PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

May 7, 2020 **Agenda ID #**: 18408

TO: STAKEHOLDERS TO PACIFICORP'S 2020 WILDFIRE MITIGATION PLAN
Service List(s): R.18-10-007

Enclosed is the Action Statement of the Wildfire Safety Division (WSD) and Draft Resolution WSD-008. The Action Statement and Draft Resolution WSD-008, together, with the Draft Guidance Resolution WSD-002, present the WSD's evaluation of PacifiCorp's 2020 Wildfire Mitigation Plan (WMP). Pursuant to Public Utilities Code Section 8386.3(a), the attached Action Statement, the discussion found in Draft Resolution WSD-008, and the overarching discussion in Draft Guidance Resolution WSD-002 is the outcome of WSD's review of PacifiCorp's WMP, including input from the public, the Wildfire Safety Advisory Board, and other governmental agencies. The Action Statement is the conditional approval of PacifiCorp's WMP and is presented to the Commission for ratification via the associated resolution.

Draft Resolution WSD-008 is one of seven Draft Resolutions, sequentially ordered as Draft Resolutions WSD-003 – WSD-009, that address the individual 2020 WMPs of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas and Electric Company, Liberty Utilities, PacifiCorp, Bear Valley Electric Service, and, together, Trans Bay Cable, LLC, and Horizon West Transmission, LLC. These seven resolutions, along with the associated Action Statements and the Guidance Resolution (WSD-002) represent the totality of WSD's evaluation of the 2020 WMPs.

Pursuant to Rule 14.5 of the Commission's Rules of Practice and Procedure, stakeholders may submit comments on the Draft Resolutions and the Draft Guidance Resolution (WSD-002 - WSD-009). The WSD will accept one set of comments per stakeholder that collectively addresses the Draft Guidance Resolution and the individual electrical corporation Draft Resolutions WSD-002 - WSD-009.

Comments shall be limited to twenty (20) pages in length and should list the recommended changes to the Draft Resolutions. Comments shall focus on factual, legal or technical errors in the proposed Draft Resolutions.

Comments must be received by the Wildfire Safety Division by May 27, 2020. Comments should be submitted to the following email address: wildfiresafetydivision@cpuc.ca.gov. The WSD will consider comments on the Draft Resolutions when finalizing its Action Statement on PacifiCorp's 2020 WMP.

Stakeholders submitting comments on the Draft Resolution must also serve their comments on the service list of R.18-10-007. Comments that are not served on the service list of R.18-10-007 may not be considered. The WSD will post all comments received on the following website: www.cpuc.ca.gov/wildfiremitigationplans.

Replies to comments will not be accepted nor considered if submitted.

Resolution WSD-008 will appear on the agenda at the next Commission meeting, which is at least 30 days after the date of this letter. The Commission may vote to ratify WSD's Draft Resolution at that time or it may postpone a vote until a later meeting.

Sincerely,

/s/ CAROLINE THOMAS JACOBS
Caroline Thomas Jacobs
Director, Wildfire Safety Division

CTJ:gp2

Attachment

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

May 7, 2020

Wildfire Safety Division Draft Action Statement on PacifiCorp's 2020 Wildfire Mitigation Plan

This Action Statement is the conditional approval of PacifiCorp's Wildfire Mitigation Plan (WMP) and is presented to the California Public Utilities Commission (CPUC) for ratification, via the associated Resolution and Guidance Resolution.

Introduction

Wildfires have caused significant social, economic, and environmental damage on a global scale. In California, electric utilities are responsible for some of the most devastating wildfires in recent years. The Wildfire Safety Division (WSD) recognizes that the wildfire threat is only increasing, with utility-related ignitions responsible for a disproportionate share of wildfire-related consequences. To that end, the WSD has a vision of moving towards a sustainable California, with no catastrophic utility-related wildfires, that has access to safe, affordable, and reliable electricity. The WSD recognizes it is critical for utilities to act quickly to reduce utility-related wildfire risk effectively and prudently.

As utility wildfire mitigation has become an increasingly urgent priority, the California Legislature has passed several bills related to utility wildfire prevention and oversight. The main regulatory vehicle for the WSD to regulate utilities in reducing utility wildfire risk is the Wildfire Mitigation Plan (WMP), which was introduced in Senate Bill (SB) 1028 (Hill, 2016) and further defined in SB 901 (Dodd, 2018), Assembly Bill (AB) 1054 (Holden, 2019), and AB 111 (Committee on Budget, 2019). Investor-owned electric utilities are required to submit WMPs assessing their level of wildfire risk and providing plans for wildfire risk reduction. The first WMPs under the SB 901 framework were submitted by the utilities and evaluated by the CPUC in 2019.

AB 1054 and AB 111 transferred responsibility for evaluation and approval of WMPs to the WSD,[1] which, as of July 2021, will transfer and become the Office of Energy Infrastructure Safety within the California Natural Resources Agency. In this role, the WSD must ensure utility wildfire mitigation efforts sufficiently address increasing utility wildfire risk. To support its efforts, the WSD is developing a draft long-term strategy and roadmap. This strategy and roadmap will inform the WSD's work in updating the WMP process and guidelines, and the WSD's evaluation of the WMPs.

AB 1054 mandates that the WSD complete its evaluation of WMPs within 90 days of submission. The utilities submitted 2020 WMPs on February 7, 2020. Upon completion of the past 90 days of evaluation, the WSD recognizes that the utilities have made significant progress.

[1] With CPUC ratification of the WSD's actions.

Compared to their first submissions in 2019, the utilities utilize much more data and objective content in their 2020 WMP filings and share more critical information with key partners. However, while utilities are already undertaking wildfire mitigation activities and building capabilities subject to regulation, all utilities must continue to make meaningful progress. Utilities' activities need to incorporate longer-term thinking by focusing more systematically on increasing their maturity over time. All utilities should take a more robust strategic approach that leverages additional Risk Spend Efficiency (RSE) data to focus on the most impactful actions – all with a local lens. This statement outlines more specifically what the WSD sees as critical priorities for the upcoming year for PacifiCorp and approves, with conditions, PacifiCorps's 2020 WMP. Together, this statement, the associated Resolution and the Guidance Resolution represent the totality of the WSD's conditional approval of PacifiCorp's 2020 WMP.

Background

To ensure that utility wildfire mitigation efforts sufficiently address increasing utility wildfire risk, new WMP Guidelines, a Utility Survey and a Maturity Model were launched for 2020. Together, these tools represent a milestone in the evolution of utilities' wildfire mitigation efforts and ensure consistency with the WSD's enabling legislation.

2020 Guidelines

The 2020 WMP Guidelines implement several changes to further enhance the depth, comparability and quality of utility WMP submissions. Specifically, the WMP Guidelines require reporting of consistent metrics, ignitions, risk data and specific utility initiatives to reduce wildfire risk. Utilities have provided historical metrics and data as a baseline, which can be used to evaluate a utility's wildfire risk level and to assess whether the utility's initiatives sufficiently address this risk. These metrics and data will be used to track utility progress in mitigating the risk of catastrophic wildfire over time.

Maturity Model and Utility Survey

In order to enhance the focus on safety, ensure consistent goals and evaluate performance, the WSD has developed a model for evaluating current and projected wildfire risk reduction performance. It is important to note that this model is not designed to immediately penalize utilities for poor performance, but rather it is an effort by the WSD to work collectively with the utilities it regulates[2] to facilitate improvement by identifying best practices, current strengths and current weaknesses across the utility landscape. The WSD believes it is in the best interest of the utilities, ratepayers and other key stakeholders to take this collaborative, growth-oriented approach. While certain utilities are currently on the low end of the range for various categories of performance, the WSD is hopeful that providing clear review and evaluation of performance, including identifying such weaknesses, will help drive change in the utilities, allowing all regulated electric utilities in California to improve wildfire risk reduction performance.

[2] The WSD (ultimately the Office of Energy Infrastructure Safety) and the CPUC have complementary regulatory roles to fill in ensuring a strong oversight in reducing the risk of ignition of wildfires from utility infrastructure. The WSD, CPUC, and other relevant agencies will work together to ensure roles are defined and regulatory outcomes are met.

As a consequence, the model results are best interpreted as levels – the results are not absolute scores. A utility, for example, could be on the borderline for level 2 in the model, but it would remain at level 1 until it completed 100 percent of the steps required to cross the threshold to level 2. In this example, the way the model works is the utility would get a result of 1, not 1.8. The purpose of the model is not to penalize the utility for achieving a result of 1 but to identify the specific actions it can take to reach level 2.

Summary of the WSD's Assessment

An effective WMP should have three, overarching components in which utilities should be striving to be "world class." First, the WMP should demonstrate an understanding of a utility's unique risk. Each utility should measure outcome and progress metrics and use a sophisticated model to lay the foundation for safe operation within its service territory. Second, with a deep understanding of its risk, the utility should deploy a suite of initiatives designed to incrementally and aggressively reduce that risk. Finally, this deployment should be done with a key, strategic eye toward maximizing every scarce resource, whether it be direct costs, personnel, or time, to maximize its impact. The result should be that with each passing year California is safer from wildfire threats, with a significant reduction and eventual elimination of the need to use Public Safety Power Shutoffs (PSPS) as a mitigation action.

The WSD evaluated 2020 WMPs considering the following factors:

- Completeness: The WMP is complete and comprehensively responds to the WMP requirements
- Technical feasibility and effectiveness: Initiatives proposed in the WMP are technically feasible and are effective in addressing the risks that exist in the utility's territory
- Resource use efficiency: Initiatives are an efficient use of utility resources
- Forward looking growth: The utility is targeting maturity growth

The WSD used the utilities' 2020 WMP submissions and subsequent updates, public comments, responses to the WSD's data requests, utility reported data and utility responses to the Utility Survey in its assessment of 2020 WMPs.

Upon completion of this review, the WSD then determined whether each utility's 2020 WMP should either be:

- Approved without conditions (Full Approval)
- Approved with conditions (Conditional Approval)
- Denied (Denial)

Pursuant to Public Utilities Code Section 8386.3(a), this Action Statement and the discussion found in the associated Resolutions is the outcome of the WSD's review of WMP and input from the public and other governmental agencies. As stated previously, this Action Statement is the conditional approval of PacifiCorp's WMP and is presented to the CPUC for ratification, via the associated Resolution and Guidance Resolution.

The conditions for approval of PacifiCorp's WMP are designed to address the gaps identified in its WMP. Some of the key deficiencies for PacifiCorp's WMP are summarized below. The associated Resolution and Guidance Resolution capture the WSD's comprehensive review of PacifiCorp's WMP submission.

Discussion of WMP Assessment

Summary

PacifiCorp serves sections of Northern California with about half of its grid in High Fire-Threat District (HFTD) areas. For PacifiCorp's plan to be effective with its finite resources, it is crucial to strategically prioritize initiatives by geographic location and by ignition driver to target the highest risk elements of PacifiCorp's grid.

PacifiCorp, like peer small and multijurisdictional utilities (SMJUs), has not been subject to Safety Model Assessment Proceeding (S-MAP) or Risk Assessment Mitigation Phase (RAMP) requirements and is thus just beginning the process of risk-informed decision making when it comes to wildfire mitigation activities. Therefore, PacifiCorp has outlined mitigation initiatives which generally address its major risk drivers but does not yet have the capability to justify these based on their risk reduction and lay out a risk-informed deployment strategy. PacifiCorp has outlined plans to improve its knowledge of ignition risk across its grid and the impact of different mitigation activities, both in its WMP and in its Utility Survey. To address specific gaps in PacifiCorp's plan the WSD has imposed specific conditions of approval.

Risk Assessment

PacifiCorp, like other small and multi-jurisdictional utilities (SMJUs), has not been subject to the S-MAP or RAMP requirements in the same way as the large IOUs. Its risk assessment capabilities are still elementary. Today, PacifiCorp's weather data does not reliably measure conditions in HFTD areas and there is no consistent equipment for detecting ignitions. For PacifiCorp, improving foundational capabilities in situational awareness and data governance is key to improving its risk assessment abilities and, ultimately, allowing for risk-informed decision making such that initiatives reliably, measurably, and effectively reduce wildfire risk.

PacifiCorp plans to address this need through initiatives to map ignition risk along the grid, install continuous monitoring equipment, and add weather stations. By 2023, PacifiCorp expects to have tools able to quantitatively estimate ignition risk across its grid with probability by specific failure modes. There are some gaps in PacifiCorp's plan, such as lack of explicit planning for climate change. The WSD has made its approval of PacifiCorp's WMP contingent upon addressing these gaps and looks forward to seeing PacifiCorp realize the commitments made in its WMP.

Initiatives

PacifiCorp's initiatives, which are the actions and programs PacifiCorp will take to reduce wildfire risk, address the major risk factors that PacifiCorp faces. PacifiCorp's largest investments are in system hardening initiatives and vegetation management initiatives:

PacifiCorp plans to spend 68% of its budget on grid hardening and 22% on vegetation management.

PacifiCorp does not offer a thorough justification of its allocation of resource to the chosen system hardening initiatives or detail a risk-based deployment strategy. While the WSD recognizes that PacifiCorp is still building the risk assessment capabilities essential to that effort, it is important that PacifiCorp explicitly detail how it will measure the effectiveness of the initiatives chosen and use that information to inform future decision making. Furthermore, PacifiCorp currently lacks a robust electronic database to collect this initiative performance data as well as other important information, such as inspection findings and vegetation clearance data. Because data governance is a crucial enabler for risk-based decision making, it is important that PacifiCorp detail its investments in specific data governance initiatives. The WSD has imposed conditions of WMP approval on PacifiCorp so that these gaps will be resolved.

An effective vegetation management program will be particularly important for PacifiCorp, as 26% of average annual ignitions over the last 5 years have been caused by vegetation contact. However, few of PacifiCorp's vegetation management initiatives substantially exceed expectations of regulatory requirements. A business-as-usual compliance-oriented approach to wildfire mitigations is insufficient in the face of admittedly increasing wildfire risks. The WSD is imposing conditions to address this gap.

Resource Allocation Methodology

PacifiCorp currently lacks sufficient justification for its allocation of resources but states it will move towards providing an explanation for investment in each initiative, evaluating risk reduction from a combination of initiatives, and evaluating RSE based on total cost of ownership. The WSD recognizes that PacifiCorp and other SMJUs are just beginning to develop their methods for risk-based resource allocation, and expects that PacifiCorp cooperate with the related conditions imposed in order to accelerate this process in the face of an increasing wildfire crisis.

A detailed discussion of the above concerns, as well as, further analysis of PacifiCorp's WMP is articulated in the associated Resolutions, including a complete list of deficiencies and conditions in Appendix A of the associated Resolution for PacifiCorp.

Conclusion

Catastrophic wildfires remain a serious threat to the health and safety of Californians. Electric utilities, including PacifiCorp, must continue to make progress toward reducing utility-related wildfire risk. Through the conditional approval granted for its 2020 WMP submission, the WSD will ensure PacifiCorp is held accountable to successfully executing the wildfire risk reduction initiatives articulated in its 2020 WMP and required updates. The WSD expects PacifiCorp to meet the commitments in its 2020 WMP and fully comply with the conditions listed in Appendix A of its associated Resolution to ensure it is driving meaningful reduction of utility-related wildfire risk within its service territory.

Sincerely,

/s/ CAROLINE THOMAS JACOBS
Caroline Thomas Jacobs
Director, Wildfire Safety Division
California Public Utilities Commission

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Resolution WSD-008
Wildfire Safety Division
[Date]

R E S O L U T I O N

RESOLUTION WSD-008 Resolution Ratifying Action of the Wildfire Safety Division on PacifiCorp's 2020 Wildfire Mitigation Plan Pursuant to Public Utilities Code Section 8386.

This Resolution ratifies the attached action of the Wildfire Safety Division (WSD) pursuant to Public Utilities Code Section 8386. The California Public Utilities Commission's (Commission) and the WSD's most important responsibility is ensuring the safety of Californians. Since several catastrophic wildfires in the San Diego area in 2007, the equipment of large electric utilities the Commission regulates has been implicated in the most devastating wildfires in our state's history. California's Legislature enacted several legislative measures requiring electrical corporations to submit, and the Commission and the WSD to review, approve or otherwise act on Wildfire Mitigation Plans (WMPs) designed to reduce the risk of utility-caused catastrophic wildfire. Key among the legislative measures are Senate Bill 901 (2018), Assembly Bill 1054 (2019), and Assembly Bill 111, discussed in detail below.

This Resolution (along with several others concurrently being issued with regard to all Commission-regulated electric utilities and independent transmission owners), acts on the WMP submitted on February 7, 2020, of PacifiCorp's Pacific Power Utility (PacifiCorp). PacifiCorp's WMP responds to a list of 22 requirements set forth in Public Utilities Code 8386 and focuses on measures the electrical corporation will take over the next three years to reduce the risk of, and impact from, a catastrophic wildfire caused by its electrical infrastructure and equipment.

Electrical infrastructure and equipment pose ongoing risks of starting wildfires due to the presence of electric current. There are three elements required to start a fire: fuel (such as dry vegetation), oxygen, and an ignition source (heat). A spark from electrical infrastructure and equipment can provide the ignition point from which a wildfire can spread and cause catastrophic harm to life, property, and the environment.

WMPs contain an electrical corporation's detailed plans to reduce the risk of its equipment, operations or facilities igniting a wildfire. This Resolution ratifies the attached action of the WSD, which has conditionally approved PacifiCorp's 2020 WMP in its Action Statement. In doing so, this Resolution analyzes the extent to which PacifiCorp's wildfire mitigation efforts objectively reduce wildfire risk, drive improvement, and act as cost effectively as possible. In conducting this evaluation, the Commission considers and incorporates input from the Wildfire Safety Advisory Board, the public and other stakeholders.

PROPOSED OUTCOME:

- Ratifies the attached action of the WSD to approve the 2020 WMP of PacifiCorp, with conditions designed to ensure the WMP decreases risk of catastrophic wildfire in California.
- A list of conditions of approval is in Appendix A.
- Evaluates the maturity of PacifiCorp's WMP using the WSD's new Utility Wildfire Mitigation Assessment, as represented in the Utility Wildfire Mitigation Maturity Model. Final maturity model outputs should be viewed as levels or thresholds – they are not absolute scores.
- Requires PacifiCorp to file an update to its WMP in 2021 according to a forthcoming schedule to be released by the WSD.
- Does not approve costs attributable to WMPs, as statute requires electrical corporations to seek and prove the legitimacy of all expenditures at a future time in their General Rate Cases (GRC). Nothing in this Resolution nor the WSD's Action Statement should be construed as approval of any WMP-related costs.

- Does not establish a defense to any enforcement action for a violation of a Commission decision, order, or rule.

SAFETY CONSIDERATIONS:

Mitigation of catastrophic wildfires in California is among the most important safety challenges the Commission-regulated electrical corporations face. Comprehensive WMPs are essential to safety because:

- WMPs list all of an electrical corporation's proposed actions to reduce utility-related wildfire risk and prevent catastrophic wildfires caused by utility infrastructure and equipment. By implementing measures such as vegetation management, system hardening (such as insulating overhead lines and removing or upgrading equipment most likely to cause fire ignition), improving inspection and maintenance, situational awareness (cameras, weather stations, and use of data to predict areas of highest fire threat), improving community engagement and awareness, and other measures, utility-caused catastrophic wildfire risk should be reduced over time.
- The WSD's and Commission's substantive and procedural changes for evaluations of electrical corporations' 2020 WMPs will enhance California's ability to mitigate catastrophic wildfire risk related to utilities. Below is a summary of the key, new requirements in the 2020 process, required of all WMP filers:
    - A WMP template and format so WMPs are standardized and include similar information in the same format.
    - Standard data submissions, in spatial, non-spatial and tabular format, which grounds the WMP in specific data. Data submissions will continue throughout the WMP 3-year horizon and be used to measure compliance and performance to program, progress and outcome metrics.
    - A new Utility Survey that objectively assesses the electrical corporation's maturity across 52 capabilities in 10 categories. The resulting Maturity Matrix quantitatively presents the progressive impact of the electrical corporation's wildfire mitigation plan activities over the WMP 3-year horizon.

ESTIMATED COST:

- Nothing in this Resolution should be construed as approval of the costs associated with the WMP mitigation efforts.
- For illustrative purposes, Table 1 below contains filer's estimates of its projected costs for the wildfire mitigation efforts in its 2020 WMP.
- PacifiCorp may not record the same costs more than once or in more than one place, seek duplicative recovery of costs, or record or seek to recover costs in the memorandum account already recovered separately. All electrical corporations should ensure they carefully document their expenditures in these memorandum accounts, by category, and be prepared for Commission review and audit of the accounts at any time.

Table 1: Proposed WMP costs

Proposed WMP costs	
Total costs 2020-2022	$101 million
Subtotal: 2020	$26 million
Subtotal: 2021	$38 million
Subtotal: 2022	$37 million

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SUMMARY

This Resolution acts on the attached Wildfire Safety Division's (WSD) approval, with conditions, of the Wildfire Mitigation Plan (WMP) submitted by PacifiCorp on February 7, 2020, and revised March 2, 2020. The Resolution finds that PacifiCorp is in compliance, subject to many conditions, with the requirements for WMPs set forth in Assembly Bill (AB) 1054, codified at Public Utilities Code (Pub. Util. Code) Section 8386(c) and the WMP Guidelines issued by the Commission to electrical corporations. Section 8386(c) requires that electrical corporations' WMPs contain 22 elements; the full list of elements appears in Appendix E to this Resolution.

There are three possible actions for the WSD and Commission in response to any electrical corporation's WMP: approval, denial, or approval with conditions. In the case of the WMP resolved here, we ratify the WSD's action to approve the WMP with conditions. To the extent the WSD does not impose conditions on elements of the WMP, that element is approved.

The list of conditions of approval is in Appendix A.

1. BACKGROUND

Catastrophic wildfires in 2017-19 led the California Legislature to pass Senate Bill (SB) 901 in 2018 and its successor AB 1054 in 2019, as well as AB 111. SB 901 and AB 1054 contain detailed requirements for electrical corporations' WMPs and provide a 90-day review cycle of WMPs by the WSD. AB 111 establishes a new division, the WSD, within the Commission. The duties of the WSD are contained in Pub. Util. Code Section 326(a), including to evaluate, oversee and enforce electrical corporations' compliance with wildfire safety requirements, and develop and recommend to the Commission performance metrics to achieve maximum feasible wildfire risk reduction. SB 901 required a formal Commission proceeding for WMP review in 2019, and to that end the Commission reviewed the 2019 WMPs in Rulemaking (R.) 18-10-007. The decisions dispensing of the 2019 WMPs also added additional requirements for the 2020 WMPs.

After the Commission issued its WMP decisions on May 30, 2019,[3] the Legislature enacted AB 1054. AB 1054 contains similar WMP requirements to SB 901 but allows WMPs a three-year rather than one-year duration. AB 1054

[3] Decisions (D.) 19-05-036, D.19-05-037, D.19-05-038, D.19-05-039, D.19-05-040 and D.19-05-041 (May 30, 2019).

also requires the WSD to review and approve, deny or approve with conditions the electrical corporations' WMPs, with Commission ratification to follow thereafter. AB 1054 also requires establishment of a Wildfire Safety Advisory Board (WSAB), with appointees from the California Governor and Legislature, to provide comment on the 2020 WMPs and develop and make recommendations related to the metrics used to evaluate WMPs in 2021 and beyond.[4]

Building on lessons learned from the WMP review process in 2019, the WSD developed and required all electrical corporations to conform their WMPs to a set of new WMP Guidelines starting in 2020.[5] For 2020, the WMP Guidelines add requirements on detail, data, and other supporting information. The WMP Guidelines are designed to 1) increase standardization of information collected on electrical corporations' wildfire risk exposure, 2) enable systematic and uniform review of information each electrical corporation submits, and 3) move electrical corporations toward an effective long-term wildfire mitigation strategy, with systematic tracking of improvements over time.

The Commission adopted Resolution WSD-001 setting forth the process for the WSD and Commission review of the 2020 WMPs. The resolution called for electrical corporations to submit their 2020 WMPs on February 7, 2020. PacifiCorp submitted its WMP on that date. In response to data requests from the WSD, PacifiCorp revised and refiled its WMP on February 26, 2020.

Shortly after electrical corporations filed their WMPs, the WSD held two sets of all-day workshops over four days, on February 18, 19, 24 and 25, 2020. The February 18-19, 2020, informational workshops called for the electrical corporations to present to stakeholders and the public details on their WMPs, and for stakeholders to ask questions, raise concerns, and otherwise comment on the WMPs' contents. The February 24-25, 2020 technical workshops focused more in depth on key provisions of the WMPs: vegetation management, system hardening, risk-spend efficiency emerging technology and reduction of the scale and scope of Public Safety Power Shutoff (PSPS) events. Again, stakeholder and public input was offered.[6]

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[4] Pub. Util. Code § 8386.3 (Wildfire Safety Division), § 326.1 (Wildfire Safety Advisory Board).

[5] A ruling issued on December 19, 2019, in proceeding R.18-10-007 described and attached all of the material electrical corporations were required to use in submitting their 2020 WMPs.

[6] Presentations, agendas and other details of the workshops appear on the Commission's WMP homepage, located at www.cpuc.ca.gov/wildfiremitigationplans/.

Stakeholders were also allowed to submit comments on the WMP, to which the electrical corporation replied. Stakeholders and members of the public commented on the WMPs by April 7, 2020, and the electrical corporations responded to those comments by April 16, 2020.

2. NOTICE

In accordance with Pub. Util. Code § 8386(d), notice of PacifiCorp's WMP was given by posting of the WMP on the WSD's webpage, at www.cpuc.ca.gov/wildfiremitigationplans, on February 7, 2020, in accordance with the requirements of Pub. Util. Code Section 8386(d). Further, the electrical corporation served its 2020 WMP on the Commission's existing WMP formal proceeding (R.18-10-007) service list, as Resolution WSD-001 provided. Resolution WSD-001 also required the filer to post all data request responses, as well as any document referenced in its WMP, on its own website and update the website with notice to the R.18-10-007 on a weekly basis.

3. WILDFIRE SAFETY DIVISION ANALYSIS OF WMP

To reach a conclusion about each WMP, the WSD reviewed each electrical corporation's 2020 WMP (including updates and Geographic Information System (GIS) data), public and WSAB input, responses to WSD data requests, and responses to the maturity model survey questions. For PacifiCorp, the WSD issued three sets of data requests for missing information, clarification, and supplementation where necessary. Responses to these data requests were required to assess completeness of PacifiCorp's WMP, provide further clarity, and supplement data for the purposes of refining GIS maps. Upon completion of this review, the WSD determined whether each utility's 2020 WMP should be approved without conditions, approved with conditions, or denied.

To reach its conclusion, the WSD reviewed the WMPs for compliance with every aspect of the WMP Guidelines and AB 1054 and requirements of the 2019 WMP Decisions. The WSD designed the WMP Guidelines to require that each filer have a comprehensive WMP that contains all elements required by AB 1054. Thus, for example, every WMP must contain plans for vegetation management, system hardening, inspections of assets and vegetation, situational awareness, a plan to reduce and manage PSPS events, customer and first responder outreach and coordination, risk analysis, GIS data, a short- and long-term vision, analysis of causes of ignition, and many other elements. To evaluate WMPs, the WSD assessed each plan for its completeness, the technical feasibility and effectiveness of its initiatives, whether proposed initiatives were an efficient use of resources,

and demonstration of a sufficiently growth-oriented approach to reducing utility-related wildfire risk over time.

A conditional approval explains each missing or inadequate component in the WMP. The 2020 WMP Resolutions for each electrical corporation contain a set of "Deficiencies" and associated "Conditions" to remedy those deficiencies. Each deficiency is categorized into one of the following categories, with Class A being the most serious:

1. Class A – aspects of the WMP are lacking or flawed;
2. Class B – insufficient detail or justification provided in WMP;
3. Class C – gaps in baseline or historical data, as required in 2020 WMP Guidelines.

Class A deficiencies are of the highest concern and require an electrical corporation to develop and submit to the WSD within 45 days of Commission ratification of this Resolution, a Remedial Compliance Plan (RCP) to resolve the identified deficiency. Class B deficiencies are of medium concern and require reporting by the electrical corporation to provide missing data or update its progress in its quarterly report. Such reporting will be either on a one-time basis or ongoing as set forth in each condition. Class C deficiencies require the electrical corporation to submit additional detail and information or otherwise come into compliance in its 2021 annual WMP update. Detailed descriptions of the RCP and quarterly reports are contained in Resolution WSD-002, the Guidance Resolution on 2020 Wildfire Mitigation Plans.

The WSD identified a number of deficiencies in PacifiCorp's WMP, which can be found in Appendix A.

PacifiCorp's WMP contains all the elements of Pub. Util. Code Sec. 8386(c), and addresses each of the Guidelines, although some elements require additional data or analysis, as described in the body of this resolution.

The WSD's key concerns relate to the following aspects of the WMP:

PacifiCorp reports that it had begun several wildfire mitigation initiatives in 2018-19. However, it provides little analysis or data on how implementation of those initiatives is working to reduce its wildfire risks. PacifiCorp admits that "tracking metrics has not yet resulted in significant changes, lessons learned, or

amendments to programs."[7] Further, PacifiCorp states that it does not expect that it will have results that will influence its programs until after the three-year period that this WMP cycle comprises.

Even though PacifiCorp has experienced limited utility-caused wildfires and damages, several of the metrics reported in its WMP show a steady increase in risk over the past five years While actual incident numbers are relatively low, due to the size of its territory, Appendix B, Figure 2.3b shows PacifiCorp's number of ignitions over its entire circuit has been increasing over the past five years, from all causes apart from wire-to-wire contact.

PacifiCorp also experienced a large increase in acreage burned due to utility ignitions in 2019, compared to prior years, as shown on Appendix B, Figure 2.9b. Again, the number of acres is small at 126, but it indicates wildfire risk conditions may be increasing.

There is other evidence of increased risk. In 2019, PacifiCorp reported 11 wildfire ignitions caused by utility equipment, up from an average of about 3 incidents per year in 2015-2018. This increase in ignitions occurred as extreme fire weather frequency, as represented by the prevalence and extent of Red Flag Warnings (RFWs) in its service territory, decreased for the second straight year and was below the previous five-year average.

PacifiCorp does not currently have a robust electronic database to collect and utilize inspection findings, vegetation clearance data, and other key information. The utility therefore lacks a solid foundation for applying performance metrics to future actions or decisions.

PacifiCorp's total number of reported ignitions is low. PacifiCorp, however, is not immune to future wildfire events. In fact, compared to peer utilities, PacifiCorp has two to three times as many near-miss incidents when normalized for overhead circuit miles, signaling a higher potential ignition risk. Details for this comparison can be found in Appendix B, Figure 2.2b.

PacifiCorp has offered a modest and limited set of mitigations, without providing a clear sense of how it intends to build upon them in either the near-term or beyond the three years covered by its 2020 WMP.

[7] 2020 WMP, Page 18.

In the few instances where PacifiCorp projects its mitigation spending (for inspections and vegetation management to achieve clearances around electric lines and equipment, for example), it shows an essentially steady-state activity projection and spending plan for each of the years from 2020-2022.[8] The proposed spending is substantially greater than 2019 actual spending for similar activities, but it is difficult to assess whether it will be adequate to meet mitigation goals.

PacifiCorp's planned spend per High Fire Threat District (HFTD) circuit mile at $86,000 is the median of the Small and Multi-Jurisdictional Utilities (SMJU). PacifiCorp's planned spend is over 35 percent more than Liberty Utilities' but only approximately 7 percent of Bear Valley Electric Service's (BVES) planned spend per HFTD circuit mile.[9]

Such projections indicate a business-as-usual approach to wildfire mitigations, not a heightened sense of urgency. Much of PacifiCorp's proposed wildfire mitigation initiatives are meant to meet compliance with Commission rules and other statutory requirements, rather than to go beyond simple regulatory compliance.

PacifiCorp needs to improve its ability to analyze drivers of ignition probability beyond historic ignition data, and better show how this analysis is incorporated into its wildfire mitigation decision making and practices.

This Resolution discusses and resolves these issues below.

4. WILDFIRE SAFETY ADVISORY BOARD INPUT

The WSAB provided recommendations on the WMPs of Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) on April 15, 2020. Although not focusing specifically on PacifiCorp's WMP, the WSD has considered the WSAB's recommendations, and this Resolution incorporates WSAB's input throughout.

The WSAB focused its recommendations on high-level input and identification of shortcomings in the 2020 WMPs to inform upcoming wildfire mitigation efforts. WSAB recommendations focused on the following areas: vegetation

[8] WMP Revised Table 25 Vegetation management & Inspections.

[9] BVES' spend per HFTD circuit mile is an area of concern and is addressed in the Resolution addressing BVES' WMP.

management and inspection; grid design and system hardening; resource allocation methodology; and PSPS preparation, including communication with the community, planning, and recovery after PSPS events.

5. PUBLIC AND STAKEHOLDER COMMENT

The California Public Advocates Office and Green Power Institute (GPI) provided comments specific to PacifiCorp, although other organizations had comments for small utilities that could also apply to PacifiCorp.

GPI's general SMJU comments recommend that PacifiCorp and the other SMJUs catch up to the larger electrical corporations in use of analytical tools and mitigation measures. A need exists for improvement including in the following areas: (i) Development of a risk-based decision-making framework, including Risk Spend Efficiency (RSE) values and thorough risk bowtie analyses; (ii) Establishment of more comprehensive, "living-document" tools, methods, and protocols; (iii) Adoption of digitized versus paper forms and advanced system tracking; (iv) Assessment of run-to-failure asset replacement schedules and their impact on wildfire risk; (v) Vegetation management compliance and consideration of enhanced vegetation management that goes beyond simple regulatory compliance; (vi) Integration of mature wildfire modeling tools; (vii) Development of a more comprehensive customer communication and outreach program and concrete plans for providing support for affected customers (*e.g.*, back-up generation, community support centers) ; and (viii) Examination of whether the rate of system hardening and increased system resiliency upgrades is adequate to reduce wildfire risk.

Specific to PacifiCorp, GPI's comments address the following issues:

- Lack of digitized vegetation management tracking systems;
- Lack of discussion of threshold conditions underlying asset replacement determinations;
- Lack of any consideration of use of tree-trimming residue for biomass generation fuels; and
- Lack of ability to detect and forecast near miss and ignition probability.

The Public Advocates Office recognizes that PacifiCorp appears to be in the early stages of its most important wildfire risk-reduction initiatives. Still, it noted that PacifiCorp lacks an electronic database for vegetation management; and it

expressed concern that the utility is not focused on reducing potential de-energization events in its most at-risk areas.

It therefore recommends:

- The WSD closely monitor PacifiCorp's progress – particularly for system hardening – because the utility appears to be lagging on its 2019 programs;
- An Advice Letter filing in October 2020 for PacifiCorp to demonstrate significant progress on its goals.

In addressing Reply comments filed on April 16, 2020, PacifiCorp responds that:

- SMJUs have not previously been subject to the same risk assessment (Risk Assessment and Mitigation Phase (RAMP) and Safety Model Assessment Proceeding (S-MAP)) requirements as the large electrical corporations and therefore have a different baseline for data collection and risk-spend analysis.
- Cost recovery will be determined in a separate proceeding, but it is appropriate to accept approval of a WMP as the first building block of approving recovery for significant costs incurred by a utility.
- Approval of a WMP should mean that the proposed programs are approved and deemed reasonable.[10]
- The filing of an Advice Letter is an appropriate compliance mechanism for determining whether a three-year WMP will be necessary for 2021.
- PacifiCorp anticipates that it will be able to achieve targets for system hardening but agrees to revisit targets in future compliance filings.
- PacifiCorp will move forward with its plans of GIS and data upgrades and can provide a progress update in an October Advice Letter filing as recommended by the Public Advocates Office.
- The data of the large electrical corporations may be useful and informative but should not replace PacifiCorp's own data or judgment.
- PacifiCorp is already required to comply with community outreach requirements adopted in D.20-03-004, and it is not necessary to supplement the WMPs with duplicative requirements.

[10] Note: In response to the above points and other similar assertions, and noted elsewhere in this Resolution, approval of a WMP has no bearing on the utility's right to cost recovery.

6. DISCUSSION

Although nearly half of PacifiCorp's 11,000 square mile service territory is located in High Fire Threat District (HFTD) areas, the company and its 45,000 customers have so far been spared the worst impacts from wildfires in the 2015-2020 period. Nonetheless, PacifiCorp lags its utility peers – even among the smaller jurisdictional entities – in developing processes for assessing its wildfire risks and developing wildfire mitigation beyond activities that it has traditionally pursued in compliance with general safety and reliability requirements.

There is little sense that the utility is building a strong foundation to address immediate concerns that can become a platform for better-informed, accelerated or more targeted initiatives in the longer term. The utility's mitigation plans are largely incremental to existing or already announced activities over the next three years, rather than providing a forward looking 10-year schedule and scope of activities.

While PacifiCorp has identified a number of near-term mitigations, especially in asset hardening, inspections, vegetation management, advanced protection and control strategies, situational awareness and operational response (more fully described in the relevant sections that follow), its focus appears to be on short-term and intermediate progress.

In the few instances where PacifiCorp projects its mitigation spending (*e.g.,* for inspections and vegetation management to achieve clearances around electric lines and equipment), it shows an essentially steady-state activity projection and spending plan for each of the years from 2020-2022.[11] PacifiCorp plans to allocate nearly 70 percent of its budget on grid design and system hardening initiatives. Compared to peer utilities, PacifiCorp plans to allocate the largest percentage toward grid operations and protocols. Such projections indicate a business-as-usual approach to wildfire mitigations, not a heightened sense of urgency.

On the more positive side of the equation, while PacifiCorp seems to perceive itself at the beginning of its journey to address potential wildfires, it has expressed a strong interest in obtaining more guidance from the Commission on its expectations, and it intends to meet those expectations.

[11] WMP Revised Table 25 Vegetation management & Inspections.

While PacifiCorp still lacks some of the most-up-to-date tools for assessing its risks, the utility's creation of a Project Management Office (PMO) is a welcome "best practice" to consolidate decision making and data collection efforts, rather than having them spread through the organization.[12] Though in its early stages, the PMO is expected to devise and implement a more robust quality assurance process throughout the life of proposed mitigation projects, and it will enhance planning, and tracking to completion the utility's mitigation projects.

The WMP complies with Pub. Util. Code Section 8386 and the Commission can ratify the Wildfire Safety Division's approval with conditions.

The following sections discuss in detail the WMP, its contents, required changes, and conditions imposed on approval in detail. They follow the template provided in WMP Guidelines attached to the R.18-10-007 Administrative Law Judge's December 16, 2019, ruling as Attachment 1.

6.1. PERSONS RESPONSIBLE FOR EXECUTING THE PLAN

This section of the WMP requires that the filer designate a company executive with overall responsibility for the plan, and program owners specific to each component of the plan. The section also requires a senior officer to verify the contents of the plan, and the filer to designate key personnel responsible for major areas of the WMP.

PacifiCorp provided the required information.

6.2. METRICS AND UNDERLYING DATA

The metrics and underlying data section of the WMP represents an innovation over the 2019 WMP requirements in that all filers are required to report standardized and normalized data on many aspects, including their performance metrics, conditions in their service territories, grid topology, and wildfire mitigation efforts. To remedy a concern with the 2019 plans, the 2020 WMP Guidelines disallow the practice of filers characterizing only "program targets" (*e.g.,* number of miles of covered conductor installed or trees trimmed) as the "metrics" required by the statute.[10] For 2020, the WMP Guidelines require filers to group metrics and program targets as follows.

[12] WMP Section 5.3.3, Page 135.

- *Progress metrics* track how much electrical corporation wildfire mitigation activity has managed to change the conditions of electrical corporation's wildfire risk exposure in terms of drivers of ignition probability.
- *Outcome metrics* measure the performance of an electrical corporation and its service territory in terms of both leading and lagging indicators of wildfire risk, PSPS risk, and other direct and indirect consequences of wildfire and PSPS, including the potential unintended consequences of wildfire mitigation work.
- *Program targets* measure tracking of proposed wildfire mitigation activities against the scope and pace of those activities as laid out in the WMPs but do not track the efficacy of those activities. The primary use of these program targets in 2020 will be to gauge electrical corporation follow-through on WMPs.

This section first requires filers to discuss how the their plans have evolved since 2019, outline major themes and lessons learned from implementation of their 2019 plan and discuss how the filers performance against metrics used in their 2019 plans have informed their 2020 WMP. A series of tables then requires reporting of recent performance on predefined outcome and progress metrics, including numbers of ignitions, near misses, PSPS events, worker and public deaths and injuries, acreage affected, and assets destroyed by fire, and critical infrastructure impacts, as well as additional metrics the filer proposes to use to ensure the effectiveness of its efforts in quantitatively mitigating the risk of utility-caused catastrophic wildfire. This section also requires filers to detail their methodology for calculating or modeling potential impact of ignitions, including all data inputs used, data selection and treatment methodologies, assumptions, equations or algorithms used and types of outputs produced. Finally, this section requires filers to provide a number of GIS files detailing spatial information about their service territory and performance, including recent weather patterns, location of recent ignitions, area and duration of PSPS events, location of lines and assets, geographic and population characteristics and location of planned initiatives. A detailed summary and comparison of performance metrics and current state of utility service territories is provided in Appendix B.

In its WMP, PacifiCorp acknowledges that it is in "early implementation" of its multi-year process, and "tracking metrics has not yet resulted in significant

changes, lessons learned, or amendments to its programs."[13] It also notes that many of its programs "are simply an extension or augmentation of scope to existing programs, such as inspection and correction programs" which target safety or reliability risk mitigations. [14]

In assessing PacifiCorp's performance against progress and outcome metrics, Appendix B, Figure 2.2b shows that over the past five years PacifiCorp's near miss incidents per circuit mile fluctuate year over year, with large variances of approximately +/- 40% annually. Compared to other SMJUs, PacifiCorp reports the highest average of near miss incidents per circuit mile. Although PacifiCorp's incidents per circuit mile fluctuate annually, over the past five years its number of ignitions has steadily increased across all ignition drivers except "wire-to-wire contact." As shown in Appendix B, Figure 2.9b, PacifiCorp reports its highest acreage burned rate and total acres burned in 2019. Interestingly, Appendix B, Figure 1.5b illustrates that in 2019 PacifiCorp experienced its second least amount of RFW circuit mile days in the past five years, indicating there may not be a strong correlation between these two metrics in PacifiCorp's service territory.

Deficiencies and Conditions

PacifiCorp recognizes that it lacks many of the data sets that have been requested in the Guidelines for completing the 2020 WMP filing, stating that "they are not readily available or representative of the typical data sets used by PacifiCorp to operate its system."[15] As such, PacifiCorp also lacks the experience to forecast weather and environmental conditions necessary to predict ignition drivers, or to apply system-wide data to location specific projects. The lack of data makes it challenging for the utility to complete data tables required by the WSD's WMP Guidelines.

Deficiencies related to data submissions are not unique to PacifiCorp. As such, this deficiency and associated condition is addressed in the Guidance Resolution, WSD-002.

Despite its statements in the WMP, PacifiCorp has not completely considered lessons learned from prior years and the experiences of other utilities. It is not fully transparent about its plan's deficiencies or proactive about improvement

[13] WMP Sec. 21, Page 18.

[14] WMP Sec. 5.0, Page 87.

[15] Response to WSD Data Request PC 43879 G-247, March 6, 2020.

moving forward. PacifiCorp's current focus seems to be more on maintaining the status quo rather than using data and metrics to improve capabilities.

6.3. BASELINE IGNITION PROBABILITY AND WILDFIRE RISK EXPOSURE

The baseline ignition probability and wildfire risk exposure section of the WMP requires electrical corporations to report baseline conditions and recent information related to weather patterns, drivers of ignition probability, use of PSPS, current state of utility equipment, and summary data on weather stations and fault indicators. The section then requires the filer to provide information on its planned additions, removals, and upgrades of equipment and assets by the end of the 3-year plan term, in urban, rural and highly rural areas. The information must describe the scope of hardening efforts (*i.e.,* circuit miles treated), distinguish between efforts for distribution and transmission assets, and identify certain locational characteristics (*i.e.,* urban, rural and highly rural) of targeted areas. Filers must also report the sources of ignition over the past 5 years due to ignition drivers outlined in the annual fire incident data collection report template adopted in D.14-02-015.

Considering that managing the potential sources of ignition from its infrastructure, operations, and equipment is the single most controllable aspect of utility wildfire risk, understanding the sources and drivers of near misses and ignitions is one of the most critical capabilities in reducing utility-caused wildfire risk. Moreover, it is important to consider these performance metrics relative to annual fluctuations in weather conditions (*i.e.,* incidence of RFW days, days with high wind conditions – 95th and 99th percentile winds, and high fire potential days measured relative to utility FPIs or other fire danger rating systems) to better gauge relationships and thresholds between weather and fire potential indicators and utility ignitions. As such, the discussion in this section focuses on recent weather patterns, key drivers of utility ignitions and frequencies of such ignitions, recent use of PSPS, the current baseline conditions of the utility's service territory and equipment, and locations of planned utility upgrades.

PacifiCorp's service territory spans 11,000 square miles and serves approximately 45,000 customers along the northern California border. PacifiCorp operates nearly 3,900 miles of electric transmission and distribution lines, over 80 percent of which is comprised of overhead lines and infrastructure. Approximately one-third of PacifiCorp's overhead lines are located in HFTD areas and nearly 60 percent of PacifiCorp's overhead lines are in wildland-urban interface (WUI) areas. The WUI is the area where human development meets or

intermingles with unoccupied wildland and is a focal area for human-environment conflicts, such as wildfires. Additionally, over half of PacifiCorp's service territory consists of highly rural areas, defined as an area with less than seven persons per square mile. This combination of predominantly overhead infrastructure located mostly in sparsely populated WUI areas, a quarter of which are also in HFTD areas, creates a potentially significant wildfire risk exposure for PacifiCorp. With respect to recent extreme fire weather conditions, as reflected by the incidence and extent of RFWs, over the past five years PacifiCorp's service territory experienced its most extreme fire weather days in 2017, which has declined steadily each year since.

In 2019, PacifiCorp reported 11 wildfire ignitions determined to have been caused by utility equipment, up from an average of about 3 incidents per year in 2015-2018. Five of these ignitions were located in HFTD Tier 2 areas. In total some 126 acres were burned in 2019, causing an estimated $225,700 in asset damages and $15,000 in damage to structures. Over the past five years, 2015 was the only fire season with any such reported damages, when two reported ignitions, both in what are now considered HFTD, caused nearly $100,000 in overall damages and $85,728 in damage to structures.

PacifiCorp's largest cause of ignitions in the five-year historical period (26 percent of all ignitions) was vegetation contact. Additionally, 17 percent of all ignitions were due to animal contact.

PacifiCorp also provided a table for incidents and ignitions in the last five-year period on its distribution lines during fire season. Of all the ignitions, 75 percent of the ignitions were during fire season. The largest differential was for vegetation contact drivers, with half (3 of 6 ignitions) during fire season.

A detailed summary and comparison of performance metrics and current state of utility service territories is provided in Appendix B.

6.4. INPUTS TO THE PLAN, INCLUDING CURRENT AND DIRECTIONAL VISION FOR WILDFIRE RISK EXPOSURE

This section of the WMP requires the filer to rank and discuss trends anticipated to exhibit the greatest change and have the greatest impact on ignition probability and wildfire consequence, within the filer's service territory, over the next 10 years. First, filers must set forth objectives over the following timeframes: Before the upcoming wildfire season, before the next annual update, within the next 3 years, and within the next 10 years.

Filers must describe how the utility assesses wildfire risk in terms of ignition probability and estimated wildfire consequence, using Commission adopted risk assessment requirements (for large electrical corporations) from the GRC Safety Model and Assessment Proceeding (S-MAP) and Risk Assessment Mitigation Phase (RAMP). The filer must describe how the utility monitors and accounts for the contribution of weather and fuel to ignition probability and wildfire consequence; identify any areas where the Commission's High Fire Threat District (HFTD) should be modified; and rank trends anticipated to have the greatest impact on ignition probability and wildfire consequence.

A key area which filers are required to address is Public Safety Power Shutoffs (PSPS). In 2019 electrical corporations proactively shutoff power to millions of customers for multiple days, resulting in numerous cascading consequences, including associated public safety concerns. The Commission has been clear in its judgement that those events were unacceptable and cannot be repeated. The new 2020 WMP Guidelines direct the electrical corporations to describe lessons learned from past PSPS events and quantify the projected decrease of circuits and customers affected by PSPS as a result of implementing wildfire mitigation programs and strategies contained in the WMP.

PacifiCorp ranks its top macro trends impacting ignition probabilities somewhat differently than other California electrical corporations, putting as its top four trends a) climate change, b) fuel density and moisture, c) utility infrastructure location in HFTD v. non-HFTD, and d) urban vs. rural infrastructure location. It is unclear, however, how PacifiCorp's planned strategies and mitigation programs directly address these concerns, aside from placing fuel moisture sensors on its limited network of weather stations.

PacifiCorp evaluates fire history against the current HFTD designations for its service territory and continues to believe that no changes in designation are needed at this time. As discussed elsewhere, PacifiCorp lacks a sophisticated risk assessment and mitigation evaluation methodology, which is key to evaluating its directional vision for mitigation.

PacifiCorp has never initiated a PSPS event, but its WMP provides a thorough discussion of efforts to date in developing PSPS protocols and targeting areas of its territory with the greatest potential for PSPS events. PacifiCorp comes to this issue well behind the larger electrical corporations, and it is still developing programs and processes in response to the Commission's PSPS decisions.

While PacifiCorp has not yet developed a set of mitigation projects specific to PSPS, its grid hardening and topology programs offer the potential to keep PSPS reliance at a minimum in the future. The WSD does not impose any conditions on this portion of PacifiCorp's WMP.

6.5. WILDFIRE MITIGATION ACTIVITY FOR EACH YEAR OF THE 3-YEAR WMP TERM, INCLUDING EXPECTED OUTCOMES OF THE 3-YEAR PLAN

This section of the WMPs is the heart of the plans and requires the filer to describe each mitigation measure it will undertake to reduce the risk of catastrophic wildfire caused by the utility's infrastructure, operations, and equipment. A description of each type of measure appears below, with elaboration in Appendix D to this Resolution.

First, the WMP Guidelines require a description of the overall wildfire mitigation strategy over the following timeframes: before the upcoming wildfire season, before the next annual update, within the next 3 years and within the next 10 years. The filer is required to describe its approach to determining how to manage wildfire risk (in terms of ignition probability and estimated wildfire consequence) as distinct from other safety risks. The filer is required to summarize its major investments over the past year, lessons learned, and changes planned for 2020-2022; describe challenges associated with limited resources; and outline how the filer expects new technologies to help achieve reduction in wildfire risk.

Next, Section 5 requires the filer to explain how it will monitor and audit the implementation of the plan and lay out the data the filer relies on in operating the grid and keeping it safe. It then requires detailed descriptions of specific mitigations or programs, in the following order:

1) Risk assessment and mapping
2) Situational awareness and forecasting
3) Grid design and system hardening
4) Asset management and inspections
5) Vegetation management and inspections
6) Grid operations and operating protocols
7) Data governance
8) Resource allocation methodology
9) Emergency planning and preparedness
10) Stakeholder cooperation and community engagement.

Below, this Resolution evaluates the mitigations (or initiatives) PacifiCorp proposed for each of the 10 foregoing categories. After identifying each proposed mitigation or group of mitigations, the Resolution discusses concerns with the proposal, and identifies any conditions imposed. Provided in Appendix B, for illustrative purposes, are summaries of the filer's projected costs across highest total cost initiatives as well as projected costs across the highest category initiatives.

As shown in Appendix B, Figure 3.8, PacifiCorp plans to allocate over 40 percent of its total planned spending for covered conductor initiatives, with increases every year during the plan period. The next largest allocation is made in another system hardening initiative, with approximately 20 percent of total planned spending distributed between transmission and distribution pole replacement programs. PacifiCorp allocates 10 percent of its total planned spending on vegetation clearance work and annual vegetation inspections in the HFTD.

6.5.1. RISK ASSESSMENT AND MAPPING

This section of the WMP requires the filer to discuss the risk assessment and mapping initiatives implemented to minimize the risk of its equipment causing wildfires. Filers must describe initiatives related to maps and modelling of: overall wildfire risk, ignition probability, wildfire consequence, risk-reduction impact, match-drop simulations, and climate/weather driven risks. This section also requires the electrical corporation to provide data on spending, miles of infrastructure treated, spend per treated line mile, ignition probability drivers targeted, projected risk reduction achieved from implementing the initiative, risk spend efficiency, and other (*i.e.,* non-ignition) risk drivers addressed by the initiative.

PacifiCorp's risk assessment and forecasting plans consist of use of the existing California Fire Threat Map that illustrates overall ignition probability and quantifies specific geography that could be subject to elevated fire risk in HFTD areas. PacifiCorp relies solely on measures that are currently in place, primarily HFTD area designations, in assessing its PSPS potential. Since the Fire Map was put into practice, however, PacifiCorp has not undertaken more specific risk assessment. The utility believes its growing network of weather stations will provide more location-specific data in the future.

Deficiencies and Conditions – Risk assessment and mapping

PacifiCorp is severely lacking in modeling initiatives, instead relying on reactive measures to run its system and make decisions. The utility bases its risk assessments on the HFTD designations. PacifiCorp relies on the Fire Incident Reports required by the CPUC to analyze ignition probability, which fails to be proactive in any sense and largely ignores a multitude of data that would contribute to such probability.

Deficiencies such as these are not unique to PacifiCorp. As such, this deficiency and associated condition is addressed in the Guidance Resolution, WSD-002.

Deficiency (PC-1, Class B): *PacifiCorp's WMP does not report adequate planning for climate change.*

Although it recognized climate change as a top macro trend of concern, PacifiCorp has not yet specifically engaged in planning for it. PacifiCorp stated in its WMP that when/if climate change impacted their service territory then an assessment would be conducted to determine a response.

PacifiCorp did not mention if climate modeling would be a necessary step in this process. This is a reactive versus a proactive approach to wildfire mitigation planning.

Condition (PC-1, Class B): In a first quarterly report, PacifiCorp shall:

i) describe how it incorporates climate change into risk models; and

ii) outline in detail how it plans to use these risk models to deploy wildfire initiatives

6.5.2. SITUATIONAL AWARENESS AND FORECASTING

The situational awareness and forecasting section of the WMP requires the filer to discuss its use of cameras, weather stations, weather forecasting and modeling tools, grid monitoring sensors, fault indicators, and equipment monitoring. Situational awareness requires the electrical corporation to be aware of actual ignitions in real time, and to understand the likelihood of utility ignitions based on grid and asset conditions, wind, fuel conditions, temperature and other factors.

The WMP Guidelines refer to key situational awareness measures, including:

1) Installation of advanced weather monitoring and weather stations that collect data on weather conditions to develop weather forecasts and predict where ignition and wildfire spread is likely;
2) Installation of high definition cameras throughout an electrical corporation's service territory, with the ability to control the camera's direction and magnification remotely;
3) Use of continuous monitoring sensors that can provide near real-time information on grid conditions;
4) Use of a fire risk or fire potential index that takes numerous data points in given weather conditions and predicts the likelihood of wildfire; and
5) Use of personnel to physically monitor areas of electric lines and equipment in elevated fire risk conditions.

We are concerned with PacifiCorp's modest approach to increasing its weather forecasting ability. In the near-term it does not appear to be able to employ real-time fire/weather monitoring. The utility also lacks the experience to forecast weather and environmental conditions necessary to predict ignition drivers, or to apply system-wide data to location-specific projects.

In order to improve its weather forecasting ability, PacifiCorp is in the process of calibrating ten existing weather stations to ensure they are in working condition prior to fire season. These stations will be useful for evaluation of weather events and potential PSPS events. PacifiCorp intends to install another ten stations over the next 1-3 years, but it does not project additional facilities over the next decade.

Deficiencies and Conditions – Situational awareness and forecasting

Deficiency (PC-2, Class B): PacifiCorp has not demonstrated effective weather station utilization.

PacifiCorp lacks sufficient weather station coverage in populated communities that border Tier 2 HFTD areas in its service territory. For example, PacifiCorp has no stations in Scott's Valley, Yreka or Hornbrook and does not plan on adding weather stations in these areas in the near-term. It is important to understand PacifiCorp's methodology for choosing where to put weather stations and its justification of why they are not in the identified communities. Weather stations in these areas could paint a picture of how weather systems are moving across PacifiCorp's whole territory.

Condition (PC-2, Class B): In its first quarterly report, PacifiCorp shall:

i. explain in detail how it chooses to locate its weather stations and explain gaps or areas of lower weather station density, and

ii. provide a cost/benefit analysis of the impact of having a higher density of weather stations across its territory.

6.5.3. GRID DESIGN AND SYSTEM HARDENING

The grid design and system hardening section of the WMPs examine how the filer is designing its system and what it is doing to strengthen its distribution and transmission system and substations to prevent catastrophic wildfire. The grid design and system hardening WMP section also requires discussion of routine and non-routine maintenance programs, including whether the filer replaces or upgrades infrastructure proactively rather than running facilities to failure. Programs in this category, which often cover the most expensive aspects of a WMP, include initiatives such as the installation of covered conductors to replace bare overhead wires, undergrounding of distribution or transmission lines, and pole replacement programs. The filer is required, at a minimum, to discuss grid design and system hardening in each of the following areas:

1) Capacitor maintenance and replacement;
2) Circuit breaker maintenance and installation to de-energize lines upon detecting a fault;
3) Covered conductor installation;
4) Covered conductor maintenance;
5) Crossarm maintenance, repair, and replacement;
6) Distribution pole replacement and reinforcement, including with composite poles;
7) Expulsion fuse replacement;
8) Grid topology improvements to mitigate or reduce PSPS events,
9) Installation of system automation equipment;
10) Maintenance, repair, and replacement of connectors, including hotline clamps;
11) Mitigation of impact on customers and other residents affected during PSPS event;
12) Other corrective action;

13) Pole loading infrastructure hardening and replacement program based on pole loading assessment program;

14) Transformers maintenance and replacement;

15) Transmission tower maintenance and replacement;

16) Undergrounding of electric lines and/or equipment;

17) Updates to grid topology to minimize risk of ignition in HFTDs; and

18) Other/not listed items if an initiative cannot feasibly be classified within those listed above.

PacifiCorp's grid design and system hardening plans consist of limited new investments in covered conductor installation, distribution and transmission pole replacements, automated equipment and replacement of small size copper conductor.

The utility does not currently have programs for the other initiatives listed above, and consolidates some activities with others, so it does not provide any individual budget forecasts for those programs.

PacifiCorp's most significant program expansion appears to be its covered conductor installation project, where it plans to spend $11.6 million to replace up to 16 line-miles of transmission conductor over three years, and $30.8 million for 131 line-miles of distribution conductor replacement. There were no expenditures for this activity in 2019. Although embarking on a covered conductor replacement program in the 2020-2022 period, PacifiCorp has not included any covered conductor maintenance in its budget projections.

PacifiCorp forecasts up to 639 line-miles of distribution pole replacements or reinforcement in 2020-2022, with an expected budget expenditure of $5.38 million. It expects to replace or reinforce up to 510 line-miles of transmission at approximately $24,500 per line-mile or a total $24.48 million. It reported no such activities in 2019.

Automated equipment installation is expected to increase from 10 in 2019 to an additional 58 in the 2020-22 period, although with a diminishing rate of installations in the period. Expected costs vary greatly per installation location, it appears, but a total budget of $5.36 million is projected in the period.

The replacement of small sized copper conductor appears to target 3 miles in 2020, at a line-mile cost of $166,000, while the 2011 program involves 26 miles at

about $52,000 per line-mile. In all, 42 miles of replacement in the three-year period would total $2.82 million.

Deficiencies and Conditions - Grid design and system hardening

As noted by the Public Advocates Office, PacifiCorp does not appear to be targeting its initiatives on sections of circuits that are most at-risk. While ignitions are few and there have been no PSPS events in its territory, PacifiCorp needs to demonstrate that it is using its limited resources in ways to effectively prevent future events, including by assessing grid sectionalization efforts.

PacifiCorp cautioned against comparing its 2019 WMP programs because it had only included total program units and costs. To do so would be "confusing and not helpful in understanding progress or the company's overall programs," PacifiCorp stated.

While PacifiCorp attempted to identify specific wildfire risk targets by these proposed investments (*e.g.,* Contact from object), it provides no risk reduction or RSE estimates for any of its grid hardening activities, making it very difficult to assess their effectiveness in reducing risks or relative efficient use of resources.

Deficiencies related to targeting grid design and hardening initiatives towards areas of highest risk are not unique to PacifiCorp. As such, this deficiency and associated condition is addressed in the Guidance Resolution, WSD-002.

Deficiency (*PC-3, Class B*): *PacifiCorp did not explain how it would track effectiveness of its covered conductor initiative.*

Although PacifiCorp allocates the largest portion of its planned spending on covered conductor, PacifiCorp does not discuss a method for tracking the effectiveness of its planned covered conductor installations.

Condition (PC-3, Class B): In a first quarterly report, PacifiCorp shall:

i) present and explain a methodology for tracking and measuring the effectiveness of its covered conductor installations at reducing the frequency and probability of:
    a. outages for top 10 outage causes based on best available historical data, and
    b. ignitions for all CPUC reportable ignitions.

6.5.4. ASSET MANAGEMENT AND INSPECTIONS

The asset management and inspections portion of the WMP Guidelines requires the filer to discuss power line/infrastructure inspections for distribution and transmission assets within the HFTD, including infrared, LiDAR, substation, patrol, and detailed inspections, designed to minimize the risk of its facilities or equipment causing wildfires. The filer must describe its protocols relating to maintenance of any electric lines or equipment that could, directly or indirectly, relate to wildfire ignition. The filer must also describe how it ensures inspections are done properly through a program of quality control.

PacifiCorp's asset management and inspection plans consist of largely standard programs as dictated by state required reliability standards and to manage routine operational risks. Beginning in 2018, PacifiCorp stated that it began implementing four additional elements to address specific wildfire risks and improve resiliency: creating a fire risk Condition Code; increasing inspection frequencies in Fire High Consequence areas; narrowing Correction time frames for Fire Risk Conditions, and; piloting new technologies to enhance visual inspections.

The increase in frequency of inspections is to comply with changes to General Order (GO) 95 and GO 165. While it projects an increase in detailed inspections of distribution lines in 2020, compared to 2019 (605 line-miles v. 473), after that the number of line miles reverts to only slightly more than the 2019 level (~480 miles). Transmission line inspections will increase, however, rising from 62 miles in 2019 to 122 miles in 2020, 236 miles in 2021 and 268 miles in 2022.

Deficiencies and Conditions - Asset Management and Inspections

Although it professes to implement new programs, pilot new technologies and translate lessons learned into its long-term plans, PacifiCorp's WMP projects little or no planned program evolution for the majority of its asset management efforts.

Deficiency (*PC-4, Class B*): *PacifiCorp's WMP lacks a QA/QC program for inspections.*

PacifiCorp does not have a specific asset management and inspections program for wildfire risk mitigation that is focused on quality assurance/quality control of inspections.

PacifiCorp's WMP lacks detailed budget projections for many of these elements of asset management, and figures that it does provide for inspections are

generally steady-state, or in some cases less than what was expended in 2019. Such projections indicate a business-as-usual compliance-oriented approach to wildfire mitigations, not a heightened sense of urgency in the face of admittedly increasing wildfire risks.

Condition (PC-4, Class B): In its first quarterly report, PacifiCorp shall provide details in specific asset management and inspection quality control, including providing planned spend information for these initiatives.

6.5.5. VEGETATION MANAGEMENT AND INSPECTIONS

This section of the WMP Guidelines requires filers to discuss vegetation inspections, including inspections that go beyond existing regulation, as well as infrared, LiDAR, and patrol inspections of vegetation around distribution and transmission lines/equipment, quality control of those inspections, and limitations on the availability of workers. The filer must also discuss collaborative efforts with local land managers to leverage opportunities for fuel treatment activities and fire break creation, methodology for identifying at-risk vegetation, how trim clearances beyond minimum regulations are determined, and how the filer considers and addresses environmental and community impacts related to tree trimming and removal (erosion, flooding, and the like).

Beginning in 2019, PacifiCorp conducted annual vegetation inspections along all lines in the High Fire Threat Districts of its territory. The utility increased line clearance distances in the HFTD, and expanded annual pole clearing on equipment in the HFTD. It says it is evaluating electronic and GIS-based tracking of vegetation management activities.

However, it is unclear how these activities advance PacifiCorp beyond increasingly stringent standards imposed by the CPUC in GO 95 for line clearances and inspections. At this time, PacifiCorp does not have any discretionary programs for inspections of vegetation around distribution or transmission lines or equipment. It is currently piloting use of LiDAR technology for enhanced inspections. PacifiCorp, however, does not project how effective these pilots are expected to be.

PacifiCorp also does not have a wildfire mitigation program focused on recruiting/training vegetation management personnel. PacifiCorp's WMP lacked detail regarding vegetation management workforce resources and constraints, and solutions to constraints if felt. This is important in order to gauge the feasibility of PacifiCorp's plan.

One area in which PacifiCorp appears to be going beyond compliance is in expanding its pole clearing to include some 2,768 "local responsibility area" poles located in the HFTD. This is in addition to 12,292 "state responsibility area" subject poles. As with asset management, PacifiCorp provide forward budgeting information for few of its vegetation management efforts (notably: inspections, and clearance work), and those budgets show little if any increases in annual spending over 2019 levels.

Deficiencies and Conditions - Vegetation management and inspections

In the few instances where PacifiCorp projects its mitigation spending, such as for inspections and vegetation management, it shows an essentially steady-state activity projection and spending plan for each of the years from 2020-2022.[16] Such projections indicate a business-as-usual compliance-oriented approach to wildfire mitigations, not a heightened sense of urgency in the face of admittedly increasing wildfire risks. PacifiCorp could put more priority into piloting new programs and be forward-thinking on improvements to be made in the future. For example, PacifiCorp did not provide sufficient detail on the 2018 pilot programs, the process under which PacifiCorp analyzed the pilots, and the extent to which each will be utilized moving forward.

Deficiencies related to pilot programs and vegetation management are not unique to PacifiCorp. As such, these deficiency and associated conditions are addressed in the Guidance Resolution, WSD-002.

6.5.6. GRID OPERATIONS AND OPERATING PROTOCOLS

The grid operations and operating protocols section of the WMP requires discussion of ways the filer operates its system to reduce wildfire risk. For example, disabling the reclosing function of automatic reclosers[17] during periods of high fire danger (*e.g.,* during Red Flag Warning conditions) can reduce utility ignition potential by minimizing the duration and amount of energy released when there is a fault. This section also requires discussion of work procedures in elevated fire risk conditions, PSPS events and protocols, and whether the filer has stationed and on-call ignition prevention and suppression resources and services.

[16] WMP Revised Table 25 Vegetation management & Inspections.

[17] A recloser is a switching device that is designed to detect and interrupt momentary fault conditions. The device can reclose automatically and reopen if a fault condition is still detected.

PacifiCorp's grid operation plans and operating protocols consist of automatic recloser operations, procedures and training for conditions of elevated risk, and on-call ignition prevention and suppression resources. It does not include activities related to PSPS or re-energization as part of Grid Operations. There are essentially no projected increases in program activity or budget for any of these areas, compared to 2019. There is also no specifically planned evolution of Grid Operations in the near term, and only vague indications that the utility will incorporate lessons learned or advanced features over the coming decade.

PacifiCorp offers no forward-looking strategy beyond programs that meet increased compliance requirements.

Deficiencies and Conditions - Grid operations and operating protocols

Deficiency (*PC-5*, Class C): *PacifiCorp's WMP does not report sufficient information on the risk reduction outcomes of its automatic recloser program.*

PacifiCorp prioritizes its automatic recloser program. PacifiCorp claims that its automatic reclosers do not emit sparks or pose an ignition risk. PacifiCorp states that it adjusted settings for reclosers and conducted line testing to assess faults before reclosing and that it will continue to investigate if amended recloser settings and conducting line testing after lockout appropriately addresses faults.

Condition (PC-5, Class C): In its 2021 annual WMP update, PacifiCorp shall:

i) describe whether recloser setting adjustments and the detection and alleviation of faults reduce ignition risk along PacifiCorp's grid; and

ii) report on its assessments, including all supporting data and results.

6.5.7. DATA GOVERNANCE

The data governance section of the WMP Guidelines seeks information on the filer's initiatives to create a centralized wildfire-related data repository, conduct collaborative research on utility ignition and wildfire, document and share wildfire-related data and algorithms, and track and analyze near miss data.

PacifiCorp's data governance plans consist of a very basic data system consisting of outage, circuit topology, and weather data. PacifiCorp says it is focused on gathering reliable and accurate data. Its existing effort appears to be responsive to the Commission's 2019 decision for SMJU Fire Incident Collection Reporting.

While PacifiCorp describes prioritizing data that drives PSPS decisions, it did not show any evidence of how algorithms inform such decisions. This is no particular focus on near miss analysis beyond tracking faults and outages. PacifiCorp describes engaging in collaborative research to focus on "filling in gaps" in technical areas, providing broad support to research conducted by other utilities close to its service areas and affiliated utilities.

Deficiencies and Conditions - Data governance

Deficiency (*PC-6, Class B*): *PacifiCorp does not have a specific data governance wildfire mitigation program.*

PacifiCorp has no centralized repository for data that maps to tracking key aspects of the WMP, nor does it engage in collaborative research on utility ignitions. The WMP offers no data on expenditures for these data governance activities. PacifiCorp is not showing ambition in the development of its data governance activities as a mitigation tool. Initiatives do not include new technologies, or risk-based prioritization.

Condition (PC-6, Class B): In its first quarterly report, PacifiCorp shall:

i) list and describe its data collection and governance policies, and

ii) describe how it plans to track key aspects of WMP data.

6.5.8. RESOURCE ALLOCATION METHODOLOGY

The resource allocation section of the WMPs requires the filer to describe its methodology for prioritizing programs to minimize the risk of its equipment or facilities causing wildfires in the most cost-efficient manner. This section requires filers to discuss risk reduction scenario analysis and provide a risk spend efficiency analysis for each aspect of the plan.

As a result of an agreement reached among the smaller utilities and the Commission's Safety & Enforcement Division (approved in D.19-04-020), PacifiCorp has not yet developed a risk assessment methodology and modeling capabilities that are consistent with what the larger electrical corporations have developed for the Risk Assessment and Mitigation Phase (RAMP) of their General Rate Cases GRCs). In particular, PacifiCorp has not developed a methodology for calculating an RSE that can be used to help in its resource allocation decisions, as it chooses among potentially effective wildfire prevention and mitigation initiatives. While PacifiCorp says it is fully committed to the

continued development and improvement of the company's risk based decision making framework, many of the elements requested in this 2020 WMP filing may not be applicable to PacifiCorp, specifically many of the components requested in this section. These elements are marked "does not apply" or "not applicable" throughout the company's filing. Therefore, its 2020 WMP lacks many of the data inputs needed by the WSD to fully assess those asset management and resource allocation proposals.

In its WMP, PacifiCorp projects that it will be able to identify key functional attributes of risk-modelling software in the immediate future (prior to 2020 fire season), and develop an implementation plan by the next WMP cycle, with such software in use to improve its risk portfolio in three years.

Deficiencies and Conditions - Resource allocation methodology

The agreement in D.19-04-020 was reached well before SB 901 went into effect, and while its intent was to reduce the regulatory burden on resource constrained utilities in their GRCs, the continuing threat of wildfires makes it incumbent on PacifiCorp, in coordination with the Commission and other utilities, to expedite its development of these risk management tools.

Deficiencies related to resource allocation are not unique to PacifiCorp. As such, this deficiency and associated condition is addressed in the Guidance Resolution, WSD-002.

6.5.9. EMERGENCY PLANNING AND PREPAREDNESS

The WMP Guidelines require a general description of the filer's overall emergency preparedness and response plan, including discussion of how the plan is consistent with legal requirements for customer support before, during and after a wildfire, including support for low income customers, billing adjustments, deposit waivers, extended payment plan, suspension of disconnection and nonpayment fees, and repairs. Filers are also required to describe emergency communications before, during, and after a wildfire in English, Spanish, and other languages required by the Commission

The WMP Guidelines also require discussion of the filer's plans for coordination with first responders and other public safety organizations, plans to prepare for and restore service, including workforce mobilization and prepositioning of equipment and employees, and a showing that the filer has an adequate and trained workforce to promptly restore service after a major event.

PacifiCorp's emergency planning and preparedness plans consist of an outage restoration call-back program that does automated calls with information. It has a Joint Information System (JIS) that allows them to coordinate social media, regular media, and stakeholder information. The utility follows an identical approach to wildfire emergencies as it does for other emergency events, and its wildfire related plans integrate with its Emergency Response Plan and commission regulations in GO 166.

PacifiCorp follows utility best practice in implementing using incident command structure (ICS) and assuming responsibility for service restoration and recovery. It is implementing new training enhancements which include: (1) change from online to in-person training at the field level, (2) staffing changes, and (3) changes that will help strengthen its ICS structure. The WSD does not impose any conditions on this portion of PacifiCorp's WMP.

6.5.10. STAKEHOLDER COOPERATION AND COMMUNITY ENGAGEMENT

The final topic covered in Section 5 relates to the extent to which the filer will engage the communities it serves and cooperate and share best practices with community members, agencies outside California, fire suppression agencies, forest service entities and others engaged in vegetation management or fuel reduction.

PacifiCorp's wildfire mitigation risk strategy outlined in section 5.1 includes improving internal and external customer and community engagement. However, PacifiCorp does not currently have a specific stakeholder cooperation and community engagement program focused on this.

PacifiCorp additionally needs to establish a means of receiving input from customers, such as surveys for all meetings or outreach events, and a formal method of incorporating such input into its procedures and WMP moving forward.

Additionally, PacifiCorp should provide any updates relating to WMP that derive from D.20-03-024, particularly relating to effectiveness of outreach and AFN coordination. Cost for this section is not tracked, as an individual community engagement program does not currently exist.

PacifiCorp provided minimal details on their cooperation with suppression agencies. Their described approach is they work with suppression agencies and

coordinate with them on incidents. However, they did not describe any cooperation or engagement outside of these activities (training, joint activities, etc.). Additionally, they did not provide an explanation of how the utility expects to evolve in the timelines described (before fire season, before next annual update, within 3 years, within 10 years).

PacifiCorp listed several cooperative fuel reduction projects coordinating with various federal agencies. However, PacifiCorp does not have a specific program that coordinated these efforts and did not discuss its forward-looking approach (before fire season, before next annual update, within 3 years, within 10 years).

Deficiencies and Conditions – Stakeholder Cooperation and Community Engagement

PacifiCorp does not discuss its forward-looking approach for stakeholder cooperation and community engagement.

Deficiency (*PC-7, Class C*): *PacifiCorp's stakeholder cooperation and community engagement needs further detail.*

PacifiCorp did not describe in detail having a specific means of receiving input from customers or outline a formal method of incorporating such input into its procedures and WMP moving forward. PacifiCorp provided minimal details on their cooperation with suppression agencies, and PacifiCorp does not have a specific program to coordinate cooperative efforts with federal agencies.

Condition (PC-7, Class C): In its 2021 annual WMP update, PacifiCorp shall:

i. describe its plan for receiving input from customers, such as surveys and any formal method of incorporating such input into its procedures;
ii. provide updates relating to the WMP that derive from D.20-03-024, particularly relating to effectiveness of outreach and AFN coordination;
iii. outline in detail how PacifiCorp cooperates with suppression agencies, including how it cooperates on training, incidents, and other activities; and
iv. detail how it plans to coordinate cooperative efforts relevant to reducing wildfire risk with federal agencies.

7. MATURITY EVALUATION

In 2020, the WSD introduced a new Utility Wildfire Mitigation Maturity Model, to establish a baseline understanding of utilities' current and projected capabilities and assess whether each utility is progressing sufficiently to improve its ability to mitigate wildfire risk effectively. The maturity model also serves as an objective means of comparing across utilities and provides a framework for driving utility progress in wildfire risk mitigation over time. WMP filers were required to complete a survey in which they answered specific questions which assessed their existing and future wildfire mitigation practices across 52 capabilities at the time of filing and at the end of the 3-year plan horizon. The 52 capabilities are mapped to the same 10 categories identified in Section 5 above.[18]

The maturity model will continue to evolve each year to reflect best practices and lessons learned. With the inaugural use of the maturity model in 2020, it is important to note that the resulting maturity score is to be informative of a utility's capabilities within the context of the underlying assessment criteria. Accordingly, it is essential that the maturity assessment scores are understood within the context of the qualitative detail supporting each score. The model results require context and should not be interpreted as the final word on an electrical corporation's wildfire mitigation capabilities without an understanding of the scoring process described in the Guidance Resolution. As such, the final maturity model outputs should be viewed as levels or thresholds – they are not absolute scores.

PacifiCorp's initial maturity model assessment reveals that it is in the earliest stages of its maturity growth and is focused on building foundational capabilities that are still largely focused on general safety and reliability standards, rather than being specific to wildfire risks. PacifiCorp appears to be putting most of its attention to enhancing (A.) risk assessment & mapping and (B.) situational awareness. The utility is building on perceived strengths in (I.) emergency planning and preparedness, and (J.) stakeholder cooperation & community engagement capabilities.

[18] A detailed description of the purpose and use of the maturity model is provided the Guidance Resolution being issued concurrently with the instant Resolution.

PacifiCorp's development in these foundational, enabling capabilities provides an opportunity for the WSD and the Commission to guide this development and drive towards increased transparency and standardization in decision-making. It is apparent, however, that PacifiCorp is not projecting much growth at all in the majority of identified capabilities. As shown in Appendix C, Figure 1.3, PacifiCorp projects some incremental growth for 7 of the 10 categories between 2020 and 2023. But this projected growth is very limited; only 13 of the 52 capabilities indicate any growth between 2020 and 2023.

In addition, PacifiCorp is projecting more than marginal growth for only 3 of the total capabilities, indicating a very cautious approach to advancing maturity of its processes and protocols.

In the majority of cases, PacifiCorp is only at the very earliest stages of maturity for 32 of the 52 capabilities in 2020. Of these only 9 capabilities indicate any further maturation by 2023.

This static approach to developing wildfire mitigation tools and mitigations is especially prevalent in the categories of (C.) grid design & system hardening, (D.) asset management and inspections, and (F.) grid operations and protocols. Limited, incremental growth is projected for (E.) vegetation management, by increasing inspection cycles. PacifiCorp sees some improvement in (G.) data governance by improving data collection and curation, but curiously it projects no improvement in use of analytics or near-miss tracking.

A similar disparity occurs for (I.) emergency planning, in which PacifiCorp claims to have high level of maturity for its protocols to learn from wildfire events, but no process at all (and no advancement) for continuous improvement after wildfire and/or PSPS events.

Still, emergency planning is the sole category where PacifiCorp has noted a strong level of assessment in 2020 or ambition to reach the highest level in four of the five capabilities by 2023.

Also on the positive side, PacifiCorp intends to show advancement in four of the five capabilities associated with (A.) risk assessment & mapping by 2023, with some growth for climate scenario modelling, ignition risk estimation, estimation of wildfire and PSPS impacts, and use of risk mapping simulation algorithms.

Situational awareness capabilities will be enhanced with some improvements to weather data collection and wildfire detection processes and capabilities.

The development of these capabilities and the clear presentation of resulting data is critical for the WSD, the Commission and stakeholders understanding and efficient assessment of PacifiCorp's wildfire mitigation programs.

8. IMPACT OF COVID-19 PANDEMIC

After PacifiCorp submitted its WMP, on March 19, 2020, California Governor Gavin Newsom signed Executive Order N-33-20 requiring Californians to stay at home to combat the spread of the COVID-19 virus. Specifically, Governor Newsom required Californians to heed the order of the California State Public Health Officer and the Director of the California Department of Public Health that all individuals living in California stay home or at their place of residence, except as needed to maintain continuity of operation of the federal critical infrastructure sectors, in order to address the public health emergency presented by the COVID-19 disease (stay-at-home order).[19]

As articulated in the March 27, 2020 joint letters[20] of the WSD, CAL FIRE and the California Governor's Office of Emergency Services regarding essential wildfire and PSPS mitigation work during COVID-19 sent to each electrical corporation, electrical corporations are expected to continue to prioritize essential safety work. The WSD expects the electrical corporations to make every effort to keep WMP implementation progress on track, including necessary coordination with local jurisdictions. Such effort is essential to ensuring that electrical corporations are prepared for the upcoming and subsequent wildfire seasons, while complying with COVID-19 restrictions requiring residents to shelter-in-place, practice social distancing, and comply with other measures that California's public health officials may recommend or that Governor Newsom or other officials may require in response to the COVID-19 pandemic.

Furthermore, the WSD expects the electrical corporations to continue to make meaningful progress on PSPS mitigation goals, including continuing with sectionalization projects, local outreach and coordination, establishing customer

[19] Executive Order N-30-20. Available at http://covid19.ca.gov/img/Executive-Order-N-30-20.pdf.

[20] https://www.cpuc.ca.gov/covid/. Letters to each electrical corporation are found under the heading "Other CPUC Actions", March 27, 2020: Joint Letters to IOUs re: Essential Wildfire and PSPS Mitigation Work.

resource centers, and microgrid projects. Electrical corporations are expected to limit planned outage work during this time to wildfire mitigation, PSPS reduction, projects that immediately impact reliability if delayed, and emergency/public safety outages. In addition, electrical corporations are expected to undertake any other critical work related to operating a safe and reliable grid and to mitigate wildfire and/or PSPS risk.

9. CONCLUSION

- PacifiCorp's Wildfire Mitigation Plan contains all of the elements required by AB 1054, Pub. Util. Code Section 8386(c) and all the elements required by the WMP Guidelines.
- PacifiCorp's WMP is approved by the WSD, subject to the conditions set forth in Appendix A.

10. COMMENTS

Pub. Util. Code § 311(g)(1) provides that resolutions must be served on all parties and subject to at least 30 days public review. However, given that this resolution is issued outside of a formal proceeding, interested stakeholders need not have party status in R.18-10-007 in order to submit comments on the resolution. Please note that comments are due 20 days from the mailing date of this resolution. Replies will not be accepted.

This draft resolution was served on the service list of R.18-10-007 and posted on the Commission's website, www.cpuc.ca.gov/wildfiremitigationplans, and it will be placed on the Commission's agenda no earlier than 30 days from today.

FINDINGS

1. AB 1054 and Commission Resolution WSD-001 require PacifiCorp to file a WMP for 2020 that conforms with Pub. Util. Code § 8386(c) and guidance provided by the WSD and served on the R.18-10-007 service list on December 16, 2019 by ALJ ruling.
2. The WMPs were reviewed and acted upon with due consideration given to comments received from governmental agencies, the WSAB, members of the public, and all other relevant stakeholders.
3. The WMPs were reviewed and acted upon in compliance with all relevant requirements of state law.
4. PacifiCorp's WMP contains all the elements required by AB 1054, Pub. Util. Code § 8386(c).
5. PacifiCorp has satisfied the requirements of Pub. Util. Code § 8386(c) and the WMP Guidelines.

6. Appendix A contains findings regarding deficiencies in PacifiCorp's WMP.

THEREFORE, IT IS ORDERED THAT:

1. Ratification of the Division's approval of PacifiCorp's Wildfire Mitigation Plan is subject to conditions set forth in Appendix A.
2. The Wildfire Safety Division's approval of PacifiCorp's 2020 Wildfire Mitigation Plan, conditioned upon PacifiCorp's compliance with the conditions listed in Appendix A, is hereby ratified.
3. PacifiCorp shall submit an update to its Wildfire Mitigation Plan in 2021 according to the forthcoming guidance and schedule issued by the Wildfire Safety Division.
4. PacifiCorp shall submit a new comprehensive 3-year Wildfire Mitigation Plan in 2023.
5. Nothing in this Resolution should be construed as approval of the costs associated with PacifiCorp's Wildfire Mitigation Plan mitigation efforts.
6. PacifiCorp may track the costs associated with its Wildfire Mitigation Plan in a memorandum account, by category of costs, and shall be prepared for Commission review and audit of the accounts at any time.
7. PacifiCorp shall submit a letter to the Wildfire Safety Division containing any updates to scope, timing or other aspects of any mitigation set forth in its Wildfire Mitigation Plan as result of the COVID-19 pandemic, including Public Safety Power Shutoff. The letter shall list items using the same names and sections used in the Wildfire Mitigation Plan and give a thorough description of why the COVID-19 pandemic requires the specified action. The letter shall be submitted within 60 days of issuance of this Resolution and shall be addressed to the Director of the Wildfire Safety Division. The letter shall be emailed to wildfiresafetydivision@cpuc.ca.gov with service on the service list of Rulemaking 18-10-007. If there are no changes to report, no such submission is required.
8. Nothing in this Resolution should be construed as a defense to any enforcement action for a violation of a Commission decision, order, or rule.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on _____; the following Commissioners voting favorably thereon:

_____

Alice Stebbins
Executive Director

WSD/CJT/gp2

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

RESOLUTION WSD-008 Resolution Ratifying Action of the Wildfire Safety Division on PacifiCorp's 2020 Wildfire Mitigation Plan Pursuant to Public Utilities Code Section 8386.

INFORMATION REGARDING SERVICE

I have electronically served all persons on the attached official service list who have provided an e-mail address for R.18-10-007.

Upon confirmation of this document's acceptance for filing, I will cause a Notice of Availability of the document to be served by U.S. mail on all parties listed in the "Party" category of the official service list for whom no e-mail address is provided.

The official service list I use is current as of today's date.

Dated May 7, 2020, at San Francisco, California.

/s/ GABRIELA PEREZ
Gabriela Perez

N O T I C E

Persons should notify the Process Office, Public Utilities Commission, 505 Van Ness Avenue, Room 2000, San Francisco, CA 94102, of any change of address to ensure that they continue to receive documents. You must indicate the proceeding number on the service list on which your name appears.

* *

The Commission's policy is to schedule hearings (meetings, workshops, etc.) in locations that are accessible to people with disabilities. To verify that a particular location is accessible, call: Calendar Clerk (415) 703-1203.

If specialized accommodations for the disabled are needed, e.g., sign language interpreters, those making the arrangements must call the Public Advisor at (415) 703-2074 or TDD# (415) 703-2032 five working days in advance of the event.

********** SERVICE LIST **********
Last Updated on 07-MAY-2020 by: AMT
R1810007 LIST

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APPENDIX A

Deficiencies and Conditions

PC-1	PacifiCorp's WMP does not report adequate planning for climate change.
Class	B
Deficiency	Although it recognized climate change as a top macro trend of concern, PacifiCorp has not yet specifically engaged in planning for it. PacifiCorp stated in its WMP that when/if climate change impacted their service territory then an assessment would be conducted to determine a response. PacifiCorp did not mention if climate modeling would be a necessary step in this process. This is a reactive versus a proactive approach to wildfire mitigation planning.
Condition	In a first quarterly report, PacifiCorp shall: i. describe how it incorporates climate change into risk models; and ii. outline in detail how it plans to use these risk models to deploy wildfire initiatives.

PC-2	PacifiCorp has not demonstrated effective weather station utilization.
Class	B
Deficiency	PacifiCorp lacks sufficient weather station coverage in populated communities that border Tier 2 HFTD areas in its service territory. For example, PacifiCorp has no stations in Scott's Valley, Yreka or Hornbrook and does not plan on adding weather stations in these areas in the near-term. It is important to understand PacifiCorp's methodology for choosing where to put weather stations and its justification of why they are not in the identified communities. Weather stations in these areas could paint a picture of how weather systems are moving across PacifiCorp's whole territory.
Condition	In its first quarterly report, PacifiCorp shall: i. explain in detail how it chooses to locate its weather stations and explain gaps or areas of lower weather station density, and ii. provide a cost/benefit analysis of the impact of having a higher density of weather stations across its territory.

PC-3	PacifiCorp did not explain how it would track effectiveness of its covered conductor initiative.
Class	B
Deficiency	Although PacifiCorp allocates the largest portion of its planned spending on covered conductor, PacifiCorp does not discuss a method for tracking the effectiveness of its planned covered conductor installations.
Condition	In a first quarterly report, PacifiCorp shall: present and explain a methodology for tracking and measuring the effectiveness of its covered conductor installations at reducing the frequency and probability of (1) outages for top 10 outage causes based on best available historical data, and (2) ignitions for all CPUC reportable ignitions.

PC-4	PacifiCorp's WMP lacks a QA/QC program for inspections.
Class	B
Deficiency	PacifiCorp does not have a specific asset management and inspections program for wildfire risk mitigation that is focused on quality assurance/quality control of inspections. PacifiCorp's WMP lacks detailed budget projections for many of these elements of asset management, and figures that it does provide for inspections are generally steady-state, or in some cases less than what was expended in 2019. Such projections indicate a business-as-usual compliance-oriented approach to wildfire mitigations, not a heightened sense of urgency in the face of admittedly increasing wildfire risks.
Condition	In a first quarterly report, PacifiCorp shall: i. provide details in specific asset management and inspection quality control, including providing planned spend information for these initiatives.

PC-5	PacifiCorp's WMP does not report sufficient information on the risk reduction outcomes of its automatic recloser program.
Class	C
Deficiency	PacifiCorp prioritizes its automatic recloser program. PacifiCorp claims that its automatic reclosers do not emit sparks or pose an ignition risk. PacifiCorp states that it adjusted settings for reclosers and conducted line testing to assess faults before reclosing and that it will continue to investigate if amended recloser settings and conducting line testing after lockout appropriately addresses faults.
Condition	In its 2021 annual update, PacifiCorp shall: i. describe whether recloser setting adjustments and the detection and alleviation of faults reduce ignition risk along PacifiCorp's grid; and ii. report on its assessments, including all supporting data and results.

PC-6	PacifiCorp does not have a specific data governance wildfire mitigation program.
Class	B
Deficiency	PacifiCorp has no centralized repository for data that maps to tracking key aspects of the WMP, nor does it engage in collaborative research on utility ignitions. The WMP offers no data on expenditures for these data governance activities. PacifiCorp is not showing ambition in the development of its data governance activities as a mitigation tool. Initiatives do not include new technologies, or risk-based prioritization.
Condition	In its first quarterly report, PacifiCorp shall: i. list and describe its data collection and governance policies, and ii. describe how it plans to track key aspects of WMP data.

PC-7	PacifiCorp's stakeholder cooperation and community engagement needs further detail
Class	C
Deficiency	PacifiCorp did not describe in detail having a specific means of receiving input from customers or outline a formal method of incorporating such input into its procedures and WMP moving forward. PacifiCorp provided minimal details on their cooperation with suppression agencies, and PacifiCorp does not have a specific program to coordinate cooperative efforts with federal agencies.
Condition	In its 2021 WMP update, PacifiCorp shall: i. describe its plan for receiving input from customers, such as surveys and any formal method of incorporating such input into its procedures; ii. provide updates relating to the WMP that derive from D.20-03-024, particularly relating to effectiveness of outreach and AFN coordination; iii. outline in detail how PacifiCorp cooperates with suppression agencies, including how it cooperates on training, incidents, and other activities; and iv. detail how it plans to coordinate cooperative efforts relevant to reducing wildfire risk with federal agencies.

(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.

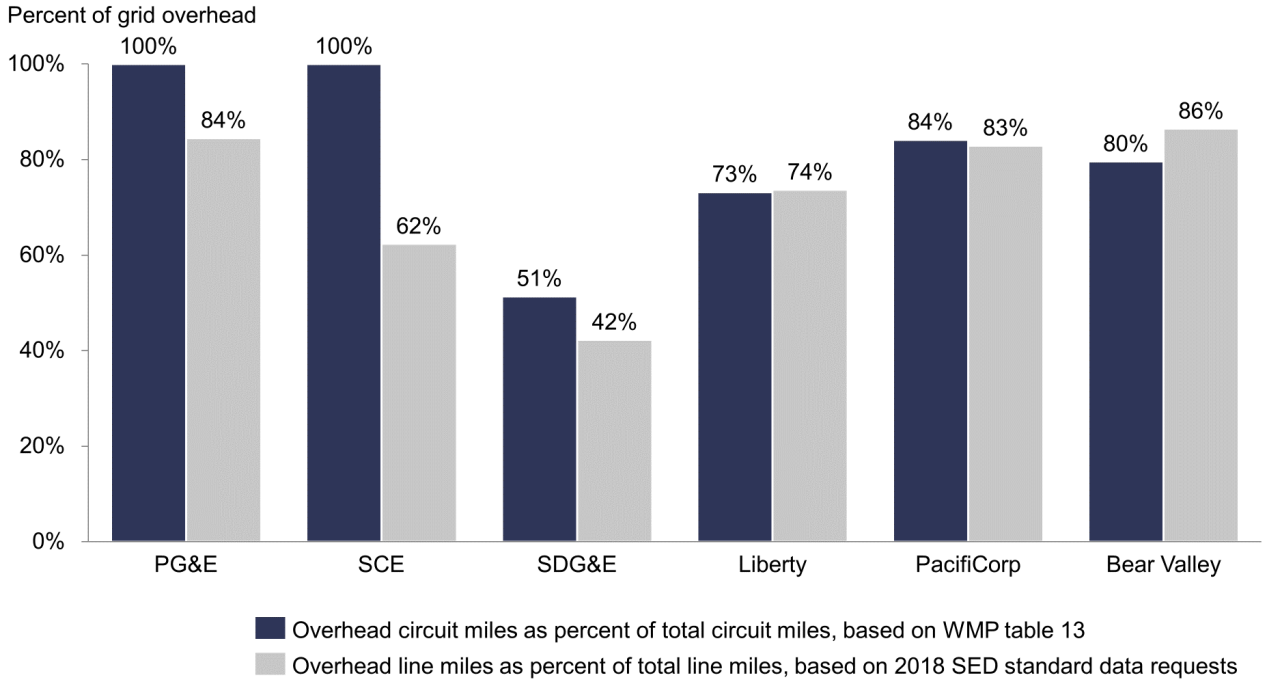
All the analysis and corresponding figures presented in this appendix rely upon data that is self-reported by the utilities. By utilizing and presenting this self-reported data in this appendix, the WSD is not independently validating that all data elements submitted by utilities are accurate. The WSD 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

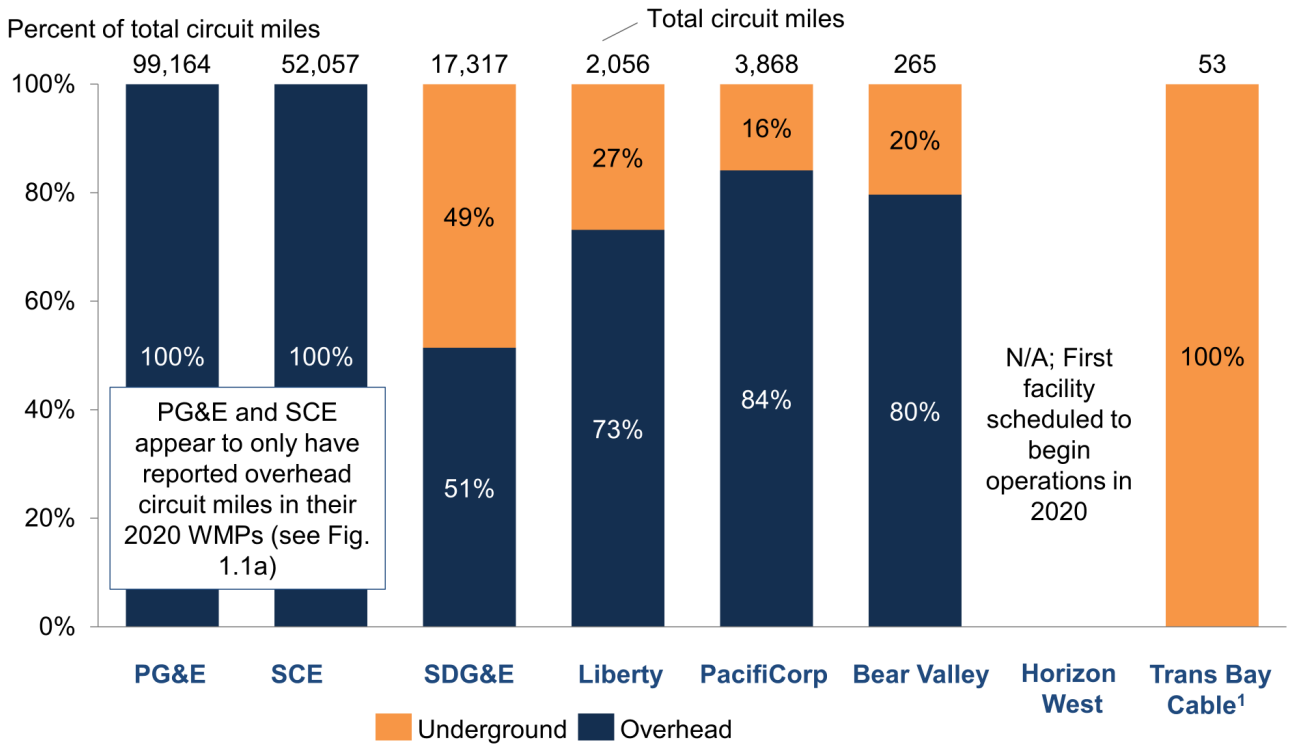
Figure 1.1a: Comparison of data sources for circuit typologies



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.

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

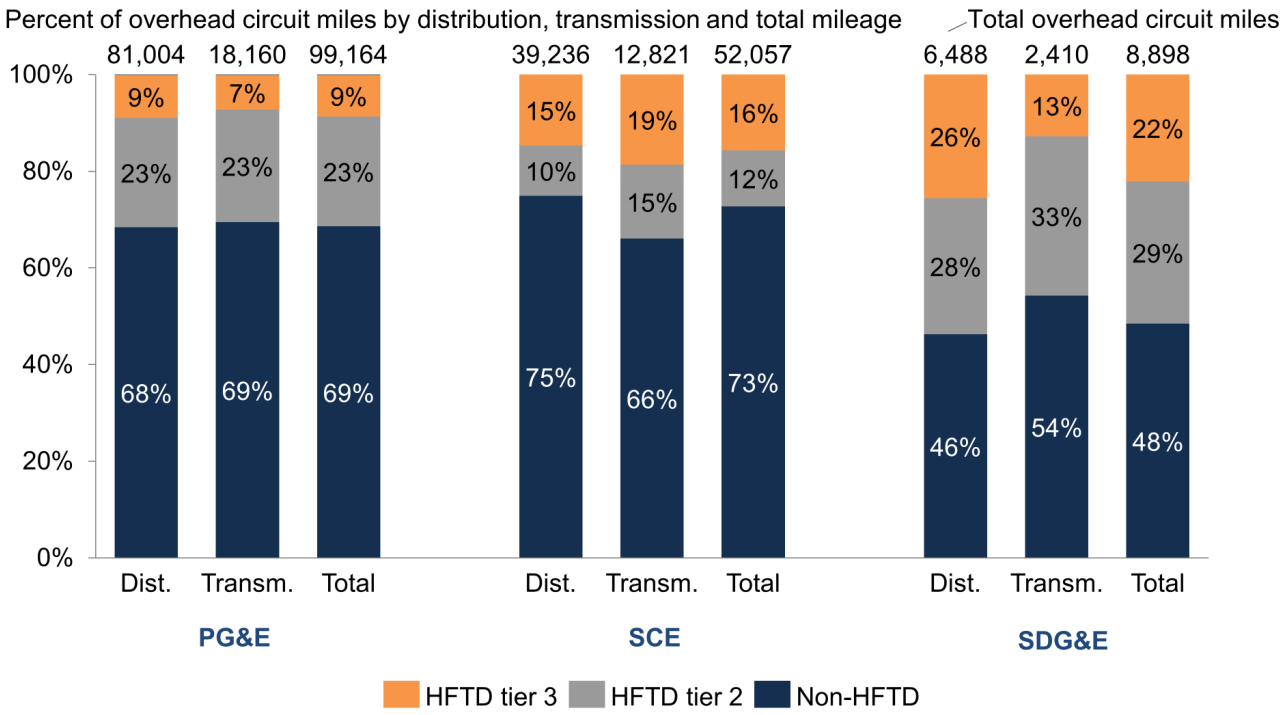


1. Trans Bay Cable did not report underground circuit miles in Table 13 of the WMP, but mentioned on page 8 of its WMP that it had 53 circuit miles of underground submarine cable, which is reflected in this chart.

Source: WMP Table 13

Figure 1.2a: Overhead circuit miles by HFTD Tier (Large Utilities)

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

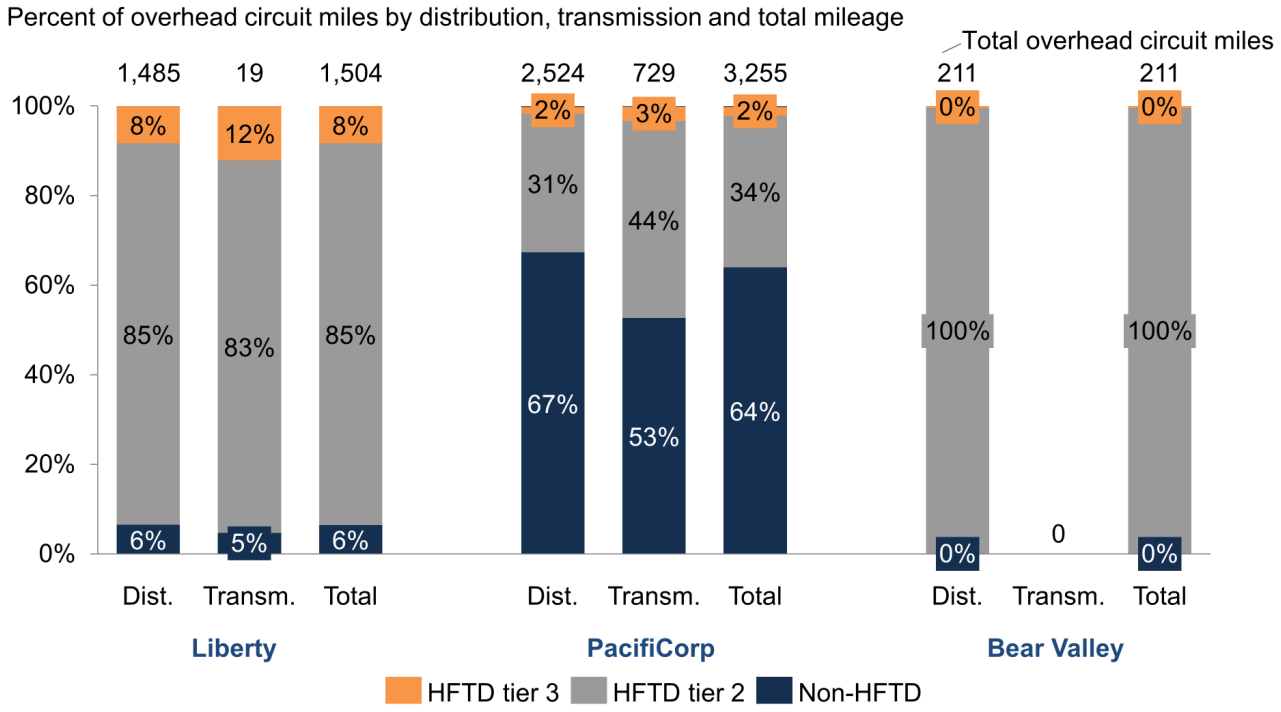


Note: Zone 1 not shown as subtotal.

Source: WMP Table 13

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

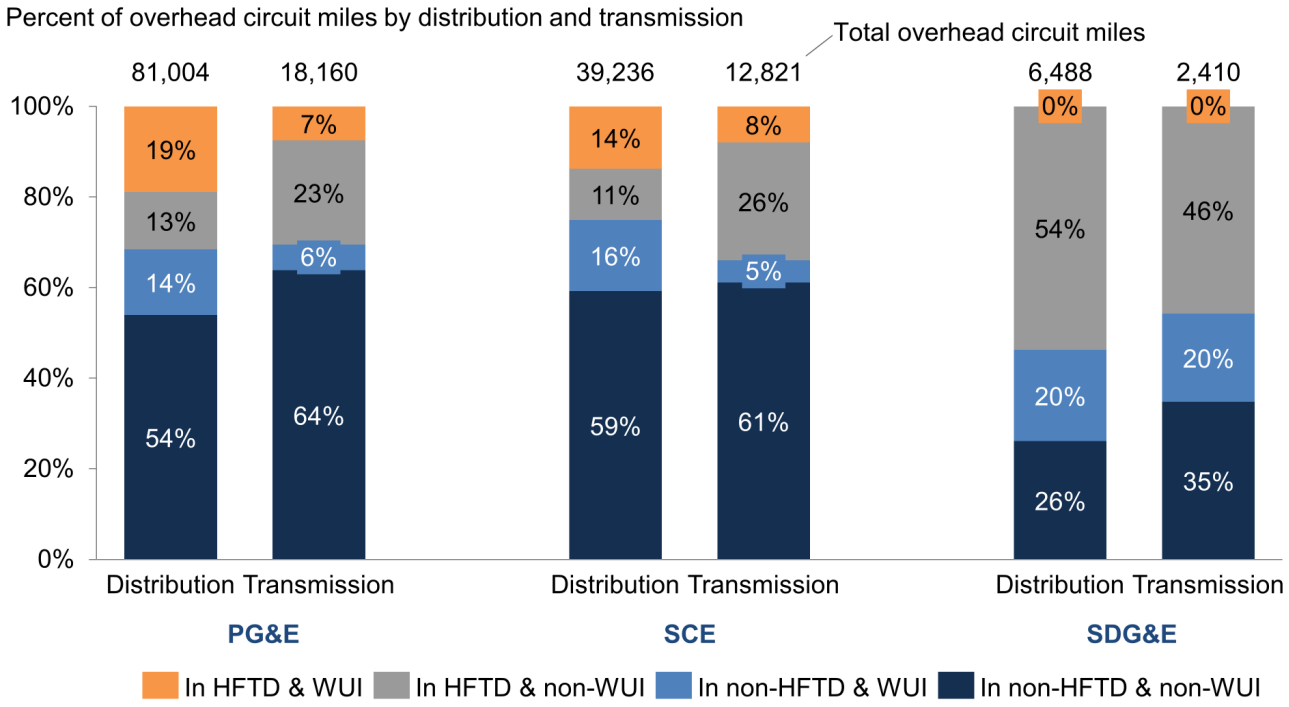
Broken out by distribution (dist.) and transmission (transm.)



Note: Zone 1 not shown as subtotal.

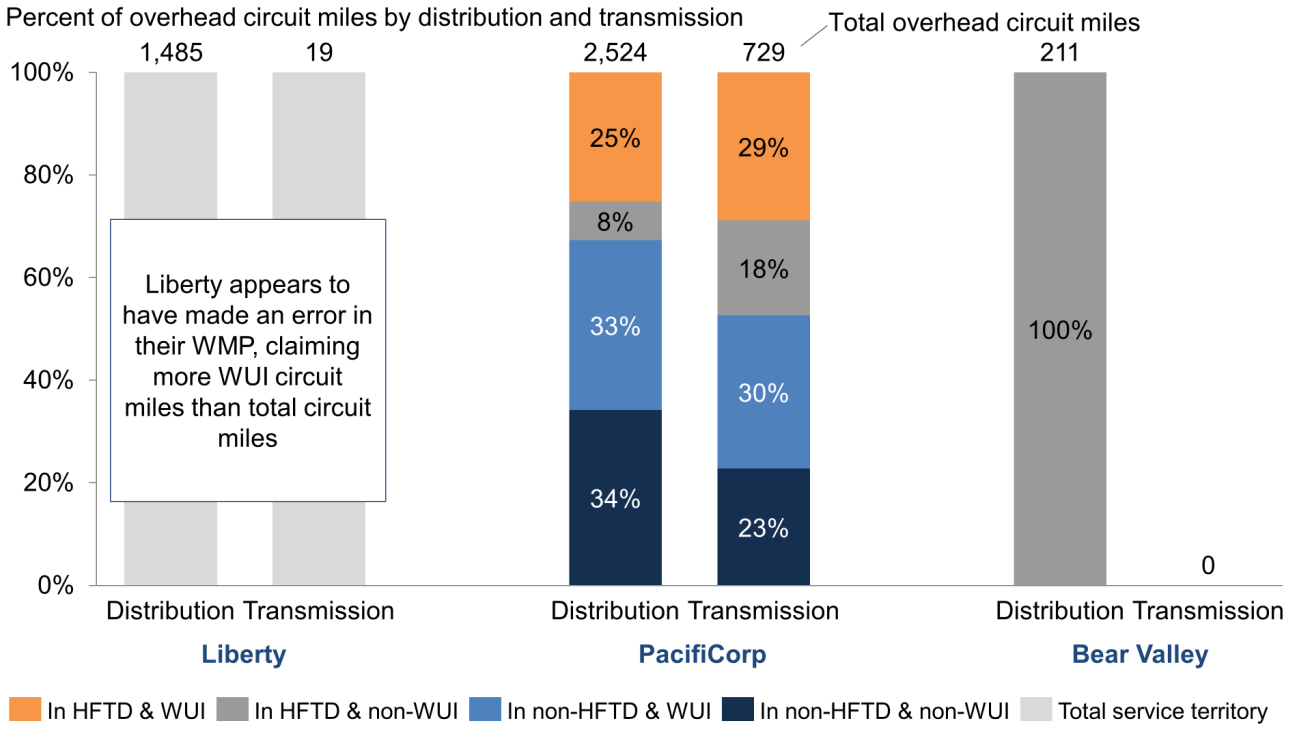
Source: WMP Table 13

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



Source: WMP Table 13

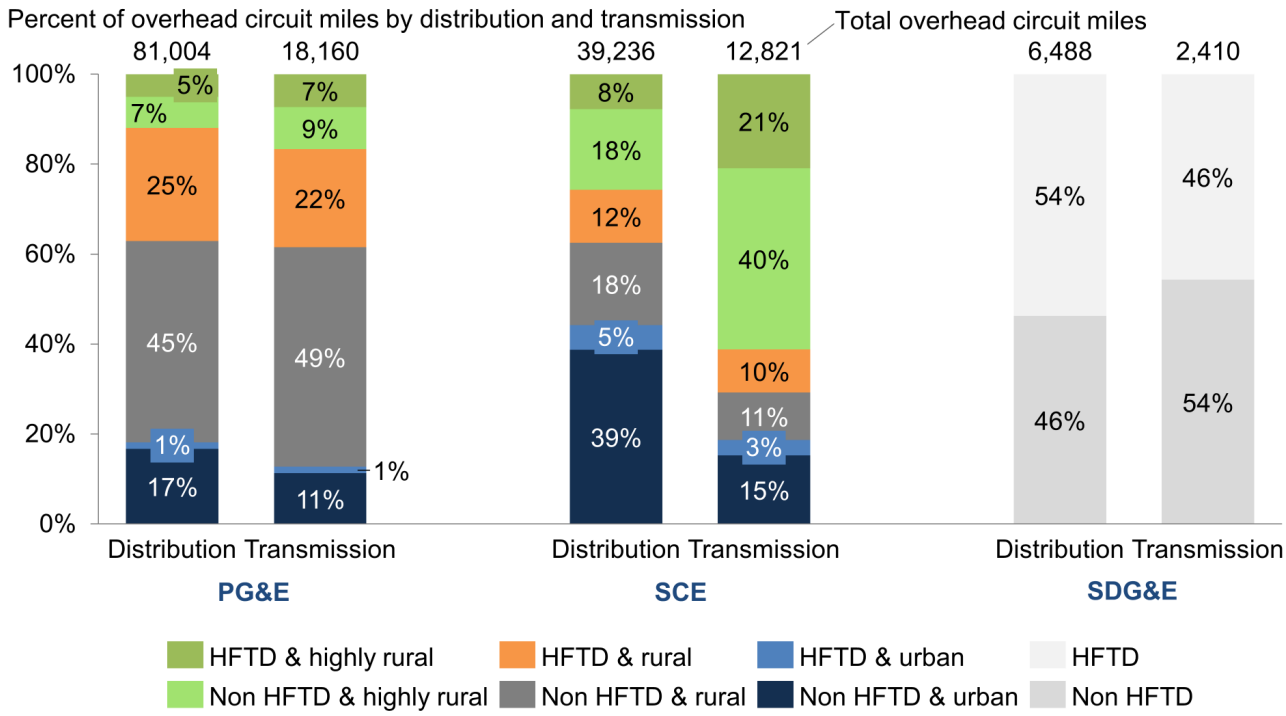
Figure 1.3b: Breakdown of overhead transmission and distribution circuit miles by HFTD and WUI location (Small utilities)



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.

Source: WMP Table 13

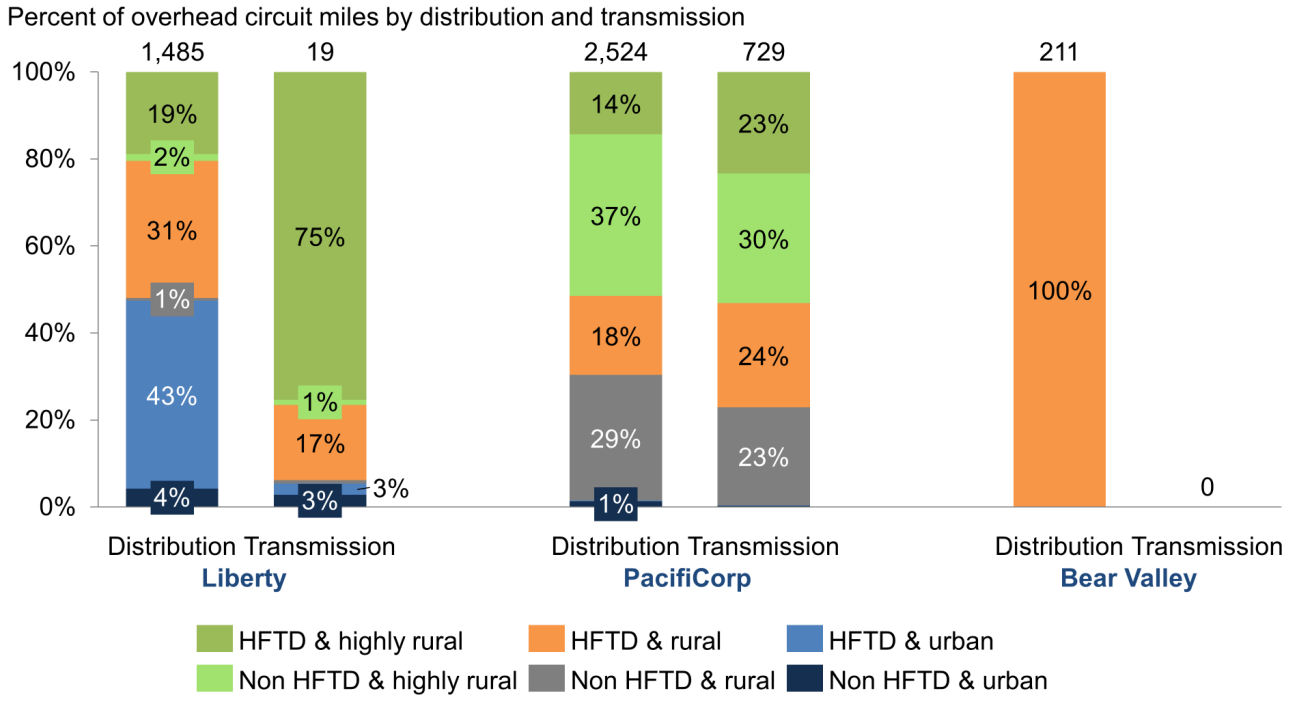
Figure 1.4a: Breakdown of overhead transmission and distribution circuit miles by HFTD and population density (Large utilities)



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

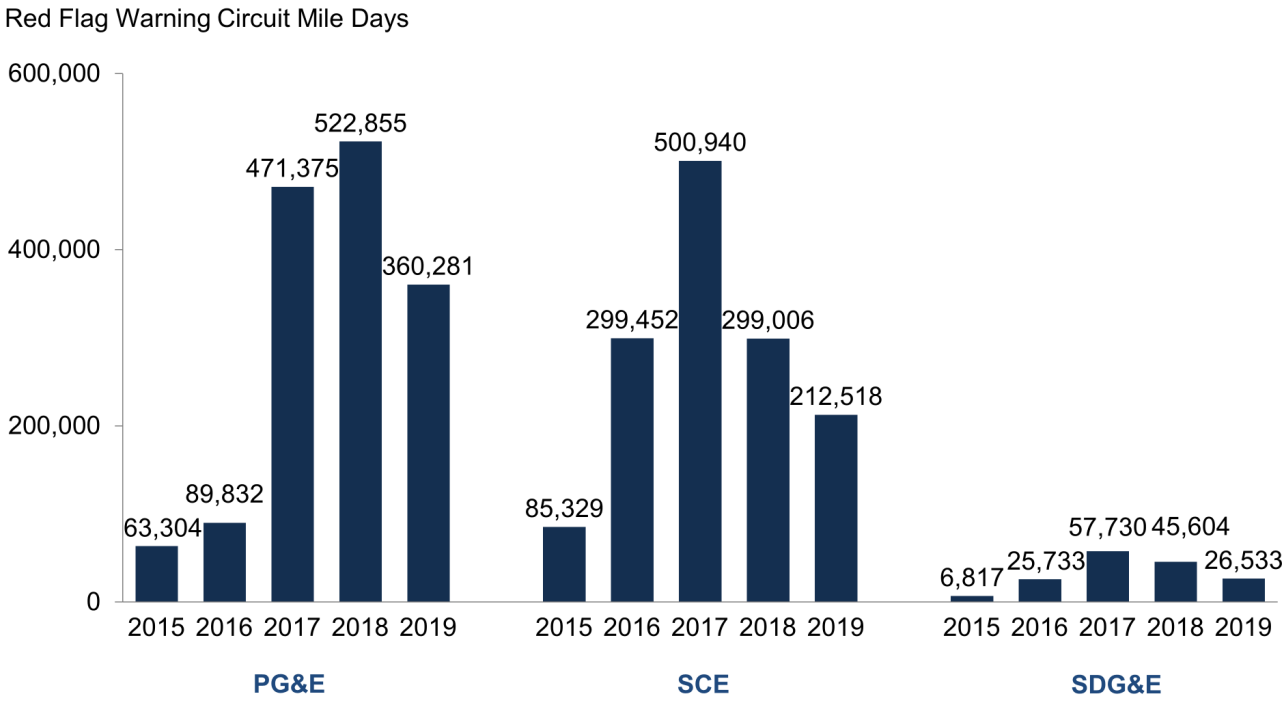
Source: WMP Table 13

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



Source: WMP Table 13

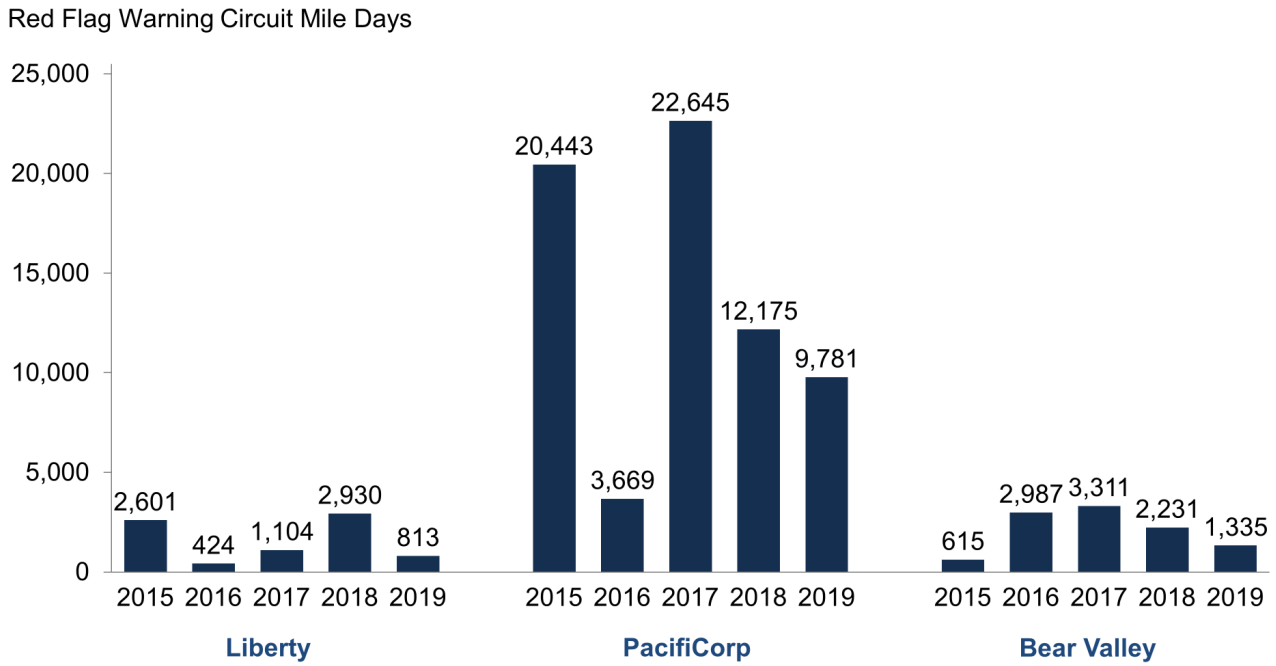
Figure 1.5a: Red flag warning circuit mile days per year by utility (Large utilities)



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

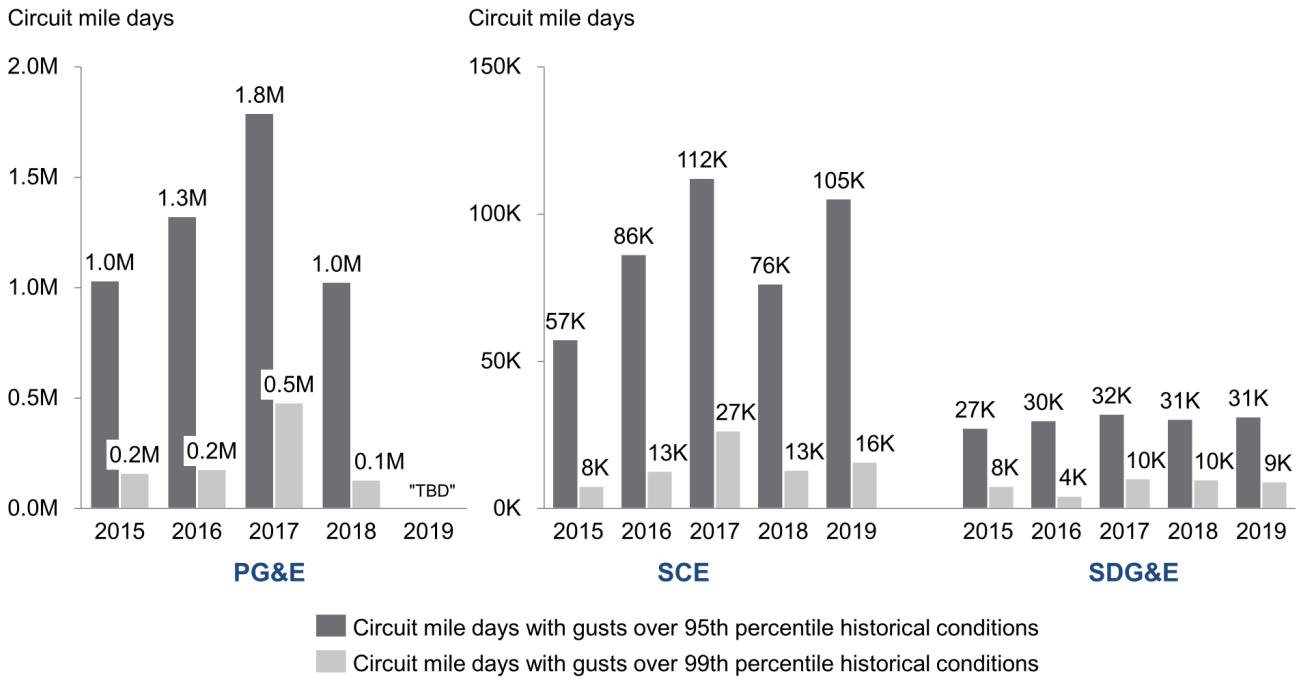
Figure 1.5b: Red flag warning circuit mile days per year by utility (Small utilities)



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.

Source: WMP Table 10

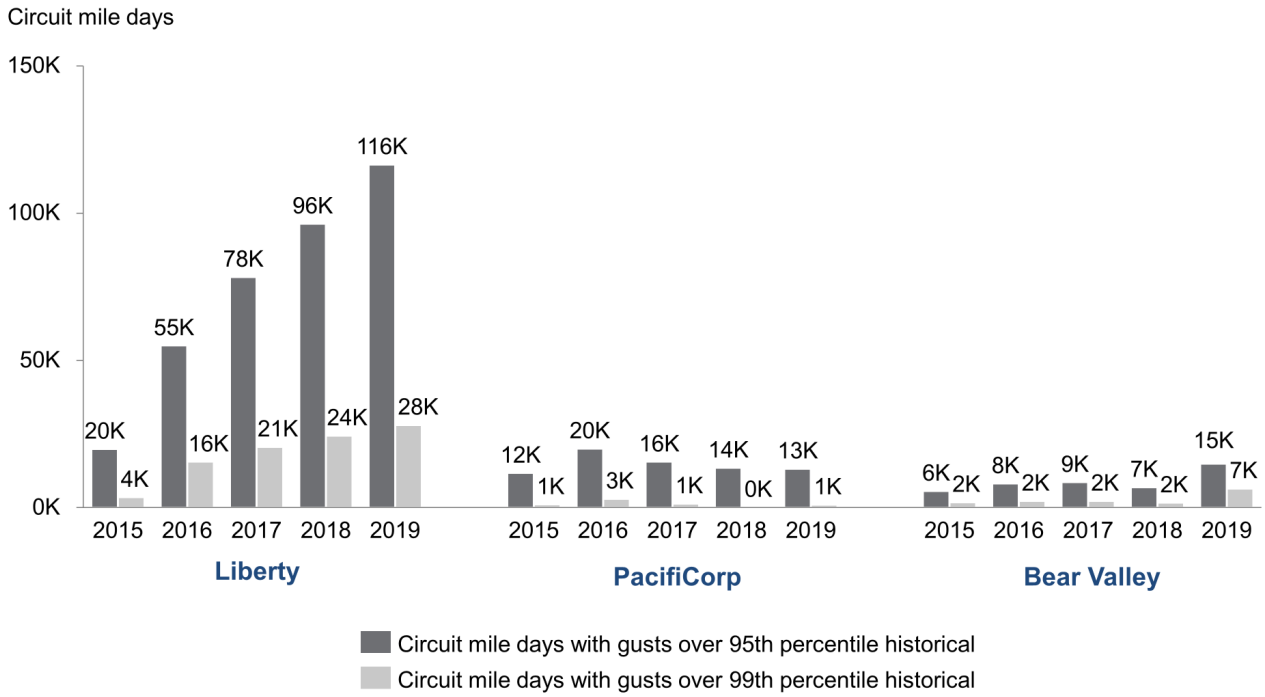
Figure 1.5c: 95th and 99th percentile wind conditions (Large utilities)



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)

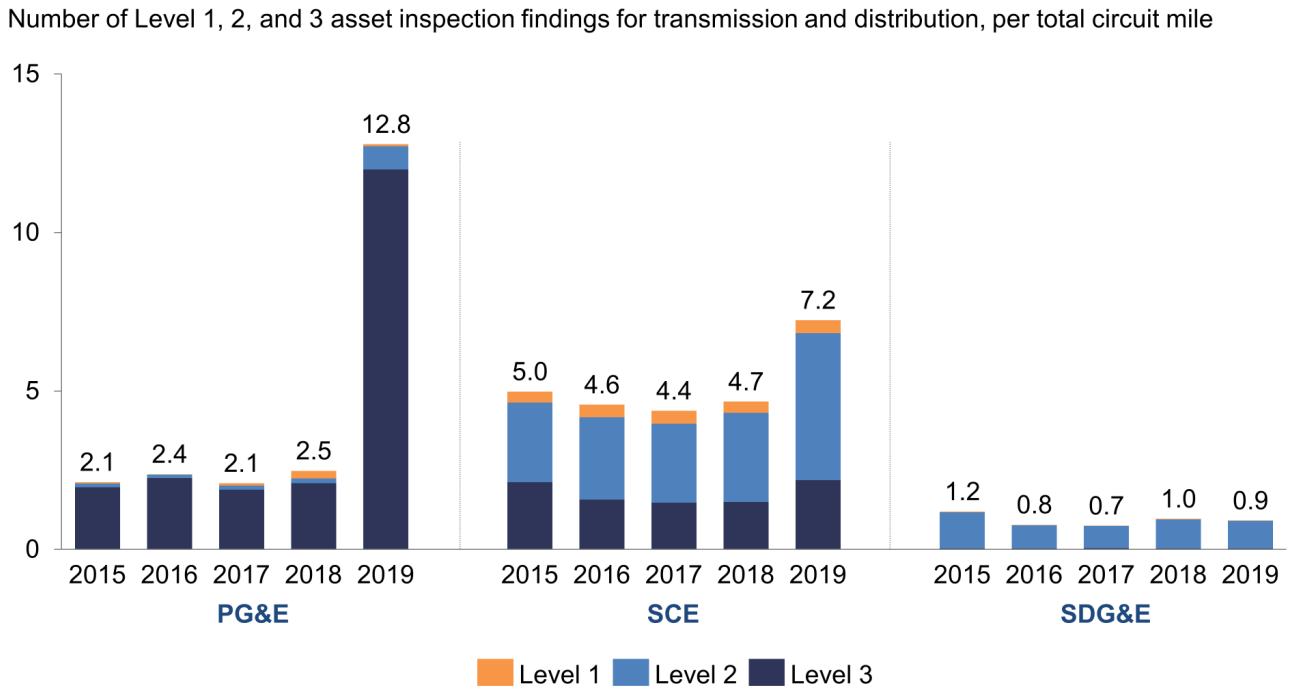


Note: Historical conditions refer to conditions over 10 prior years, 2005-2014.

Source: WMP Table 10

1.2 Outcome Metrics

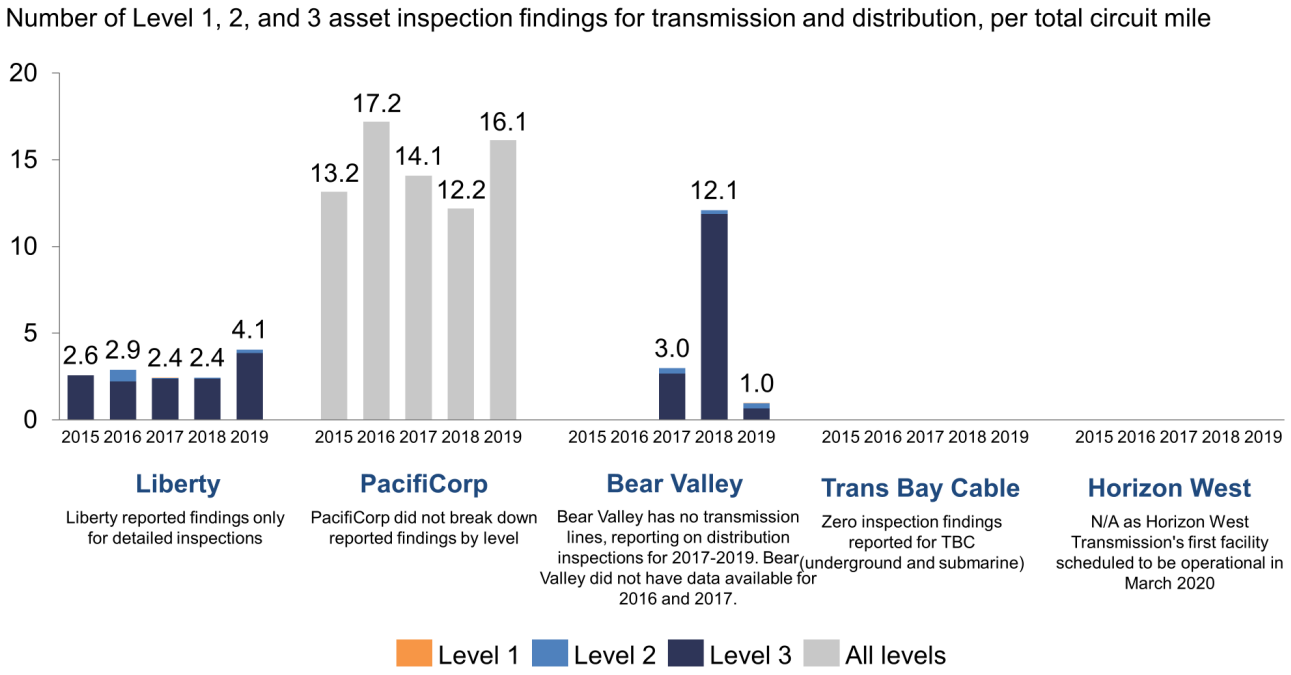
Figure 2.1a: Asset inspection findings normalized by total circuit mileage (Large utilities)



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

Source: WMP Table 1

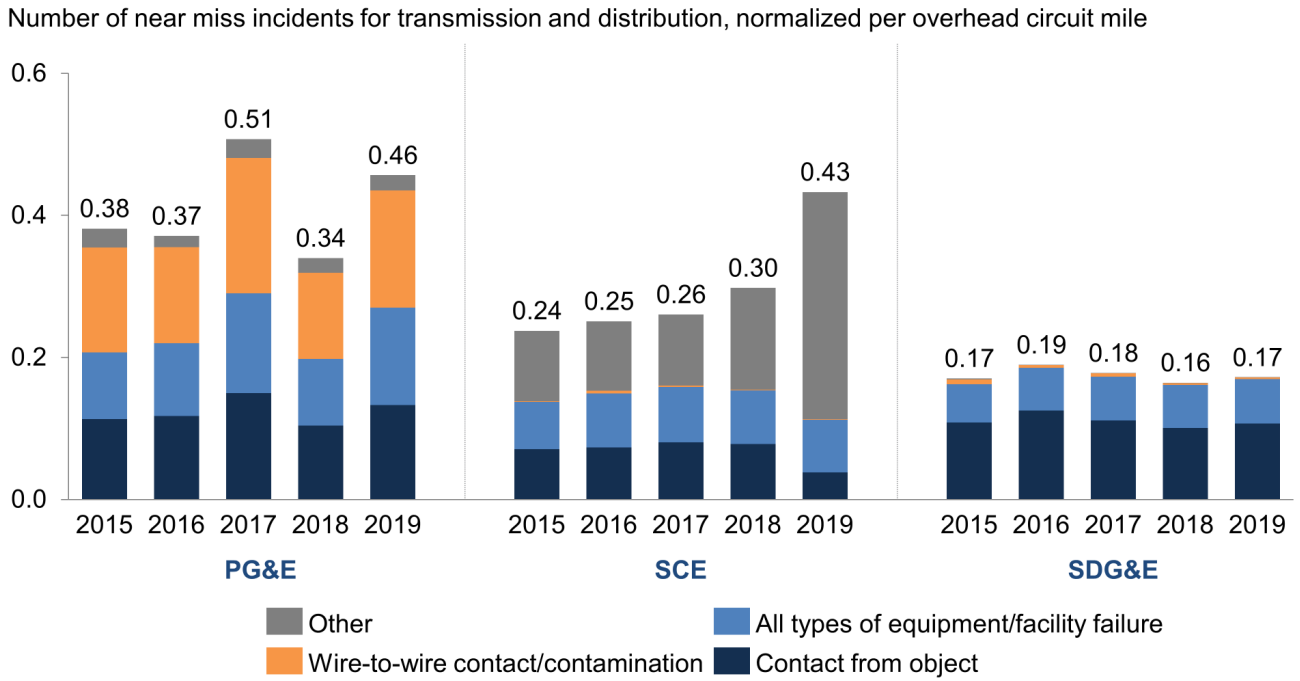
Figure 2.1b: Asset inspection findings normalized by total circuit mileage (Small utilities)



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.

Source: WMP Table 1

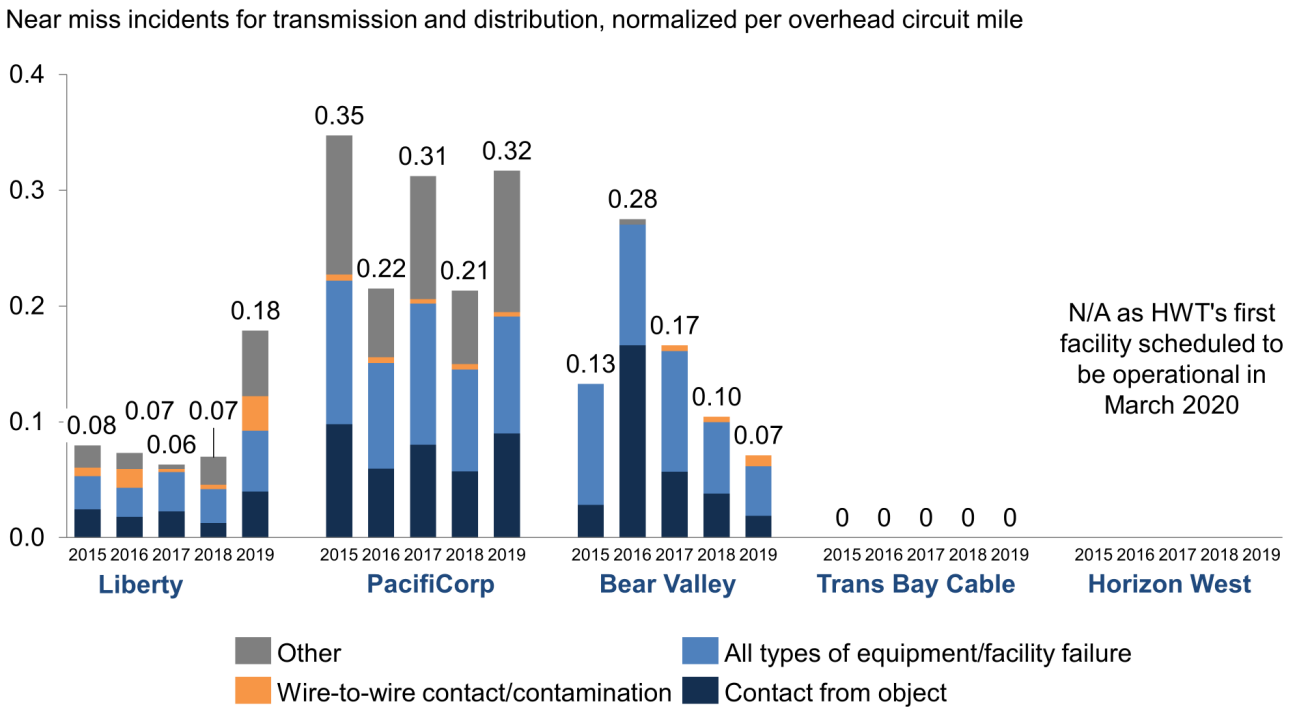
Figure 2.2a: Near miss incidents normalized by overhead circuit mileage (Large utilities)



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)

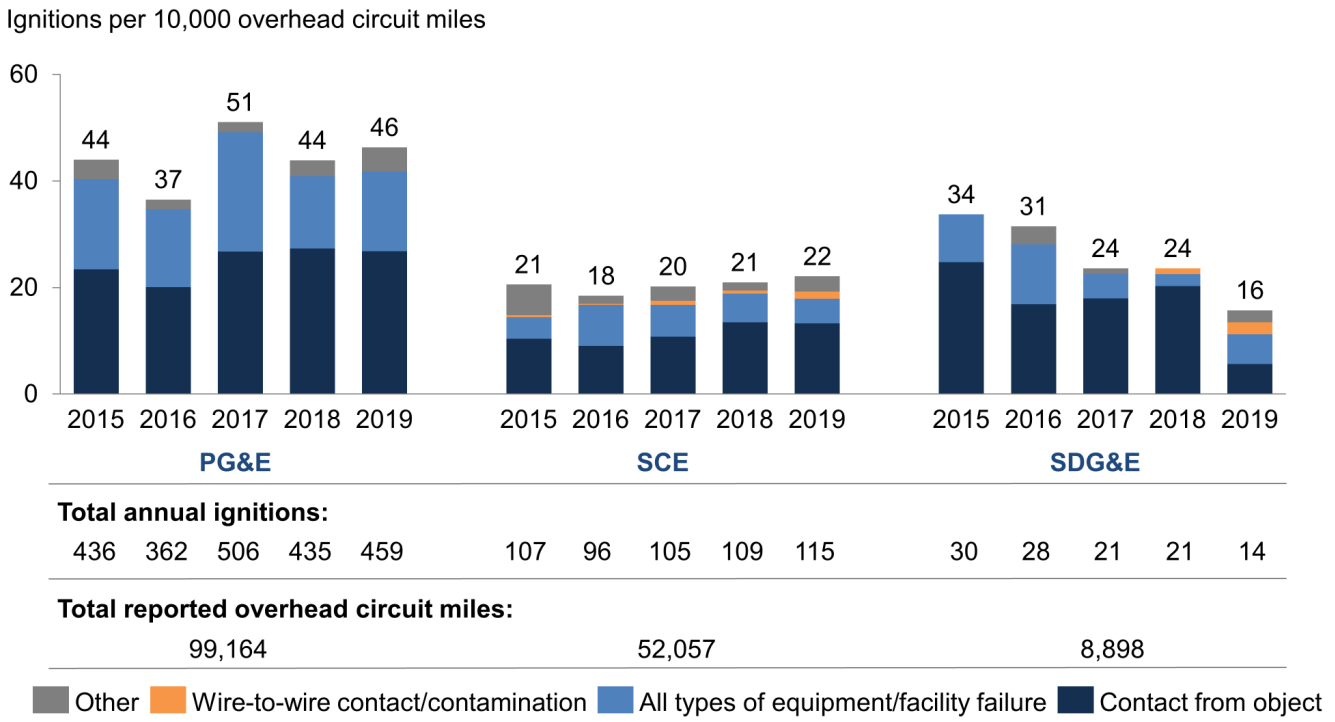


Note: The measurement of each 'near miss' is not yet perfectly standardized across utilities. The WSD will work toward a more standardized approach for tracking and classifying near miss data for 2021 WMPs. A near miss was defined in the 2020 WMP Guidelines as "An event with significant probability of 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).

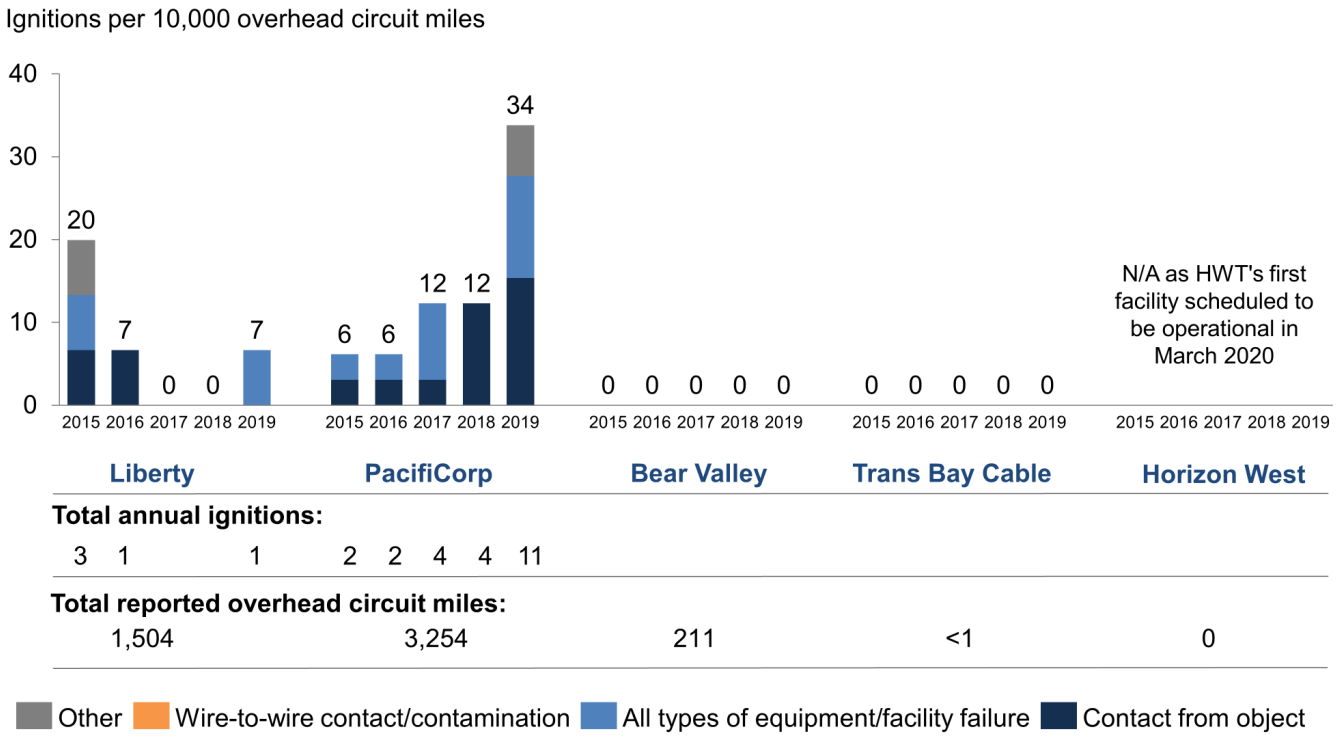
Source: Tables 11a and 11b from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs; BVES numbers adjusted to address inconsistencies in subtotal calculations provided.

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.

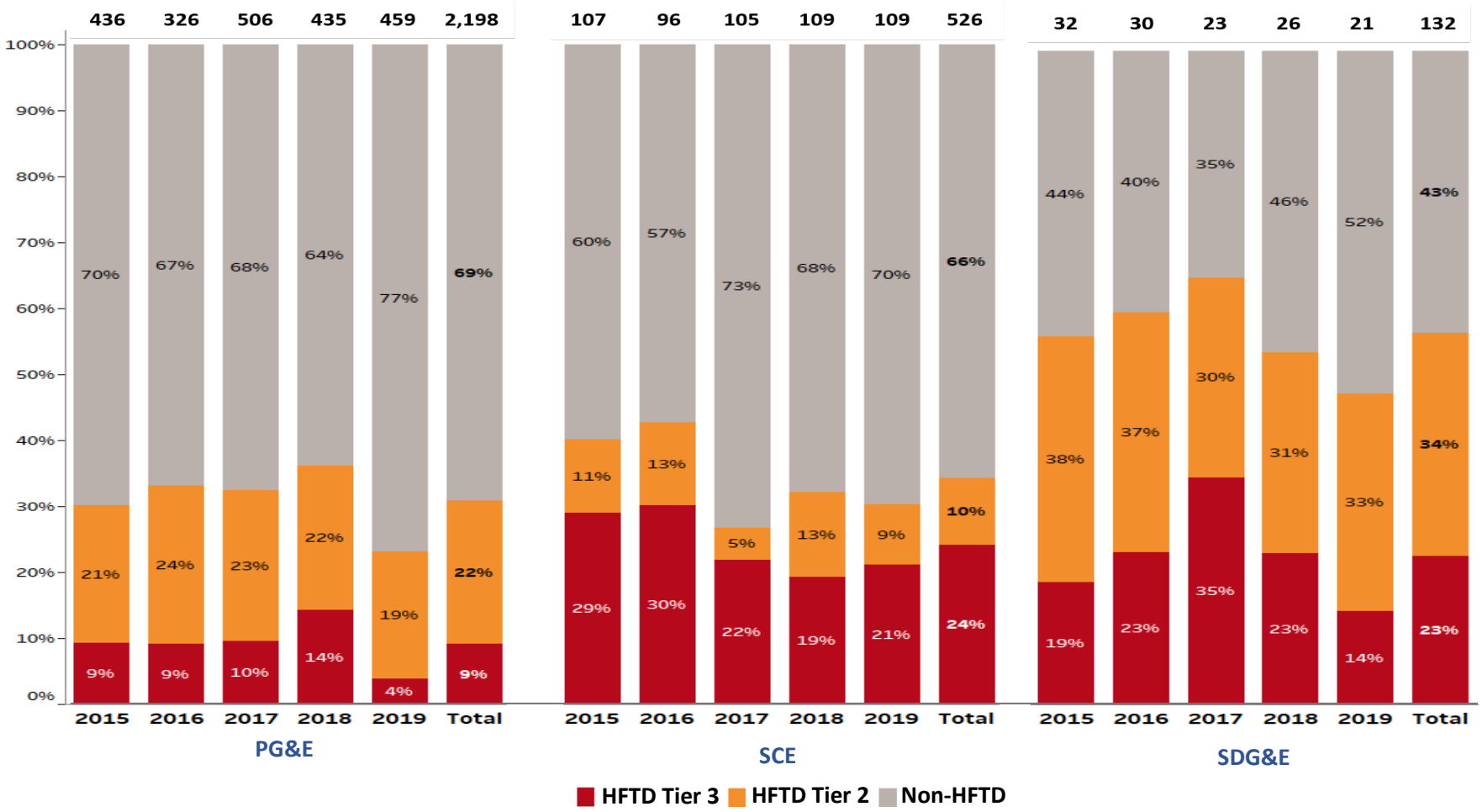
Figure 2.3b: Number of ignitions, normalized by overhead circuit mileage (Small utilities)



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

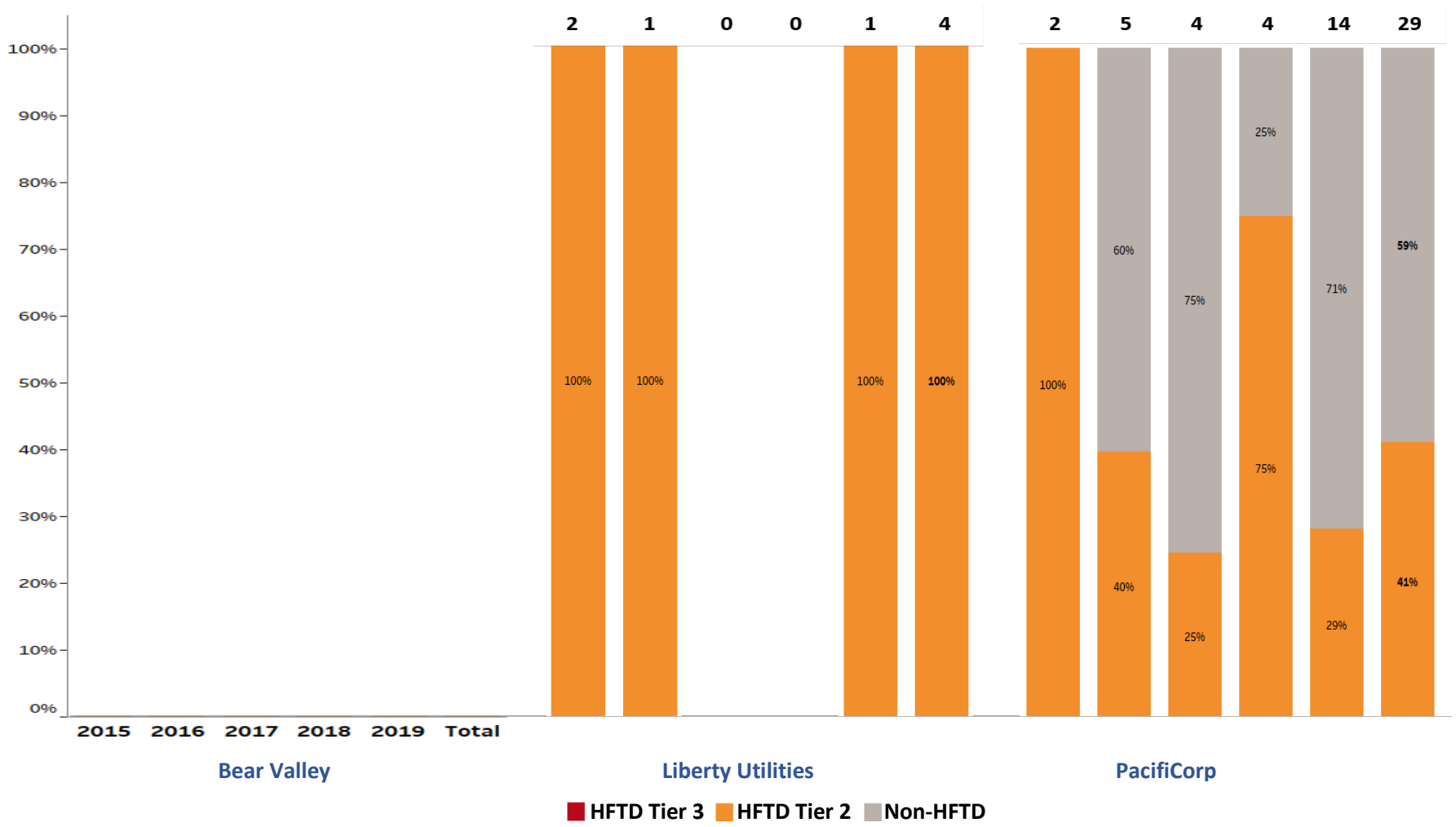
Source: Tables 11a and 11b from utility WMPs and data requests normalized by data from Table 13 of utility WMPs; PacifiCorp numbers adjusted to account for Tables 11c and 11d.

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



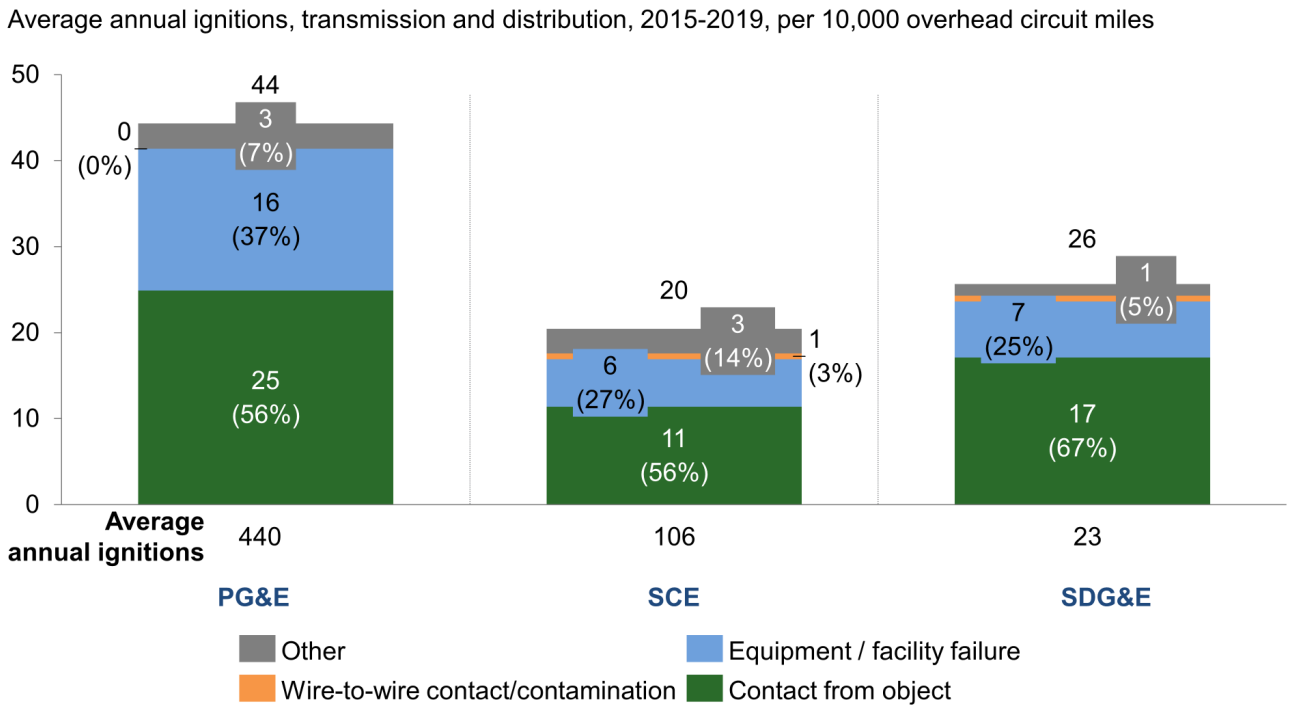
Note: Ignitions in Zone 1 HFTD areas make up less than 1% of total ignitions.
Source: Table 2 from utility WMPs

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



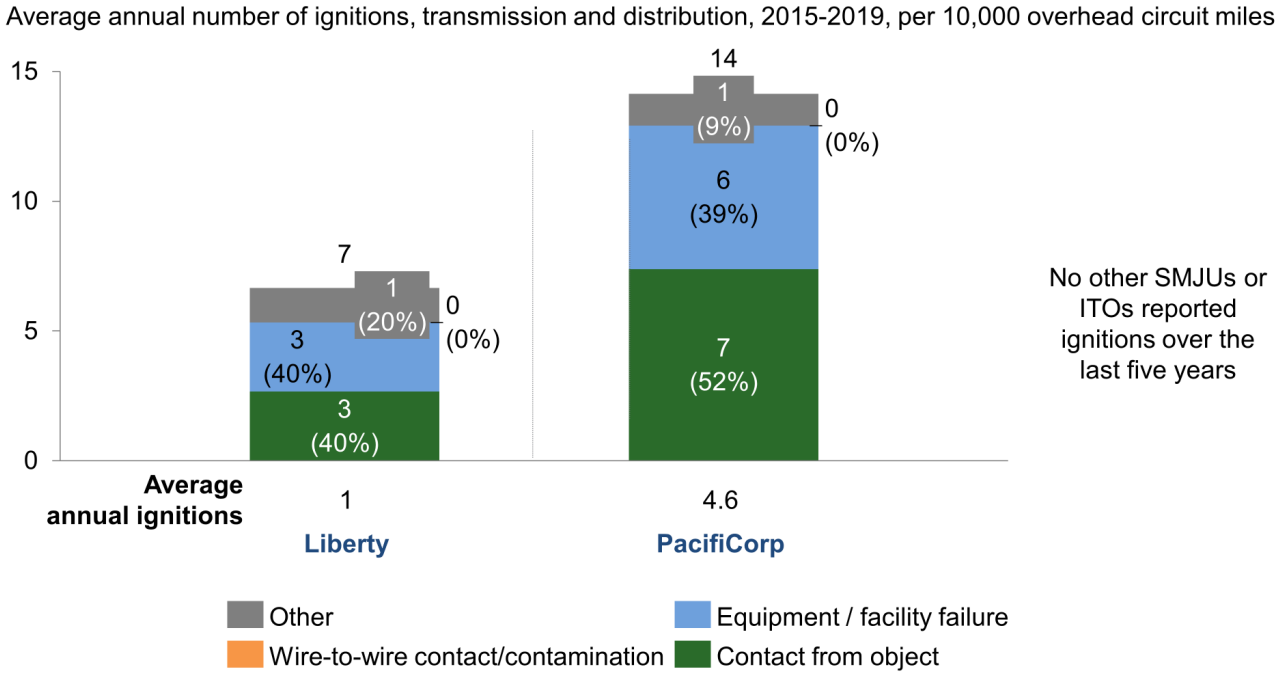
Note: Ignitions in Zone 1 HFTD areas make up less than 1% of total ignitions.
Source: Table 2 from utility WMPs

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.

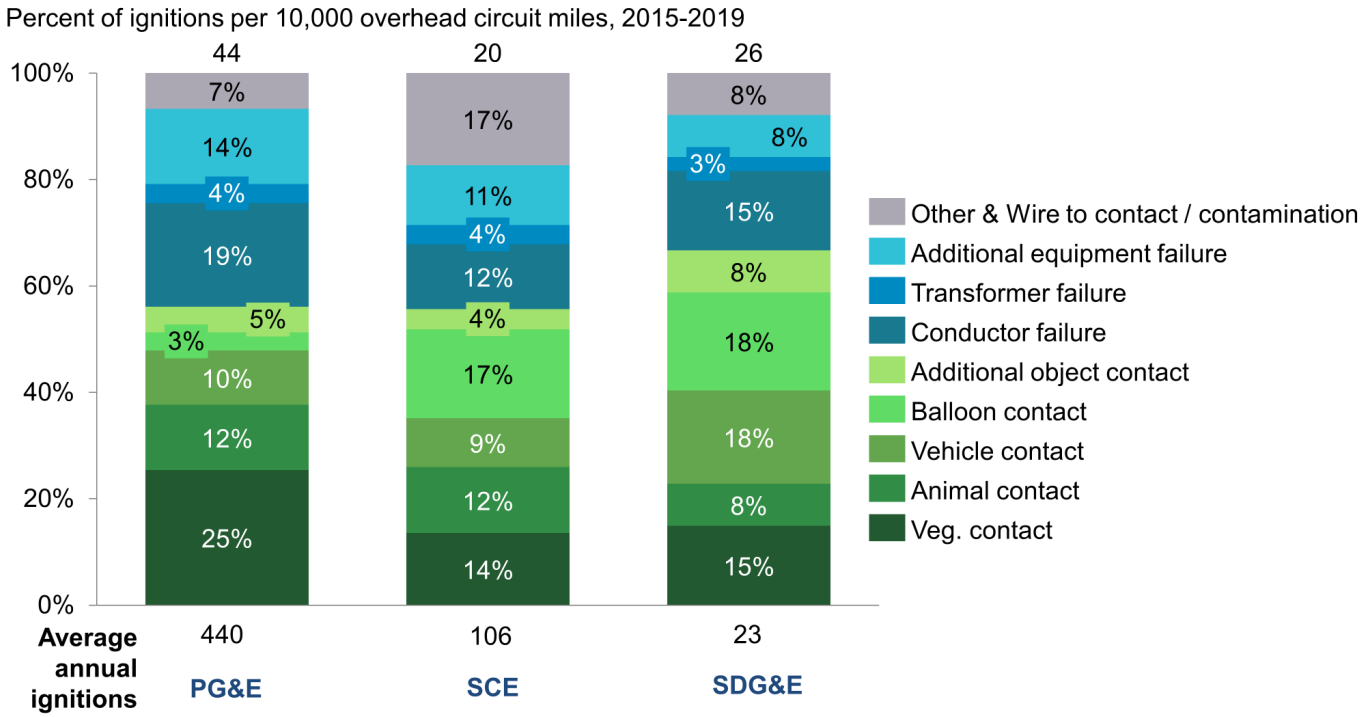
Figure 2.5b: Ignitions by ignition probability driver type (Small utilities)



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.

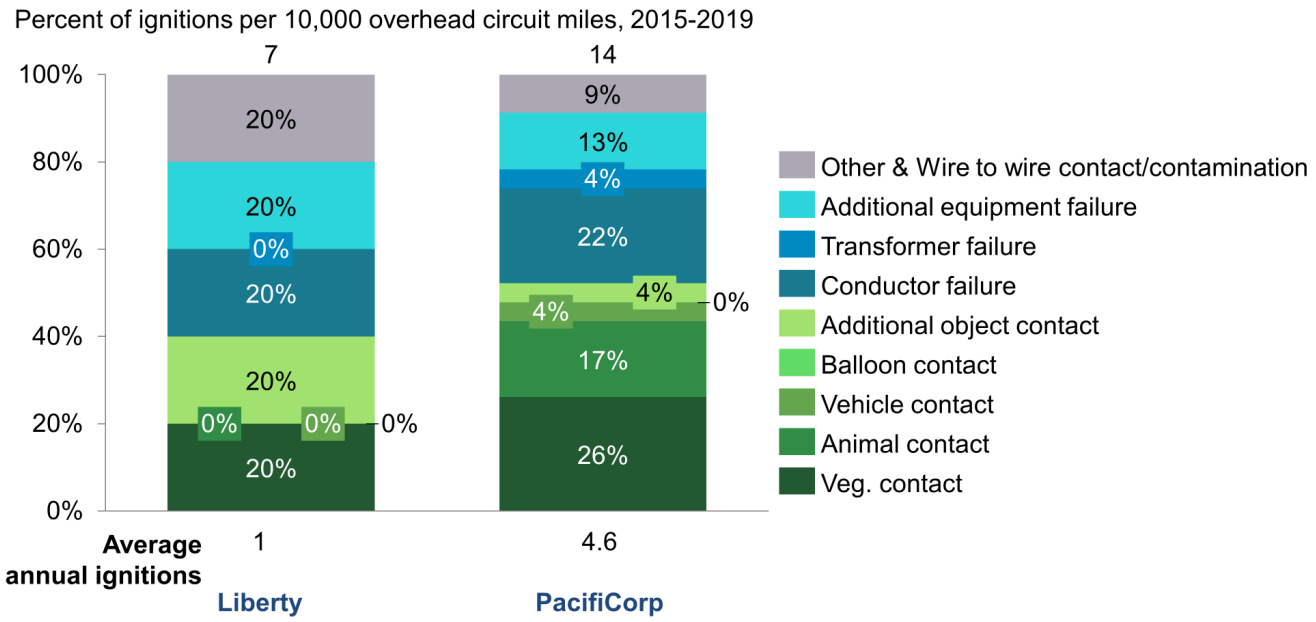
Figure 2.6a: Detail: Share of ignitions due to each ignition probability driver (Large utilities)



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)

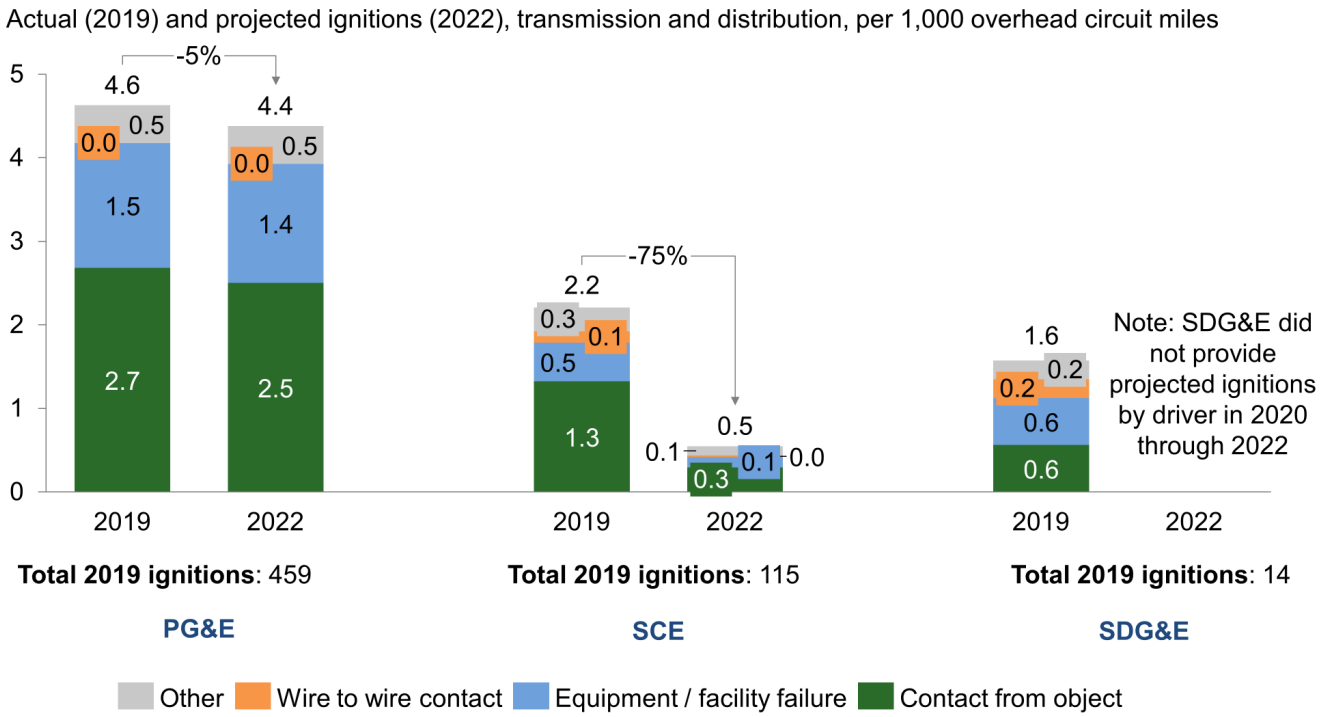


No other small utilities reported ignitions over the last five years

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



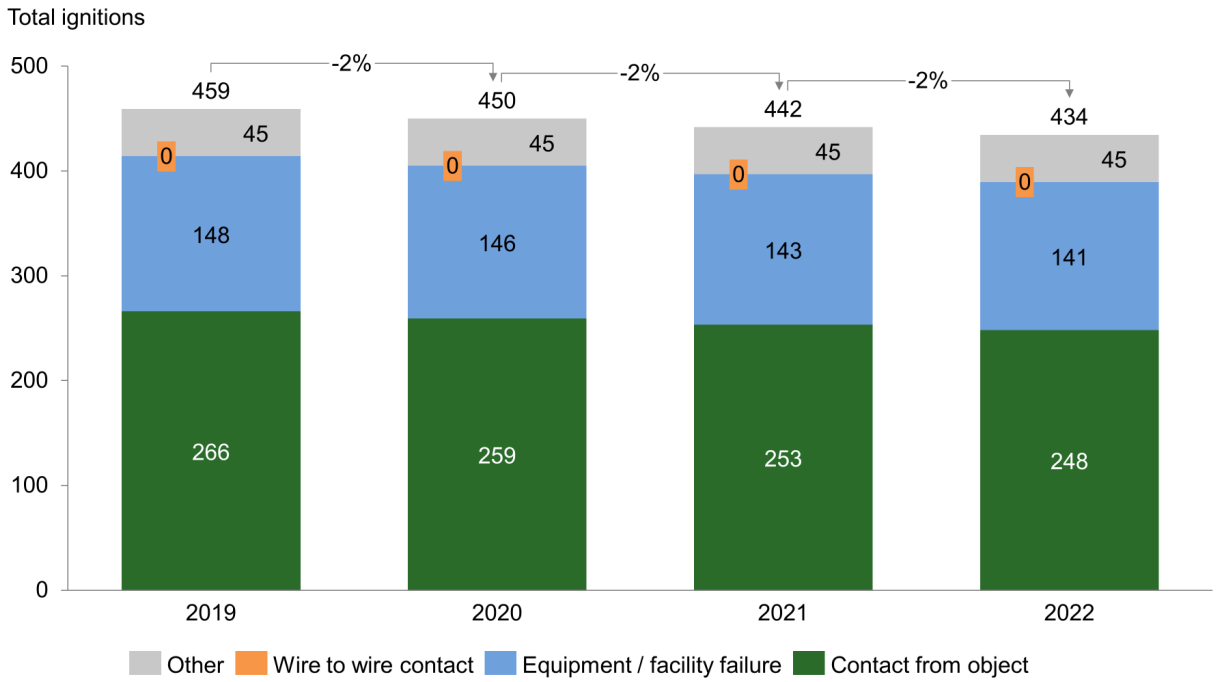
Note: Projections assume WMP implementation acording to plan and weather pattens consistent with 5 year historical average. See the 2020 WMP Guidelines for further detail.

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

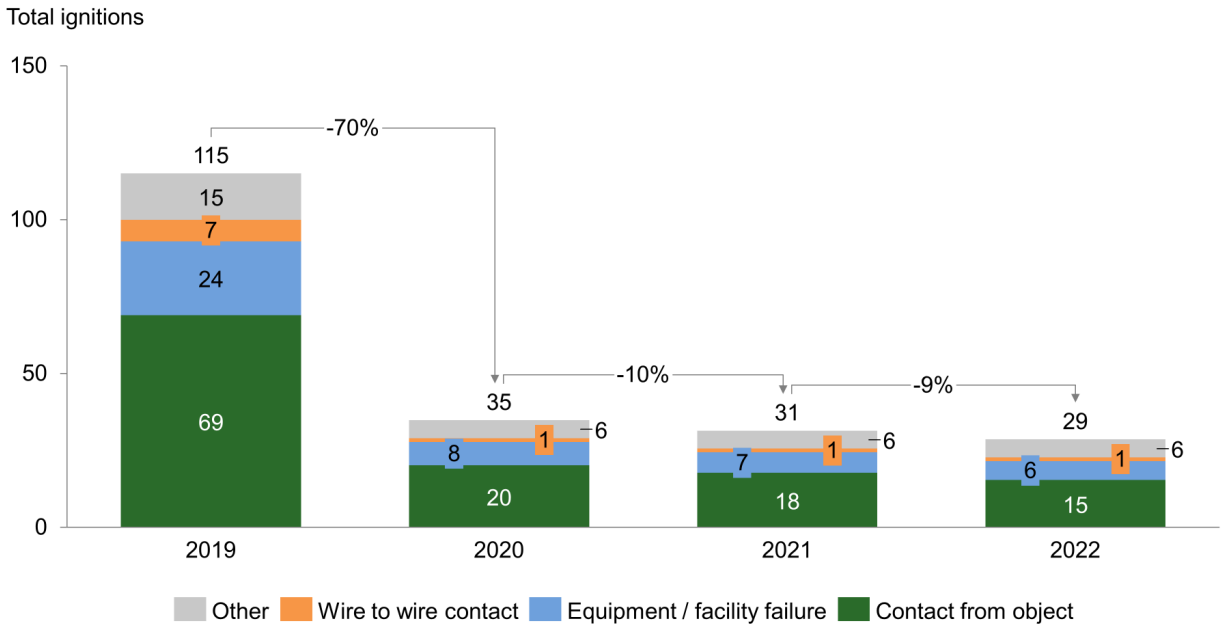


Note: Projections assume WMP implementation according to plan and weather patterns consistent with 5 year historical average. See the 2020 WMP Guidelines for more information on assumptions made.

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

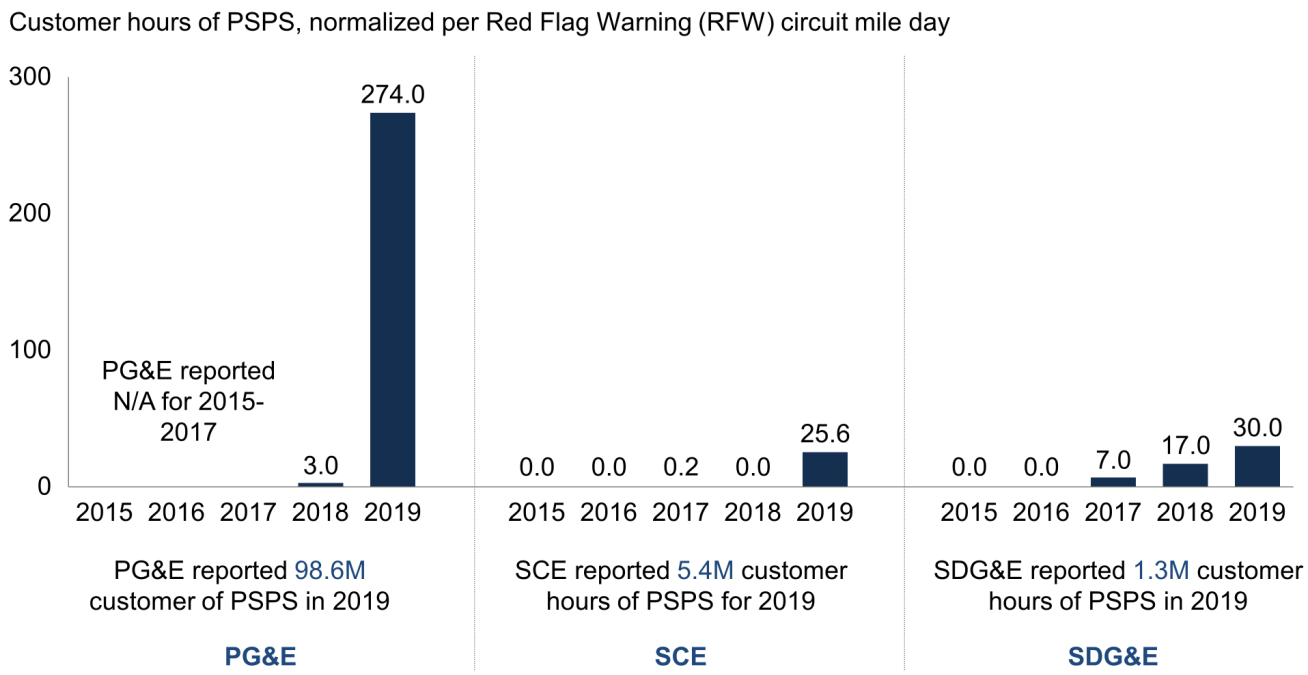
Figure shows reported 2019 ignitions and projected future ignitions by driver category, for transmission and distribution



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)

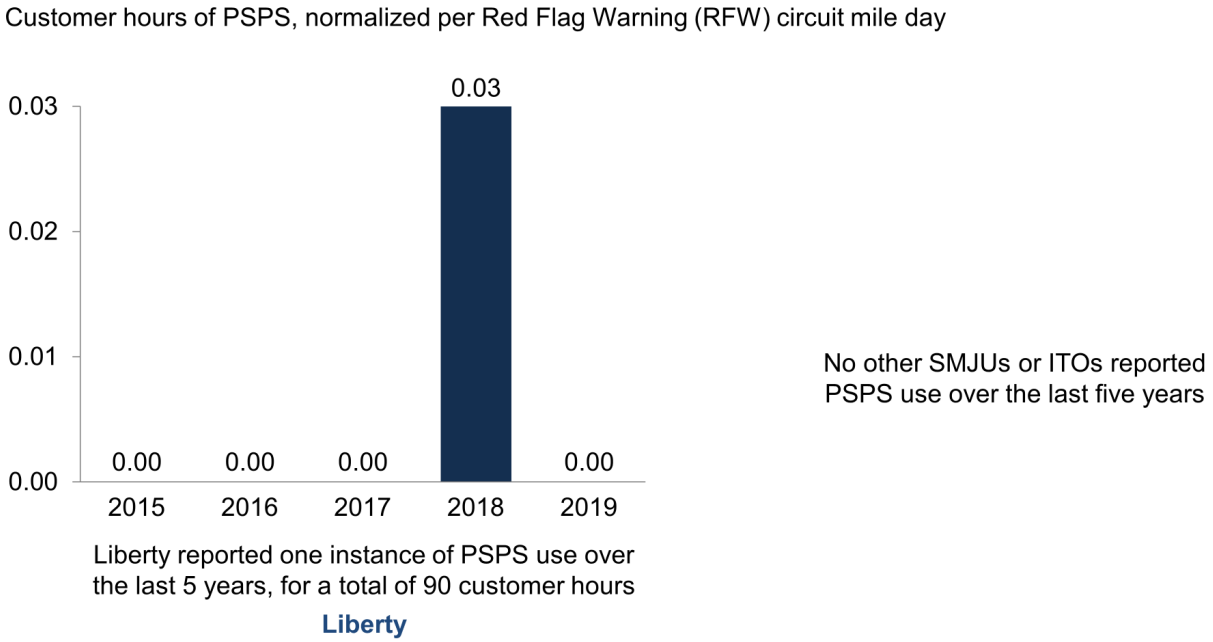


Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric; more detail is necessary to address potential inconsistencies in how each utility calculates this figure. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture 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)

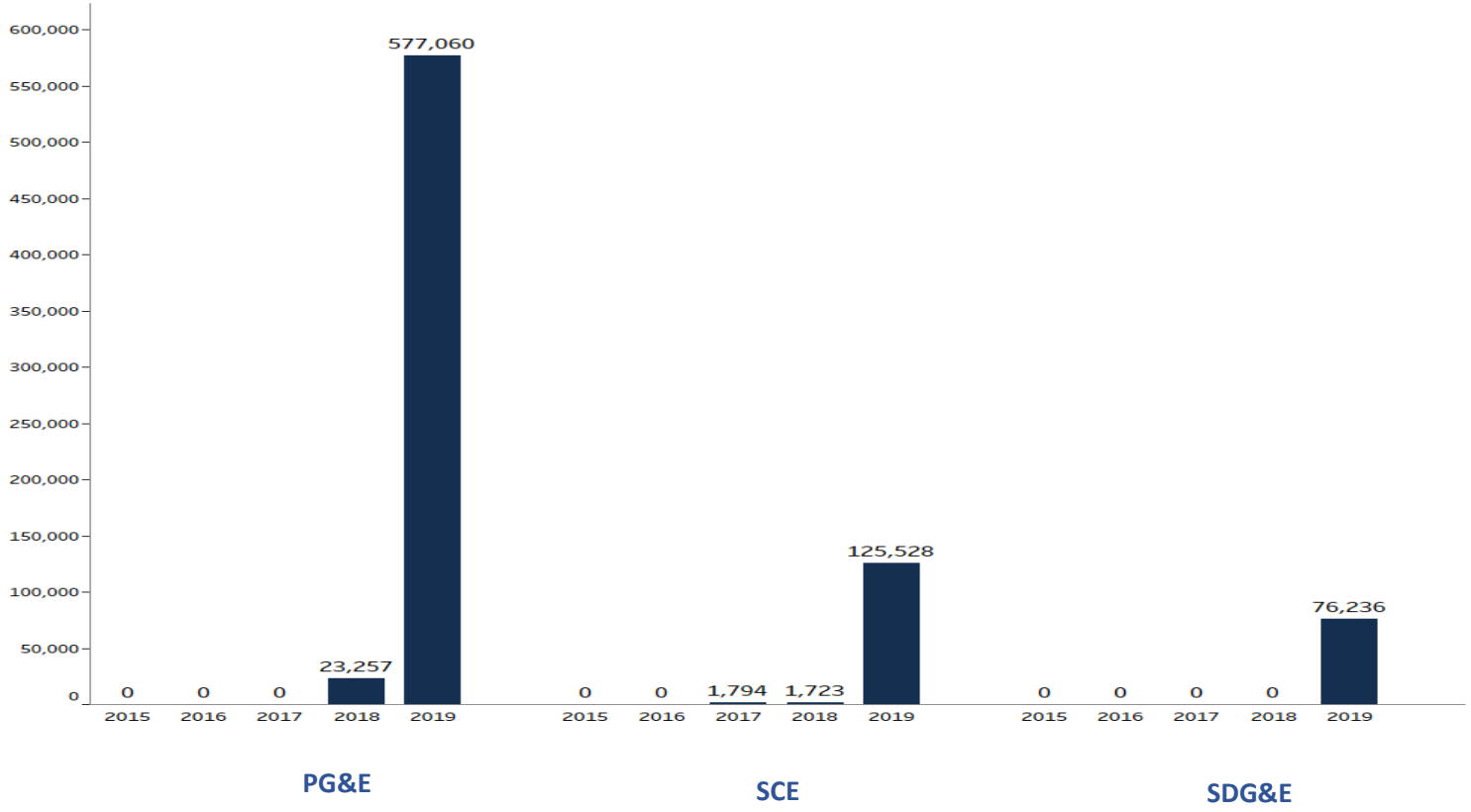


Note: Normalization using RFW circuit mile days helps take into account fire weather conditions based on a commonly used metric; more detail is necessary to address potential inconsistencies in how each utility calculates this figure. A "Red Flag Warning (RFW) Circuit Mile Day" is intended to capture 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.

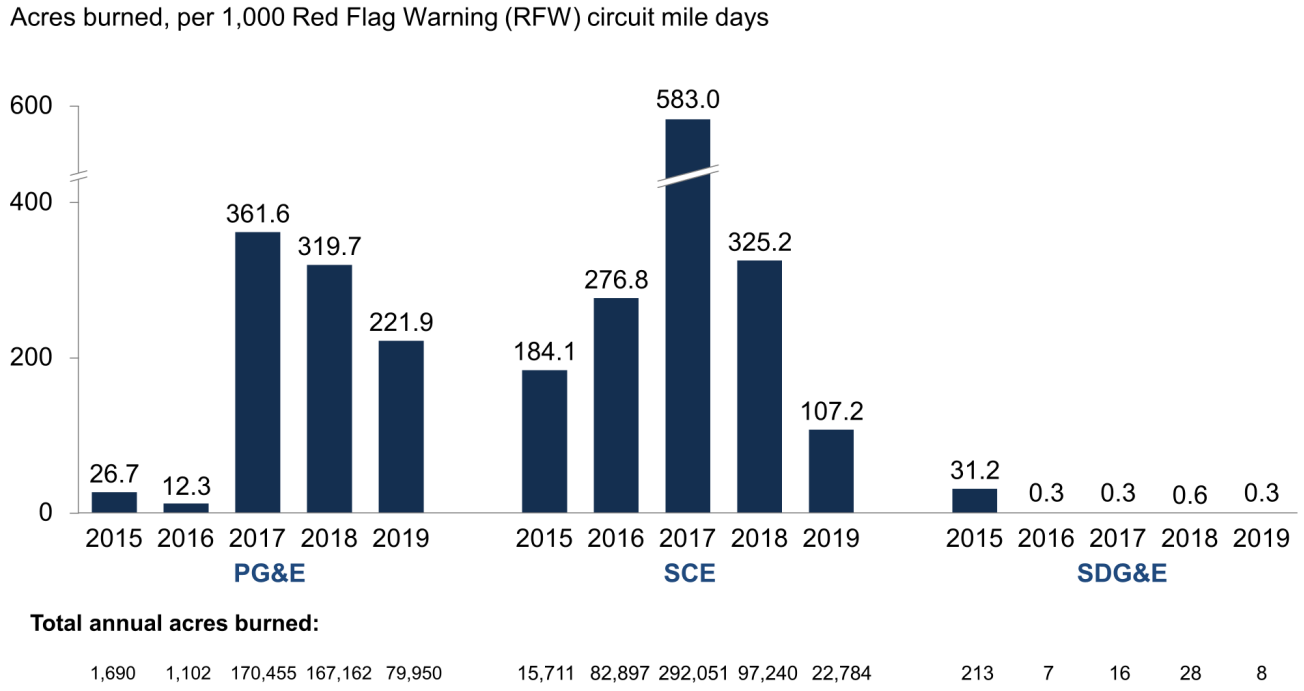
Figure 2.8c: PSPS impacts on critical infrastructure



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

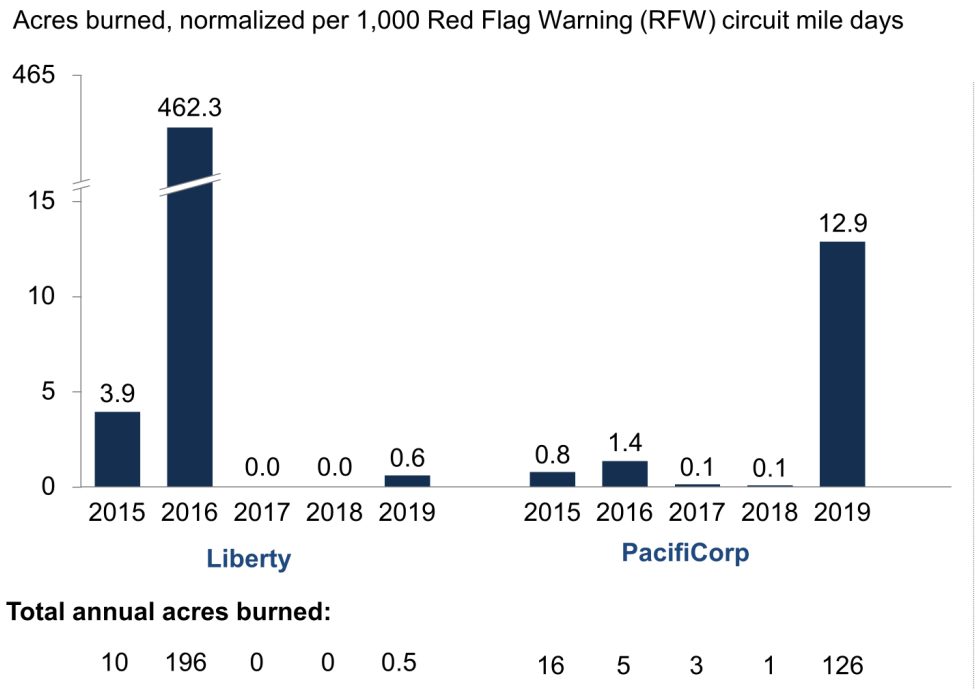
Figure 2.9a: Normalized area burned by utility ignited wildfire (Large utilities)



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)

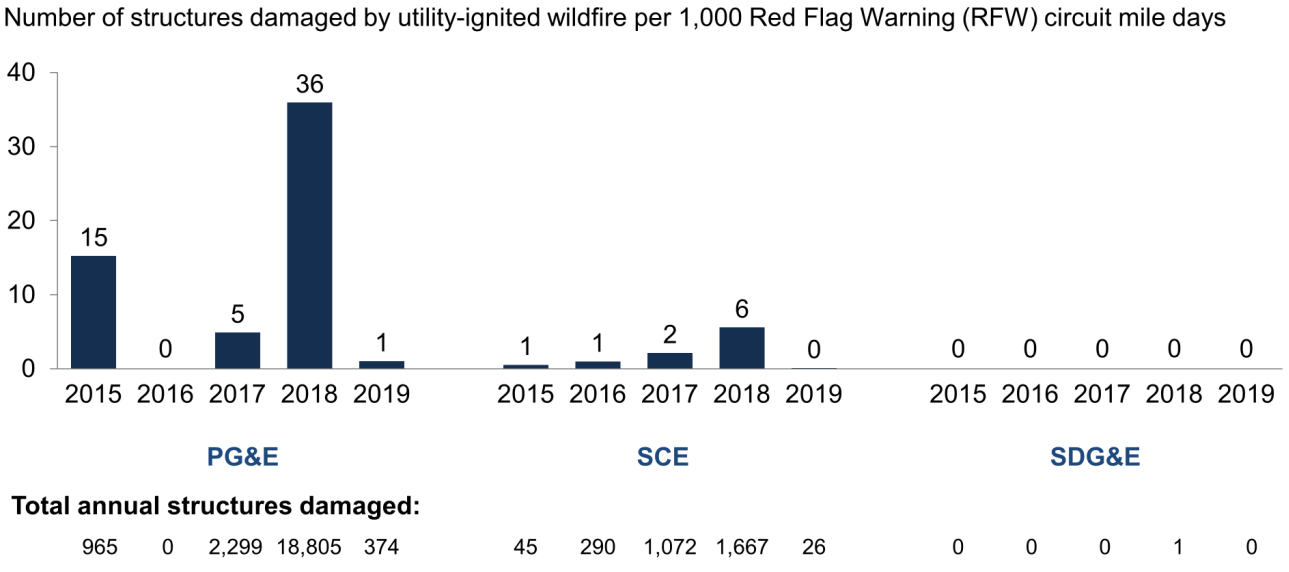


No other SMJUs or ITOs reported any area burned over the last 5 years

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



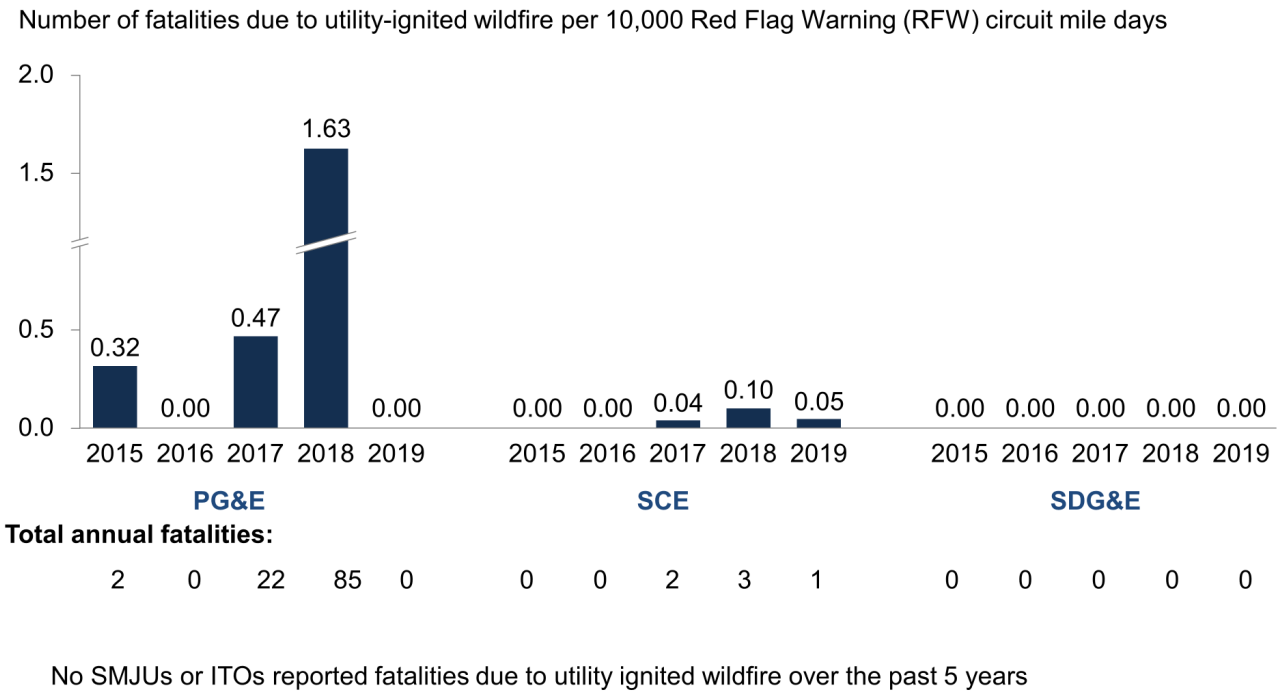
No SMJUs or ITOs reported number of structures damaged over the past 5 years

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)

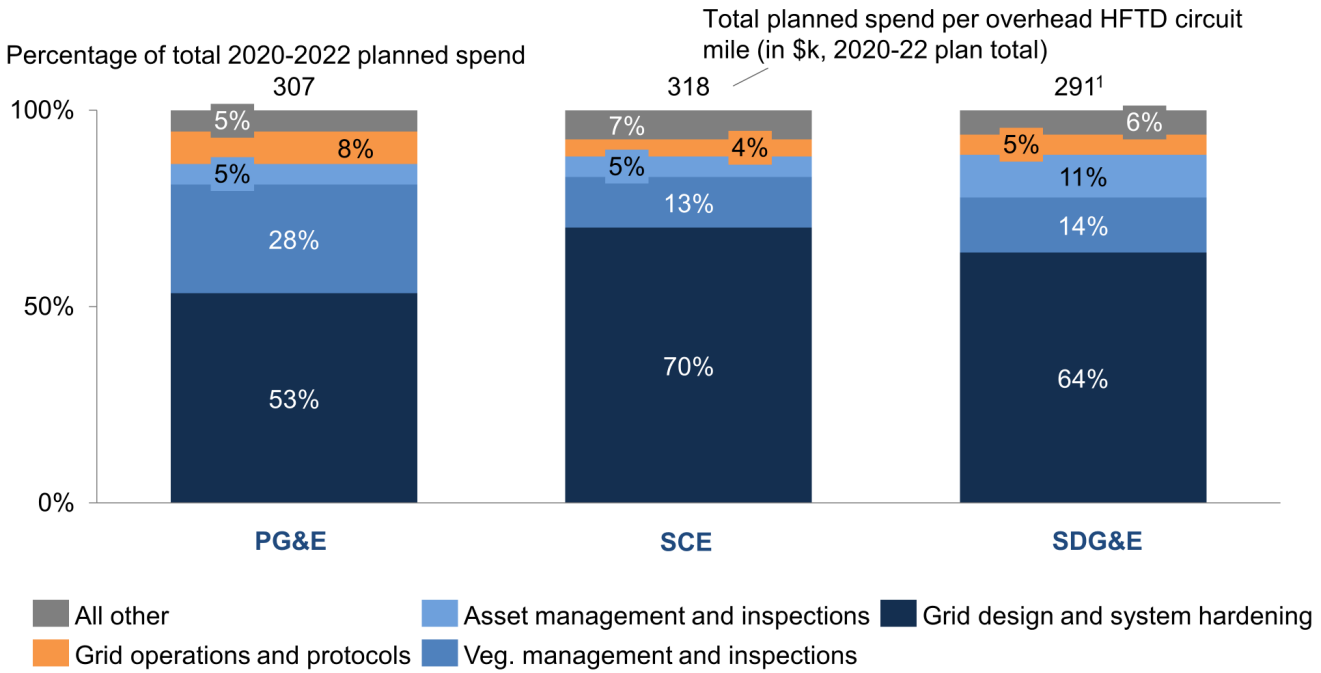
		Liberty	PacifiCorp	Bear Valley	Horizon West	Trans Bay Cable
Total spend	2019 planned spend	$4M	$1M	$12M	$0M	$0M
	2019 actual spend	$7M	$13M	$12M	$0M	$0M
	2020 planned spend	$30M	$26M	$84M	$4M	$0M
	2021 planned spend	$32M	$38M	$79M	$4M	$0M
	2022 planned spend	$27M	$37M	$79M	$0M	$0M
	Total planned spend 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.

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

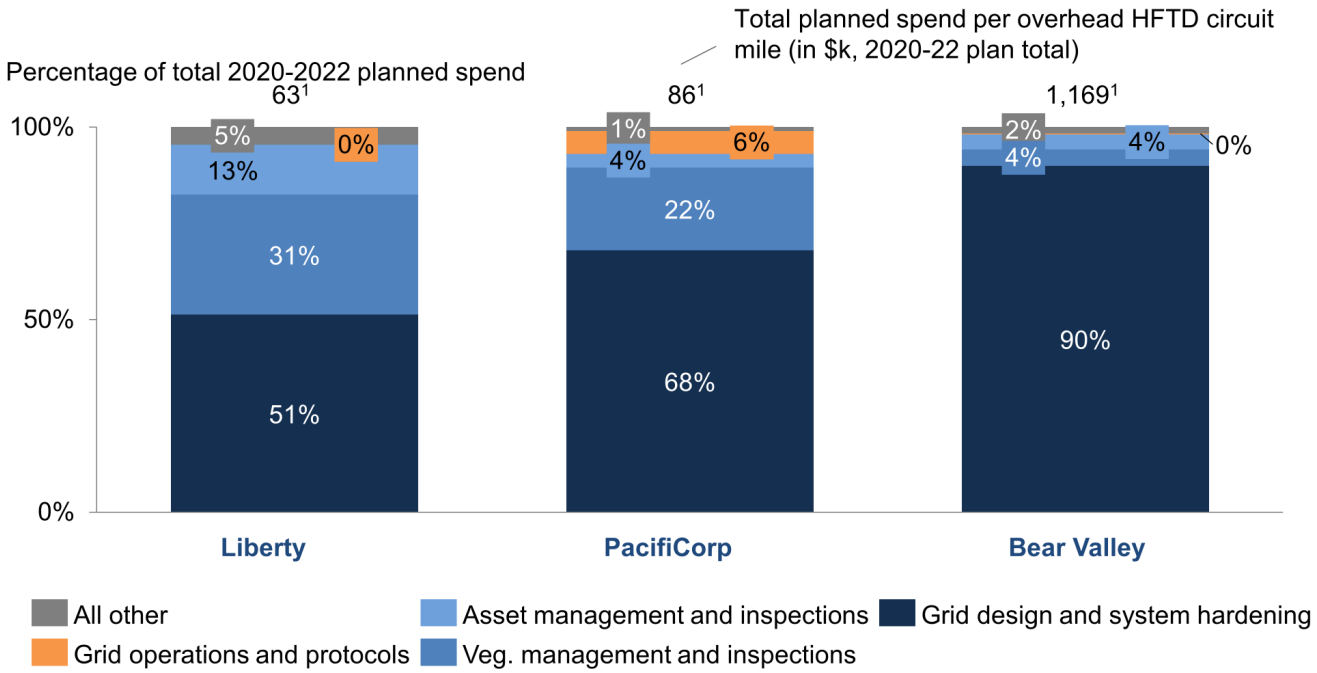
Figure 3.2a: Overview of total plan spend across utilities (Large utilities)



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.

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	
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.

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

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%**

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

PacifiCorp Maturity Model Summary

0 PacifiCorp: 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 PacifiCorp: Maturity Model Summary

Contents

1.1 PacifiCorp: 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: 1 2023: 2	• PacifiCorp plans to increase its maturity level by 2023 in four of five capabilities. Specifically, by capability: • **1. Climate Scenario Modeling**: PacifiCorp's survey responses indicate an increased level in 2023. Currently, wildfire risk can be reliably determined with circuit-level granularity using a manual tool based on weather. By 2023, PacifiCorp plans to use a partially automated tool to categorize weather scenarios by level of risk with span-level granularity. • **2. Ignition Risk Estimation:** PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp uses a partially automated tool to categorize risk of ignition into at least two categories (e.g., high, low). By 2023, PacifiCorp plans to use a mostly automated tool to quantitatively and accurately assess the risk of ignition based on a variety of factors. • **3. Estimation of Wildfire Consequences for Communities:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: Currently, PacifiCorp uses a partially automated tool to estimate ignition risk at the regional level, but by 2023 PacifiCorp plans to use a mostly automated tool to estimate ignition risk at the span level. • **4. Estimation of wildfire and PSPS risk-reduction impact:** PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, estimates of wildfire and PSPS risk-reduction impact have circuit-level granularity and are assessed with evidence and logical reasoning. By 2023, PacifiCorp plans to estimate wildfire and PSPS risk-reduction impact with span-level granularity and have independent experts assess those estimates. • **5. Risk maps and simulation algorithms**: PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp does not have a defined process for updating risk mapping algorithms. By 2023, PacifiCorp plans to use a mostly automated process to decide when to update risk mapping algorithms.
B. Situational awareness and forecasting Median automated maturity levels:	• PacifiCorp plans to increase its maturity level by 2023 in two of five capabilities. Specifically, by capability: • **6. Weather variables collected:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: Currently, measurements are validated manually, but by 2023 PacifiCorp plans to validate measurements automatically. • **7. Weather data resolution:** PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp does not accurately reflect local weather conditions across the grid. By 2023 PacifiCorp plans to reliably measure weather conditions in HFTD areas.

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
2020: 0 2023: 1	• **8. Weather forecasting ability:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp has a partially automated process that leverages a number of internal and external data to forecast weather regionally. • **9. External sources used in weather forecasting:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: currently weather data is used to inform decision making, but by 2023 PacifiCorp plans to use weather data to create a combined weather map that will then be used to make decisions. • **10. Wildfire detection processes and capabilities:** PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp has a well-defined procedure for detecting ignitions but does not have a consistent set of equipment for detecting ignitions along the grid. By 2023, PacifiCorp plans to have a consistent set of equipment for detecting ignitions.
C. Grid design and system hardening Median automated maturity levels: 2020: 1 2023: 1	• PacifiCorp plans to increase its maturity level by 2023 in zero of five capabilities. Specifically, by capability: • **11. Approach to prioritizing initiatives across territory:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp's prioritizes risk reduction initiatives at the span level based on local geography. • **12. Grid design for minimizing ignition risk:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: Currently, some efforts are made to incorporate the latest asset management strategies and new technologies in HFTD areas but by 2023 PacifiCorp plans to make these efforts across the entire service area. • **13. Grid design for resiliency and minimizing PSPS:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp's transmission and distribution architecture have (n-1) redundancy. • **14. Risk based hardening and cost efficiency:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp has an accurate understanding of the relative cost and effectiveness of different initiatives. • **15. Grid design and asset innovation:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp evaluates new grid hardening initiatives based on installation into grid and direct reduction in ignition events.
D. Asset management and inspections	• PacifiCorp plans to increase its maturity level by 2023 in zero of five capabilities. Specifically, by capability: • **16. Asset inventory and condition assessments:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: Currently there is no service territory-wide inventory of electric line and equipment but by 2023 PacifiCorp plans to have one.

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 2023: 1	• **17. Asset inspection cycle:** PacifiCorp's survey responses project no growth in this capability. Asset inspections are consistent with minimum regulatory requirements. • **18. Asset inspection effectiveness:** PacifiCorp's survey responses project no growth in this capability. Inspection procedures and checklists include all items required by statute and regulations. • **19. Asset maintenance and repair:** PacifiCorp's survey responses project no growth in this capability. Electrical lines and equipment are maintained as required by regulation, with additional maintenance done in the areas of grid with highest wildfire risk. • **20. QA/QC for asset management:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: currently, contractor activity is managed and confirmed by an audit process but by 2023 PacifiCorp plans to use a semiautomated process to audit work.
E. Vegetation management and inspections Median automated maturity levels: 2020: 0.5 2023: 0.5	• PacifiCorp plans to increase its maturity level by 2023 in one of six capabilities. Specifically, by capability: • **21. Vegetation inventory and condition assessments:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: Currently, there is no vegetation inventory sufficient to determine vegetation clearances, but by 2023 PacifiCorp plans to have one. • **22. Vegetation inspection cycle**: PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, vegetation inspections are scheduled based on annual / periodic schedules based on annually updated static maps. By 2023, PacifiCorp plans to schedule inspections based on up-to-date static maps of vegetation and environment. • **23. Vegetation inspection effectiveness**: PacifiCorp's survey responses project no growth in this capability. PacifiCorp's vegetation inspection procedures and checklists include all items required by statute and regulations. • **24. Vegetation grow-in mitigation**: PacifiCorp's survey responses project no growth in this capability. PacifiCorp meets minimum statutory and regulatory clearances around all lines and equipment. • **25. Vegetation fall-in mitigation**: PacifiCorp's survey responses project no growth in this capability. PacifiCorp removes vegetation outside of its right of way. • **26. QA/QC for vegetation management**: PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: currently, workforce management software tools are not used to manage / confirm subcontractor work but by 2023 PacifiCorp plans to use these software tools.

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period

F. Grid operations and protocols
 	
Median automated maturity levels:
 	
2020: 2
2023: 2
	• PacifiCorp plans to increase its maturity level by 2023 in zero of six capabilities. Specifically, by capability:
	  • **27. Protective equipment and device settings**: PacifiCorp's survey responses project no growth in this capability. PacifiCorp increases sensitivity of risk reduction elements during high threat weather conditions.
	  • **28**. **Incorporating ignition risk factors in grid control:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp has a clearly explained process for determining whether to operate the grid beyond current or voltage designs.
	  • **29. PSPS op. model and consequence mitigation:** PacifiCorp's survey responses project no growth in this capability. PSPS event generally forecasted accurately with fewer than 25% of predictions being false positives.
	  • **30. Protocols for PSPS initiation:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp 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:** PacifiCorp's survey responses project no growth in this capability. There is an existing process for accurately inspecting de-energized sections of the grid prior to re-energization.
	  • **32. Ignition prevention and suppression:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: currently, PacifiCorp does not provide training to workers outside the utility but by 2023 it plans to do so.

G. Data Governance
 	
Median automated maturity levels:
 	
2020: 1
2023: 1.5
	• PacifiCorp plans to increase its maturity level by 2023 in one of four capabilities. Specifically, by capability:
	  • **33. Data collection and curation**: PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp uses advanced analytics on its central database to make short-term operational and investment decisions. By 2023, PacifiCorp plans to use advanced analytics to make short-term and long-term operational and investment decisions.
	  • **34. Data transparency and analytics:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp does not have a single document cataloguing all fire-related data, algorithms, analyses, and data processes.
	  • **35. Near-miss tracking:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp does not track near miss data for all near misses with wildfire ignition potential.
	  • **36. Data sharing with research community:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp makes data disclosures beyond what is required.

Maturity Model Category	Summary of Maturity Assessment Focused on areas where utility plans to grow over the 2020-2022 WMP period
H. Resource allocation methodology Median automated maturity levels: 2020: 1 2023: 1	• PacifiCorp plans to increase its maturity level by 2023 in one of six capabilities. Specifically, by capability: • **37. Scenario analysis across different risk levels**: PacifiCorp's survey responses project no growth in this capability. PacifiCorp does scenario analysis across high-risk and low-risk scenarios. • **38. Presentation of relative risk spend efficiency (RSE) for portfolio of initiatives:** PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp has qualitative rankings of its initiatives by RSE. By 2023, PacifiCorp plans to do rankings and to provide an explanation of its investment in each initiative. • **39. Process for determining risk spend efficiency of vegetation management initiatives:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: Currently, PacifiCorp is not able to evaluate risk reduction synergies from combination of various initiatives but by 2023 it plans to be able to do so. • **40. Process for determining risk spend efficiency of system hardening initiatives:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: currently, PacifiCorp has an accurate relative understanding of cost and effectiveness needed to produce a reliable RSE of system hardening initiatives but by 2023 it plans to have an accurate quantitative understanding of cost and effectiveness. • **41. Portfolio-wide initiative allocation methodology:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp considers estimates of RSE when allocating capital. • **42. Portfolio-wide innovation in new wildfire initiatives:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: currently, PacifiCorp has no program in place to develop and evaluate the RSE of new initiatives, but by 2023 it plans to use total cost of ownership in development and evaluation on initiatives.
I. Emergency planning and preparedness Median automated maturity levels: 2020: 2 2023: 4	• PacifiCorp plans to increase its maturity level by 2023 in two of five capabilities. Specifically, by capability: • **43. Wildfire plan integrated with overall disaster/emergency plan**: PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp's wildfire plan is an integrated component of overall disaster and emergency plans but does not integrate it with the preparedness plans of other relevant stakeholders. By 2023, PacifiCorp plans to have its wildfire plan integrated with those of relevant stakeholders. • **44. Plan to restore service after wildfire related outages:** PacifiCorp's survey responses indicate an increased maturity level in 2023. PacifiCorp does not have an inventory of high RSE resources available for repairs. By 2023, PacifiCorp plans to have one. • **45. Emergency community engagement during and after wildfire:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp 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, PacifiCorp engages with other emergency management agencies in an ad hoc manner but by 2023 PacifiCorp plans to have a detailed and actionable protocol for engaging with emergency management organizations. • **46. Protocols in place to learn from wildfire events:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp has a protocol in place to record and learn from emergency events. • **47. Processes for continuous improvement after wildfire and PSPS:** PacifiCorp's survey responses do not indicate an increased maturity level in 2023. However, PacifiCorp projects some growth within the capability: currently, PacifiCorp does not have a clear plan for implementing and monitoring lessons learned from stakeholders, but by 2023 PacifiCorp plans to have a clear plan for implementation of lessons.
J. Stakeholder cooperation and community engagement Median automated maturity levels: 2020: 2 2023: 2	• PacifiCorp plans to increase its maturity level by 2023 in two of five capabilities. Specifically, by capability: • **48. Cooperation and best practice sharing with other utilities**: PacifiCorp's survey responses project no growth in this capability. PacifiCorp actively identifies and implements best practices from other California utilities. • **49**. **Engagement with communities on utility wildfire mitigation initiatives:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp has a clear and actionable plan to develop and maintain a collaborative relationship with local communities. • **50. Engagement with LEP[1] and AFN[2] populations:** PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp does not have a specific annually-updated action plan to mitigate wildfire/PSPS risk to these communities. By 2023, PacifiCorp plans to have a specific action plan for LEP and AFN communities. • **51. Collaboration with emergency response agencies:** PacifiCorp's survey responses indicate an increased maturity level in 2023. Currently, PacifiCorp does not sufficiently cooperate with suppression agencies. By 2023, PacifiCorp plans to cooperate with suppression agencies by notifying them of ignitions. • **52. Collaboration on wildfire mitigation plan with stakeholders:** PacifiCorp's survey responses project no growth in this capability. PacifiCorp conducts fuel management along rights of way. 1. Limited English Proficiency 2. Access and Functional Needs

1.2 PacifiCorp: 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. Wildfire risk can be reliably determined based on weather and its impacts b. Scenarios are assessed by independent experts, and supported by historical data of incidents and near misses c. Climate scenario modeling is done with circuit-level granularity d. Climate scenario modeling tool is not automated e. Climate scenario tool also accounts for weather how weather effects failure modes and propagation f. Future climate change is not accounted for in estimating future weather and resulting risk	**a. Weather scenarios are planned to be reliably categorized by level of risk** b. Scenarios are planned to be assessed by independent experts, and supported by historical data of incidents and near misses **c. Climate scenario modeling is planned to be done with span-level granularity** **d. Climate scenario modeling tool is planned to be partially (<=50%) automated** **e. Climate scenario tool is also planned to account for how weather effects failure modes and propagation and existing hardware** **f. Futures risk estimates are planned to take into account generally higher risk across the entire service territory due to climate change**
	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

1.2.1.2 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 patters b. Ignition risk estimation tool is partially (<=50%) automated c. Ignition risk estimation tool has regional granularity d. Ignition risk estimation is confirmed by historical data and through real-time learning e. Ignition risk estimation uses >90% or no quantified confidence interval	**a. Tools and processes are 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, localized weather patterns, and flying debris probability, with probability based on specific failure modes and top contributors to those failure modes** **b. Ignition risk estimation tool is planned to be mostly (>=50%) automated** c. Ignition risk estimation tool is planned to have regional granularity d. Ignition risk estimation is planned to be confirmed by historical data and through real-time learning e. Ignition risk estimation is planned to use >90% confidence interval
	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

1.2.1.3 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. Ignition events are categorized as low or high risk to communities b. Consequence of ignition risk is estimated as a function of at least one of the following: potential fatalities, structures burned, or areas burned c. Ignition risk impact analysis is not available for all seasons d. Ignition risk estimation process is partially (<=50%) automated e. Ignition risk estimation process is done with regional granularity f. Outputs of consequence estimation are independently assessed by experts and confirmed by historical data g. Estimation of wildfire consequences uses level and conditions of vegetation and weather	a. Ignition events are planned to be categorized as low or high risk to communities b. Consequence of ignition risk is planned to be estimated as a function of at least one of the following: potential fatalities, structures burned, or areas burned **c. Ignition risk impact analysis is planned to be available for all seasons** **d. Ignition risk estimation process is planned to be mostly (>=50%) automated** **e. Ignition risk estimation process is planned to be done with span-level granularity** **f. Outputs of consequence estimation is planned to be independently assessed by experts and confirmed based on real time learning, for example, using machine learning** **g. Estimation of wildfire consequences plans to use level and conditions of vegetation and weather, including the vegetation specifics immediately surrounding the ignition site**
	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

1.2.1.4 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. Approach reliably estimates risk reduction potential of initiatives on ordinal scale (e.g., 1-5) b. Estimation of wildfire and PSPS reduction impact is partially (<=50%) automated c. Estimation of wildfire and PSPS reduction impact has circuit-level granularity d. Ignition risk reduction assessment tool estimates are assessed with evidence and logical reasoning e. Estimation of wildfire and PSPS reduction impact accounts for existing hardware type and condition, including operating history	a. Approach is planned to reliably estimate risk reduction potential of initiatives on an ordinal scale (e.g., 1-5) b. Estimation of wildfire and PSPS reduction impact is planned to be partially (<=50%) automated **c. Estimation of wildfire and PSPS reduction impact is planned to have span-level granularity** **d. Ignition risk reduction assessment tool estimates are planned to be assessed by independent experts** **e. Estimation of wildfire and PSPS reduction impact plans to account for existing hardware type and condition, including operating history; level and condition of vegetation; weather; and combination of initiatives already deployed**
	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

1.2.1.5 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. There is 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 calculated manually d. Decisions to update algorithms are independently evaluated by experts and historical data e. Current/historic ignition and propagation data, as well as near-miss data is used to decide whether to update algorithms	**a. Risk mapping algorithms are 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 mostly (>=50%) automated** c. Deviations from risk model to ignitions and propagations are planned to be calculated manually d. Decisions to update algorithms are planned to be independently evaluated by experts and historical data e. Current/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 are updated at least bi-annually	**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

1.2.2.1 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			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. A range of accurate weather variables (e.g., humidity, precipitation, surface and atmospheric wind conditions) that impact the probability of ignition and propagation from utility assets are collected 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. A range of accurate weather variables (e.g., humidity, precipitation, surface and atmospheric wind conditions) that impact the probability of ignition and propagation from utility assets are planned to be collected **b. Measurements are planned to be validated through automatic field calibration measurements** 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
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

1.2.2.2 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 collected does not accurately reflect local weather conditions across grid infrastructure b. Weather data collected at least six times per hour c. Weather data resolution with regional granularity e. Measurement of weather conditions is fully automated	**a. Weather data is planned to have granularity sufficient to reliably measure weather conditions in HFTD areas** b. Weather data is planned to be collected at least six times per hour **c. Weather data resolution is planned to be done with 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: • Weather data is gathered with sufficient granularity to reliably measure weather conditions	**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

1.2.2.3 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 regional granularity d. Forecast results are error checked against historical weather patterns and subsequently error checked against measured weather data e. Forecast process is partially (<=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 regional 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 partially (<=50%) automated
	Criteria missing to reach a maturity level of 1 or more: • Weather forecasting ability sufficiently accurate to fulfill PSPS requirements at circuit level	**Criteria missing to reach a maturity level of 1 or more:** • Weather forecasting ability sufficiently accurate to fulfill PSPS requirements at circuit level

1.2.2.4 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 process for error checking weather stations with external data sources c. Weather data is 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 a mostly manual process for error checking weather stations with external data sources **c. Weather data is planned to be used to create a combined weather 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

1.2.2.5 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 3 2 1 0	a. Well-defined procedures for detecting ignitions along the grid exist b. No consistent set of equipment for detecting ignitions along grid c. Procedure exists for notifying suppression forces and key stakeholders when ignitions are detected d. Ignition detection software is not currently deployed	a. Well-defined procedures for detecting ignitions along the grid are planned to exist **b. Well-defined equipment for detecting ignitions along grid is planned to be used** c. Procedure is planned to exist for notifying suppression forces and key stakeholders when ignitions are detected d. Ignition detection software is not planned to be deployed
	Criteria missing to reach a maturity level of 1 or more: • Remote detection equipment, including cameras, is used to help detect ignitions	**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

1.2.3.1 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			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. Plan prioritizes risk reduction initiatives at the span level based on local geography and conditions within only HFTD areas	a. PacifiCorp plans to prioritize risk reduction initiatives at the span level based on local geography and conditions within only HFTD areas
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

1.2.3.2 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 3 2 1 0	a. Grid design meets minimum G095 requirements and loading standards in HFTD areas b. Utility does not provide 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 is planned to meet minimum G095 requirements and loading standards in HFTD areas b. Utility does not plan 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 plans 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**
	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

1.2.3.3 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 (n-1) redundancy for all circuits subject to PSPS b. Utility's distribution architecture has (n-1) redundancy covering at least 50% of customers in HFTD c. Utility's distribution architecture is sectionalized to have switches in HFTD areas to individually isolate circuits, such that no more than 2000 customers sit within one switch d. Utility uses egress points as an input for grid topology design	a. Utility's transmission architecture is planned to have (n-1) redundancy for all circuits subject to PSPS b. Utility's distribution architecture is planned to have (n-1) redundancy covering at least 50% of customers in HFTD c. Utility's distribution architecture is planned to be sectionalized to have switches in HFTD areas to individually isolate circuits, such that no more than 2000 customers sit within one switch 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: • 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

1.2.3.4 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 regional granularity c. Estimates are updated less frequently than annually d. Utility has most grid hardening initiatives included within its evaluation e. Utility can evaluate risk reduction synergies from combinations of various initiatives	a. Utility is planned to have an accurate understanding of the relative cost and effectiveness of different initiatives b. Estimates can be prepared with regional granularity c. Estimates are planned to be updated less frequently than annually d. Utility is planned to have most grid hardening initiatives included within its evaluation e. Utility plans to be able to evaluate risk reduction synergies from combinations 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

1.2.3.5 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 shared with a limited set of partners c. Performance of new initiatives is not independently audited	a. New grid hardening initiatives planned to be 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 planned to be shared with a limited set of partners **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

1.2.4.1 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 no service territory-wide inventory of electric lines and equipment including their state of wear or disrepair 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 span-level granularity	**a. There is planned to be an accurate inventory of equipment that may contribute to wildfire risk, including age, state of wear, and expected lifecycle** b. Condition assessment is planned to be updated annually c. Sensorized, continuous monitoring equipment is planned to be in place to determine the state of equipment and reliably detect incipient malfunctions likely to cause ignition d. Inventory is planned to be kept with span-level granularity
	Criteria missing to reach a maturity level of 1 or more: • Inventory database is updated within 90 days of equipment inventory or conditions being collected • Inventory includes age, state of wear, and expected lifecycle	**Criteria missing to reach a maturity level of 1 or more:** • Inventory database is updated within 90 days of equipment inventory or conditions being collected

1.2.4.2 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 3 2 1 0	a. Patrol inspections are consistent with minimum regulatory requirements b. Patrol inspections are 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 the inputs for scheduling patrol inspections d. Detailed inspections are consistent with minimum regulatory requirements e. Detailed inspections are 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 the inputs for scheduling patrol inspections g. Other inspections are above minimum regulatory requirements, with more frequent inspections for highest risk equipment h. Other inspections are 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 inputs for scheduling patrol inspections	a. Patrol inspections are planned to be consistent with minimum regulatory requirements 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 consistent with minimum regulatory requirements 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 above minimum regulatory requirements, with more frequent inspections for highest risk equipment 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

Capability 17: Asset inspection cycle		
	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

1.2.4.3 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 predictive modeling that considers vegetation and equipment type, age, and condition c. Checklists, training, and procedures are customized across a region	a. Patrol, detailed, enhanced, and other inspection procedures and checklists are planned to include all items required by statute and regulations b. Procedures and inspection checklists determined are planned to be based on predictive modeling that considers vegetation and equipment type, age, and condition c. Checklists, training, and procedures are planned to be customized across a 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	**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

1.2.4.4 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 maintained as required by regulation, and additional maintenance is done in areas of grid at highest wildfire risk based on detailed risk mapping b. Service intervals are set based on wildfire risk in relevant circuit c. Maintenance and repair procedures take wildfire risk, performance history, and past operating conditions into account	a. Electrical lines and equipment are planned to be maintained as required by regulation, and additional maintenance is planned to be done in areas of grid at highest wildfire risk is planned to be based on detailed risk mapping b. Service intervals are planned to be set based on wildfire risk in relevant circuit c. Maintenance and repair procedures are planned to take wildfire risk, performance history, and past operating conditions into account
	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

1.2.4.5 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 is regularly used 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 activity is planned to be audited through an established and 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 is planned to be regularly used 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, 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

1.2.5.1 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. There is no vegetation inventory sufficient to determine vegetation clearances across the grid at the time of the last inspection b. Inventory is never updated c. Inspections are not independently verified by third party experts d. Inventory has regional granularity	**a. There is planned to be a centralized inventory of vegetation clearances based on most recent inspection** **b. Inventory is planned to be updated annually** c. Inspections are not planned to be independently verified by third party experts **d. Inventory is planned to have span based granularity**
	Criteria missing to reach a maturity level of 1 or more: • Inventory database is centralized and accurate • Inventory database is updated within 90 days of vegetation inventory or conditions being collected	**Criteria missing to reach a maturity level of 1 or more:** • Inventory database is updated within 90 days of vegetation inventory or conditions being collected

1.2.5.2 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 above minimum regulatory requirements, with more frequent inspections for highest risk areas b. Vegetation inspections are scheduled based on annual or periodic schedules c. At last 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 static maps of predominant vegetation species and environment** **c. Up to date, static maps of vegetation and environment, as well as data on annual growing conditions, are planned to be the input 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

1.2.5.3 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 predictive modeling based on vegetation and equipment type, age, and condition c. Checklists, training, and procedures are customized across a region	a. Patrol, detailed, enhanced, and other inspection procedures and checklists are planned to include all items required by statute and regulations b. Procedures and checklists are planned to be based on predictive modeling based on vegetation and equipment type, age, and condition c. Checklists, training, and procedures are planned to be customized across a 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	**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

1.2.5.4 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. Ignition risk modeling is used to guide clearances around lines and equipment d. Species growth rates and species limb failure rates are used to guide clearance around lines and equipment e. Community organizations are engaged in setting local clearances and protocols f. Utility removes vegetation waste along its right of way across the entire grid g. Utility removes vegetation waste along the right of way more than 1 week after cutting h. Utility works 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. Ignition 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 planned to be engaged in setting local clearances and protocols f. Utility plans to remove vegetation waste along its right of way across the entire grid g. Utility plans to remove vegetation waste along the right of way more than 1 week after cutting h. Utility plans 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
	Criteria missing to reach a maturity level of 1 or more: • Utility removes vegetation waste within 1 week of cutting	**Criteria missing to reach a maturity level of 1 or more:** • Utility removes vegetation waste within 1 week of cutting

1.2.5.5 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 is 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 removes vegetation waste outside its right of way across the entire grid e. Utility removes vegetation outside its right of way more than 1 week after cutting f. Utility works with local landowners to provide a cost effective use for cutting vegetation g. 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 systematically remove vegetation outside of right of way 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 plans to remove vegetation waste outside its right of way across the entire grid e. Utility plans to remove vegetation outside its right of way more than 1 week after cutting f. Utility plans 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 within 1 week of cutting vegetation	**Criteria missing to reach a maturity level of 1 or more:** • Utility removes vegetation within 1 week of cutting vegetation

1.2.5.6 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 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 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 regularly used 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 are planned to be audited through an established and functioning audit process that manages and confirms 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 regularly 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**	
	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

1.2.6.1 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 3 2 1 0	a. Utility increases sensitivity of risk reduction elements during high threat weather conditions 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 b. A partially automated process is planned to adjust sensitivity of grid elements and evaluates effectiveness c. PacifiCorp plans to have a predetermined protocol driven by fire conditions for adjusting sensitivity of grid elements
	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

1.2.6.2 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 has 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 never operates the grid above rated voltage and current load	a. Utility plans to have a clearly explained process for determining whether to operate the grid beyond current or voltage designs b. Utility plans to have systems in place to automatically track operation history including current, loads, and voltage throughout the grid at circuit level c. Utility plans to use 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 plans to never operate the grid above rated voltage and current load
	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

1.2.6.3 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 >99% of affected customers and >99.9% of medical baseline customers in advance of PSPS action c. Less than 1% of customers complain during PSPS events d. Website does not go down during PSPS events e. Average downtime per customer is less than 0.1 hours f. Specific resources are not provided to all affected customers to alleviate the impact of the power shutoff (e.g., providing backup generators, supplies, batteries, etc.)	a. PSPS event planned to be generally forecasted 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 1% of customers are 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 not planned to be provided to all affected customers to alleviate the impact of the power shutoff (e.g., providing backup generators, supplies, batteries, etc.)
	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

1.2.6.4 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, and when equipment has come into contact with foreign objects posing ignition risk d. Given condition of the grid, utility expects less than 5% probability of any large scale PSPS events affecting more than 10,000 people to occur in the coming year; grid is in sufficiently low risk condition that PSPS events will not be required, and the only circuits which may require de-energization have sufficient redundancy such that energy supply to customers will not be disrupted	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, and when equipment has come into contact with foreign objects posing ignition risk d. Given condition of the grid, utility plans to expect less than 5% probability of any large scale PSPS events affecting more than 10,000 people to occur in the coming year; grid is planned to be in sufficiently low risk condition that PSPS events will not be required, and the only circuits which may require de-energization have sufficient redundancy such that energy supply to customers will not be disrupted
	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

1.2.6.5 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 3 2 1 0	a. There is an existing process for accurately inspecting de-energized sections of the grid prior to re-energization b. There is a partially automated (<=50%) process 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 de-energization threshold is within 18 hours d. Utility has some probability estimates for ignitions after PSPS events across the grid	a. There is planned to be an existing process for accurately inspecting de-energized sections of the grid prior to re-energization b. There is planned to be a partially automated (<=50%) process 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 de-energization threshold is planned to be within 18 hours d. Utility plans to have some probability estimates for ignitions after PSPS events across 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	**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

1.2.6.6 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 plans 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 plans 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

1.2.7.1 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	a. Utility has a centralized database of situational, operational, and risk data b. Utility is able to use advanced analytics on its centralized database of situational, operational, and risk data to make short-term 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 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 be able 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 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 sources into its centralized database of situational, operational and risk data** f. Utility plans to share best practices for database management and use with other utilities in California and beyond
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

1.2.7.2 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 not a system capable of sharing across at least three levels of permissions 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 d. PacifiCorp does not plan to have a system capable of sharing across at least three levels of permissions e. Most relevant wildfire related data algorithms are 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	**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

1.2.7.3 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 does not plan to track near miss data for all near misses with wildfire ignition potential b. Utility does not plan 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 does not plan to capture data related to the specific mode of failure when capturing near-miss data d. Utility does not plan 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:** • 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

1.2.7.4 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, and shares 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 promotes best practices based on latest independent scientific and operational research	a. Utility plans to make required data disclosures, and to share data beyond what is required b. Utility plans to fund and participate in both independent and collaborative research c. Utility research plans 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

1.2.8.1 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 provides an accurate high-risk reduction and low-risk reduction scenario, and the projected cost and total risk reduction potential b. Utility provides projections for each scenario with region-level 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 provides 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, and the projected cost and total risk reduction potential b. Utility plans to provide projections for each scenario with region-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: • 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

1.2.8.2 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 presents accurate qualitative rankings for its initiatives by risk spend efficiency b. All commercial initiatives are captured in the ranking of risk spend efficiency c. Utility includes 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 does not provide an explanation of its investment in each particular initiative e. Utility provides risk efficiency figures with region-level granularity	a. Utility plans to present accurate qualitative rankings for its initiatives by risk spend efficiency b. All commercial initiatives are planned to be captured in the ranking of risk spend efficiency c. Utility plans 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 its investment in each particular initiative, including the expected overall reduction in risk** e. Utility plans to provide risk efficiency figures with region-level granularity
	Criteria missing to reach a maturity level of 1 or more: • Utility provides explanation of its investment in each initiative	**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

1.2.8.3 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 accurate relative understanding of cost and effectiveness to produce a reliable risk spend efficiency estimate of vegetation management initiatives b. Risk spend efficiency estimates of vegetation management initiatives can be prepared with region-level granularity c. Risk spend efficiency estimates of vegetation management initiatives are updated less frequently than annually d. Some 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 accurate relative understanding of cost and effectiveness to produce a reliable risk spend efficiency estimate of vegetation management initiatives b. Risk spend efficiency estimates of vegetation management initiatives planned to be prepared with region-level granularity c. Risk spend efficiency estimates of vegetation management initiatives are planned to be updated less frequently than annually d. Some vegetation management initiatives are planned to be included within its evaluation **e. Utility plans 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

1.2.8.4 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	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 region-based granularity c. Estimates of system hardening initiatives are updated less frequently than annually 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 an accurate quantitative 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 region-based granularity c. Estimates of system hardening initiatives are updated less frequently than annually d. Some commercially available grid hardening initiatives are planned to be included in the utility risk spend efficiency analysis **a. Utility plans to evaluate risk reduction effects from the combination of various initiatives**	
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	

1.2.8.5 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 considers estimates of RSE when allocating capital b. Utility takes into account specific information by initiative, including state of equipment and location where initiative will be implemented c. Utility verifies RSE estimates with historical or experimental pilot data d. Utility considers 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 c. Utility plans to verify RSE estimates with historical or experimental pilot data d. Utility plans to consider 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

1.2.8.6 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.*	
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. Utility has no program in place to develop and evaluate the RSE of new wildfire initiatives c. Utility measures efficacy of new wildfire initiatives with circuit-level granularity d. Reviews of innovative initiatives are 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 measures direct reduction in ignition events to develop and evaluate the efficacy of new wildfire initiatives **b. Utility plans to use total cost of ownership 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 planned to be audited by independent parties e. Utility shares 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

1.2.9.1 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 runs drills to audit the viability and execution of its wildfire plans c. Impact of confounding events or multiple simultaneous disasters is 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 takes 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 is planned to be considered in the planning process **d. Wildfire 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: • 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

1.2.9.2 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 circuit-level 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 outage are planned to be customized with circuit-level granularity d. Customized procedure to restore service is planned to be based on topography, vegetation, and community needs **e. There is planned to be 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

1.2.9.3 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	a. Utility provides clear and substantially complete communication of available information relevant to affected customers, as well as referrals to other emergency management resources b. >99.9% of customers receive complete details of available information c. >99.9% of affected medical baseline customers receive complete details of available information d. Utility does assist where helpful with communication of information related to power outages to customers through availability of relevant evacuation information and links on website / at a toll-free telephone number, and assisting disaster response professionals as requested e. Utility engages with other emergency management agencies 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, as well as referrals to other emergency management resources b. >99.9% of customers are planned to receive complete details of available information c. >99.9% of affected medical baseline customers are planned 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 / at a toll-free telephone number, and assisting disaster response professionals as requested **e. Utility plans to have detailed and actionable established protocols for engaging with emergency management organizations** f. Utility plans to communicate and coordinate resources to communities during emergencies (e.g., shelters, supplies, transportation, etc.)
3		
2		
1		
0		

Capability 45: Emergency community engagement during and after wildfire		
	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

1.2.9.4 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 3 2 1 0	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. There is a defined process and staff responsible for incorporating learnings into emergency plan c. PacifiCorp uses "dry runs" to test plans updated based on learnings and improvements to confirm its effectiveness d. There is a defined process to solicit input from a variety of other stakeholders and incorporate learnings from other stakeholders into the emergency plan	a. PacifiCorp 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. PacifiCorp plans to have a defined process and staff responsible for incorporating learnings into emergency plan c. PacifiCorp plans to have "dry runs" to test plans updated based on learnings and improvements to confirm its effectiveness d. PacifiCorp 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
	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

1.2.9.5 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 3 2 1 0	a. Utility conducts an evaluation or debrief process after a wildfire b. Utility conducts either a customer survey or utilizes partners to disseminate requests for stakeholder engagement c. Utility engages in public listening sessions, debriefs with partners, and others d. Utility shares findings with partners about what can be improved e. Feedback and recommendations on potential improvements are made public f. Utility conducts 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 has 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 either a customer survey or 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
	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 utilizes partners to disseminate	• Utility conducts a customer survey and utilizes partners to disseminate

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 actively works to identify best practices from other California 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 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 California 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: • 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

1.2.10.2 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 not communities in HFTD areas where meaningful resistance is expected in response to efforts to mitigate fire risk (e.g., vegetation clearance) c. Less than 5% of landowners are non-compliant with utility initiatives (e.g., vegetation management) d. Less than 5% of landowners complain about utility initiatives (e.g., vegetation management) e. Utility has 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. PacifiCorp does not plan to have communities in HFTD areas where meaningful resistance is expected in response to efforts to mitigate fire risk (e.g., vegetation clearance) c. PacifiCorp plans to have less than 5% of landowners non-compliant with utility initiatives (e.g., vegetation management) d. PacifiCorp plans to have less than 5% 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 3	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 can 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**
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 does not sufficiently cooperate with suppression agencies b. Utility is cooperating with suppression agencies throughout all areas under utility control c. Utility does not accurately predict nor communicate the forecasted fire propagation path using available analytics resources and weather data d. Utility does not 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 notifying them of ignitions** b. Utility plans to cooperate with suppression agencies throughout all areas under utility control c. Utility does not plan to be able to accurately predict or 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: • Utility cooperates with suppression agencies by calling in ignitions detected along length of 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

1.2.10.5 Capability 52: Collaboration on wildfire mitigation planning with stakeholders

Capability 52: Collaboration on wildfire mitigation planning with stakeholders		
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 conducts fuel management along rights of way b. Utility shares fuel management plans with other stakeholders, and works with other stakeholders conducting fuel management concurrently c. Utility cultivates a native vegetative ecosystem across territory that is consistent with lower fire risk d. Utility does not fund local groups (e.g., fire safe councils) to support fuel management	a. Utility is plans to conduct fuel management along rights of way b. Utility plans to share fuel management plans with other stakeholders, and works with other stakeholders conducting fuel management concurrently c. Utility plans to cultivate a native vegetative ecosystem across territory that is consistent with lower fire risk d. Utility does not plan to fund local groups (e.g., fire safe councils) to support fuel management
	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

1.3 PacifiCorp: 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 PacifiCorp'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** | **Maturity 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. Gird 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)