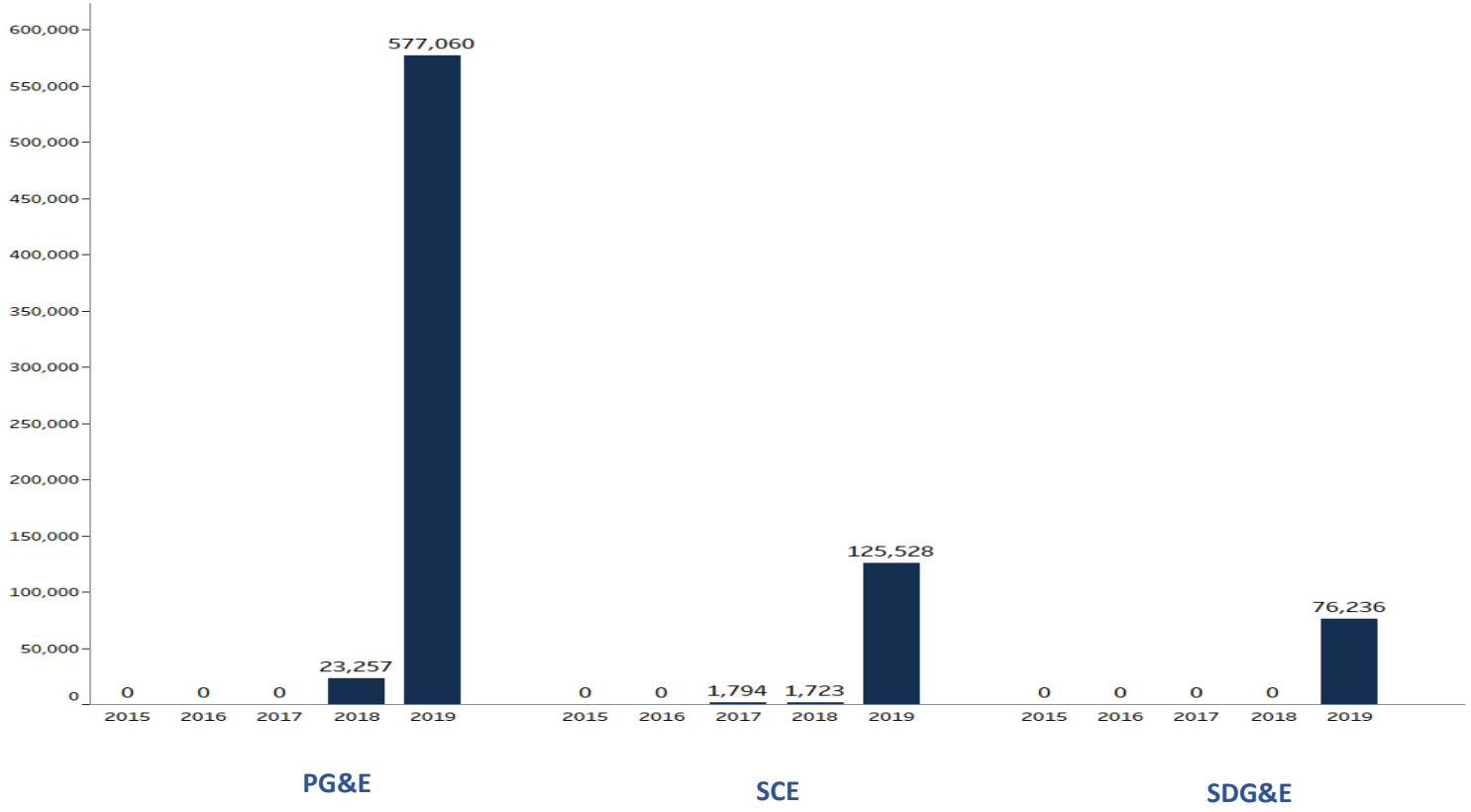


Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric; more detail is necessary to address potential inconsistencies in how each utility calculates this figure. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year and is calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW (per page 5 of the 2020 WMP Guidelines). For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110.

Utilities' ability to implement PSPS (including accurate predictions and customer communication) is captured in the Utility Wildfire Mitigation Maturity Model's "PSPS operating model and consequence mitigation" capability.

Source: Table 12 of utility WMPs.

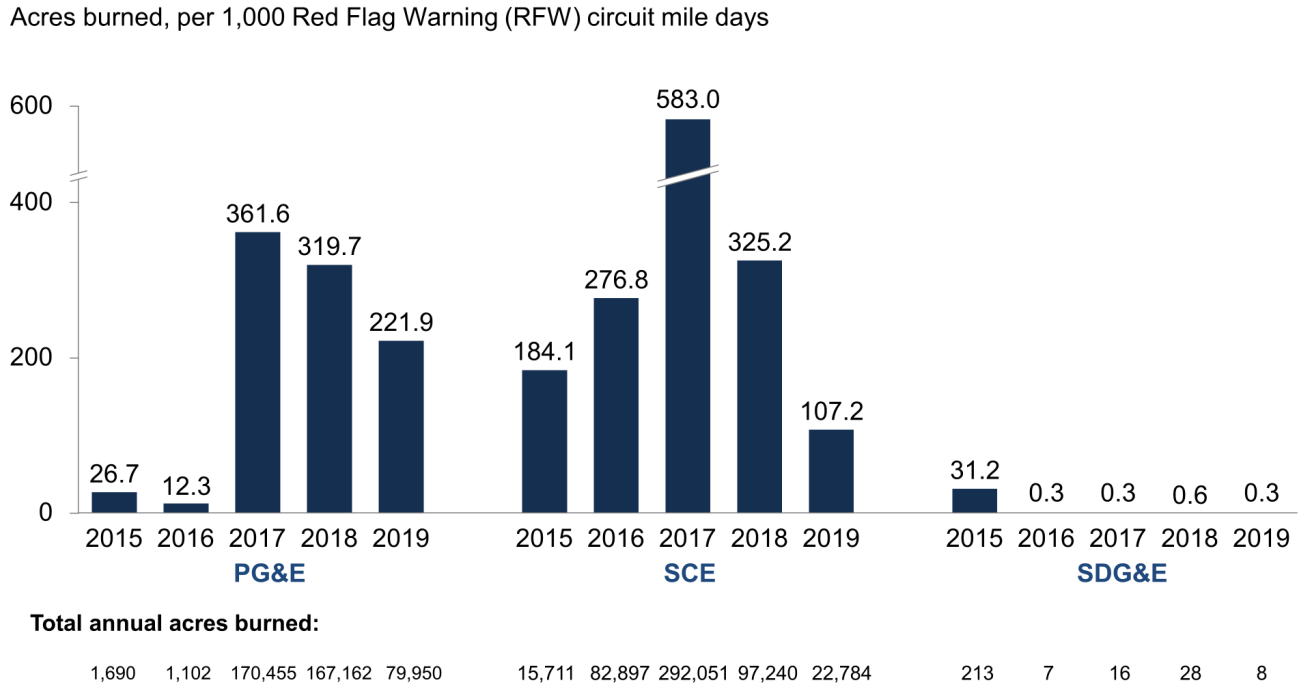
Figure 2.8c: PSPS impacts on critical infrastructure



Note: Count is based on number of critical infrastructure locations impacted per hour multiplied by hours offline per year

Source: Table 2 of utility WMPs

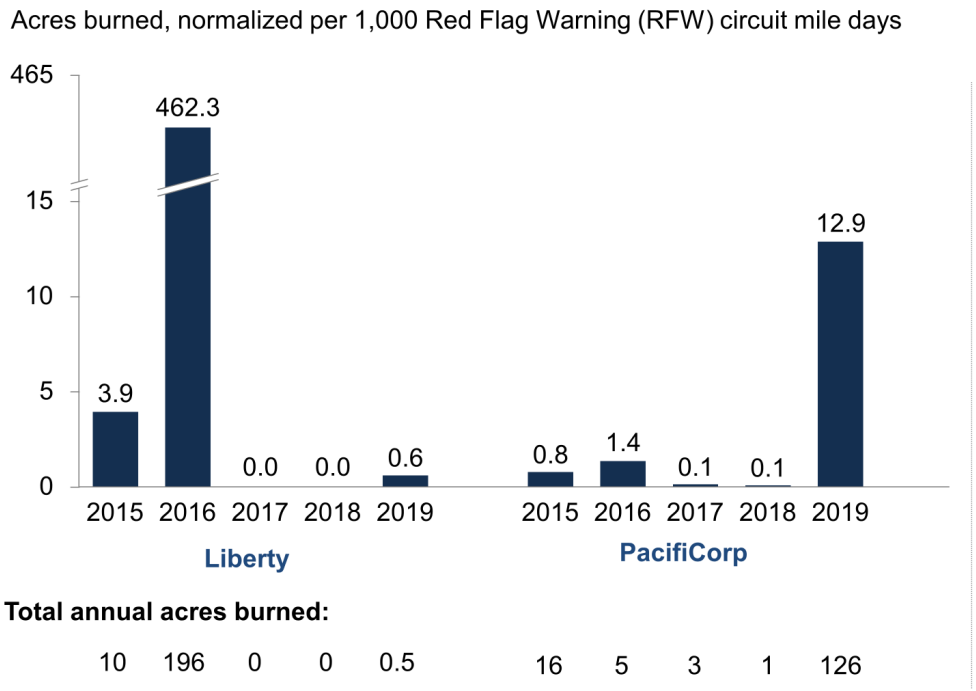
Figure 2.9a: Normalized area burned by utility ignited wildfire (Large utilities)



Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year. It is defined on page 5 of the 2020 WMP Guidelines to be calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW. For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110. To address inconsistencies in how utilities normalized this metric in Table 2 of their WMPs, this table shows number of acres burned as reported in Table 2 normalized by RFW Circuit Mile Days as reported in Table 10.

Source: Table 2 and Table 10 of utility WMPs.

Figure 2.9b: Normalized area burned by utility ignited wildfire (Small utilities)

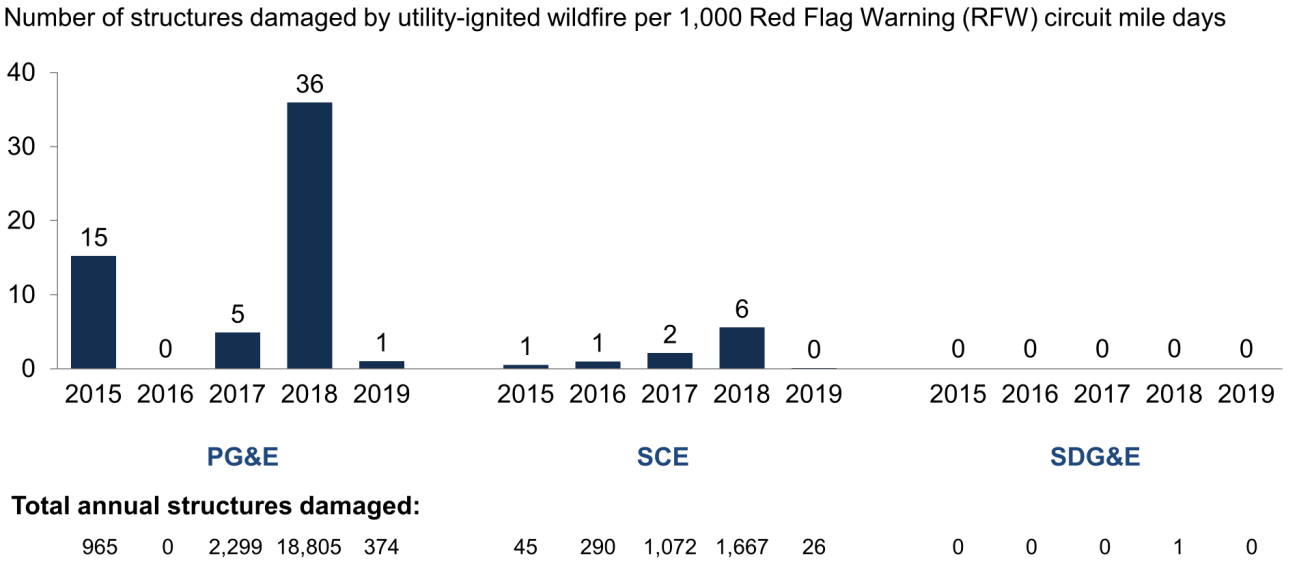


No other SMJUs or ITOs reported any area burned over the last 5 years

Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year. It is defined on page 5 of the 2020 WMP Guidelines to be calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW. For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110. To address inconsistencies in how utilities normalized this metric in Table 2 of their WMPs, this table shows number of acres burned as reported in Table 2 normalized by RFW Circuit Mile Days as reported in Table 10.

Source: Table 2 and Table 10 of utility WMPs.

Figure 2.10: Number of structures damaged by utility ignited wildfire



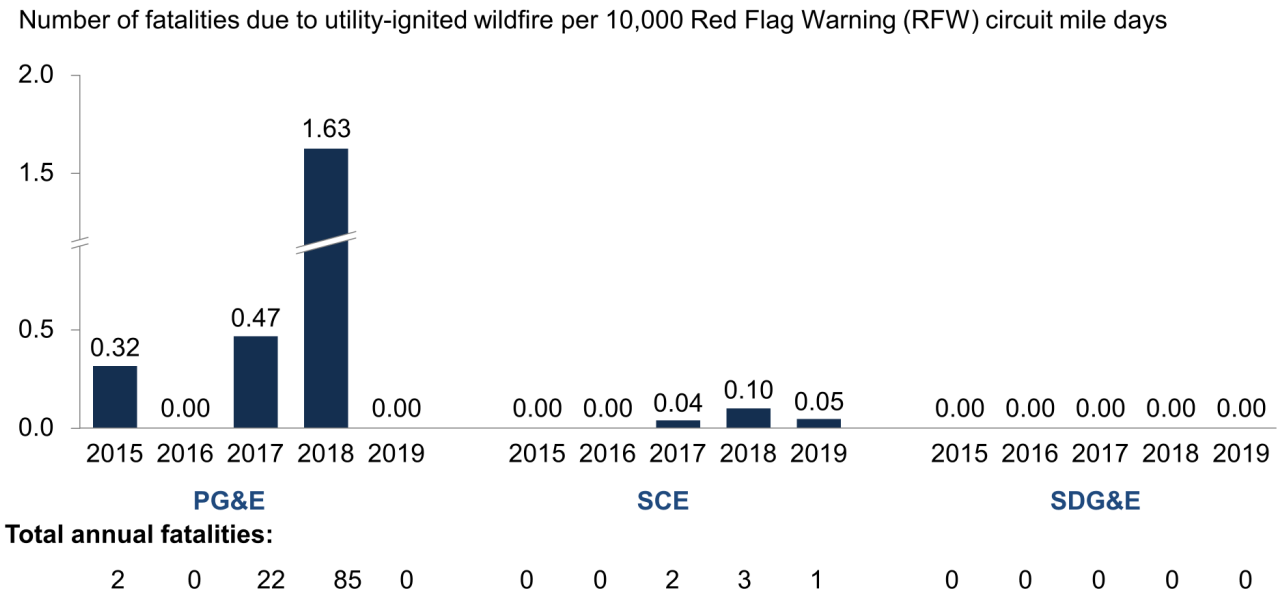
No SMJUs or ITOs reported number of structures damaged over the past 5 years

Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year. It is defined on page 5 of the 2020 WMP Guidelines to be calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW. For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110.

This figure is shown for IOUs only because the smaller utilities did not report structures damaged in a comparable way. PacifiCorp reported the value of assets desroyed, rather than number of structures damaged; Liberty reported no homes destroyed, only 18 utility poles; and no other SMJUs or ITOs reported any structures damaged.

Source: Table 2 of utility WMPs.

Figure 2.11: Fatalities due to utility ignited wildfire



No SMJUs or ITOs reported fatalities due to utility ignited wildfire over the past 5 years

Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture the duration and scope of the fire weather that year. It is defined on page 5 of the 2020 WMP Guidelines to be calculated as the number of circuit miles that were under a RFW multiplied by the number of days those miles were under said RFW. For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110.

Source: Table 2 of utility WMPs.

1.3 Resource Allocation

Figure 3.1a: Overview of total plan spend across utilities (Large utilities)

		PG&E	SCE	SDG&E
Total spend	2019 planned spend	$2,296M	$671M	$255M
	2019 actual spend	$2,999M	$1,557M	$307M
	2020 planned spend	$3,171M	$1,606M	$444M
	2021 planned spend	$3,130M	$1,404M	$445M
	2022 planned spend	$3,247M	$1,501M	$448M
	Total planned spend as for 2020, 2021 and 2022, as reported by utility	**$9,548M**	**$4,511M**	**$1,336M**[1]
Normalized spend	Total planned spend for 2020, 2021 and 2022 per overhead HFTD circuit mile	$307K	$318K	$291K

1. Totals for SDG&E include a calculation error on the part of SDG&E in which the sum of the reported spend for 2020, 2021, and 2022 is not equal to the reported total 2020-2022 planned spend. This error has not been corrected by the WSD in this table.

Note: "M" stands for millions, "K" stands for thousands.

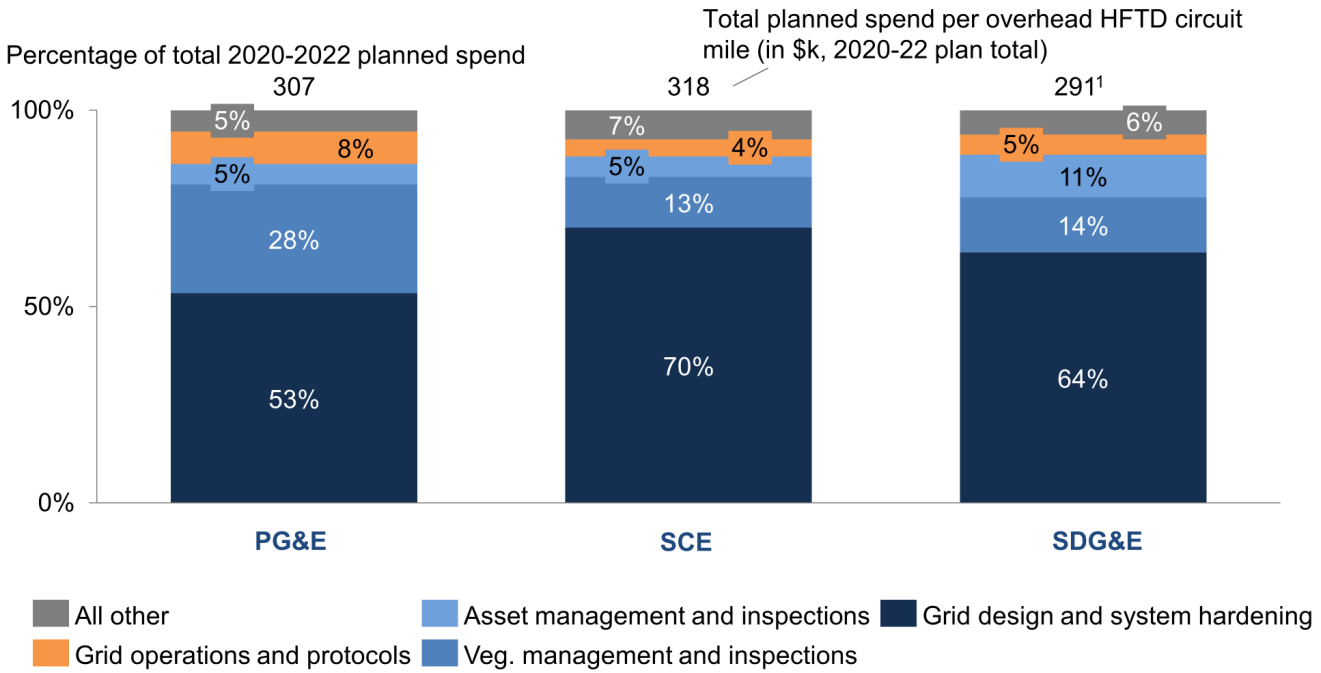
Source: Tables 21-30 from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs

Figure 3.1b: Overview of total plan spend across utilities (Small utilities)

		Liberty	PacifiCorp	Bear Valley(!)[2]	Horizon West	Trans Bay Cable
Total spend	2019 planned spend	$4M	$1M	$12M	$0M	$0M
	2019 actual spend	$7M	$13M	$12M	$0M	$0M
	2020 planned spend	$30M	$26M	$84M	$4M	$0M
	2021 planned spend	$32M	$38M	$79M	$4M	$0M
	2022 planned spend	$27M	$37M	$79M	$0M	$0M
	Total planned spend as for 2020, 2021 and 2022, as reported by utility	**$88K[1]**	**$101M[1]**	**$247M[1]**	**$8M**	**$0M**
Normalized spend	Total planned spend for 2020, 2021 and 2022 per overhead HFTD circuit mile	$63K	$86K	$1,168K	NA – no operational facilities as of WMP submission	$0K

1. Totals for Liberty, PacifiCorp, and Bear Valley include calculation errors on the part of utilities in which the reported sum of the spend for 2020, 2021, and 2022 is not equal to the total reported 2020-2022 planned spend. This error has not been corrected by the WSD in this table.
2. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).
Note: "M" stands for millions, "K" stands for thousands.
Source: Tables 21-30 from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs

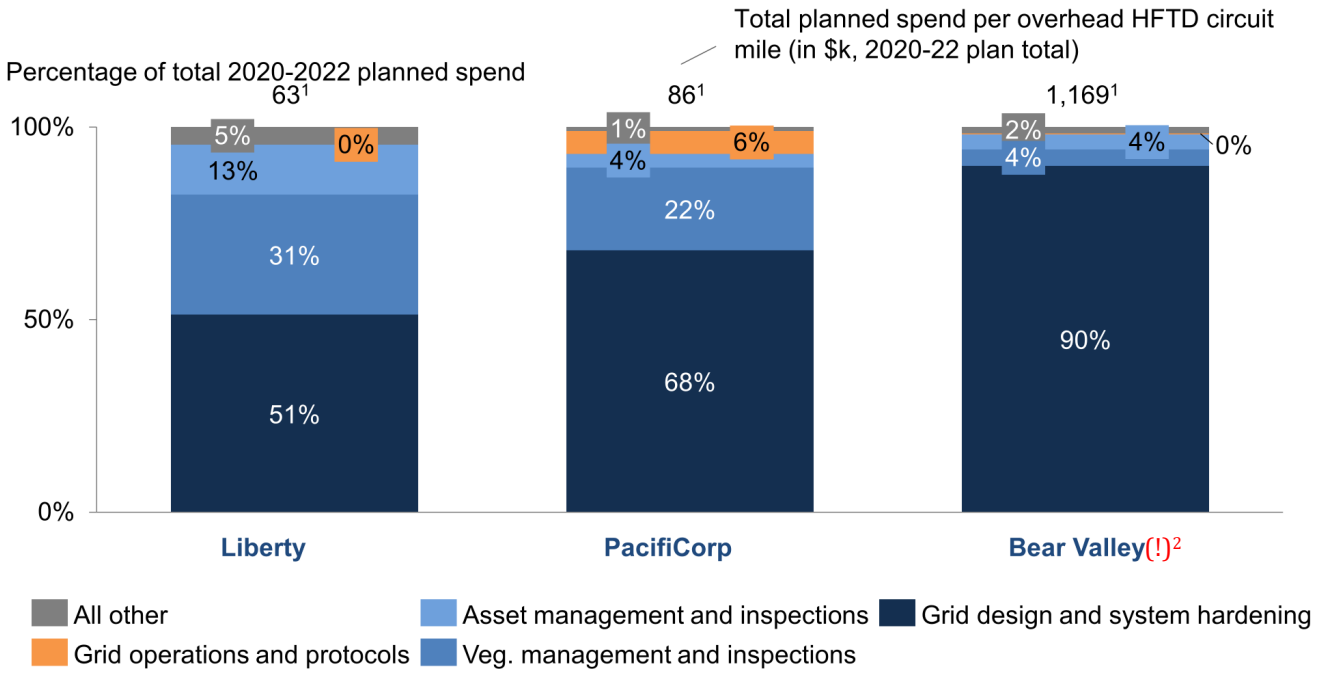
Figure 3.2a: Overview of total plan spend across utilities (Large utilities)



1. Totals for SDG&E include a calculation error on the part of SDG&E which has not been corrected by the WSD in this chart. Specifically, the sum of the reported spend for 2020, 2021, and 2022 is not equal to the reported total 2020-2022 spend as reported by SDG&E.

Source: Tables 21-30 from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs

Figure 3.2b: Overview of total plan spend across utilities (Small utilities)



1. Totals for Liberty, PacifiCorp and Bear Valley include calculation errors on the part of those utilities which have not been corrected by the WSD in this chart. Specifically, the sum of the spend for 2020, 2021, and 2022 is not equal to the total 2020-2022 spend as reported by those utilities.

2. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Note: Spending for ITOs not shown here. Trans Bay Cable reports no planned spend. Horizon West Transmission (HWT) does not yet have operational facilities but reports up to $8M in planned spending, shown in HWT detailed appendix.

Source: Tables 21-30 from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs

Figure 3.3a: Breakdown of planned spend by category (Large utilities)

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	PG&E		SCE		SDG&E	
Category	**Total plan spend, $M**	**% of total**	**Total plan spend, $M**	**% of total**	**Total plan spend, $M**	**% of total**
Grid design / system hardening	5,102	53%	3,162	70%	853	64%
Vegetation mgt. and inspections	2,645	28%	583	13%	187	14%
Asset mgt. and inspections	499	5%	232	5%	146	11%
Grid operations and protocols	788	8%	198	4%	68[1]	5%
Data governance	177	2%	39	1%	1	0%
Situational awareness and forecasting	140	2%	90	2%	24	2%
Emergency planning and preparedness	114	1%	72	2%	18	1%
Stakeholder cooperation & community engagement	84	1%	0	0%	0	0%
Resource allocation methodology	0	0%	133	3%	26	2%
Risk assessment and mapping	0	0%	0	0%	14	1%
Total plan, 2020-2022	**9,548**	**100%**	**4,511**	**100%**	**1,336**	**100%**

1. SDG&E has reported an incorrect total (reported 2020-2022 total plan spend is not equal to the sum of planned 2020, 2021, and 2022 spend). This error has not been corrected by the WSD in this table.

Source: Tables 21-30 of utility WMPs

Figure 3.3b: Breakdown of planned spend by category (Small utilities)

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	Liberty		PacifiCorp		Bear Valley(!)[2]	
Category	**Total plan spend, $M**	**% of total**	**Total plan spend, $M**	**% of total**	**Total plan spend, $M**	**% of total**
Grid design / system hardening	45	51%	68	68%	222[1]	90%
Vegetation mgt. and inspections	28	31%	22	22%	10	4%
Asset mgt. and inspections	11[1]	13%	4[1]	4%	10	4%
Grid operations and protocols	0	0%	6	6%	1	0%
Data governance	1	2%		0%	0	0%
Situational awareness and forecasting	2	2%	1	1%	4	2%
Emergency planning and preparedness	1	1%	0	0%	0	0%
Stakeholder cooperation & community engagement	0	0%	0	0%	0	0%
Resource allocation methodology	0	0%	0	0%	0	0%
Risk assessment and mapping	0	0%	0	0%	0	0%
Total plan, 2020-2022	**88**	**100%**	**101**	**100%**	**247**	**100%**

1. Totals for Liberty, PacifiCorp, and BVES include calculation errors on the part of utilities where reported 2020-2022 plan total spend is different from the sum of reported spend for 2020, 2021 and 2022. These errors have not been corrected by the WSD in this table.
2. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Source: Tables 21-30 of utility WMPs

Figure 3.4a: PG&E resource allocation detail for top 5 initiatives by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	Initiative	Category	Planned spend, $M						Initiative spend as percent of total planned spend
			2019 plan	2019 actual	2020 plan	2021 plan	2022 plan	2020-2022 plan total	
1	17-1. Updates to grid topology to minimize risk of ignition in HFTDs - System Hardening, Distribution	Grid design and system hardening	229	287	367	566	698	1,631	17%
2	15. Remediation of at-risk species - Enhanced Vegetation Management	Vegetation management and inspections	295	424	449	463	477	1,388	15%
3	15. Transmission tower maintenance and replacement	Grid design and system hardening	444	750	297	305	312	914	10%
4	6. Distribution pole replacement and reinforcement, including with composite poles	Grid design and system hardening	255	109	212	218	223	654	7%
5	12-4. Other corrective action - Distribution	Grid design and system hardening	322	167	200	205	210	614	6%
Total spend for top 5 initiatives by planned spend			**1,545**	**1,738**	**1,525**	**1,756**	**1,920**	**5,201**	**54%**

Source: Tables 21-30 of utility WMP

Figure 3.4b: PG&E resource allocation detail for top 4 categories by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

Category	Total Category Planned Spend	Category spend as percent of total planned spend	Top 3 initiatives by planned spend in category Initiative names as reported in WMP	Initiative spend as percent of total planned spend
Grid design and system hardening	$5.1B	53%	17-1. System Hardening, Distribution	17%
			15. Transmission tower maintenance and replacement	10%
			6. Distribution pole replacement and reinforcement, including with composite poles	7%
Vegetation management and inspections	$2.6B	28%	15. Remediation of at-risk species-Enhanced Veg Mgt.	15%
			2. Detailed inspections of vegetation-Distribution	6%
			9. Other discretionary inspection of veg. around distribution lines and equipment, beyond those required by regulations	3%
Asset management of inspections	$499M	5%	1. Detailed inspections of distribution electric lines/equip.	3%
			2. Detailed inspections of transmission electric lines/equip.	2%
			15-1 Substation inspections - Transmission Substation	0%
Grid operations and protocols	$788M	8%	5-1. PSPS events and mitigation of PSPS impacts-Distribution	4%
			5-3. PSPS events and mitigation of PSPS impacts - Additional PSPS Mitigation Initiatives, Distribution	2%
			2. Crew-accompanying ignition prevention and suppression resources and services	1%

Note: "M" stands for millions, "B" stands for billions.

Source: Tables 21-30 of utility WMP

Figure 3.5a: SCE resource allocation detail for top 5 initiatives by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	Initiative	Category	Planned spend, $M						Initiative spend as percent of total planned spend
			2019 plan	2019 actual	2020 plan	2021 plan	2022 plan	2020-2022 plan total	
1	3.1. Covered conductor installation: covered conductor (SH-1)	Grid design and system hardening	42	240	454	656	772	1,883	42%
2	12.1. Other corrective action: distribution remediation (SH-12.1)	Grid design and system hardening	192	395	328	125	85	538	12%
3	20. Vegetation management to achieve clearances around electric lines and equipment	Vegetation management and inspections	76	247	76	64	61	201	4%
4	6.1. Distribution pole replacement and reinforcement, including with composite poles: composite poles and crossarms (SH-3)	Grid design and system hardening	5	Reported as "NA" - part of 3.1	57	64	74	194	4%
5	16.1. Removal and remediation of trees with strike potential to electric lines and equipment: hazard tree (VM-1)	Vegetation management and inspections	57	15	54	59	72	186	4%
Total spend for top 5 initiatives by planned spend			**372**	**897**	**969**	**969**	**1063**	**3002**	**67%**

Source: Tables 21-30 of utility WMP

Figure 3.5b: SCE resource allocation detail for top 4 categories by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

Category	Total Category Planned Spend	Category spend as percent of total planned spend	Top 3 initiatives by planned spend Initiative names in some cases abbreviated to fit in this table	Initiative spend as percent of total plan spend
Grid design and system hardening	$3.1B	70%	3.1. Covered conductor installation: covered conductor	42%
			12.1. Other corrective action: Distribution remediation	12%
			6.1. Distribution pole replacement and reinforcement, including with composite poles: Composite poles and crossarms	4%
Vegetation management and inspections	$583M	13%	20. Vegetation management to achieve clearances around electric lines and equipment	4%
			16.1. Removal and remediation of trees with strike potential to electric lines and equipment: Hazard tree	4%
			16.2. Removal and remediation of trees with strike potential to electric lines and equipment: DRI quarterly inspections and tree removals	2%
Asset management of inspections	$232M	5%	9.2. Distribution aerial inspections	2%
			15. Substation inspections	1%
			10.2. Transmission aerial inspections	1%
Grid operations and protocols	$198M	4%	5.8. PSPS events and mitigation of PSPS impacts: SGIP resiliency	3%
			5. PSPS events and mitigation of PSPS impacts	0%
			5.3. PSPS events and mitigation of PSPS impacts: income qualified critical care (IQCC) customer battery backup incentive program	0%

Source: Tables 21-30 of utility WMP

Figure 3.6a: SDG&E resource allocation detail for top 5 initiatives by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	Initiative	Category	Planned spend, $M						Initiative spend as percent of total plan spend
			2019 plan	2019 actual	2020 plan	2021 plan	2022 plan	2020-2022 plan total	
1	Undergrounding of Electric Lines and/or Equipment	Grid design and system hardening	2	5	31	157	188	376	28%
2	Distribution Overhead Fire Hardening (OH)	Grid design and system hardening	75	121	87	12	7	106	8%
3	LTE Communication Network	Grid design and system hardening	11	7	32	32	42	105	8%
4	Tree Trimming	Vegetation management and inspections	Not provided[1]	34	28	28	28	83	6%
5	Drone Inspections (O&M) – Engr and construction	Asset management and inspections	Listed "NA"	Listed "NA"	27	24	20	71	5%
Total spend for top 5 initiatives by planned spend			**88**	**166**	**204**	**253**	**284**	**741**	**55%**

1. Incorporated into 2019 base costs.

Source: Tables 21-30 of utility WMP

Figure 3.6b: SDG&E resource allocation detail for top 4 categories by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

Category	Total Category Planned Spend	Category spend as percent of total planned spend	Top 3 initiatives by planned spend Initiative names as reported in WMP	Initiative spend as percent of total planned spend
Grid design and system hardening	$853M	64%	Undergrounding of Electric Lines and/or Equipment	28%
			Distribution Overhead Fire Hardening (OH)	8%
			LTE Communication Network	8%
Vegetation management and inspections	$187M	14%	Tree Trimming	6%
			Enhanced Inspections Patrols and Trimming	5%
			Pole Brushing	1%
Asset management of inspections	$146M	11%	Drone Inspections (O&M) *Engineering & Construction	5%
			Drone Inspections (O&M) *Flights & Assessments	4%
			Drone Inspections (capital)	1%
Grid operations and protocols	$68M	5%	Aviation Firefighting Program (O&M)	2%
			Aviation Firefighting Program (Capital)	2%
			Communication Practices (O&M)[1]	1%

1. Totals for SDG&E include a calculation error on the part of SDG&E in which the sum of the reported spend for 2020, 2021, and 2022 is not equal to the reported total 2020-2022 planned spend. This error has not been corrected by the WSD in this table.

Note: "M" stands for millions

Source: Tables 21-30 of utility WMP

Figure 3.7: Liberty resource allocation detail for top 5 initiatives by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	Initiative	Category	Planned spend, $M						Initiative spend as percent of total plan spend
			2019 plan	2019 actual	2020 plan	2021 plan	2022 plan	2020-2022 plan total	
1	Covered Conductor Installation	Grid design and system hardening	1	1	3	8	10	21	24%
2	Remediation of at-risk-species	Vegetation management and inspections	0	5	5	5	5	14	16%
3	13. Pole loading infrastructure hardening and replacement program based on pole loading assessment program	Grid design and system hardening	1	1	2	3	4	8	9%
4	Undergrounding electric lines and/or equipment	Grid design and system hardening	0	0	2	6	0	8	9%
5	Fuel management and reduction of "slash" from vegetation management activities	Vegetation management and inspections	0	0	2	3	3	7	8%
Total spend for top 5 initiatives by planned spend			**2**	**6**	**13**	**24**	**21**	**58**	**66%**

Note: "M" stands for millions.

Source: Tables 21-30 of utility WMP

Figure 3.8: PacifiCorp resource allocation detail for top 5 initiatives by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	Initiative	Category	Planned spend, $M						Initiative spend as percent of total plan spend
			2019 plan	2019 actual	2020 plan	2021 plan	2022 plan	2020-2022 plan total	
1	3b. Covered conductor installation - distribution	Grid design and system hardening	0	0	8	11	12	31	31%
2	6b. Transmission pole replacement and reinforcement, including with composite poles	Grid design and system hardening	0	0	4	4	4	12	12%
3	3. Covered conductor installation - transmission	Grid design and system hardening	0	0	0	6	6	12	12%
4	20. Vegetation management to achieve clearances around electric lines and equipment	Vegetation management and inspections	0	4	3	3	3	10	10%
5	6. Distribution pole replacement and reinforcement, including with composite poles	Grid design and system hardening	0	0	0	3	3	5	5%
Total spend for top 5 initiatives by planned spend			**0**	**4**	**15**	**27**	**28**	**70**	**70%**

Note: "M" stands for millions.

Source: Tables 21-30 of utility WMP

Figure 3.9: Bear Valley resource allocation detail for top 5 initiatives by planned spend(!)[1]

Total plan spend is shown for 2020-2022 plan period as calculated by utility

	Initiative	Category	Planned spend, $M						Initiative spend as percent of total plan spend
			2019 plan	2019 actual	2020 plan	2021 plan	2022 plan	2020-2022 plan total	
1	16. Undergrounding of electric lines and/or equipment (35 kV system)	Grid design and system hardening	0	0	39	39	39	118	27%
2	16. Undergrounding of electric lines and/or equipment (4 kV system)	Grid design and system hardening	0	0	13	13	13	40	9%
3	18. Other / not listed (Covering overhead conductor)	Grid design and system hardening	0	0	4	4	4	11	2%
4	2. Detailed inspections of vegetation around distribution electric lines and equipment	Vegetation management and inspections	3	3	3	3	3	10	2%
5	20. Other / not listed (energy storage facility)	Grid design and system hardening	0	0	0	5	5	9	2%
Total spend for top 5 initiatives by planned spend			**3**	**3**	**59**	**64**	**64**	**187**	**43%**

1. BVES submitted errata on 5/20/2020 that changed their WMP. Those updates are not reflected here (WSD analysis forthcoming).

Note: "M" stands for millions.

Source: Tables 21-30 of utility WMP

Figure 3.10: Horizon West Transmission allocation detail for all planned initiatives

Total plan spend is shown for 2020-2022 plan period as calculated by utility. Horizon West reported only four initiatives with allocated spend

	Upper range[1] of planned spend, $M						
Initiative	2019 plan	2019 actual	2020 plan	2021 plan	2022 plan	2020-2022 plan total	**Initiative spend as percent of total plan spend**
SVC Site Hardening	0.00	0.00	2.20	4.30	0.00	6.50	77%
Underground of 115 feet of overhead line	0.00	0.00	1.70	0.00	0.00	1.70	20%
Advanced weather monitoring, weather stations and OH line/pole cameras	0.00	0.00	0.15	0.00	0.00	0.15	2%
Inspections (Training, facility, vegetation, and fuel modification)	0.00	0.00	0.04	0.04	0.04	0.11	1%
Total 2020-2022 planned spend	**0.00**	**0.00**	**4.09**	**4.34**	**0.04**	**8.46**	**100%**

1. For some initiatives, Horizon West reported a range of possible future spend. The higher number in that reported range is displayed in this table.

Note: "M" stands for millions.

Source: Tables 21-30 of utility WMP

(End of Appendix B)

APPENDIX C

PG&E Maturity Model Summary

0. PG&E: Description of data sources

Data related to the Maturity Model is based on the latest submitted versions of 2020 Utility Wildfire Mitigation Maturity Survey ("Survey") as of April 10th, 2020. Data for the Maturity Model is pulled from Survey responses unless stated otherwise.

All source data (the WMP and the Survey responses) are available at cpuc.ca.gov/wildfiremitigationplans

All the analysis and corresponding tables presented in this appendix rely upon data that is self-reported by the utilities. By utilizing and presenting this self-reported data in this appendix, the WSD is not independently validating that all data elements submitted by utilities are accurate. The WSD will continue to evaluate utility data, conduct data requests, and conduct additional compliance activities to ensure that data provided is accurate.

1. PG&E: Maturity Model Summary

Contents

1.1 PG&E: Maturity Summary by Category

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
A. Risk assessment and mapping Median automated maturity levels: 2020: 0 2023: 1	• PG&E plans to increase its maturity level by 2023 in all five capabilities: • **1. Climate Scenario Modeling**: PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E has no ability to understand incremental risk under various weather scenarios. By 2023, PG&E plans to understand climate scenarios with circuit level granularity and to be able to reliably determine wildfire risk, accounting for how weather affects failure modes and propagation. • **2. Ignition Risk Estimation:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E can categorize the risk of ignition into at least two categories (e.g. high, low). By 2023, PG&E plans to be able to quantitatively and accurately assess the risk of ignition across the grid. • **3. Estimation of Wildfire Consequences for Communities:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E uses a manual process to estimate wildfire consequences for communities. By 2023, PG&E plans to use partially automated tools to assess wildfire consequence, with outputs independently assessed by experts and confirmed by historical data. • **4. Estimation of wildfire and PSPS risk-reduction impact:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E has no clear estimation of risk reduction potential across most initiatives. By 2023, PG&E plans for a partially automated approach to reliably estimate risk reduction potential of initiatives with circuit-level granularity. • **5. Risk maps and simulation algorithms**: PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E has no defined process for updating risk mapping algorithms or detecting deviations between risk model and actual ignition / propagation. By 2023, risk mapping algorithms will be updated based on detected deviations between risk model and ignitions/propagation.
B. Situational awareness and forecasting Median automated maturity levels: 2020: 1 2023: 2	• PG&E plans to increase its maturity level by 2023 in two of five capabilities. Specifically, by capability: • **6. Weather variables collected:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E only collects wind variables. By 2023, PG&E plans to collect a range of accurate weather variables (e.g. humidity, precipitation, surface and atmospheric wind conditions). • **7. Weather data resolution:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E can reliably measure weather conditions in areas that affect the grid and resolves weather data with regional granularity. By 2023, PG&E plans to include wind estimations at various atmospheric altitudes relevant to ignition risk in its measurements, and to resolve weather data with circuit-level granularity • **8. Weather forecasting ability:** PG&E's survey responses project no growth in this capability. PG&E uses a mostly automated process that utilizes a combination of accurate weather stations and external weather data to make forecasts with circuit level granularity

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
	• **9. External sources used in weather forecasting:** PG&E's survey responses project no growth in this capability. PG&E uses a mostly manual process to gather a combination of data from weather stations and external sources to create a single visual and configurable map to inform decision making. • **10. Wildfire detection processes and capabilities:** PG&E's survey responses project no growth in this capability. PG&E has well defined procedures for detecting ignitions along the grid.
C. Grid design and system hardening Median automated maturity levels: 2020: 1 2023: 2	• PG&E plans to increase its maturity level by 2023 in three of five capabilities. Specifically, by capability: • **11. Approach to prioritizing initiatives across territory:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E only prioritizes initiatives based on HFTD / Non HFTD. By 2023, PG&E plans to prioritize initiatives based on more granular geography and conditions. • **12. Grid design for minimizing ignition risk:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E's grid design meets minimum G095 requirements and loading standards in HFTD areas. By 2023, PG&E plans to make efforts to incorporate the latest asset management strategies throughout the grid, including islanding and near misses. • **13. Grid design for resiliency and minimizing PSPS:** PG&E's survey responses project no growth in this capability. PG&E's transmission and distribution architecture both have many single points of failure • **14. Risk based hardening and cost efficiency:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, estimates regarding relative cost and effectiveness of initiatives are prepared less frequently than annually for some initiatives. By 2023, PG&E plans to prepare those estimates annually or more frequently and include most grid hardening initiatives within its evaluation. • **15. Grid design and asset innovation:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E evaluates hardening solution initiatives based on installation into grid and measuring direct reduction in ignition events. By 2023, PG&E plans to also evaluate initiatives by measuring reduction in near miss metrics.
D. Asset management and inspections Median automated maturity levels: 2020: 1 2023: 1	• PG&E plans to increase its maturity level by 2023 in four of five capabilities. Specifically, by capability: • **16. Asset inventory and condition assessments:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E has an accurate inventory of equipment that may contribute to wildfire risk. By 2023, PG&E plans for their asset inventory to include records of all inspections and repairs, and for condition assessments to be updated quarterly. • **17. Asset inspection cycle:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E conducts inspections based on annual or periodic schedules. By 2023, PG&E plans to conduct inspections based on up-to-date static maps of equipment types and environments. • **18. Asset inspection effectiveness:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, inspection procedures and checklists include all items required by statute and regulations, but by 2023 they will include the lines and equipment typically responsible for ignitions and near misses as well.

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
	• **19. Asset maintenance and repair:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, electrical lines and equipment are not consistently maintained at the required condition over multiple circuits. By 2023, PG&E plans for electrical lines and equipment to be maintained as required by regulation, for service intervals to be set based on wildfire risk in relevant circuit, and for maintenance / repair procedures to take performance history and past operating conditions into account. • **20. QA/QC for asset management:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E audits contractor activity to manage and confirm work / inspections. By 2023, PG&E plans for contractor activity to be subject to semi-automated audits and for QA/QC information to be used regularly to identify deficiencies in quality of work and inspections.
E. Vegetation management and inspections Median automated maturity levels: 2020: 0.5 2023: 1	• PG&E plans to increase its maturity level by 2023 in one of six capabilities. Specifically, by capability: • **21. Vegetation inventory and condition assessments:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E has a centralized inventory of vegetation clearances. By 2023, PG&E plans to include predominant vegetation species and high-risk trees in its vegetation clearance inventory, and to update the inventory within 1 month of collection. • **22. Vegetation inspection cycle**: PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, vegetation inspections are consistent with minimum regulatory requirements, but by 2023 PG&E plans to exceed minimum regulatory requirements with additional inspections for highest risk areas. • **23. Vegetation inspection effectiveness**: PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E includes all items required by statute and regulations in its inspection checklists and procedures, but by 2023 PG&E plans to also include the vegetation types typically responsible for ignitions and near misses • **24. Vegetation grow-in mitigation**: PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E meets the minimum statutory and regulatory clearances around lines and equipment, but by 2023 PG&E plans to also use species growth rates and limb failure rates to guide clearances. • **25. Vegetation fall-in mitigation**: PG&E's survey responses do no indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E systematically removes vegetation outside its right of way, but by 2023 PG&E plans to also inform relevant communities of removal. • **26. QA/QC for vegetation management**: PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, contractor and employee activity are audited to manage and confirm work / inspections, but by 2023 PG&E plans to also use workforce management software tools to augment audit activities.
F. Grid operations and protocols	• PG&E plans to increase its maturity level by 2023 in three of six capabilities. Specifically, by capability: • **27. Protective equipment and device settings**: PG&E's survey responses project no growth in this capability. PG&E increases sensitivity of risk reduction elements during high threat weather conditions using a partially automated process.

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
Median automated maturity levels: 2020: 1.5 2023: 2	• **28**. **Incorporating ignition risk factors in grid control:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E uses predictive modeling to estimate the expected life of equipment, and by 2023, PG&E plans to have this modeling evaluated by external experts and verified by historical data. • **29. PSPS op. model and consequence mitigation:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E communicates relevant information to the vast majority of its customers before PSPS action, and by 2023, PG&E plans to ensure its website does not go down during PSPS events. • **30. Protocols for PSPS initiation:** PG&E's survey responses project no growth in this capability. PG&E has explicit policies and explanation for the thresholds above which PSPS is activated as a measure of last resort. • **31. Protocols for PSPS re-energization:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E uses a manual process to inspect de-energized sections of the grid prior to re-energization. By 2023, PG&E plans to have a partially automated process for inspecting de-energized sections of the grid and expects to reduce the time to re-energize after a PSPS event to 12 hours. • **32. Ignition prevention and suppression:** PG&E's survey responses project no growth in this capability. PG&E has explicit policies about the role of crews at the site of ignition.
G. Data Governance Median automated maturity levels: 2020: 0 2023: 2.5	• PG&E plans to increase its maturity level by 2023 in three of four capabilities. Specifically, by capability: • **33. Data collection and curation**: PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not have a centralized database of situational, operational, and risk data. By 2023, PG&E plans to have such a database that can be used for advanced analytics on to support short- and long-term operational and investment decisions. • **34. Data transparency and analytics:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E only documents all analyses, algorithms, and data processing (though not in one document), but by 2023 PG&E plans to document and explain all analyses, algorithms, and data processes. • **35. Near-miss tracking:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not track near miss data for all near misses with wildfire ignition potential. By 2023, PG&E plans to be able to track near miss data, to simulate wildfire potential, to capture data related to the specific mode of failure causing near-misses, and to predict the probability of a near miss causing an ignition. **36. Data sharing with research community:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E makes required data disclosures. By 2023, PG&E plans to share data beyond what is required as well as to promote best practices based on independent scientific an operational research.
H. Resource allocation methodology	• PG&E plans to increase its maturity level by 2023 in three of six capabilities. Specifically, by capability: • **37. Scenario analysis across different risk levels**: PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not project proposed initiatives or costs across different levels of risk scenarios. By 2023, PG&E plans to provide accurate high-risk and low-risk reduction scenarios at a circuit-level granularity with projected cost and total risk reduction potential.

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
Median automated maturity levels: 2020: 0 2023: 1.5	• **38. Presentation of relative risk spend efficiency for portfolio of initiatives:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E presents accurate qualitative rankings for common commercial initiatives ranked by risk spend efficiency (RSE), and by 2023 PG&E plans to include all commercial initiatives in these rankings. • **39. Process for determining risk spend efficiency of vegetation management initiatives:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E has no clear understanding of the relative RSE of various clearances and types of vegetation management initiatives. By 2023, PG&E plans to have an accurate relative understanding of the cost / effectiveness required to produce a reliable RSE estimate of vegetation management initiatives with circuit level granularity. • **40. Process for determining risk spend efficiency of system hardening initiatives:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E includes some commercially available grid hardening initiatives in the RSE analysis. By 2023, PG&E plans to include all grid hardening initiatives in the RSE analysis. • **41. Portfolio-wide initiative allocation methodology:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects growth within the capability: currently, PG&E does not base capital allocation decisions on RSE, but by 2023 PG&E plans to consider estimates of RSE when allocating capital. • **42. Portfolio-wide innovation in new wildfire initiatives:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E uses pilots and measures direct reduction in ignition events to evaluate the efficacy of new initiatives, and by 2023 PG&E plans to use pilots and measure direct reduction in ignition events as well as near misses to evaluate the efficacy of new initiatives.
I. Emergency planning and preparedness Median automated maturity levels: 2020: 0 2023: 4	• PG&E plans to increase its maturity level by 2023 in five of five capabilities. Specifically, by capability: • **43. Wildfire plan integrated with overall disaster/emergency plan**: PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not run drills to audit the viability and execution of its wildfire plans, nor is its plan integrated with disaster and emergency preparedness plans of other relevant stakeholders. By 2023, PG&E plans to run drills to audit the viability and execution of plans, to consider impact of compounding events or multiple simultaneous disaster in planning process, to integrate with disaster and emergency preparedness plans of other stakeholders, and to take a leading role in planning / coordinating / integrating plans across stakeholders. • **44. Plan to restore service after wildfire related outages:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E has procedures in place to restore service after a wildfire related outage but does not have an inventory of high RSE resources available for repairs. By 2023, PG&E plans to have an inventory of high RSE resources available for repairs. • **45. Emergency community engagement during and after wildfire:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E provides clear and complete communication of available

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
	information relevant to affected consumers. By 2023, PG&E plans to ensure that >99% of customers and >99.9% of medical baseline customers receive complete details of available information during wildfire, to assist with communication of information via web / phone, and to have detailed and actionable protocols for engaging with other emergency management organizations during emergencies. • **46. Protocols in place to learn from wildfire events:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not have a process in place to incorporate or test learnings from previous events or feedback from stakeholders into its wildfire plan. By 2023, PG&E plans to have a defined process and staff responsible for incorporating learnings into emergency plans, to hold "dry runs" to test updated plans, and to have a defined process to gather input from other stakeholders • **47. Processes for continuous improvement after wildfire and PSPS:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not have a clearly defined process for continuous improvement after wildfire and PSPS. By 2023, PG&E plans to conduct a customer survey and utilize partners to disseminate requests for stakeholder engagement, to engage in public listening sessions / partner debriefs, to share findings with partners, to make feedback / recommendations public, to conduct proactive outreach to local agencies/organizations to solicit feedback, to have a clear plan for post-event listening and incorporation of lessons learned, to track implementation of recommendations and report on their impact, and to have a process to conduct reviews in other territories to identify and address areas of improvement.
J. Stakeholder cooperation and community engagement Median automated maturity levels: 2020: 2 2023: 3	• PG&E plans to increase its maturity level by 2023 in four of five capabilities. Specifically, by capability: • **48. Cooperation and best practice sharing with other utilities**: PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not identify best practices from other utilities through a clear process. By 2023, PG&E plans to actively work to identify best practices from other global utilities and to implement a defined process for testing lessons learned to ensure local applicability. • **49**. **Engagement with communities on utility wildfire mitigation initiatives:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability: currently, PG&E has a clear and actionable plan to develop / maintain its relationship with local communities, and by 2023, PG&E specifically plans to have a cooperative relationship with communities containing >90% of the population in HFTD areas. • **50. Engagement with LEP[1] and AFN[2] populations:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E does not have clear examples or a clear plan as to how it mitigates wildfire risks to LEP and AFN populations. By 2023, PG&E plans to have these in place. • **51. Collaboration with emergency response agencies:** PG&E's survey responses indicate an increased maturity level in 2023. Currently, PG&E works with suppression agencies by notifying them of ignitions. By 2023, PG&E plans to also work cooperatively with suppression agencies to detect ignitions and to accurately predict and communicate the forecasted fire propagation path. • **52. Collaboration on wildfire mitigation plan with stakeholders:** PG&E's survey responses do not indicate an increased maturity level in 2023. However, PG&E projects some growth within the capability:

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
	currently PG&E does not coordinate with broader fuel management efforts, but by 2023 PG&E plans to share fuel management plans and conduct fuel management concurrently with other stakeholders by 2023. 1. Limited English Proficiency 2. Access and Functional Needs

1.2 PG&E: Maturity Detail by Capability

1.2.1 A. Risk assessment and mapping

1.2.1.1 Capability 1: Climate scenario modeling

Capability 1: Climate scenario modeling		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. No clear ability to understand incremental risk under various weather scenarios b. No formal climate scenario assessment process in place c. Climate scenario models have regional granularity d. Climate scenario tool is not automated e. Climate scenario tool does not use any additional information (e.g. how weather affects failure modes and propagation) to model weather scenarios and their risk f. Future climate change is not accounted for in estimating future weather and resulting risk	**a. Wildfire risk planned to be reliably determined based on weather and its impacts** **b. Climate scenarios planned to be assessed by independent experts** **c. Climate scenario models planned to have circuit level granularity** d. Climate scenario tool is not planned to be automated **e. Climate scenario tool planned to account for how weather affects failure modes and propagation as well as existing hardware to model weather scenarios and their risk** f. **Generally higher risk across entire service territory due to changing climate will be taken into account in estimating future weather and resulting risk**
	Criteria missing to reach a maturity level of 1 or more: • Ability to reliably determine wildfire risk across each region of the grid • based on weather and estimates of how weather affects failure models and fire propagation	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.1.2 Capability 2: Ignition risk estimation

Capability 2: Ignition risk estimation		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Tools and processes can reliably categorize the risk of ignition across the grid into at least two categories based on characteristics and condition of lines, equipment, surrounding vegetation and localized weather patterns b. Ignition risk estimation is not automated c. Ignition risk estimation has circuit level granularity d. Ignition risk estimation is confirmed by experts and historical data e. Ignition risk estimation uses <60% or no quantified confidence interval	a. **Tools and processes planned to be able to quantitatively and accurately assess the risk of ignition across the grid based on characteristics and condition of lines, equipment, surrounding vegetation, and localized weather pattern**s **b. Ignition risk estimation planned to be partially (<50%) automated** c. Ignition risk estimation planned to have circuit level granularity **d. Ignition risk estimation planned to be confirmed by experts, historical data, and through real time learning** e. Ignition risk estimation is planned to use <60% or no quantified confidence interval
	Criteria missing to reach a maturity level of 1 or more: • Partially automated tools and processes to reliably categorize regions of the grid	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.1.3 Capability 3: Estimation of wildfire consequences for communities

Capability 3: Estimation of wildfire consequences for communities		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Estimated consequence of ignition is relayed by categorizing events as low or high risk to communities b. At least one of the following metrics is used to estimate the consequence of ignition risk: structures burned, potential fatalities, area burned c. Ignition risk impact analysis is available for all seasons d. Estimation of wildfire consequences is not automated e. Estimation of wildfire consequences has circuit level granularity f. Outputs of the ignition risk impact assessment tool are not evaluated g. Estimation of wildfire consequences uses level and conditions of vegetation and weather	a. Estimated consequence of ignition is planned to be relayed by categorizing events as low or high risk to communities **b. Consequence of ignition risk is planned to be estimated as a function of at least potential fatalities and one or both of structures burned and area burned** c. Ignition risk impact analysis planned to be available for all seasons **d. Estimation of wildfire consequences is planned to be partially automated (<50%)** e. Estimation of wildfire consequences planned to have circuit level granularity **f. Outputs independently assessed by experts and confirmed by historical data** g. Estimation of wildfire consequences uses level and conditions of vegetation and weather
	Criteria missing to reach a maturity level of 1 or more: • Partially automated tools to reliably categorize ignition events as low or high risk to communities • Estimation independently assessed by experts	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.1.4 Capability 4. Estimation of wildfire and PSPS reduction impact

Capability 4. Estimation of wildfire and PSPS reduction impact		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. No clear estimation of risk reduction potential across most initiatives b. Estimation of wildfire and PSPS reduction impact is not automated c. Estimation of wildfire and PSPS reduction impact is less granular than regional / no tool exists d. No or limited formal evidence or support for estimates of reduction impact e. Estimation of wildfire and PSPS reduction impact accounts for existing hardware type and condition	**a. Approach planned to reliably estimate risk reduction potential of initiatives on an ordinal scale** **b. Estimation of wildfire and PSPS reduction impact is planned to be partially automated (<50%)** **c. Estimation of wildfire and PSPS reduction impact is planned to have circuit based granularity** **d. Estimation of wildfire and PSPS reduction impact is planned to be independently assessed by experts** e. **Estimation of wildfire and PSPS reduction impact is planned to account for existing hardware type and condition, including operating history**
	Criteria missing to reach a maturity level of 1 or more: • Accurately estimate risk reduction potential of initiatives averaged across the territory where such initiatives could be installed for each region • Estimates use evidence and logical reasoning to support estimates	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.1.5 Capability 5. Risk maps and simulation algorithms

Capability 5. Risk maps and simulation algorithms		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. No defined process for updating risk mapping algorithms b. Decision to update algorithms based on deviations is not automated c. Deviations from risk model to ignitions and propagations are not calculated d. Decisions to update algorithms are not evaluated e. Historic ignition and propagation data used to decide whether to update algorithms	**a. Risk mapping algorithms planned to be updated based on detected deviations of risk model to ignitions and propagation** **b. Decision to update algorithms based on deviations is planned to be partially automated (<50%)** **c. Deviations from risk model to ignitions and propagations are planned to be calculated manually** **d. Decision to update algorithms planned to be evaluated by experts and historical data** e. **Current and historic ignition and propagation data, as well as near miss data, is planned to be used to decide whether to update algorithms**
	Criteria missing to reach a maturity level of 1 or more: • Risk mapping algorithms updated at least bi-annually based on • Manually detected deviations of risk model to actual ignitions and wildfire propagation	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.2 B. Situational awareness and forecasting

1.2.2.6 Capability 6: Weather variables collected

Capability 6: Weather variables collected		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Only wind being measured accurately enough along the grid to estimate ignition probability b. Measurements are validated through manual field calibration c. Elements that cannot be reliably measured in real time (e.g., fuel moisture content) are being predicted d. More than one data source used for each weather metric collected	**a. Planned collection of a range of accurate weather variables (e.g. humidity, precipitation, surface and atmospheric wind conditions) that impact probability of ignition and propagation from utility assets** b. Measurements are planned to be validated through manual field calibration c. Elements that cannot be reliably measured in real time (e.g., fuel moisture content) are planned to be predicted d. More than one data source is planned to be used for each weather metric collected
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.2.7 Capability 7: Weather data resolution

Capability 7: Weather data resolution		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Weather data has sufficient granularity to reliably measure weather conditions in HFTD areas, and along the entire grid and in all areas needed to predict weather on the grid b. Weather data collected at least six times per hour c. Weather data resolution has regional granularity e. Measurement of weather conditions is fully automated	**a. Weather data is planned to have sufficient granularity to reliably measure conditions in HFTD areas, and along the entire grid and in all areas needed to predict weather on the grid; also includes wind estimations at various atmospheric altitudes relevant to ignition risk** **b. Weather data is planned to be collected at least six times per hour** **c. Weather data resolution is planned to have circuit level granularity** d. Measurement of weather conditions is planned to be fully automated
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.2.8 Capability 8: Weather forecasting ability

Capability 8: Weather forecasting ability		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility has the ability to use a combination of accurate weather stations and external weather data to make accurate forecasts b. Accurate forecasts prepared less than two weeks in advance c. Weather forecasts have circuit level granularity d. Forecast results are error checked against historical weather patterns and subsequently error checked against measured weather data e. Forecast process is mostly (>=50%) automated	a. Utility plans to have the ability to use a combination of accurate weather stations and external weather data to make accurate forecasts b. Accurate forecasts are planned to be prepared less than two weeks in advance c. Weather forecasts are planned to have circuit level granularity d. Forecast results are planned to be error checked against historical weather patterns and subsequently error checked against measured weather data e. Forecast process is planned to be mostly (>=50%) automated
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.2.9 Capability 9: External sources used in weather forecasting

Capability 9: External sources used in weather forecasting		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility uses a combination of accurate weather stations and external weather data b. Utility uses a mostly manual processes for error checking weather stations with external data sources c. Weather data is used to create a single visual and configurable live map that can be used to help make decisions	a. Utility plans to use a combination of accurate weather stations and external weather data b. Utility plans to use mostly manual processes for error checking weather stations with external data sources c. Weather data is planned used to create a single visual and configurable live map that can be used to help make decisions
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.2.10 Capability 10: Wildfire detection processes and capabilities

Capability 10: Wildfire detection processes and capabilities		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. Well-defined procedures for detecting ignitions along the grid exist b. Well-defined equipment for detecting ignitions along grid, including remote detection equipment including cameras, and satellite monitoring c. Procedure exists for notifying suppression forces and key stakeholders d. Ignition detection software in cameras used to augment ignition detection procedures	a. Well-defined procedures for detecting ignitions along the grid are planned to exist b. Well-defined equipment for detecting ignitions along grid, including remote detection equipment including cameras, and satellite monitoring, are planned to be used c. Procedure is planned to exist for notifying suppression forces and key stakeholders d. Ignition detection software in cameras is planned to be used to augment ignition detection procedures
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.3 C. Grid design and system hardening

1.2.3.11 Capability 11: Approach to prioritizing initiatives across territory

Capability 11: Approach to prioritizing initiatives across territory			
Automated maturity levels based on Maturity Rubric		**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both		Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0		a. Plan prioritizes risk reduction initiatives to within only HFTD areas	a. **Plan is planned to prioritize wildfire risk reduction initiatives based on local geography and conditions within only HFTD areas**
		Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.3.12 Capability 12: Grid design for minimizing ignition risk

Capability 12: Grid design for minimizing ignition risk		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. Grid design meets minimum G095 requirements and loading standards in HFTD areas b. Utility provides micro grids or islanding where traditional grid infrastructure is impracticable and wildfire risk is high c. Routing of new portions of the grid takes wildfire risk into account d. Some efforts made in HFTD areas to incorporate the latest asset management strategies and new technologies into grid topology	**a. Grid topology planned to exceed G095 requirements and loading standards in HFTD areas; designed based on accurate understanding of drivers of utility ignition risk** b. Utility plans to provide micro grids or islanding where traditional grid infrastructure is impracticable and wildfire risk is high c. Routing of new portions of the grid is planned to take wildfire risk into account d. **Efforts planned to be made across the entire service area to incorporate the latest asset management strategies and new technologies into Grid topology**
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.3.13 Capability 13: Grid design for resiliency and minimizing PSPS

Capability 13: Grid design for resiliency and minimizing PSPS		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility's transmission architecture has many single points of failure b. Utility's distribution architecture has many single points of failure c. Utility's distribution architecture is sectionalized to have switches in HFTD areas to individually isolate circuits d. Utility uses egress points as an input for grid topology design	a. Utility's transmission architecture is planned to have many single points of failure b. Utility's distribution architecture is planned to have many single points of failure c. Utility's distribution architecture is planned to be sectionalized to have switches in HFTD areas to individually isolate circuits d. Utility plans to use egress points as an input for grid topology design
	Criteria missing to reach a maturity level of 1 or more: • Grid architecture includes n-1 redundancy for transmission circuits subject to PSPS	**Criteria missing to reach a maturity level of 1 or more:** • Grid architecture includes n-1 redundancy for transmission circuits subject to PSPS

1.2.3.14 Capability 14: Risk-based grid hardening and cost efficiency

Capability 14: Risk-based grid hardening and cost efficiency		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility has an accurate understanding of the relative cost and effectiveness of different initiatives b. Estimates can be prepared with circuit level granularity c. Estimates are updated less frequently than annually d. Utility has some grid hardening initiatives included within its evaluation e. Utility cannot evaluate risk reduction synergies from combination various initiatives	a. Utility planned to have an accurate understanding of the relative cost and effectiveness of different initiatives b. Estimates planned to be prepared with circuit level granularity **c. Estimates are planned to be updated annually or more frequently** **d. Utility planned to include most grid hardening initiatives included within its evaluation** e. **Utility planned to be able to evaluate risk reduction synergies from combination of various initiatives**
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.3.15 Capability 15: Grid design and asset innovation

Capability 15: Grid design and asset innovation		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. New grid hardening initiatives evaluated based on installation into grid and measuring direct reduction in ignition events b. Results of pilot and commercial deployments, including project performance, project cost, geography, climate, vegetation, etc. are not shared in sufficient detail to inform decision making at other utilities c. Performance of new initiatives is not independently audited	**a. New grid hardening initiatives are planned to evaluated based on installation into grid and measuring direct reduction in ignition events, and measuring reduction impact on near-miss metrics** **b. Results of pilot and commercial deployments, including project performance, project cost, geography, climate, vegetation, etc. are planned to be shared with a limited set of partners in sufficient detail to inform decision making at other utilities** c. Performance of new initiatives is not planned to be independently audited
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.4 D. Asset management and inspections

1.2.4.16 Capability 16: Asset inventory and condition assessments

Capability 16: Asset inventory and condition assessments		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. There is an accurate inventory of equipment that may contribute to wildfire risk, including age, state of wear, and expected lifecycle b. Condition assessment is updated annually c. A system and approach are in place to reliably detect incipient malfunctions likely to cause ignition in HFTD areas d. Inventory is kept with asset level granularity	**a. PG&E plans to have an accurate inventory of equipment that may contribute to wildfire risk, including age, state of wear, and expected lifecycle, including records of all inspections and repairs** **b. Condition assessment is planned to be updated quarterly** c. A system and approach are planned to be in place to reliably detect incipient malfunctions likely to cause ignition in HFTD areas d. Inventory is planned to be kept with asset level granularity
	Criteria missing to reach a maturity level of 1 or more: • Accurate inventory database that is updated within 90 days of equipment inventory or conditions being collected	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.4.17 Capability 17: Asset inspection cycle

Capability 17: Asset inspection cycle		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. Patrol inspections are consistent with minimum regulatory requirements b. Patrol inspections are based on annual or periodic schedules c. At least annually updated or verified static maps of equipment and environment are the inputs for scheduling patrol inspections d. Detailed inspections are above minimum regulatory requirements, with more frequent inspections for highest risk equipment e. Detailed inspections are based on annual or periodic schedules f. At least annually updated or verified static maps of equipment and environment are the inputs for scheduling patrol inspections g. Other inspections are consistent with minimum regulatory requirements h. Other inspections are based on annual or periodic schedules	**a. Patrol inspections are planned to be above minimum regulatory requirements, with more frequent inspections for highest risk equipment** **b. Patrol inspections are planned to be based on up-to-date static maps of equipment types and environment** c. At least annually updated or verified static maps of equipment and environment are planned to be the inputs for scheduling patrol inspections d. Detailed inspections are planned to be above minimum regulatory requirements, with more frequent inspections for highest risk equipment **e. Detailed inspections are planned to be based on up-to-date static maps of equipment types and environment** f. At least annually updated or verified static maps of equipment and environment are planned to be the inputs for scheduling patrol inspections g. Other inspections are planned to be consistent with minimum regulatory requirements
3		
2		
1		

Capability 17: Asset inspection cycle		
0	i. At least annually updated or verified static maps of equipment and environment are inputs for scheduling patrol inspections	**h. Other inspections are planned to be based on up-to-date static maps of equipment types and environment** i. At least annually updated or verified static maps of equipment and environment are planned to be inputs for scheduling patrol inspections
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.4.18 Capability 18: Asset inspection effectiveness

Capability 18: Asset inspection effectiveness		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Patrol, detailed, enhanced, and other inspection procedures and checklists include all items required by statute and regulations b. Procedures and inspection checklists determined based on statute and regulatory guidelines only c. Checklists, training, and procedures are customized with service territory granularity	**a. Patrol, detailed, enhanced, and other inspection procedures and checklists include all items required by stature and regulations, and includes lines and equipment typically responsible for ignitions and near misses** b. Procedures and inspection checklists are planned to be determined based on statute and regulatory guidelines only c. Checklists, training, and procedures are planned to be customized with service territory granularity
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.4.19 Capability 19: Asset maintenance and repair

Capability 19: Asset maintenance and repair		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Electrical lines and equipment not consistently maintained at required condition over multiple circuits b. Service intervals are set based on wildfire risk in relevant area c. Maintenance and repair procedures take wildfire risk most into account	**a. Electrical lines and equipment planned to be maintained as required by regulation** **b. Service intervals are planned to be set based on wildfire risk in relevant circuit** c. **Maintenance and repair procedures planned to take wildfire risk, performance history, and past operating conditions most into account**
	Criteria missing to reach a maturity level of 1 or more: • Electric lines and equipment maintained as required by applicable rules and regulations	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.4.20 Capability 20: QA/QC for asset management

Capability 20: QA/QC for asset management		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Contractor activity is audited through an established and functioning audit process to manage and confirm work completed by subcontractors b. Contractors follow the same processes and standards as utility's own employees c. QA/QC information used to identify deficiencies in quality of work performance and inspections performance on an ad hoc basis d. QA/QC information is used to identify systemic deficiencies in quality of work and inspections e. Workforce management software tools are used to manage and confirm work completed by subcontractors	a. **Contractor activity is planned to be audited through an established and demonstrably functioning audit process to manage and confirm work completed by subcontractors, where contractor activity is subject to semi-automated audits using technologies capable of sampling the contractor's work (e.g., LiDAR scans, photographic evidence)** b. Contractors are planned to follow the same processes and standards as utility's own employees c. **QA/QC information used to identify deficiencies in quality of work performance and inspections performance regularly** d. **QA/QC information is planned to be used to identify systemic deficiencies in quality of work and inspections, and recommend training based on weaknesses** e. Workforce management software tools are planned to be used to manage and confirm work completed by subcontractors
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.5 E. Vegetation Management and inspections

1.2.5.21 Capability 21: Vegetation inventory for condition assessments

Capability 21: Vegetation inventory for condition assessments		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Centralized inventory of vegetation clearances based on most recent inspection b. Inventory updated annually c. Inspections are independently verified by third party experts d. Inventory has asset level granularity	**a. Planned centralized inventory of vegetation clearances, including predominant vegetation species and individual high risk-trees across grid** **b. Inventory planned to be updated within 1 month of collection** c. Inspections are planned to be independently verified by third party experts d. Inventory planned to have asset level granularity
	Criteria missing to reach a maturity level of 1 or more: • Inventory database of vegetation clearances that is updated within 90 days of vegetation inventory or conditions being collected	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.5.22 Capability 22: Vegetation inspection cycle

Capability 22: Vegetation inspection cycle		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. All types of vegetation inspections are consistent with minimum regulatory requirements b. Vegetation inspections are scheduled based on annual or periodic schedules c. At least annually updated static maps of vegetation and environment are the inputs for scheduling vegetation inspections	**a. All types of vegetation inspections are planned to be above minimum regulatory requirements, with more frequent inspections for highest risk areas** b. Vegetation inspections are planned to be scheduled based on annual or periodic schedules c. At least annually-updated static maps of vegetation and environment are planned to be the inputs for scheduling vegetation inspections
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.5.23 Capability 23: Vegetation inspection effectiveness

Capability 23: Vegetation inspection effectiveness		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Patrol, detailed, enhanced, and other inspection procedures and checklists include all items required by statute and regulations b. Procedures and checklists are based on statute and regulatory guidelines only c. Checklists, training, and procedures are customized across the service territory	**a. Patrol, detailed, enhanced, and other inspection procedures and checklists are planned to include all items required by statute and regulations, and to include vegetation types typically responsible for ignitions and near misses** b. Procedures and checklists are planned to be based on statute and regulatory guidelines only c. Checklists, training, and procedures are planned to be customized across the service territory
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.5.24 Capability 24: Vegetation grow-in mitigation

Capability 24: Vegetation grow-in mitigation		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility meets minimum statutory and regulatory clearances around all lines and equipment b. Utility meets or exceeds minimum statutory or regulatory clearances during all seasons c. Neither ignition risk modeling nor propagation risk modeling is used to guide clearances around lines and equipment d. Neither species growth rates, species limb failure rates, nor local climatological conditions are used to guide clearance around lines and equipment e. Community organizations are not engaged in setting local clearances and protocols f. Utility does not remove vegetation waste along its right of way across the entire grid g. Utility removes vegetation waste along the right of way after more than one week h. Utility does not work with local landowners to provide a cost effective use for cutting vegetation i. Utility works with partners to identify new cost effective uses for vegetation, taking into consideration environmental impacts and emissions of vegetation waste	a. Utility plans to meet minimum statutory and regulatory clearances around all lines and equipment b. Utility plans to meet or exceed minimum statutory or regulatory clearances during all seasons c. Neither ignition risk modeling nor propagation risk modeling is planned to be used to guide clearances around lines and equipment d. Species growth rates and species limb failure rates are planned to be used to guide clearance around lines and equipment e. Community organizations are not planned to be engaged in setting local clearances and protocols f. Utility does not plan to remove vegetation waste along its right of way across the entire grid g. Utility planned to remove vegetation waste along the right of way after more than one week h. Utility does not plan to work with local landowners to provide a cost effective use for cutting vegetation i. Utility plans to work with partners to identify new cost effective uses for vegetation, taking into consideration environmental impacts and emissions of vegetation waste

Capability 24: Vegetation grow-in mitigation		
	Criteria missing to reach a maturity level of 1 or more: • Utility removes vegetation waste within 1 week of cutting vegetation across entire grid	**Criteria missing to reach a maturity level of 1 or more:** • Utility removes vegetation waste within 1 week of cutting vegetation across entire grid

1.2.5.25 Capability 25: Vegetation fall-in mitigation

Capability 25: Vegetation fall-in mitigation		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility systematically removes vegetation outside of right of way b. Potential vegetation that may pose a threat identified based on the height of trees with potential to make contact with electric lines and equipment c. Vegetation is removed with cooperation from the community d. Utility does not remove vegetation waster outside its right of way across the entire grid e. Utility removes vegetation outside its right of way more than one week after cutting f. Utility does not work with local landowners to provide a cost effective use for cutting vegetation j. Utility works with partners to identify new cost effective uses for vegetation, taking into consideration environmental impacts and emissions of vegetation waste	**a. Utility planned to systematically remove vegetation outside of right of way, informing relevant communities of removal** b. Potential vegetation that may pose a threat is planned to be identified based on the height of trees with potential to make contact with electric lines and equipment c. Vegetation is planned to be removed with cooperation from the community d. Utility does not plan to remove vegetation waster outside its right of way across the entire grid e. Utility plans to remove vegetation outside its right of way more than one week after cutting f. Utility does not plan to work with local landowners to provide a cost effective use for cutting vegetation g. Utility plans to work with partners to identify new cost effective uses for vegetation, taking into consideration environmental impacts and emissions of vegetation waste
	Criteria missing to reach a maturity level of 1 or more: • Utility removes vegetation waste within 1 week of cutting vegetation across entire grid	**Criteria missing to reach a maturity level of 1 or more:** • Utility removes vegetation waste within 1 week of cutting vegetation across entire grid

1.2.5.26 Capability 26: QA/QC for vegetation management

Capability 26: QA/QC for vegetation management				
Automated maturity levels based on Maturity Rubric			**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend			Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
2020	2023	Both		
4			a. Contractor and employee activity audited through an established and functioning audit process to manage and confirm work completed by subcontractors b. Contractors follow the same processes and standards as utility's own employees c. QA/QC information is used regularly to identify deficiencies in quality of work performance and inspections performance d. QA/QC information is used to identify systemic deficiencies in quality of work and inspections e. Workforce management software tools are not used to manage and confirm work completed by subcontractors	a. Contractor and employee activity planned to be audited through an established and functioning audit process to manage and confirm work completed by subcontractors b. Contractors are planned to follow the same processes and standards as utility's own employees c. QA/QC information is planned to be used regularity to identify deficiencies in quality of work performance and inspections performance d. QA/QC information is planned to be used to identify systemic deficiencies in quality of work and inspections e. **Workforce management software tools are planned to be used to manage and confirm work completed by subcontractors**
3				
2				
1				
0				
			Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.6 F. Grid operations and protocols

1.2.6.27 Capability 27: Protective equipment and device settings

Capability 27: Protective equipment and device settings			
Automated maturity levels based on Maturity Rubric		**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both		Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4		a. Utility increases sensitivity of risk reduction elements during high threat weather conditions based on risk mapping and monitors near misses b. A partially automated process is planned to adjust sensitivity of grid elements and evaluate effectiveness c. There is a predetermined protocol driven by fire conditions for adjusting sensitivity of grid elements	a. Utility plans to increase sensitivity of risk reduction elements during high threat weather conditions based on risk mapping and monitors near misses b. A partially automated process is planned to adjust sensitivity of grid elements and evaluates effectiveness c. PG&E plans to have a predetermined protocol driven by fire conditions for adjusting sensitivity of grid elements
3			
2			
1			
0			
		Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.6.28 Capability 28: Incorporating ignition risk factors in grid control

Capability 28: Incorporating ignition risk factors in grid control		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility has a clearly explained process for determining whether to operate the grid beyond current or voltage designs b. Utility does not have systems in place to automatically track operation history including current, loads, and voltage throughout the grid at circuit level c. Utility uses predictive modeling to estimate the expected life and make equipment maintenance, rebuild, or replacement decisions based on grid operating history; modeling not evaluated by external experts d. Utility operates the grid above rated voltage and current load only in conditions that are unlikely to cause wildfire	a. Utility plans to have a clearly explained process for determining whether to operate the grid beyond current or voltage designs b. Utility in not planned to have systems ins place to automatically track operation history including current, loads, and voltage throughout the grid at circuit level **c. Utility uses predictive modeling to estimate the expected life and make equipment maintenance, rebuild, or replacement decisions based on grid operating history; modeling is evaluated by external experts and verified by historical data** d. Utility plans to operate the Grid above rated voltage and current load only in conditions that are unlikely to cause wildfire
	Criteria missing to reach a maturity level of 1 or more: • Systems in place to automatically track and record detailed electric operational history when operating equipment above nameplate capacities at the circuit level.	**Criteria missing to reach a maturity level of 1 or more:** • Systems in place to automatically track and record detailed electric operational history when operating equipment above nameplate capacities at the circuit level.

1.2.6.29 Capability 29: PSPS op. model and consequence mitigation

Capability 29: PSPS op. model and consequence mitigation		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. PSPS event generally forecasted accurately with fewer than 25% of predictions being false positives b. PSPS events are communicated to >95% of affected customers and >99% of medical baseline customers in advance of PSPS action c. Less than 0.5% of customers complain during PSPS events d. Website goes down during PSPS events e. Average downtime per customer is less than 0.1 hours f. Specific resources are provided to all affected customers to alleviate the impact of the power shutoff (e.g., providing backup generators, supplies, batteries, etc.)	a. PSPS event is planned to generally forecast accurately with fewer than 25% of predictions being false positives **b. PSPS events are planned to be communicated to >99% of affected customers and >99.9% of medical baseline customers in advance of PSPS action** c. Less than 0.5% of customers planned to complain during PSPS events **d. Website is planned to not go down during PSPS events** e. Average downtime per customer is planned to be less than 0.1 hours f. Specific resources are planned to be provided to all affected customers to alleviate the impact of the power shutoff (e.g., providing backup
	Criteria missing to reach a maturity level of 1 or more: • PSPS event has no website downtime	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.6.30 Capability 30: Protocols for PSPS initiation

Capability 30: Protocols for PSPS initiation		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility has explicit policies and explanation for the thresholds above which PSPS is activated as a measure of last resort b. Utility takes into account a partially automated system which recommends circuits for which PSPS should be activated and is validated by SMEs when making PSPS decisions c. Utility de-energizes circuits upon detection of damaged conditions of electric equipment, when circuit presents a safety risk to suppression or other personnel, when equipment has come into contact with foreign objects posing ignition risk, and for additional reasons not listed d. Given condition of the grid, utility expects greater than 5% probability of any large scale PSPS events affecting more than 10,000 people to occur in the coming year; grid condition paired with risk indicates that PSPS may be necessary in 2020 in some areas	a. Utility plans to have explicit policies and explanation for the thresholds above which PSPS is activated as a measure of last resort b. Utility plans to take into account a partially automated system which recommends circuits for which PSPS should be activated and is validated by SMEs when making PSPS decisions c. Utility plans to de-energize circuits upon detection of damaged conditions of electric equipment, when circuit presents a safety risk to suppression or other personnel, when equipment has come into contact with foreign objects posing ignition risk, and for additional reasons not listed d. Given condition of the grid, Utility plans to expect greater than 5% probability of any large scale PSPS events affecting more than 10,000 people to occur in the coming year; grid condition paired with risk indicates that PSPS may be necessary in 2020 in some areas
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.6.31 Capability 31: Protocols for PSPS re-energization

Capability 31: Protocols for PSPS re-energization		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. There is an existing process for accurately inspecting de-energized sections of the grid prior to re-energization b. There is a manual process, not automated at all, for inspecting de-energized sections of the grid prior to re-energization c. Average time it takes to re-energize grid from a PSPS once weather has subsided to below your de-energization threshold is within 24 hours d. Utility has some probability estimates for ignitions after PSPS events across the grid	a. PG&E plans to have an existing process for accurately inspecting de-energized sections of the grid prior to re-energization **b. PG&E plans to have a partially automated (<50%) for inspecting de-energized sections of the grid prior to re-energization** **c. Average time it takes to re-energize grid from a PSPS once weather has subsided to below your de-energization threshold is planned to be within 12 hours** d. Utility plans **to have accurate quantitative understanding of ignition risk following re-energization, by asset, validated by historical data and near misses**
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.6.32 Capability 32: Ignition prevention and suppression

Capability 32: Ignition prevention and suppression			
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*		
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**	
4 3 2 1 0	a. Utility has explicit policies about the role of crews, including contractors and subcontractors, at the site of ignition b. Training and communications tools are provided to immediately report ignitions caused by workers or in immediate vicinity of workers; in addition, suppression tools and training to suppress small ignitions caused by workers or in immediate vicinity of workers are provided c. No Cal/OSHA reported injuries or fatalities occurred in the last year in events where workers have encountered an ignition d. Utility does not provide training to other workers at other utilities and outside the utility industry on best practices to minimize, report, and suppress ignition	a. Utility is planning to have explicit policies about the role of crews, including contractors and subcontractors, at the site of ignition b. Training and communications tools are planned to be provided to immediately report ignitions caused by workers or in immediate vicinity of workers; in addition, suppression tools and training to suppress small ignitions caused by workers or in immediate vicinity of workers are planned to be provided c. No Cal/OSHA reported injuries or fatalities are planned to occur in events where workers have encountered an ignition d. Utility does not plan to provide training to other workers at other utilities and outside the utility industry on best practices to minimize, report, and suppress ignition	
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	

1.2.7 G. Data Governance

1.2.7.33 Capability 33: Data collection and curation

Capability 33: Data collection and curation		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility does not have a centralized database of situational, operational, and risk data b. Utility is not able to use advanced analytics on its centralized database of situational, operational, and risk data to make operational and investment decisions c. Utility collects data from all sensored portions of electric lines, equipment, weather stations, etc. d. Utility's database of situational, operational, and risk data is not able to ingest and share data using real-time API protocols with a wide variety of stakeholders e. Utility identifies highest priority additional data sources to improve decision making f. Utility does not share best practices for database management and use with other utilities in California and beyond	**a.** Utility plans **to have a centralized database of situational, operational, and risk data** **b.** Utility plans **to use advanced analytics on its centralized database of situational, operational, and risk data to make short-term and long-term operational and investment decisions** c. Utility plans to collect data from all sensored portions of electric lines, equipment, weather stations, etc. d. Utility's database of situational, operational, and risk data is not planned to be able to ingest and share data using real-time API protocols with a wide variety of stakeholders **e. Utility plans to identify highest priority additional data sources to improve decision making and plans to incorporate these into centralized database of situational, operational, and risk data** f. Utility does not plan to share best practices for database management and use with other utilities in California and beyond
	Criteria missing to reach a maturity level of 1 or more: • Utility has centralized repository of accurate situational, operational, and risk data	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.7.34 Capability 34: Data transparency and analytics

Capability 34: Data transparency and analytics		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. There is not a single document cataloguing all fire-related data and algorithms, analyses, and data processes b. There is not an explanation of the sources, cleaning processes, and assumptions made in the single document catalog c. All analyses, algorithms, and data processing are documented d. There is a system capable of sharing across at least three levels of permissions, including utility-regulator permissions, first responder permissions, and public data sharing e. Most relevant wildfire related data algorithms disclosed publicly in WMP upon request	a. There is not planned to be a single document cataloguing all fire-related data and algorithms, analyses, and data processes b. There is not planned to be an explanation of the sources, cleaning processes, and assumptions made in the single document catalog **c. All analyses, algorithms, and data processing are planned to be documented and explained** d. PG&E plans to have a system capable of sharing across at least three levels of permissions, including utility-regulator permissions, first responder permissions, and public data sharing e. Most relevant wildfire related data algorithms is planned to be disclosed publicly in WMP upon request
	Criteria missing to reach a maturity level of 1 or more: • All wildfire-related data and algorithms used by utility are catalogued in a single document, • including an explanation of the sources, and assumptions made; and • all analysis and algorithms documented	**Criteria missing to reach a maturity level of 1 or more:** • All wildfire-related data and algorithms used by utility are catalogued in a single document,

1.2.7.35 Capability 35: Near-miss tracking

Capability 35: Near-miss tracking		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility does not track near miss data for all near misses with wildfire ignition potential b. Utility is not able to simulate wildfire potential given an ignition based on event characteristics, fuel loads, and moisture based on near miss data captured c. Utility does not capture data related to the specific mode of failure when capturing near-miss data d. Utility is not able to predict the probability of a near miss in causing an ignition based on a set of event characteristics e. Utility does not use data from near misses to change grid operation protocols in real time	**a. Utility plans to track near miss data for all near misses with wildfire ignition potential** **b. Utility plans to be able to simulate wildfire potential given an ignition based on event characteristics, fuel loads, and moisture based on near miss data captured** **c. Utility plans to capture data related to the specific mode of failure when capturing near-miss data** **d. Utility plans to be able to predict the probability of a near miss in causing an ignition based on a set of event characteristics** e. Utility does not plan to use data from near misses to change grid operation protocols in real time
	Criteria missing to reach a maturity level of 1 or more: • Tracking of near miss data for all near misses with wildfire ignition potential and associated event characteristics, including capturing data related to the specific mode of failure	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.7.36 Capability 36: Data sharing with research community

Capability 36: Data sharing with research community		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility makes required data disclosures, but does not share data beyond what is required b. Utility funds and participates in both independent and collaborative research c. Utility research addresses utility ignited wildfires and risk reduction initiatives d. Utility does not promote best practices based on latest independent scientific and operational research	**a. Utility plans to make required data disclosures, and shares data beyond what is required** b. Utility plans to fund and participate in both independent and collaborative research c. Utility research is planned to address utility ignited wildfires and risk reduction initiatives d. **Utility plans to promote best practices based on latest independent scientific and operational research**
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.8 H. Resource allocation methodology

1.2.8.37 Capability 37: Scenario analysis across different risk levels

Capability 37: Scenario analysis across different risk levels		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility does not project proposed initiatives or costs across different levels of risk scenarios b. Utility provides projections for each scenario with territory-level or greater granularity c. Utility includes a long term (e.g., 6-10 year) risk estimate taking into account macro factors (climate change, etc.) as well as planned risk reduction initiatives in its scenarios d. Utility does not provide an estimate of impact on reliability factors in its scenarios	**a. Utility plans to provide an accurate high-risk reduction and low-risk reduction scenario, in addition to their proposed scenario, and the projected cost and total risk reduction potential** **b. Utility plans to provide projections for each scenario with circuit-level granularity** c. Utility plans to include a long term (e.g., 6-10 year) risk estimate taking into account macro factors (climate change, etc.) as well as planned risk reduction initiatives in its scenarios d. **Utility plans to provide an estimate of impact on reliability factors in its scenarios**
	Criteria missing to reach a maturity level of 1 or more: • Utility provides at least an accurate high-risk reduction and a low risk reduction scenario and • Projected cost and total risk reduction potential for each region	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.8.38 Capability 38: Presentation of relative risk spend efficiency for portfolio of initiatives

Capability 38: Presentation of relative risk spend efficiency for portfolio of initiatives		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility does present accurate qualitative rankings for its initiatives by risk spend efficiency b. Common commercial indicatives are captured in the ranking of risk spend efficiency c. Utility does not include figures for present value cost and project risk reduction impact of each initiative, clearly documenting all assumptions (e.g., useful life, discount rate, etc.) d. Utility provides an explanation of their investment in each particular initiative, including the expected overall reduction in risk e. Utility is able to provide risk efficiency figures with territory-level or greater granularity	**a. Utility plans to present accurate qualitative rankings for its initiatives by risk spend efficiency** **b. All commercial indicatives are planned to be captured in the ranking of risk spend efficiency** c. Utility does not plan to include figures for present value cost and project risk reduction impact of each initiative, clearly documenting all assumptions (e.g., useful life, discount rate, etc.) **d. Utility plans to provide an explanation of their investment in each particular initiative, including the expected overall reduction in risk and estimates of impact on reliability factors** e. **Utility plans to be able to provide risk efficiency figures with circuit level granularity**
	Criteria missing to reach a maturity level of 1 or more: • Utility provides accurate qualitative ranking of • common commercial initiatives by risk spend efficiency, and • includes figures for estimated cost and projected risk reduction impact of each initiative, • for each region, and • explanation of their investment in each initiative	**Criteria missing to reach a maturity level of 1 or more:** • Utility relative risk commercial initiatives include figures for estimated cost and projected risk reduction impact of each initiative,

1.2.8.39 Capability 39: Process for determining risk spend efficiency of vegetation management initiatives

Capability 39: Process for determining risk spend efficiency of vegetation management initiatives		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility has no clear understanding of the relative risk spend efficiency of various clearances and types of vegetation management initiatives b. Risk spend efficiency estimates of vegetation management initiatives can be prepared with regional-level or greater granularity c. Risk spend efficiency estimates of vegetation management initiatives are updated annually or more frequently d. Most vegetation management initiatives are included within its evaluation e. Utility cannot evaluate risk reduction synergies from combination of various initiatives	**a. Utility plans to have an accurate relative understanding of the cost and effectiveness to produce a reliable risk spend efficiency estimate of vegetation management initiatives** **b. Risk spend efficiency estimates of vegetation management initiatives are planned to be able to be prepared with circuit-based granularity** c. Risk spend efficiency estimates of vegetation management initiatives are planned to be updated annually or more frequently **d. All vegetation management initiatives are planned to be included within its evaluation** e. **Utility plans to be able to evaluate risk reduction synergies from combination of various initiatives**
	Criteria missing to reach a maturity level of 1 or more: • Utility has accurate relative understanding of the relative risk spend efficiency of various clearances and types of vegetation management initiatives • reliable risk spend efficiency estimates in each area of the utility's grid	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.8.40 Capability 40: Process for determining risk spend efficiency of system hardening initiatives

Capability 40: Process for determining risk spend efficiency of system hardening initiatives		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility has accurate relative understanding of cost and effectiveness to produce a reliable risk spend efficiency estimate of system hardening initiatives b. Risk spend efficiency of system hardening initiatives can be prepared with regional-level or greater granularity c. Estimates of system hardening initiatives are updated annually or more frequently d. Some commercially available grid hardening initiatives are included in the utility risk spend efficiency analysis e. Utility cannot evaluate risk reduction effects from the combination of various initiatives	a. Utility plans to have accurate relative understanding of cost and effectiveness to produce a reliable risk spend efficiency estimate of system hardening initiatives **b. Risk spend efficiency of system hardening initiatives is planned to be able to be prepared with circuit level granularity** c. Estimates of system hardening initiatives are planned to be updated annually or more frequently **d. All commercially available grid hardening initiatives are planned to be included in the utility risk spend efficiency analysis** e. **Utility plans to be able to evaluate risk reduction effects from the combination of various initiatives**
	Criteria missing to reach a maturity level of 1 or more: • Utility cannot evaluate risk reduction effects in each area of the utility's grid	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.8.41 Capability 41: Portfolio-wide initiative allocation methodology

Capability 41: Portfolio-wide initiative allocation methodology		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility does not base capital allocation on risk-spend efficiency (RSE) b. Utility takes into account the average estimate of RSE by initiative category when generating RSE estimates c. Utility does not verify RSE estimates d. Utility does take into consideration impact on safety, reliability, and other priorities when making spending decisions	**a. Utility plans to consider estimates of RSE when allocating capital** **b. Utility plans to take into account specific information by initiative, including state of equipment and location where initiative will be implemented when generating RSE initiatives** c. Utility does not plan to verify RSE estimates d. Utility plans to take into consideration impact on safety, reliability, and other priorities when making spending decisions
	Criteria missing to reach a maturity level of 1 or more: • Utility allocates spend within each category of wildfire risk reduction by accurate risk spend efficiency estimates	**Criteria missing to reach a maturity level of 1 or more:** • Utility allocates spend within each category of wildfire risk reduction by accurate risk spend efficiency estimates

1.2.8.42 Capability 42: Portfolio-wide innovation in new wildfire initiatives

Capability 42: Portfolio-wide innovation in new wildfire initiatives	
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*

Capability 42: Portfolio-wide innovation in new wildfire initiatives		
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility uses pilots and measures direct reduction in ignition events to develop and evaluate the efficacy of new wildfire initiatives b. No program in place to develop and evaluate the risk spend efficiency of new wildfire initiatives c. Utility measures efficacy of new wildfire initiatives with territory-level granularity d. Reviews of innovative initiatives are not audited by independent parties e. Utility shares the findings of its evaluation of innovative initiatives with other utilities, academia, and the general public	**a. Utility plans to use pilots and measure direct reduction in ignition events and near-misses to develop and evaluate the efficacy of new wildfire initiatives** b. No program is planned to be in place to develop and evaluate the risk spend efficiency of new wildfire initiatives **c. Utility plans to measure efficacy of new wildfire initiatives with circuit level granularity** d. Reviews of innovative initiatives are not planned to be audited by independent parties e. Utility plans to share the findings of its evaluation of innovative initiatives with other utilities, academia, and the general public
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.9 I. Emergency planning and preparedness

1.2.9.43 Capability 43: Wildfire plan integrated with overall disaster / emergency plan

Capability 43: Wildfire plan integrated with overall disaster / emergency plan		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. Wildfire plan is an integrated component of overall disaster and emergency plans b. Utility does not run drills to audit the viability and execution of its wildfire plans c. Impact of confounding events or multiple simultaneous disasters are not considered in the planning process d. Plan is not integrated with disaster and emergency preparedness plans of other relevant stakeholders (e.g., CAL FIRE, Fire Safe Councils, etc.) e. Utility does not take a leading role in planning, coordinating, and integrating plans across stakeholders	a. Wildfire plan is planned to be an integrated component of overall disaster and emergency plans **b. Utility plans to run drills to audit the viability and execution of its wildfire plans** **c. Impact of confounding events or multiple simultaneous disasters are planned to be considered in the planning process** d. **Plan is planned to be integrated with disaster and emergency preparedness plans of other relevant stakeholders (e.g., CAL FIRE, Fire Safe Councils, etc.)** e. Utility plans **to take a leading role in planning, coordinating, and integrating plans across stakeholders**
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more: • Utility runs drills to audit the viability and execution of plans	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.9.44 Capability 44: Plan to restore service after wildfire related outage

Capability 44: Plan to restore service after wildfire related outage		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Detailed and actionable procedures are in place to restore service after a wildfire related outage b. Employee and subcontractor crews are trained in and aware of plans c. Procedures to restore service after a wildfire-related outage are customized with territory-wide granularity d. Customized procedure to restore service is based on topography, vegetation, and community needs e. There is not an inventory of high risk spend efficiency resources available for repairs f. Wildfire plan is an integrated component of overall disaster and emergency plans	a. Detailed and actionable procedures are planned to be in place to restore service after a wildfire related outage b. Employee and subcontractor crews are planned to be trained in and aware of plans c. Procedures to restore service after a wildfire-related are planned to be customized with territory-wide granularity d. Customized procedure to restore service is planned to be based on topography, vegetation, and community needs e. **PG&E plans to have an inventory of high risk spend efficiency resources available for repairs** f. Wildfire plan is planned to be an integrated component of overall disaster and emergency plans
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.9.45 Capability 45: Emergency community engagement during and after wildfire

Capability 45: Emergency community engagement during and after wildfire		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility provides clear and substantially complete communication of available information relevant to affected customers b. >95% of customers receive complete details of available information c. <=99% of affected medical baseline customers receive complete details of available information d. Utility does not assist where helpful with communication of information related to power outages to customers through availability of relevant evacuation information and links on website/toll-free telephone number, or assisting disaster response professionals as requested e. Utility engages with other emergency management agencies during emergency situations in an ad hoc manner f. Utility communicates and coordinates resources to communities during emergencies (e.g., shelters, supplies, transportation, etc.)	a. Utility plans to provide clear and substantially complete communication of available information relevant to affected customers **b. >99% of customers are planned to receive complete details of available information** **c. >99.9% of medical baseline customers are expected to receive complete details of available information** **d. Utility plans to assist where helpful with communication of information related to power outages to customers through availability of relevant evacuation information and links on website/toll-free telephone number, and assisting disaster response professionals as requested** e. **Utility plans to have detailed and actionable established protocols for engaging with other emergency management organizations during emergency situations** f. Utility plans to communicate and coordinate resources during emergencies (e.g., shelters, supplies, transportation, etc.)

Capability 45: Emergency community engagement during and after wildfire		
	Criteria missing to reach a maturity level of 1 or more: • Utility does not provide links to relevant evacuation information prominently on website and via toll-free phone number	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.9.46 Capability 46: Protocols in place to learn from wildfire events

Capability 46: Protocols in place to learn from wildfire events		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. There is a protocol in place to record the outcome of emergency events and to clearly and actionably document learnings and potential process improvements b. No defined process and staff responsible for incorporating learnings into emergency plan c. No "dry runs" to test plans updated based on learnings and improvements to confirm its effectiveness d. No defined process to solicit input from a variety of other stakeholders and incorporate learnings from other stakeholders into the emergency plan	a. PG&E plans to have a protocol in place to record the outcome of emergency events and to clearly and actionably document learnings and potential process improvements **b. PG&E plans to have a defined process and staff responsible for incorporating learnings into emergency plan** **c. PG&E plans to have "dry runs" to test plans updated based on learnings and improvements to confirm its effectiveness** d. **PG&E plans to have a defined process to solicit input from a variety of other stakeholders and incorporate learnings from other stakeholders into the emergency plan**
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more: • Protocol in place to clearly and actionably document learnings and potential process improvements • Protocols in place include a defined process and staff responsible for incorporating learnings into emergency plan	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.9.47 Capability 47: Processes for continuous improvement after wildfire and PSPS

Capability 47: Processes for continuous improvement after wildfire and PSPS		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. Utility conducts an evaluation or debrief process after a wildfire b. Utility does not conduct a customer survey or utilize partners to disseminate requests for stakeholder engagement c. Utility engages in debriefs with partners d. Utility does not share findings with partners about what can be improved e. Feedback and recommendations on potential improvements are not made public f. Utility does not conduct proactive outreach to local agencies and organizations to solicit additional feedback on what can be improved g. Utility does not have a clear plan for post-event listening and incorporating lessons learned from all stakeholders h. Utility does not track the implementation of recommendations and report upon their impact i. Utility does not have a process to conduct reviews after wildfires in other territories of other utilities and states to identify and address areas of improvement	a. Utility plans to conduct an evaluation or debrief process after a wildfire **b. Utility plans to conduct a customer survey and utilize partners to disseminate requests for stakeholder engagement** **c. Utility plans to engage in public listening sessions, debriefs with partners, and others** **d. Utility plans to share findings with partners about what can be improved** **e. Feedback and recommendations on potential improvements are planned to be made public** **f. Utility plans to conduct proactive outreach to local agencies and organizations to solicit additional feedback on what can be improved** **g. Utility plans to have a clear plan for post-event listening and incorporating lessons learned from all stakeholders** **h. Utility plans to track the implementation of recommendations and report upon their impact** i. **Utility plans to have a process to conduct reviews after wildfires in other territories of other utilities and states to identify and address areas of improvement**
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more:	**Criteria missing to reach a maturity level of 1 or more:**

Capability 47: Processes for continuous improvement after wildfire and PSPS		
	• Utility conducts a customer survey and utilized partners to disseminate • Debriefs with partners about what can be improved, • Feedback and recommendations on potential improvements are made public	• N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.10 J. Stakeholder cooperation and community engagement

1.2.10.1 Capability 48: Cooperation and best practice sharing with other utilities

Capability 48: Cooperation and best practice sharing with other utilities		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. Utility does not actively work to identify best practices from other utilities through a clearly defined operational process b. Utility successfully adopts and implements best practices identified from other utilities c. Utility seeks to share best practices and lessons learned in a consistent format d. Utility shares best practices and lessons via a consistent and predictable set of venues/media e. Utility participates in annual benchmarking exercises with other utilities to find other areas for improvement f. Utility has not implemented a defined process for testing lessons learned from other utilities to ensure local applicability	**a. Utility plans to actively work to identify best practices from other global utilities through a clearly defined operational process** b. Utility plans to successfully adopt and implement best practices identified from other utilities c. Utility plans to seek to share best practices and lessons learned in a consistent format d. Utility plans to share best practices and lessons via a consistent and predictable set of venues/media e. Utility plans to participate in annual benchmarking exercises with other utilities to find other areas for improvement f. **Utility plans to implement a defined process for testing lessons learned from other utilities to ensure local applicability**
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more: • Utility tests lessons learned from other utilities to ensure local applicability	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.10.2 Capability 49: Engagement with communities on utility wildfire mitigation initiatives

Capability 49: Engagement with communities on utility wildfire mitigation initiatives			
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*		
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**	
4 3 2 1 0	a. Utility has a clear and actionable plan to develop or maintain a collaborative relationship with local communities b. There are communities in HFTD areas where meaningful resistance is expected in response to efforts to mitigate fire risk (e.g., vegetation clearance) c. Less than 0.5% of landowners are non-compliant with utility initiatives (e.g., vegetation management) d. Less than 1% of landowners complain about utility initiatives (e.g., vegetation management) e. Utility does not have a demonstratively cooperative relationship with communities containing >90% of the population in HFTD areas (e.g., by being recognized by other agencies as having a cooperative relationship with those communities in HFTD areas) f. Utility has records of landowners throughout communities containing >90% of the population in HFTD areas reaching out to notify of risks, dangers, or issues in the past year	a. Utility plans to have a clear and actionable plan to develop or maintain a collaborative relationship with local communities b. PG&E plans to have communities in HFTD areas where meaningful resistance is expected in response to efforts to mitigate fire risk (e.g., vegetation clearance) c. PG&E plans to have less than 0.5% of landowners non-compliant with utility initiatives (e.g., vegetation management) d. PG&E plans to have less than 1% of landowners complain about utility initiatives (e.g., vegetation management) e. **Utility plans to have a demonstratively cooperative relationship with communities containing >90% of the population in HFTD areas (e.g., by being recognized by other agencies as having a cooperative relationship with those communities in HFTD areas)** f. Utility plans to have records of landowners throughout communities containing >90% of the population in HFTD areas reaching out to notify of risks, dangers, or issues in the past year	
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	

1.2.10.3 Capability 50: Engagement with LEP and AFN populations

Capability 50: Engagement with LEP and AFN populations		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4	a. Utility provides a plan to partner with organizations representing Limited English Proficiency (LEP) and Access & Functional Needs (AFN) communities b. Utility can outline how partnerships with LEP and AFN communities create pathways for implementing suggested activities to address the needs of these communities c. Utility cannot point to clear examples of how relationships with LEP and AFN communities have driven the utility's ability to interact with and prepare these communities for wildfire mitigation activities d. Utility does not have a specific annually-updated action plan to further reduce wildfires and PSPS risk to LEP & AFN communities	a. Utility plans to provide a plan to partner with organizations representing Limited English Proficiency (LEP) and Access & Functional Needs (AFN) communities b. Utility plans to be able to outline how partnerships with LEP and AFN communities create pathways for implementing suggested activities to address the needs of these communities c. **Utility plans to be able to point to clear examples of how relationships with LEP and AFN communities have driven the utility's ability to interact with and prepare these communities for wildfire mitigation activities** d. **Utility plans to have a specific annually-updated action plan to further reduce wildfires and PSPS risk to LEP & AFN communities**
3		
2		
1		
0		
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.10.4 Capability 51: Collaboration with emergency response agencies

Capability 51: Collaboration with emergency response agencies		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility cooperates with suppression agencies by notifying them of ignitions b. Utility is cooperating with suppression agencies throughout utility service areas c. Utility cannot accurately predict and communicate the forecasted fire propagation path using available analytics resources and weather data d. Utility cannot communicate fire paths to the community as requested e. Utility works to assist suppression crews logistically where possible	**a. Utility plans to cooperate with suppression agencies by working cooperatively with them to detect ignitions, in addition to notifying them of ignitions as needed** b. Utility plans to cooperate with suppression agencies throughout utility service areas **c. Utility plans to be able to accurately predict and communicate the forecasted fire propagation path using available analytics resources and weather data** d. Utility does not plan to be able to communicate fire paths to the community as requested e. Utility plans to work to assist suppression crews logistically where possible
	Criteria missing to reach a maturity level of 1 or more: • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric	**Criteria missing to reach a maturity level of 1 or more:** • N/A – all criteria to reach a 1 are met based on survey responses and maturity rubric

1.2.10.5 Capability 52: Collaboration on wildfire mitigation planning with stakeholders

Capability 52: Collaboration with emergency response agencies		
Automated maturity levels based on Maturity Rubric	**Responses to survey questions** *Each letter indicates a survey question, with the relevant response shown below.*	
Legend 2020 / 2023 / Both	Current state As of February 2020	Planned state for 2023 "Three years from now" as of February 2020 **Bold responses have planned growth between 2020 and 2023**
4 3 2 1 0	a. Utility does not conduct fuel management b. Utility does not coordinate with broader fuel management efforts by other stakeholders c. Utility does not cultivate a native vegetative ecosystem across territory that is consistent with lower fire risk d. Utility funds local groups (e.g., fire safe councils) to support fuel management	a. Utility is not planning to conduct fuel management **b. Utility is planning to share fuel management plans with other stakeholders and works with other stakeholders conducting fuel management concurrently** c. Utility does not plan to cultivate a native vegetative ecosystem across territory that is consistent with lower fire risk d. Utility plans to fund local groups (e.g., fire safe councils) to support fuel management
	Criteria missing to reach a maturity level of 1 or more: • Utility coordinates on a regular basis with other agencies including all Fire Safe Councils within its territory and • conduct fuel management along right of ways but • is not coordinating with broader fuel management efforts by other stakeholders	**Criteria missing to reach a maturity level of 1 or more:** • Utility coordinates on a regular basis with other agencies including all Fire Safe Councils within its territory and • conduct fuel management along right of ways but • is not coordinating with broader fuel management efforts by other stakeholders

1.3 PG&E: Numerical maturity summary

Please reference the Guidance Resolution for the Maturity Rubric and for necessary context to interpret the levels shown below. **All levels are based solely on the Maturity Rubric and on PG&E's responses to the Utility Wildfire Mitigation Maturity Survey ("Survey").**

"2020" refers to February 2020, and "2023" refers to February 2023. See the Survey for more detail.

Legend: **2020 Maturity Level** | **2023 Maturity Level** | **Level for 2020 and 2023**

Category	Capability I	Capability II	Capability III	Capability IV	Capability V	Capability VI
A. Risk assessment and mapping	1. Climate scenario modeling **0** **1** 2 3 4	2. Ignition risk estimation **0** **1** 2 3 4	3. Estimation of wildfire consequences for communities **0** **1** 2 3 4	4. Estimation of wildfire and PSPS reduction impact **0** 1 **2** 3 4	5. Risk maps and simulation algorithms **0** **1** 2 3 4	N/A
B. Situational awareness and forecasting	6. Weather variables collected 0 **1** **2** 3 4	7. Weather data resolution 0 **1** **2** 3 4	8. Weather forecasting ability 0 **1** 2 3 4	9. External sources used in weather forecasting 0 1 **2** 3 4	10. Wildfire detection processes and capabilities 0 1 **2** 3 4	N/A
C. Grid design and system hardening	11. Approach to prioritizing initiatives across territory 0 **1** **2** 3 4	12. Grid design for minimizing ignition risk 0 **1** 2 3 **4**	13. Grid design for resiliency and minimizing PSPS **0** 1 2 3 4	14. Risk-based grid hardening and cost efficiency 0 **1** **2** 3 4	15. Grid design and asset innovation 0 **1** **2** 3 4	N/A
D. Asset management and inspections	16. Asset inventory and condition assessments **0** **1** 2 3 4	17. Asset inspection cycle 0 **1** **2** 3 4	18. Asset inspection effectiveness 0 **1** 2 3 4	19. Asset maintenance and repair **0** **1** 2 3 4	20. QA/QC for asset management 0 **1** **2** 3 4	N/A
E. Vegetation management and inspections	21. Vegetation inventory for condition assessment **0** 1 **2** 3 4	22. Vegetation inspection cycle 0 **1** 2 3 4	23. Vegetation inspection effectiveness 0 **1** 2 3 4	24. Vegetation grow-in mitigation **0** 1 2 3 4	25. Vegetation fall-in mitigation **0** 1 2 3 4	26. QA/QC for vegetation management 0 1 **2** 3 4
F. Grid operations and protocols	27. Protective equipment and device settings 0 1 2 **3** 4	28. Incorporating ignition risk factors in grid control **0** 1 2 3 4	29. PSPS op. model and consequence mitigation **0** 1 2 **3** 4	30. Protocols for PSPS initiation 0 1 **2** 3 4	31. Protocols for PSPS re-energization 0 **1** **2** 3 4	32. Ignition prevention and suppression 0 1 **2** 3 4
G. Data governance	33. Data collection and curation **0** 1 **2** 3 4	34. Data transparency and analytics **0** 1 2 3 4	35. Near-miss tracking **0** 1 2 **3** 4	36. Data sharing with research community 0 **1** 2 **3** 4	N/A	N/A
H. Resource allocation methodology	37. Scenario analysis across different risk levels **0** 1 **2** 3 4	38. Presentation of relative risk spend efficiency for portfolio of initiatives **0** 1 2 3 4	39. Process for determining risk spend efficiency of vegetation management initiatives **0** 1 **2** 3 4	40. Process for determining risk spend efficiency of system hardening initiatives **0** 1 **2** 3 4	41. Portfolio-wide initiative allocation methodology **0** 1 2 3 4	42. Portfolio-wide innovation in new wildfire initiatives 0 **1** 2 3 4
I. Emergency planning and preparedness	43. Wildfire plan integrated with overall disaster / emergency plan **0** 1 2 3 **4**	44. Plan to restore service after wildfire related outage 0 1 **2** 3 **4**	45. Emergency community engagement during and after wildfire **0** **1** 2 3 4	46. Protocols in place to learn from wildfire events **0** 1 2 3 **4**	47. Process for continuous improvement after wildfire and PSPS **0** 1 2 3 **4**	N/A
J. Stakeholder cooperation and community engagement	48. Cooperation and best practice sharing with other utilities **0** 1 2 3 **4**	49. Engagement with communities on utility wildfire mitigation initiatives 0 1 2 **3** 4	50. Engagement with LEP and AFN populations 0 1 **2** 3 **4**	51. Collaboration with emergency response agencies 0 1 **2** **3** 4	52. Collaboration on wildfire mitigation planning with stakeholders **0** 1 2 3 4	N/A

(End of Appendix C)

APPENDIX D

Definitions of Mitigation Initiatives from Section 5 of WMP Guidelines

5.3.11 Definitions of initiatives by category

Category	Initiative	Definition
A. Risk mapping and simulation	A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	Development and use of tools and processes to develop and update risk map and simulations and to estimate risk reduction potential of initiatives for a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Climate-driven risk map and modelling based on various relevant weather scenarios	Development and use of tools and processes to estimate incremental risk of foreseeable climate scenarios, such as drought, across a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Ignition probability mapping showing the probability of ignition along the electric lines and equipment	Development and use of tools and processes to assess the risk of ignition across regions of the grid (or more granularly, e.g., circuits, spans, or assets).
	Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	Development of a tool to estimate the risk reduction efficacy (for both wildfire and PSPS risk) and risk-spend efficiency of various initiatives.
	Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	Development and use of tools and processes to assess the impact of potential ignition and risk to communities (e.g., in terms of potential fatalities, structures burned, monetary damages, area burned, impact on air quality and greenhouse gas, or GHG, reduction goals, etc.).
B. Situational awareness and forecasting	Advanced weather monitoring and weather stations	Purchase, installation, maintenance, and operation of weather stations. Collection, recording, and analysis of weather data from weather stations and from external sources.
	Continuous monitoring sensors	Installation, maintenance, and monitoring of sensors and sensorized equipment used to monitor the condition of electric lines and equipment.
	Fault indicators for detecting faults on electric lines and equipment	Installation and maintenance of fault indicators.
	Forecast of a fire risk index, fire potential index, or similar	Index that uses a combination of weather parameters (such as wind speed, humidity, and temperature), vegetation and/or fuel conditions, and other factors to judge current fire risk and to create a forecast indicative of fire risk. A sufficiently granular index shall inform operational decision-making.
	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	Personnel position within utility service territory to monitor system conditions and weather on site. Field observations shall inform operational decisions.
	Weather forecasting and estimating impacts on electric lines and equipment	Development methodology for forecast of weather conditions relevant to utility operations, forecasting weather conditions and conducting analysis to incorporate into utility decision-making, learning and updates to reduce false positives and false negatives of forecast PSPS conditions.

Category	Initiative	Definition
C. Grid design and system hardening	Capacitor maintenance and replacement program	Remediation, adjustments, or installations of new equipment to improve or replace existing capacitor equipment.
	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Remediation, adjustments, or installations of new equipment to improve or replace existing fast switching circuit breaker equipment to improve the ability to protect electrical circuits from damage caused by overload of electricity or short circuit.
	Covered conductor installation	Installation of covered or insulated conductors to replace standard bare or unprotected conductors (defined in accordance with GO 95 as supply conductors, including but not limited to lead wires, not enclosed in a grounded metal pole or not covered by: a "suitable protective covering" (in accordance with Rule 22.8), grounded metal conduit, or grounded metal sheath or shield). In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D.
	Covered conductor maintenance	Remediation and adjustments to installed covered or insulated conductors. In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D.
	Crossarm maintenance, repair, and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing crossarms, defined as horizontal support attached to poles or structures generally at right angles to the conductor supported in accordance with GO 95.
	Distribution pole replacement and reinforcement, including with composite poles	Remediation, adjustments, or installations of new equipment to improve or replace existing distribution poles (i.e., those supporting lines under 65kV), including with equipment such as composite poles manufactured with materials reduce ignition probability by increasing pole lifespan and resilience against failure from object contact and other events.
	Expulsion fuse replacement	Installations of new and CAL FIRE-approved power fuses to replace existing expulsion fuse equipment.

Category	Initiative	Definition
	Grid topology improvements to mitigate or reduce PSPS events	Plan to support and actions taken to mitigate or reduce PSPS events in terms of geographic scope and number of customers affected, such as installation and operation of electrical equipment to sectionalize or island portions of the grid, microgrids, or local generation.
	Installation of system automation equipment	Installation of electric equipment that increases the ability of the utility to automate system operation and monitoring, including equipment that can be adjusted remotely such as automatic reclosers (switching devices designed to detect and interrupt momentary faults that can reclose automatically and detect if a fault remains, remaining open if so).
	Maintenance, repair, and replacement of connectors, including hotline clamps	Remediation, adjustments, or installations of new equipment to improve or replace existing connector equipment, such as hotline clamps.
	Mitigation of impact on customers and other residents affected during PSPS event	Actions taken to improve access to electricity for customers and other residents during PSPS events, such as installation and operation of local generation equipment (at the community, household, or other level).
	Other corrective action	Other maintenance, repair, or replacement of utility equipment and structures so that they function properly and safely, including remediation activities (such as insulator washing) of other electric equipment deficiencies that may increase ignition probability due to potential equipment failure or other drivers.
	Pole loading infrastructure hardening and replacement program based on pole loading assessment program	Actions taken to remediate, adjust, or install replacement equipment for poles that the utility has identified as failing to meet safety factor requirements in accordance with GO 95 or additional utility standards in the utility's pole loading assessment program.
	Transformers maintenance and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing transformer equipment.
	Transmission tower maintenance and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing transmission towers (e.g., structures such as lattice steel towers or tubular steel poles that support lines at or above 65kV).
	Undergrounding of electric lines and/or equipment	Actions taken to convert overhead electric lines and/or equipment to underground electric lines and/or equipment (i.e., located underground and in accordance with GO 128).
	Updates to grid topology to minimize risk of ignition in HFTDs	Changes in the plan, installation, construction, removal, and/or undergrounding to minimize the risk of ignition due to the design, location, or configuration of utility electric equipment in HFTDs.

Category	Initiative	Definition
D. Asset management and inspections	Detailed inspections of distribution electric lines and equipment	In accordance with GO 165, careful visual inspections of overhead electric distribution lines and equipment where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded.
	Detailed inspections of transmission electric lines and equipment	Careful visual inspections of overhead electric transmission lines and equipment where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded.
	Improvement of inspections	Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors.
	Infrared inspections of distribution electric lines and equipment	Inspections of overhead electric distribution lines, equipment, and right-of-way using infrared (heat-sensing) technology and cameras that can identify "hot spots", or conditions that indicate deterioration or potential equipment failures, of electrical equipment.
	Infrared inspections of transmission electric lines and equipment	Inspections of overhead electric transmission lines, equipment, and right-of-way using infrared (heat-sensing) technology and cameras that can identify "hot spots", or conditions that indicate deterioration or potential equipment failures, of electrical equipment.
	Intrusive pole inspections	In accordance with GO 165, intrusive inspections involve movement of soil, taking samples for analysis, and/or using more sophisticated diagnostic tools beyond visual inspections or instrument reading.
	LiDAR inspections of distribution electric lines and equipment	Inspections of overhead electric transmission lines, equipment, and right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).
	LiDAR inspections of transmission electric lines and equipment	Inspections of overhead electric distribution lines, equipment, and right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).
	Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	Inspections of overhead electric transmission lines, equipment, and right-of-way that exceed or otherwise go beyond those mandated by rules and regulations, including GO 165, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Other discretionary inspection of transmission electric lines and equipment, beyond inspections mandated by rules and regulations	Inspections of overhead electric distribution lines, equipment, and right-of-way that exceed or otherwise go beyond those mandated by rules and regulations, including GO 165, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.,
	Patrol inspections of distribution electric lines and equipment	In accordance with GO 165, simple visual inspections of overhead electric distribution lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.

Category	Initiative	Definition
	Patrol inspections of transmission electric lines and equipment	Simple visual inspections of overhead electric transmission lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.
	Pole loading assessment program to determine safety factor	Calculations to determine whether a pole meets pole loading safety factor requirements of GO 95, including planning and information collection needed to support said calculations. Calculations shall consider many factors including the size, location, and type of pole; types of attachments; length of conductors attached; and number and design of supporting guys, per D.15-11-021.
	Quality assurance / quality control of inspections	Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes.
	Substation inspections	In accordance with GO 175, inspection of substations performed by qualified persons and according to the frequency established by the utility, including record-keeping.
E. Vegetation management and inspection	Additional efforts to manage community and environmental impacts	Plan and execution of strategy to mitigate negative impacts from utility vegetation management to local communities and the environment, such as coordination with communities to plan and execute vegetation management work or promotion of fire-resistant planting practices
	Detailed inspections of vegetation around distribution electric lines and equipment	Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded.
	Detailed inspections of vegetation around transmission electric lines and equipment	Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded.
	Emergency response vegetation management due to red flag warning or other urgent conditions	Plan and execution of vegetation management activities, such as trimming or removal, executed based upon and in advance of forecast weather conditions that indicate high fire threat in terms of ignition probability and wildfire consequence.
	Fuel management and reduction of “slash” from vegetation management activities	Plan and execution of fuel management activities that reduce the availability of fuel in proximity to potential sources of ignition, including both reduction or adjustment of live fuel (in terms of species or otherwise) and of dead fuel, including "slash" from vegetation management activities that produce vegetation material such as branch trimmings and felled trees.
	Improvement of inspections	Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors.
	LiDAR inspections of vegetation around distribution electric lines and equipment	Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).
	LiDAR inspections of vegetation around transmission electric lines and equipment	Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).

Category	Initiative	Definition
	Other discretionary inspections of vegetation around distribution electric lines and equipment	Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Other discretionary inspections of vegetation around transmission electric lines and equipment	Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Patrol inspections of vegetation around distribution electric lines and equipment	Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business.
	Patrol inspections of vegetation around transmission electric lines and equipment	Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business.
	Quality assurance / quality control of vegetation inspections	Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes.
	Recruiting and training of vegetation management personnel	Programs to ensure that the utility is able to identify and hire qualified vegetation management personnel and to ensure that both full-time employees and contractors tasked with vegetation management responsibilities are adequately trained to perform vegetation management work, according to the utility's wildfire mitigation plan, in addition to rules and regulations for safety.
	Remediation of at-risk species	Actions taken to reduce the ignition probability and wildfire consequence attributable to at-risk vegetation species, such as trimming, removal, and replacement.
	Removal and remediation of trees with strike potential to electric lines and equipment	Actions taken to remove or otherwise remediate trees that could potentially strike electrical equipment, if adverse events such as failure at the ground-level of the tree or branch breakout within the canopy of the tree, occur.
	Substation inspection	Inspection of vegetation surrounding substations, performed by qualified persons and according to the frequency established by the utility, including record-keeping.
	Substation vegetation management	Based on location and risk to substation equipment only, actions taken to reduce the ignition probability and wildfire consequence attributable to contact from vegetation to substation equipment.
	Vegetation inventory system	Inputs, operation, and support for centralized inventory of vegetation clearances updated based upon inspection results, including (1) inventory of species, (2) forecasting of growth, (3) forecasting of when growth threatens minimum right-of-way clearances (“grow-in” risk) or creates fall-in/fly-in risk.
	Vegetation management to achieve clearances around electric lines and equipment	Actions taken to ensure that vegetation does not encroach upon the minimum clearances set forth in Table 1 of GO 95, measured between line conductors and vegetation, such as trimming adjacent or overhanging tree limbs.

Category	Initiative	Definition
F. Grid operations and protocols	Automatic recloser operations	Designing and executing protocols to deactivate automatic reclosers based on local conditions for ignition probability and wildfire consequence.
	Crew-accompanying ignition prevention and suppression resources and services	Those firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, and water) that are deployed with construction crews and other electric workers to provide site-specific fire prevention and ignition mitigation during on-site work
	Personnel work procedures and training in conditions of elevated fire risk	Work activity guidelines that designate what type of work can be performed during operating conditions of different levels of wildfire risk. Training for personnel on these guidelines and the procedures they prescribe, from normal operating procedures to increased mitigation measures to constraints on work performed.
	Protocols for PSPS re-energization	Designing and executing procedures that accelerate the restoration of electric service in areas that were de-energized, while maintaining safety and reliability standards.
	PSPS events and mitigation of PSPS impacts	Designing, executing, and improving upon protocols to conduct PSPS events, including development of advanced methodologies to determine when to use PSPS, and to mitigate the impact of PSPS events on affected customers and local residents.
	Stationed and on-call ignition prevention and suppression resources and services	Firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, firefighting foam, chemical extinguishing agent, and water) stationed at utility facilities and/or standing by to respond to calls for fire suppression assistance.
G. Data governance	Centralized repository for data	Designing, maintaining, hosting, and upgrading a platform that supports storage, processing, and utilization of all utility proprietary data and data compiled by the utility from other sources.
	Collaborative research on utility ignition and/or wildfire	Developing and executing research work on utility ignition and/or wildfire topics in collaboration with other non-utility partners, such as academic institutions and research groups, to include data-sharing and funding as applicable.
	Documentation and disclosure of wildfire-related data and algorithms	Design and execution of processes to document and disclose wildfire-related data and algorithms to accord with rules and regulations, including use of scenarios for forecasting and stress testing.
	Tracking and analysis of near miss data	Tools and procedures to monitor, record, and conduct analysis of data on near miss events.
H. Resource allocation methodology	Allocation methodology development and application	Development of prioritization methodology for human and financial resources, including application of said methodology to utility decision-making.
	Risk reduction scenario development and analysis	Development of modelling capabilities for different risk reduction scenarios based on wildfire mitigation initiative implementation; analysis and application to utility decision-making.
	Risk spend efficiency analysis	Tools, procedures, and expertise to support analysis of wildfire mitigation initiative risk-spend efficiency, in terms of MAVF and/ or MARS methodologies.

Category	Initiative	Definition
I. Emergency planning and preparedness	Adequate and trained workforce for service restoration	Actions taken to identify, hire, retain, and train qualified workforce to conduct service restoration in response to emergencies, including short-term contracting strategy and implementation.
	Community outreach, public awareness, and communications efforts	Actions to identify and contact key community stakeholders; increase public awareness of emergency planning and preparedness information; and design, translate, distribute, and evaluate effectiveness of communications taken before, during, and after a wildfire, including Access and Functional Needs populations and Limited English Proficiency populations in particular.
	Customer support in emergencies	Resources dedicated to customer support during emergencies, such as website pages and other digital resources, dedicated phone lines, etc.
	Disaster and emergency preparedness plan	Development of plan to deploy resources according to prioritization methodology for disaster and emergency preparedness of utility and within utility service territory (such as considerations for critical facilities and infrastructure), including strategy for collaboration with Public Safety Partners and communities.
	Preparedness and planning for service restoration	Development of plans to prepare the utility to restore service after emergencies, such as developing employee and staff trainings, and to conduct inspections and remediation necessary to re-energize lines and restore service to customers.
	Protocols in place to learn from wildfire events	Tools and procedures to monitor effectiveness of strategy and actions taken to prepare for emergencies and of strategy and actions taken during and after emergencies, including based on an accounting of the outcomes of wildfire events.
J. Stakeholder cooperation and community engagement	Community engagement	Strategy and actions taken to identify and contact key community stakeholders; increase public awareness and support of utility wildfire mitigation activity; and design, translate, distribute, and evaluate effectiveness of related communications. Includes specific strategies and actions taken to address concerns and serve needs of Access and Functional Needs populations and Limited English Proficiency populations in particular.
	Cooperation and best practice sharing with agencies outside CA	Strategy and actions taken to engage with agencies outside of California to exchange best practices both for utility wildfire mitigation and for stakeholder cooperation to mitigate and respond to wildfires.
	Cooperation with suppression agencies	Coordination with CAL FIRE, federal fire authorities, county fire authorities, and local fire authorities to support planning and operations, including support of aerial and ground firefighting in real-time, including information-sharing, dispatch of resources, and dedicated staff.
	Forest service and fuel reduction cooperation and joint roadmap	Strategy and actions taken to engage with local, state, and federal entities responsible for or participating in forest management and fuel reduction activities; and design utility cooperation strategy and joint stakeholder roadmap (plan for coordinating stakeholder efforts for forest management and fuel reduction activities).

(End of Appendix D)

APPENDIX E

Public Utilities Code Section 8386

8386.

(a) Each electrical corporation shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment.

(b) Each electrical corporation shall annually prepare and submit a wildfire mitigation plan to the Wildfire Safety Division for review and approval. In calendar year 2020, and thereafter, the plan shall cover at least a three-year period. The division shall establish a schedule for the submission of subsequent comprehensive wildfire mitigation plans, which may allow for the staggering of compliance periods for each electrical corporation. In its discretion, the division may allow the annual submissions to be updates to the last approved comprehensive wildfire mitigation plan; provided, that each electrical corporation shall submit a comprehensive wildfire mitigation plan at least once every three years.

(c) The wildfire mitigation plan shall include all of the following:

(1) An accounting of the responsibilities of persons responsible for executing the plan.

(2) The objectives of the plan.

(3) A description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.

(4) A description of the metrics the electrical corporation plans to use to evaluate the plan's performance and the assumptions that underlie the use of those metrics.

(5) A discussion of how the application of previously identified metrics to previous plan performances has informed the plan.

(6) Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety. As part of these protocols, each electrical corporation shall include protocols related to mitigating the public safety impacts of disabling reclosers and deenergizing portions of the electrical distribution system that consider the impacts on all of the following:

(A) Critical first responders.

(B) Health and communication infrastructure.

(C) Customers who receive medical baseline allowances pursuant to subdivision (c) of Section 739. The electrical corporation may deploy backup electrical resources or provide financial assistance for backup electrical resources to a customer receiving a medical baseline allowance for a customer who meets all of the following requirements:

(i) The customer relies on life-support equipment that operates on electricity to sustain life.

(ii) The customer demonstrates financial need, including through enrollment in the California Alternate Rates for Energy program created pursuant to Section 739.1.

(iii) The customer is not eligible for backup electrical resources provided through medical services, medical insurance, or community resources.

(D) Subparagraph (C) shall not be construed as preventing an electrical corporation from deploying backup electrical resources or providing financial assistance for backup electrical resources under any other authority.

(7) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines, including procedures for those customers receiving a medical baseline allowance as described in paragraph (6). The procedures shall direct notification to all public safety offices, critical first responders, health care facilities, and operators of telecommunications infrastructure with premises within the footprint of potential deenergization for a given event.
(8) Plans for vegetation management.
(9) Plans for inspections of the electrical corporation's electrical infrastructure.
(10) Protocols for the deenergization of the electrical corporation's transmission infrastructure, for instances when the deenergization may impact customers who, or entities that, are dependent upon the infrastructure.
(11) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the electrical corporation's service territory, including all relevant wildfire risk and risk mitigation information that is part of the Safety Model Assessment Proceeding and the Risk Assessment Mitigation Phase filings. The list shall include, but not be limited to, both of the following:

(A) Risks and risk drivers associated with design, construction, operations, and maintenance of the electrical corporation's equipment and facilities.

(B) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the electrical corporation's service territory.

(12) A description of how the plan accounts for the wildfire risk identified in the electrical corporation's Risk Assessment Mitigation Phase filing.
(13) A description of the actions the electrical corporation will take to ensure its system will achieve the highest level of safety, reliability, and resiliency, and to ensure that its system is prepared for a major event, including hardening and modernizing its infrastructure with improved engineering, system design, standards, equipment, and facilities, such as undergrounding, insulation of distribution wires, and pole replacement.
(14) A description of where and how the electrical corporation considered undergrounding electrical distribution lines within those areas of its service territory identified to have the highest wildfire risk in a commission fire threat map.
(15) A showing that the electrical corporation has an adequately sized and trained workforce to promptly restore service after a major event, taking into account employees of other utilities pursuant to mutual aid agreements and employees of entities that have entered into contracts with the electrical corporation.
(16) Identification of any geographic area in the electrical corporation's service territory that is a higher wildfire threat than is currently identified in a commission fire threat map, and where the commission should consider expanding the high fire threat district based on new information or changes in the environment.
(17) A methodology for identifying and presenting enterprisewide safety risk and wildfire-related risk that is consistent with the methodology used by other electrical corporations unless the commission determines otherwise.
(18) A description of how the plan is consistent with the electrical corporation's disaster and emergency preparedness plan prepared pursuant to Section 768.6, including both of the following:

(A) Plans to prepare for, and to restore service after, a wildfire, including workforce mobilization and prepositioning equipment and employees.

(B) Plans for community outreach and public awareness before, during, and after a wildfire, including language notification in English, Spanish, and the top three primary languages used in the state other than English or Spanish, as determined by the commission based on the United States Census data.

(19) A statement of how the electrical corporation will restore service after a wildfire.

(20) Protocols for compliance with requirements adopted by the commission regarding activities to support customers during and after a wildfire, outage reporting, support for low-income customers, billing adjustments, deposit waivers, extended payment plans, suspension of disconnection and nonpayment fees, repair processing and timing, access to electrical corporation representatives, and emergency communications.

(21) A description of the processes and procedures the electrical corporation will use to do all of the following:

(A) Monitor and audit the implementation of the plan.

(B) Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies.

(C) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules.

(22) Any other information that the Wildfire Safety Division may require.

(d) The Wildfire Safety Division shall post all wildfire mitigation plans and annual updates on the commission's internet website for no less than two months before the division's decision regarding approval of the plan. The division shall accept comments on each plan from the public, other local and state agencies, and interested parties, and verify that the plan complies with all applicable rules, regulations, and standards, as appropriate.

(Amended by Stats. 2019, Ch. 410, Sec. 2.3. (SB 560) Effective January 1, 2020.)

(End of Appendix E)

APPENDIX F

Glossary of Terms

Glossary of Terms

Term	Definition
AB	Assembly Bill
AFN	Access and Functional Needs
ALJ	Administrative Law Judge
BVES	Bear Valley Electric Service
CAISO	California Independent System Operator
Cal Advocates	Public Advocate's Office
CAL FIRE	California Department of Forestry and Fire Protection
CEJA	California Environmental Justice Alliance
CNRA	California Natural Resources Agency
D.	Decision
DFA	Distribution Fault Attribution
EBMUD	East Bay Municipal Utility District
EFD	Early Fault Detection
EPIC	Electric Program Investment Charge
EPUC	Energy Producers and Users Coalition
EVM	Enhanced Vegetation Management
FERC	Federal Energy Regulatory Commission
FGDC	Federal Geographic Data Committee
FIRIS	Fire Integrated Real Time Intelligence System
FMEA	Failure Modes and Effects Analysis
FPI	Fire Potential Index
GIS	Geographic Information Systems
GO	General Order
GPI	Green Power Institute
GRC	General Rate Case
HFRA	High Fire Risk Area
HFTD	High Fire Threat District
Horizon West	Horizon West Transmission
HWT	Horizon West Transmission
I.	Investigation
ICS	Incident Command System

Term	Definition
ICS	Incident Command Structure
IOU	Investor Owned Utility
ISA	International Society of Arboriculture
ITO	Independent Transmission Operator
IVM	Integrated Vegetation Management Plan
IVR	Interactive Voice Response
JIS	Joint Information System
kV	Kilovolt
Liberty	Liberty Utilities / CalPeco Electric
LiDAR	Light Detection and Ranging
LTE	Long-Term Evolution
Maturity Model	Utility Wildfire Mitigation Maturity Model
MAVF	Multi-Attribute Value Function
MGRA	Mussey Grade Road Alliance
MMAA	Mountain Mutual Aid Association
NERC	North American Electric Reliability Corporation
NFDRS	National Fire Danger Rating System
OCFA	Orange County Fire Authority
OEIS	Office of Energy Infrastructure Safety
OP	Ordering Paragraph
OPW	Outage Producing Winds
PG&E	Pacific Gas and Electric Company
PLP	Pole Loading Assessment Program
PMO (PacifiCorp)	Project Management Office
PMO (SCE)	Public Safety Program Management Office
PMU	Phasor Measurement Unit
POC	Protect Our Communities Foundation
PRC	Public Resources Code
PSPS	Public Safety Power Shutoff
QA	Quality Assurance
QC	Quality Control
R.	Rulemaking

Glossary of Terms

Term	Definition
RAMP	Risk Assessment and Management Phase
RAR	Remote Automatic Reclosers
RBDM	Risk-Based Decision Making
RCP	Remedial Compliance Plan
RCRC	Rural Counties of California Representatives
REFCL	Rapid Earth Fault Current Limiter
RFW	Red Flag Warning
RSE	Risk Spend Efficiency
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric Company
S-MAP	Safety Model Assessment Proceeding
SMJU	Small and Multijurisdictional Utility
SUI	Wildland-Urban Interface
SWATI	Santa Ana Wildfire Threat Index
TAT	Tree Assessment Tool
TBC	Trans Bay Cable
TURN	The Utility Reform Network
USFS	United States Forest Service
WMP	Wildfire Mitigation Plan
WRRM	Wildfire Risk Reduction Model
WSAB	Wildfire Safety Advisory Board
WSD	Wildfire Safety Division
WSIP	Wildfire Safety Inspection Program

(End of Appendix F)