State of California – A Natural Resources Agency
Gavin Newsom, Governor

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Caroline Thomas Jacobs, Director

To: Stakeholders for Trans Bay Cable's 2022 Wildfire Mitigation Plan Update

Thursday July 28, 2022

Enclosed is the Office of Energy Infrastructure Safety's (Energy Safety) Draft Decision on Trans Bay Cable's 2022 Wildfire Mitigation Plan (WMP) Update.

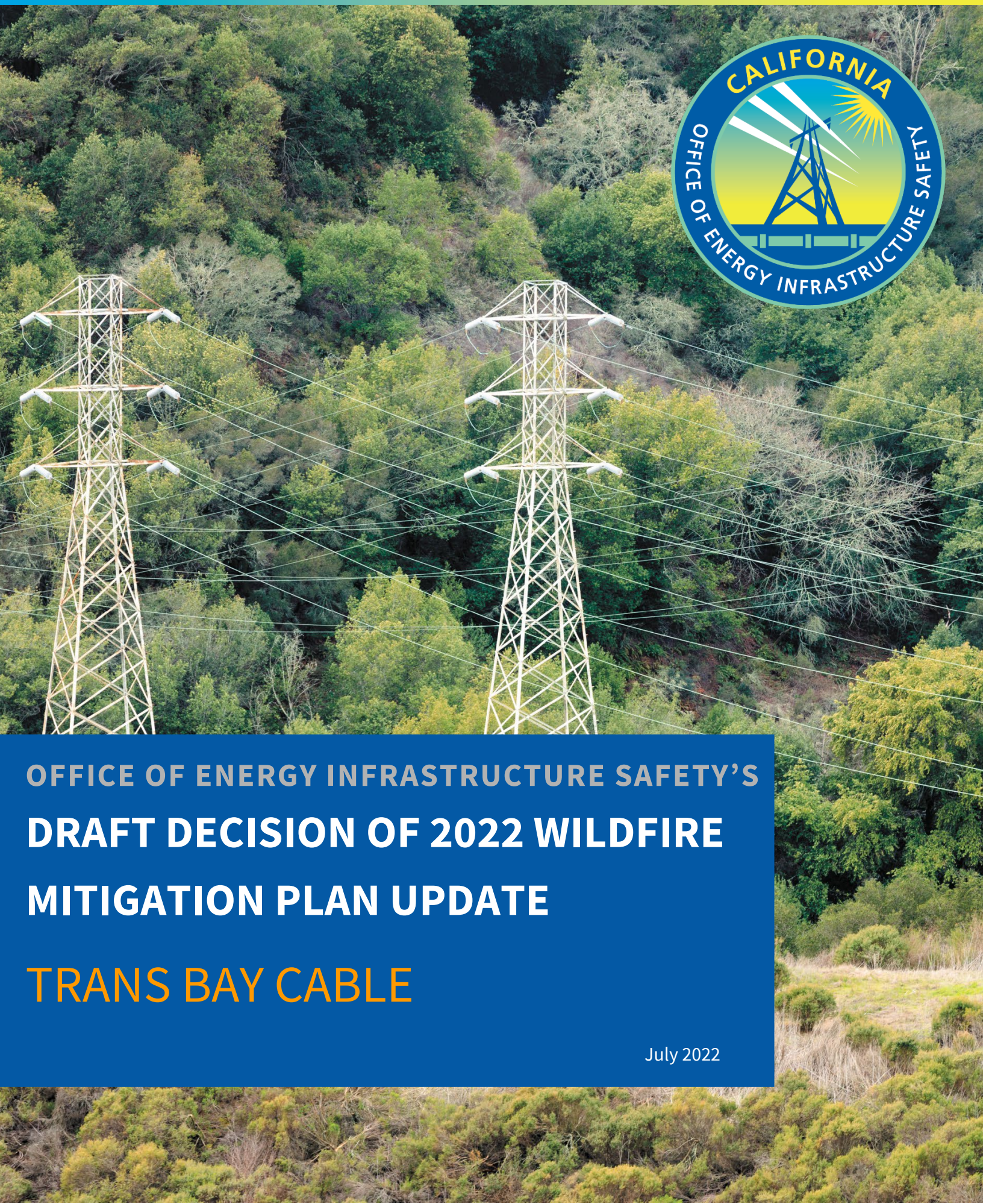
On July 28, 2022, this Draft Decision is hereby published for public review and comment. Opening comments must be submitted no later than August 17, 2022. Reply comments must be submitted no later than August 24, 2022.[1]

Comments must be submitted to Energy Safety's e-filing system in the 2022 Wildfire Mitigation Plans docket (#2022-WMPs).[2]

Sincerely,

Lucy Morgans
Program Manager | Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

[1] Dates falling on a Saturday or holiday as defined in Government Code Section 6700 have been adjusted to the next business day in accordance with Government Code Section 6707.
[2] Submit comments to the 2022-WMPs docket via the Energy Safety e-filing system here: https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2022-WMPs (accessed May 19, 2022)



OFFICE OF ENERGY INFRASTRUCTURE SAFETY'S

DRAFT DECISION OF 2022 WILDFIRE MITIGATION PLAN UPDATE

TRANS BAY CABLE

July 2022

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Executive Summary

The Office of Energy Infrastructure Safety (Energy Safety) was formed in July 2021 to ensure electrical utilities take effective actions to reduce utility-related wildfire risk. Energy Safety strives to deliver near-term results while promoting a long-term utility vision to reduce wildfire and build cultures of safety.

The California Legislature enacted several measures requiring electrical corporations to reduce risk of utility-caused catastrophic wildfires. Key legislative measures include Assembly Bills 1054 and 111, Public Utilities Code sections 326(b) and 8389, Senate Bills 901 and 1028, and Government Code section 15475 (see Section 1.1, "Legal Authority").

Pursuant to Public Utilities Code section 8386.3(a), this Decision serves as Energy Safety's assessment and approval of Trans Bay Cable's (TBC's) Wildfire Mitigation Plan 2022 Update (2022 Update) submitted on May 6, 2022.

Energy Safety's Decision considers and, where appropriate, incorporates comments from the public and other stakeholders.

This Executive Summary includes a high-level summary of Energy Safety's assessment of TBC's maturity model, progress, and areas in the current plan Energy Safety determined warrant continued improvement. Energy Safety's comprehensive evaluation is included as Section 4. As a result of this evaluation, Energy Safety found no areas for continued improvement for TBC in response to its 2022 Update.

Maturity Model Evaluation

Energy Safety introduced a maturity model (the Utility Wildfire Mitigation Maturity Model) in 2020, providing a method to assess utility wildfire risk reduction capabilities and examine the relative maturity of individual wildfire mitigation programs. In February 2020, the utilities completed a survey that established a baseline for maturity as well as their anticipated progress over the three-year plan period. In 2021 and 2022, the utilities again completed the survey, enabling Energy Safety to monitor progress and ascertain potential improvements to maturity based on self-reported progress to date.

Energy Safety makes the following key findings regarding TBC's maturity progress in 2022 and over the three-year plan cycle. Detailed explanations of utility maturity are contained in each section of the evaluation.

According to its responses to the 2022 Maturity Survey, TBC's maturity level remained relatively unchanged throughout the current WMP cycle.

Areas of Significant Progress

TBC has made significant progress over the past year and/or has matured in its mitigation strategies for future years in the following areas:

- TBC increased its maturity level for one response under the "risk maps and simulation algorithms" capability relating to algorithm update decisions by adding an independent evaluation by experts.
- TBC added egress as an input to grid topology design.
- TBC has begun to share information regarding pilot and commercial deployments with other utilities, although partners are limited.

Areas for Continued Improvement

Energy Safety evaluated 2022 Updates with a particular focus on how each utility is driving down the risk of utility-related ignitions. The evaluation included assessing the utility's progress implementing wildfire mitigation initiatives, evaluating the feasibility of its strategies, and measuring year-to-year trends. As a result of this evaluation, Energy Safety identified areas where the utility should continue to improve its wildfire mitigation capabilities in future plans.

Section 4 contains Energy Safety's detailed assessment and resulting areas for continued improvement. Energy Safety did not find any areas for continued improvement in its evaluation of TBC's 2022 Update.

1. Introduction and Background

Trans Bay Cable (TBC), an independent transmission operator (ITO), submitted a comprehensive Wildfire Mitigation Plan (WMP or Plan) in 2020 covering a three-year term from 2020 through the end of 2022 (the current WMP cycle). TBC submits annual updates to that Plan for Office of Energy Infrastructure Safety (Energy Safety) approval or denial. This Decision represents Energy Safety's assessment of TBC's 2022 WMP Update (2022 Update), which TBC submitted on May 6, 2022, in response to Energy Safety's Final 2022 WMP Update Guidelines[1] (Guidelines).

Energy Safety approves TBC's 2022 Update.

1.1 Legal Authority

In 2018, following the devastating wildfires in 2016 and 2017, the California Legislature passed several bills increasing regulatory supervision of the electrical corporations' efforts to reduce utility-related wildfires. Assembly Bill (AB) 1054 (Statutes of [Stats.] 2019, Chapter [Ch.] 79) created Energy Safety (initially formed as the Wildfire Safety Division [WSD] at the California Public Utilities Commission [CPUC]) and tasked it with reviewing annual WMPs submitted by electrical corporations.

The main regulatory vehicle for Energy Safety to evaluate electrical corporations' wildfire risk reduction efforts is the WMP, which was first introduced in Senate Bill (SB) 1028 (Stats. 2016, Ch. 598) and further defined in subsequent legislation. Investor-owned electrical corporations[2] are required to submit WMPs assessing their level of wildfire risk and providing plans for wildfire risk reduction. The CPUC evaluated the utilities' first WMPs under the SB 901 (Stats. 2018, Ch. 626) framework in 2019.[3]

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[1] Final 2022 Wildfire Mitigation Plan Update Guidelines (accessed January 26, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true

[2] In this document "utility" should be understood to mean "electrical corporation."

[3] See Rulemaking 18-10-007.

On July 1, 2021, all functions of the CPUC's WSD were transferred to Energy Safety.[4] Energy Safety "is the successor to […] and is vested with, all of the duties, powers, and responsibilities of the Wildfire Safety Division,"[5] including, but not limited to, jurisdiction for evaluating and approving or denying utilities' WMPs and evaluating compliance with the WMPs. Energy Safety must ensure utility wildfire mitigation efforts sufficiently address utility wildfire risk. To support its efforts, Energy Safety developed a long-term strategic roadmap, Reducing Utility-Related Wildfire Risk (2020).[6] This strategic roadmap underpins Energy Safety's evaluation of the WMPs.

1.1.1 Cost Recovery

Statute requires electrical corporations to seek cost recovery and prove all expenditures are just and reasonable at a future time in their general rate cases (GRCs) or an appropriate application.[7] Nothing in this Decision should be construed as approval of WMP-related costs.[8]

1.2 Multi-Year Plan Process

In February 2020, the utilities[9] submitted their three-year 2020–2022 WMPs. In 2020, Energy Safety conducted its evaluation and either approved, conditionally approved, or denied the Plans. In the case of conditional approval, Energy Safety identified areas for further improvement in the Plans, assigning these areas different severity levels, and required the utilities to address issues through various mechanisms depending on the designation of severity, Class A, B, or C.

[4] Public Utilities Code § 326(b).

[5] Gov. Code § 15475.

[6] Energy Safety's strategic roadmap Reducing Utility-Related Wildfire Risk (2020) (accessed January 26, 2022): https://energysafety.ca.gov/who-we-are/strategic-roadmap/.

[7] Public Utilities Code § 8386.4(b).

[8] Energy Safety's approval does not relieve the electrical corporation of any and all otherwise applicable permitting, ratemaking, or other legal and regulatory obligations.

[9] Utilities that submitted a WMP in 2020: Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), PacifiCorp, Bear Valley Electric Service, Inc. (BVES), Liberty Utilities, Trans Bay Cable, LLC, and Horizon West Transmission, LLC.

In 2021, the utilities submitted updates to their 2020 WMPs. Energy Safety evaluated the utilities' WMP Updates and either approved or denied the Plans. If Energy Safety identified a critical issue in a utility's Plan, Energy Safety issued a Revision Notice requiring the utility to remedy the issue prior to completion of Energy Safety's evaluation. (See Section 1.3.2 for more information on Revision Notices.) Upon receipt of the utility's response to the Revision Notice, Energy Safety determined if the response was sufficient to warrant approval of the WMP or insufficient such that denial of the WMP was warranted. Energy Safety did not issue a Revision Notice to TBC for its WMP 2021 Update.

Plan year 2022 is the final year in the first three-year plan cycle. Therefore, Energy Safety's evaluation of TBC's 2022 Update focuses heavily on the progress the utility made over the three-year plan cycle and whether the utility matured in its understanding of its own wildfire ignition risks and appropriate mitigations to decrease those risks.

1.3 2022 Evaluation Process

Energy Safety issued WMP Update Guidelines (Guidelines) on December 15, 2021. The Guidelines streamline the reporting and evaluation and incorporate the requirements of SB 533 (Stats. 2021, Ch. 244). Pursuant to the adopted Guidelines, TBC submitted its 2022 Update on May 6, 2022.

Energy Safety begins evaluating WMPs and Updates by reviewing the submittal for completeness. Energy Safety determines whether the submittal addresses the statutory requirements contained in Public Utilities Code section 8386(c) and the Guidelines. Energy Safety does not conduct a substantive evaluation at that time. If the WMP or Update is not complete, Energy Safety may reject the plan and require the utility to resubmit.

Once Energy Safety determines the WMP or Update is complete, Energy Safety begins its assessment using the criteria listed in Section 1.3.1. The prior year's WMPs or Updates are included in the review to gauge progress and trends.

At any time during the evaluation, Energy Safety may issue a Revision Notice for reasons listed in Section 1.3.2. The utility must respond to the Revision Notice and revise and resubmit the relevant sections of its WMP or Update.

1.3.1 Energy Safety Evaluation Criteria

Energy Safety evaluated 2022 Updates according to the following factors:

- *Completeness:* The utility comprehensively responds to the statutory requirements contained in Public Utilities Code section 8386(c) and Energy Safety's Guidelines.
- *Technical and programmatic feasibility and effectiveness:* The proposed initiatives are technically feasible and effective in addressing the risks that exist in the utility's service territory. The proposed initiatives are programmatically feasible for the specific utility given its maturity and progress to date.
- *Resource use efficiency:* The proposed initiatives are an efficient use of utility resources and focus on achieving the greatest risk reduction at the lowest cost.
- *Demonstrated year-over-year progress:* The utility demonstrates sufficient progress on objectives and program targets reported in its 2021 Update.
- *Forward-looking growth:* The utility demonstrates a clear action plan to continue reducing utility-related ignitions and the scale, scope, and frequency of Public Safety Power Shutoff (PSPS) events.[10] In addition, the utility focuses sufficiently on long-term strategies to build the overall maturity of its wildfire mitigation capabilities while reducing reliance on shorter-term strategies such as PSPS and augmented vegetation management.
- *Progress metrics:* The utility tracks the degree to which its wildfire mitigation activity has changed the conditions of its wildfire risk exposure in terms of drivers of ignition probability.
- *Outcome metrics:* The utility uses outcome metrics to measure its performance and outcomes in 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:* The utility uses targets to track its progress toward specific objectives for its wildfire mitigation activities.[11] Program targets track the utility's pace of activity completion as laid out in the WMP but do not track the efficacy of its

[10] A Public Safety Power Shutoff (PSPS) event, also called a de-energization event, is when a utility proactively and temporarily cuts power to electric lines that may fail in certain weather conditions, in specific areas, to reduce electric facility-caused fire risk.

[11] Objectives are unique to each utility and reflect the 1-, 3-, and 10-year projections of progress toward the WMP goal.

activities. The primary use of these program targets is to track utility progress with its WMP.

To assess TBC's 2022 Update, Energy Safety relied on:

- TBC's WMP and Update submissions
- Input from the California Department of Forestry and Fire Protection (CAL FIRE)
- Public and stakeholder comments
- TBC's response to the Utility Wildfire Mitigation Maturity Survey (Maturity Survey)
- TBC's data submissions
- TBC's responses to data requests

Energy Safety's assessment of TBC's 2022 Update is summarized in Section 4.

1.3.2 Revision Notices

Public Utilities Code section 8386.3(a) states, "Before approval, the division may require modifications of the plan." Energy Safety effectuates this provision by issuing a Revision Notice. The purpose of a Revision Notice is to hold utilities accountable for:

- Submitting a sufficiently detailed 2022 Update
- Addressing issues or improvement requests from the previous year
- Providing adequate data and information to justify proposed mitigation strategies

Examples of when Energy Safety may choose to issue a Revision Notice include, but are not limited to, the following:

- The utility failed to implement the remedies detailed in the prior year's Decision[12]
- The utility did not provide sufficient information for evaluation
- The utility made a significant shift in its wildfire mitigation strategy without sufficient substantiation
- The utility's submission does not meet evaluation criteria listed in Section 1.3.1

[12] Also called an Action Statement (2020, 2021).

- An element of the WMP that is critical to life-safety or property is unsatisfactory

Energy Safety did not issue a Revision Notice to TBC for its 2022 Update.

1.3.3 Final Decision

Upon completion of its review, Energy Safety determines whether each utility's 2022 Update will be:

- Approved (approval may include a requirement that the utility demonstrate continued growth in its 2023 WMP), or
- Denied (the utility does not have an approved 2022 Update and must reapply for approval in 2023).

Energy Safety's approval of a WMP or WMP Update does not mean that the utility has reached the highest levels of maturity or has reduced its ignition risk to zero. Rather, approval means the utility has satisfied the evaluation criteria and substantiated its mitigation strategy such that implementation of the plan is appropriate. When Energy Safety approves a WMP or WMP Update, it does so with an eye toward continued improvement. When appropriate, Energy Safety lists areas where the utility must continue to mature in its capabilities, known as Areas for Continued Improvement.

2. Energy Safety Decision on TBC's 2022 Update

Pursuant to Public Utilities Code section 8386.3(a), this Decision is the totality of Energy Safety's review of TBC's 2022 Update. TBC's 2022 Update is approved.

3. Public and Stakeholder Comments

Energy Safety invited stakeholders, including members of the public, to provide comments on the utilities' 2022 Updates. WMP comments were due on June 20, 2022, and reply comments were due on June 27, 2022.

Comments received on the 2022 Updates can be viewed in the 2022 Wildfire Mitigation Plan Updates (2022-WMPs) docket log.[13]

The California Department of Fish and Wildlife (CDFW) submitted comments on TBC's 2022 Update. Energy Safety evaluated CDFW's comments and concurred with its recommendation that TBC should consult CDFW and other responsible agencies as early as possible to complete required environmental documents and discretionary reviews when implementing wildfire mitigation activities.

[13] 2022 Wildfire Mitigation Plan Updates (2022-WMPs) docket log: https://efiling.energysafety.ca.gov/Lists/DocketLog.aspx?docketnumber=2022-WMPs (accessed April 14, 2022).

4. Energy Safety's Assessment of TBC's 2022 Update

The following sections present Energy Safety's comprehensive evaluation of TBC's 2022 Update, including Energy Safety's assessment of progress over the past year and throughout the current WMP cycle. Energy Safety looks at TBC's past and current WMP and WMP Update submissions to assess year-over-year trends and track Energy Safety's past requirements as well as the utility's own projections. In addition to comparing TBC's initiatives from year to year, Energy Safety also assesses any new programs, plans, or technologies TBC is proposing in its 2022 Update. The sections below assess past progress, encourage growth through new initiatives or approaches, and identify areas for continued improvement following up on 2021 requirements.

Before commencing its evaluation, Energy Safety found TBC's 2022 Update to be complete.

4.1 Introductory Sections of the WMP

The introductory sections of the Guidelines[14] require the utility to report basic information regarding persons responsible for executing the plan and adherence to statutory requirements. Section 1 requires contact information (telephone and email) for the executive with overall responsibility and the specific program owners. In addition, Section 1 requires inclusion of the name and relevant background and credentials for all experts consulted in preparation of the 2022 Update. Contact information and names may be submitted in a redacted file.

Section 2 requires the utility to specify the location of the information required by Public Utilities Code section 8386(c). Each utility must affirm that the WMP Update addresses each statutory requirement AND cite the section and page number(s) where each statutory requirement is addressed.

[14] Final 2022 Wildfire Mitigation Plan Update Guidelines, Attachment 2.1 and 2.2 pp. 25-35 (accessed February 15, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

TBC provides the required information in Sections 1 and 2 of its 2022 Update, including all information required by Public Utilities Code section 8386(c).

4.2 Actuals and Planned Spending for Mitigation Plan

The actuals and planned spending section of the Guidelines[15] requires utilities to report a summary of WMP expenditures, actual and planned, for the current WMP cycle. This summary must include an estimated annual increase in costs to the ratepayer due to utility-related ignitions and wildfire mitigation activities. The Guidelines require that ratepayer impact calculations be clearly shown to demonstrate how the utility derived each value.[16]

TBC provides all required information regarding expenditures.

TBC reports expenditures in the following categories for the current WMP cycle (with the total for the cycle in thousands USD):

- Risk Assessment and Mapping ($210)
- Situational Awareness and Forecasting ($3000)
- Grid Design and System Hardening ($13,700)
- Grid Operations and Operating Protocols, Including PSPS ($800)

TBC reports no expenditures in the following initiative categories for the current WMP cycle:

- Asset Management and Inspections
- Vegetation Management and Inspections
- Data Governance
- Resource Allocation Methodology
- Emergency Planning and Preparedness
- Stakeholder Cooperation and Community Engagement

[15] Final 2022 Wildfire Mitigation Plan Update Guidelines, Attachment 2.3 pp. 37–40 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

[16] Nothing in the request for such information should be construed as approval of any such expenditure, which is left to the CPUC pursuant to Public Utilities Code section 8386.4(b).

See Table 4.2-1 below for a comparison of the WMP actual and planned expenditures of the two independent transmission operators (ITOs).

Table 4.2-1: Actual and Planned WMP Expenditures - ITOs
(in thousands of USD, 2020-2022)

Utility	2020 Actual	2021 Actual	2022 Planned	Total WMP Cycle as Reported in 2022
Trans Bay Cable	$ 11,300	$ 5,800	$ 610	$ 17,710
Horizon West Transmission	$ 4,632	$ 20,536	$ 1,890	$ 27,058

4.3 Lessons Learned and Risk Trends

The lessons learned and risk trends section of the Guidelines[17] requires utilities to report how their plans have evolved since 2021 based on lessons learned, current risk trends, and research conducted. This section also requires utilities to report on potential future learnings through proposed and ongoing research.

The utility must describe how it assesses wildfire risk in terms of ignition probability and estimated wildfire consequence using, at a minimum, CPUC-adopted risk assessment requirements (for large electrical corporations) from the General Rate Case (GRC) Risk-Based Decision-Making Framework Proceeding (formerly the Safety Model and Assessment Proceeding [S-MAP]) and the Risk Assessment Mitigation Phase (RAMP) Proceeding. The utility may additionally include other assessments of wildfire risk. The utility must:

- Describe how it monitors and accounts for the contributions of weather and fuel to ignition probability and wildfire consequence.

[17] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.4 pp. 41–50 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

- Identify any areas where the CPUC's high fire threat district (HFTD) should be modified.
- Identify any areas classified by the utility as "high fire threat" that differ from the CPUC's HFTD and explain why these areas are so classified.
- Rank trends anticipated to have the greatest impact on ignition probability and wildfire consequence.

TBC provides all required information on lessons learned, current risk trends, and research conducted.

4.4 Inputs to the Plan and Directional Vision for the WMP

The inputs and directional vision section of the Guidelines[18] requires the utility to rank and discuss trends it anticipates may have the greatest impact on ignition probability and wildfire consequence within the utility's service territory over the next 10 years. First, utilities 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. Second, utilities must report the current and planned qualifications of their workforce to meet these objectives.

4.4.1 Goal, Objectives, and Program Targets

The goal of the WMP is to ensure the utilities are sufficiently planning to reduce the number of ignitions caused by utility actions or equipment and minimize the societal consequences (with specific consideration of the impact on access and functional needs populations and marginalized communities) of both wildfires and PSPS events.

This subsection of the Guidelines[19] requires utilities to provide their objectives, which are unique to each utility and reflect their 1-, 3-, and 10-year projections of progress toward the abovementioned goal. The Guidelines also require utilities to report their unique program

[18] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.5 pp. 52–57 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

[19] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.5.1-2.5.3 pp. 53–54 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

targets, which are quantifiable measurements of activities identified in WMPs and Updates to show the utility's progress toward reaching its objectives.

4.4.2 Workforce Planning

This subsection of the Guidelines[20] requires utilities to report their worker qualifications and training practices regarding utility-related ignitions and PSPS mitigation for workers in mitigation-related roles including:

- Vegetation inspections
- Vegetation management projects
- Asset inspections
- Grid hardening
- Risk event inspection

Infrastructure assessments are conducted by TBC operators and engineers charged with physically inspecting the substation and all equipment associated with it. To improve worker qualifications relevant to fire mitigation, TBC maintains a procedure-based training that details operational response and supporting information concerning fire risk and response.

4.5 Metrics and Underlying Data

The metrics and underlying data section of the Guidelines[21] requires utilities to report metrics and program targets as follows:

- *Progress metrics* that track how much utility wildfire mitigation activity has changed the conditions of a utility's wildfire risk exposure in terms of drivers of ignition probability.
- *Outcome metrics* that measure the performance of a utility and its service territory in terms of both leading and lagging indicators of wildfire risk, PSPS risk, and other

[20] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.5.4 pp. 56–57 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

[21] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.6 pp. 58–69 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

direct and indirect consequences of wildfire and PSPS, including the potential unintended consequences of wildfire mitigation work.

- *Program targets* that track the utility's pace of completing proposed wildfire mitigation activities to show progress toward a utility's specific objectives.[22] Program targets do not track the efficacy of wildfire mitigation activities. The primary use of these program targets in 2022 is to assess the progress the utility made over the three-year plan cycle and whether the utility matured in its understanding of its own wildfire ignition risks and appropriate mitigations to decrease those risks.

This section also requires utilities to provide several 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.

See Section 4.6.7, "Data Governance," for a detailed review of the utility's progress and areas for continued improvement in this topic area.

4.6 Mitigation Initiatives and Maturity Evaluation

The mitigation initiatives and maturity evaluation section of the Guidelines[23] requires the utility to describe in its WMP Update each mitigation initiative it will undertake to reduce the risk of catastrophic wildfire. The Guidelines require the utility to self-report its current wildfire

[22] Objectives are unique to each utility and reflect the 1-, 3-, and 10-year projections of progress toward the WMP goal.

[23] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7 pp. 70-77 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

risk mitigation capabilities and plans for improvement in those capabilities.[24,25] The utility's self-reported capability level is referred to in this Decision as "maturity" and measured by Energy Safety's Utility Wildfire Mitigation Maturity Model (Maturity Model). Maturity levels range from zero to four, with four being the most mature. The utility reports on its maturity levels and mitigation initiatives using the same 10 categories, allowing Energy Safety to evaluate a utility's reported and projected maturity in wildfire mitigation in the context of its corresponding current and planned initiatives. The 10 maturity and mitigation initiative categories are listed below, with further details in Appendix D:

- Risk assessment and mapping
- Situational awareness and forecasting
- Grid design and system hardening
- Asset management and inspections
- Vegetation management and inspections
- Grid operations and operating protocols
- Data governance
- Resource allocation methodology
- Emergency planning and preparedness
- Stakeholder cooperation and community engagement

[24] The 2020 WMP Guidelines introduced the Utility Wildfire Mitigation Maturity Assessment as one of the four "key elements of the 2020 WMP submission and review process" (accessed April 29, 2022): https://energysafety.ca.gov/wp-content/uploads/docs/misc/docket/322133494.pdf.
The 2022 WMP Guidelines further defines the assessment process in Attachment 4: 2022 Maturity Model (accessed April 29, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true. From that document (p. 3): "Energy Safety requires each utility to complete an annual Maturity Survey to report on its current capabilities and plans for improvement in those capabilities."

[25] Utilities that submitted a WMP were required to complete a survey (the Maturity Survey) in which they answered specific questions that assessed their existing and future wildfire mitigation practices across 52 capabilities at the time of submission and at the end of the three-year plan horizon. The 52 capabilities are mapped to the same 10 categories identified for mitigation initiatives. The most recent survey for each utility can be found on the Energy Safety website here: https://energysafety.ca.gov/what-we-do/electrical-infrastructure-safety/wildfire-mitigation-and-safety/wildfire-mitigation-plans/2022-wmp/ (accessed February 15, 2022).

Below, Energy Safety evaluates TBC's initiatives across the 10 categories in terms of the utility's Maturity Survey responses. Energy Safety discusses the utility's maturity progress for each category within the relevant wildfire mitigation initiative section.

4.6.1 Risk Assessment and Mapping

The risk assessment and mapping section of the Guidelines[26] requires the utility to discuss the risk assessment and mapping initiatives implemented to minimize the risk of utility-related ignitions. Utilities must describe initiatives related to equipment maps and modeling of overall wildfire risk, ignition probability, wildfire consequence, risk reduction impact, match-drop simulations,[27] and climate/weather-driven risks.

The parameters of risk assessment (discussed here) and resource allocation (discussed later in Section 4.6.8) to reduce wildfire risk derive from the CPUC's Risk-Based Decision-Making Framework (formerly S-MAP) and RAMP proceedings.[28]

The utility's risk modeling should ultimately inform the utility of the highest risk areas in order to inform its decision-making processes, along with the risk-spend efficiency (RSE) analyses discussed in Section 4.6.8.

4.6.1.1 Maturity Assessment

According to its responses to the 2022 Maturity Survey, TBC's maturity level in risk assessment and mapping remained relatively stagnant from 2021 to 2022, as seen in Figure 4.6.1-1 below. TBC increased its maturity level for one response, relating to algorithm

[26] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 p. 74 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

[27] Simulations of the potential wildfire consequences of ignitions that occur along electric lines and equipment effectively showing the potential consequences if an ignition or "match was dropped" at a specific point in a utility's territory.

[28] The risk-based decision-making framework was adopted in the CPUC's D. 18-12-014 and refined in D. 21-11-009. An open CPUC proceeding R. 20-07-013 is addressing further developments to the risk-based decision-making framework. See the docket for this proceeding here: https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R2007013 (accessed February 16, 2022).

updates now being independently evaluated by experts.[29] TBC also reported that it no longer anticipates increasing its maturity for the following:

- TBC no longer projects including monetary damages, impact on air quality, and greenhouse gas reduction goals as metrics for consequence of ignition risk.[30]
- TBC no longer projects including up-to-date moisture content and local weather impacts as inputs for estimating impact of ignition risk.[31]
- TBC no longer projects that its ignition risk reduction impact assessment tool and mechanism for updating algorithms will become automated (both were originally projected to reach greater than 50 percent automation by January 1, 2023). [32]

Given TBC's limited footprint, including the size and scale of operations, as well as present risks, TBC no longer finds the need to increase maturity in these specific areas.[33] Energy Safety finds this logical and sufficient.

[29]Trans Bay Cable's 2022 Utility Wildfire Mitigation Maturity Survey, response to A.V.d.

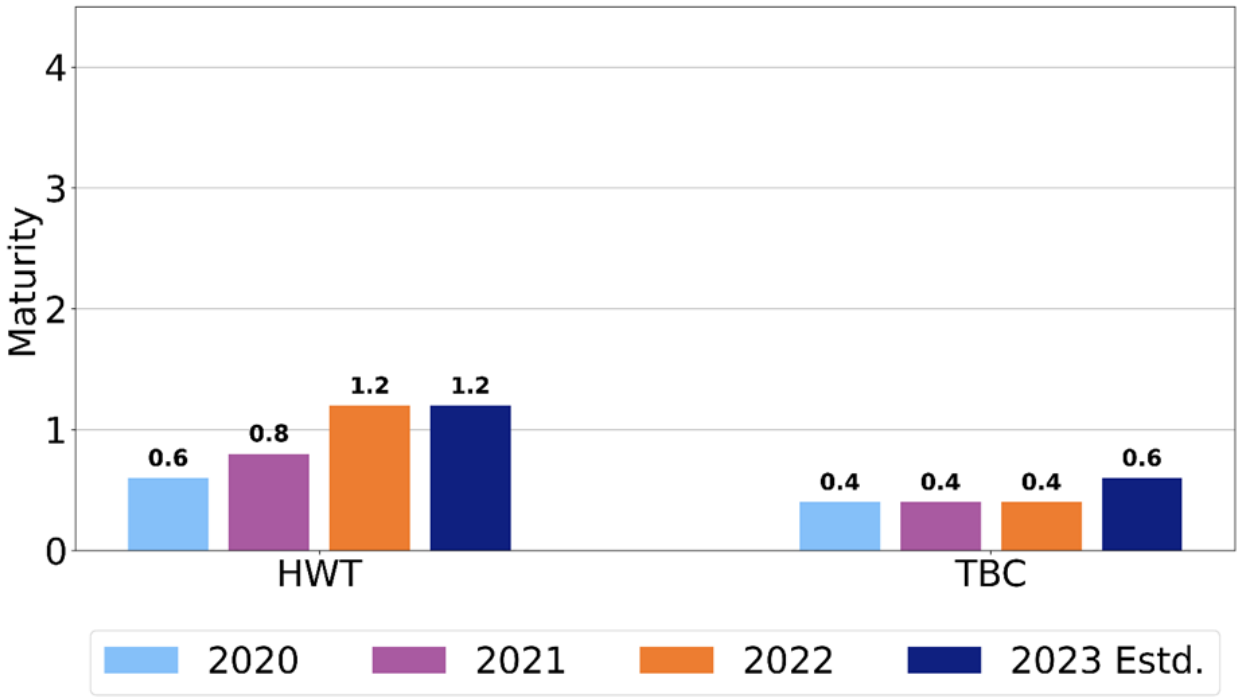
[30] Trans Bay Cable's 2022 Utility Wildfire Mitigation Maturity Survey, response to A.III.b.

[31] Trans Bay Cable's 2022 Utility Wildfire Mitigation Maturity Survey, response to A.III.g.

[32] Trans Bay Cable's 2022 Utility Wildfire Mitigation Maturity Survey, response to A.IV.b and A.V.b.

[33] Data Request OEIS-TBC-22-003, Question 1.

Figure 4.6.1-1: Independent Transmission Operator (ITO) Maturity Levels for Risk Assessment and Mapping (2020-2022 Actual, 2023 Estimated)



4.6.1.2 TBC Progress

TBC is a transmission-only independent transmission operator (ITO) with most of its facilities underwater or inside a substation. Therefore, it has minimal wildfire risk. TBC currently conducts Failure Mode and Effects Analysis (FMEA) to analyze risk throughout its system, including wildfire risk. FMEA procedures are updated annually to include initiatives and new technologies discussed throughout its 2022 Update. As discussed in Energy Safety's 2021 WMP Action Statement, TBC engaged a third party to do a wildfire mitigation assessment of its facilities in 2020, with a second level of review conducted in Q1 2022. TBC has satisfactorily documented its risk assessment and mapping practices.

4.6.1.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the risk assessment and modeling section of its 2022 Update.

4.6.2 Situational Awareness and Forecasting

A strong weather monitoring and situational awareness system is an essential ignition risk reduction strategy: it mobilizes a utility's response to potentially dangerous fire weather

conditions and informs its decisions on PSPS implementation, grid design, and system hardening. It is also one of the least expensive risk reduction strategies.

The situational awareness and forecasting section of the Guidelines[34] requires the utility 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 utility 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 Guidelines refer to key situational awareness measures, including:

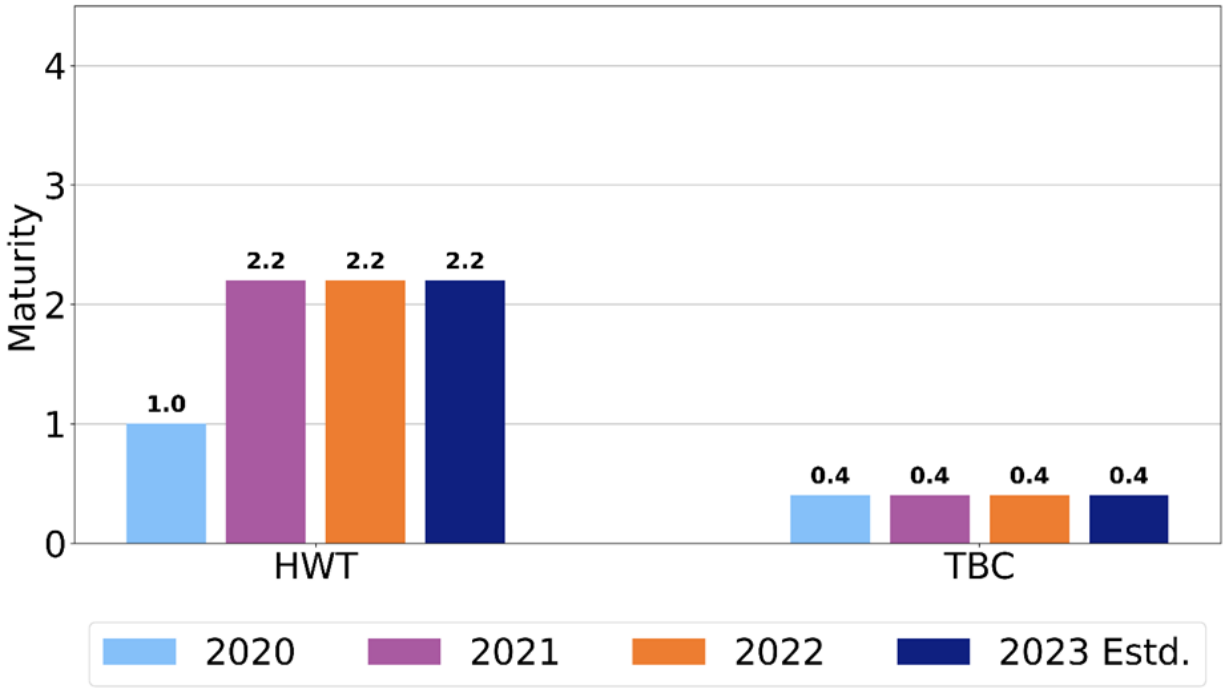
- Installation of advanced weather monitoring and weather stations that collect data on weather conditions so as to develop weather forecasts and predict where ignition and wildfire spread are likely
- Installation of high-definition cameras throughout a utility's service territory, with the ability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

4.6.2.1 Maturity Assessment

TBC is a transmission-only ITO with no distribution or end-use customers. The majority of its facilities are underwater or inside a substation fence. TBC's maturity level has remained the same in the situational awareness and forecasting category throughout the current WMP cycle (Figure 4.6.2-1). According to its responses in the 2022 Maturity Survey, TBC's maturity level is lower than that of its peer ITO Horizon West Transmission (HWT) due to its lack of weather data collection and monitoring.

[34] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 p. 74 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

Figure 4.6.2-1: ITO Maturity Levels for Situational Awareness and Forecasting (2020-2022 Actual, 2023 Estimated)



4.6.2.2 TBC Progress

TBC has made the following progress thus far in the current WMP cycle:

- TBC implemented continuous monitoring sensors to monitor the transmission cable for physical vibration, temperature, and abnormal electrical discharge at the cable terminations. TBC reports this could provide situational awareness of disturbances, faults, or potential cable failure.
- TBC implemented a transformer monitoring system that provides a real-time oil analysis to detect and prevent internal faults on transformers. The system also monitors transformer bushings to detect degradation that could lead to failure. TBC reports this could provide predictive data on transformer health and potential transformer failures prior to an ignition.
- TBC implemented a transformer oil control system. This system allows station personnel to assess oil flow and allows for more accurate preventative maintenance of transformers.

- Prior to its WMP 2023, TBC plans to follow through on two recommendations from the third party it engaged in 2020 to do a wildfire mitigation assessment of its Pittsburg substation:
    - Installation of a suppression system to compliment the fire detection system in the spare parts building at the substation
    - Removal of the compressed gas cylinders from the spare parts building and construction of a protected housing for them outside the spare parts building

4.6.2.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the situational awareness and forecasting section of its 2022 Update.

4.6.2.4 Additional Observation

In addition to the points noted above, Energy Safety has the following observation:

TBC continues to be low in maturity compared to HWT due to its lack of weather data collection and monitoring. As TBC develops its maturity in this category, it should continue to evaluate and consider whether installation of a weather station to monitor weather conditions and collect data for situational awareness and forecasting is appropriate.

4.6.3 Grid Design and System Hardening

The grid design and system hardening section of the Guidelines[35] examines how the utility is designing its system to reduce ignition risk and what it is doing to strengthen its distribution, transmission, and substation infrastructure to prevent utility-related ignitions resulting in catastrophic wildfires. This section also requires discussion of routine and non-routine maintenance programs, including whether the utility replaces or upgrades infrastructure proactively rather than running facilities to failure. Programs in this category, which are often 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

[35] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 pp. 74–75 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

lines, and pole replacement programs. The utility is required, at a minimum, to discuss grid design and system hardening in each of the following areas:

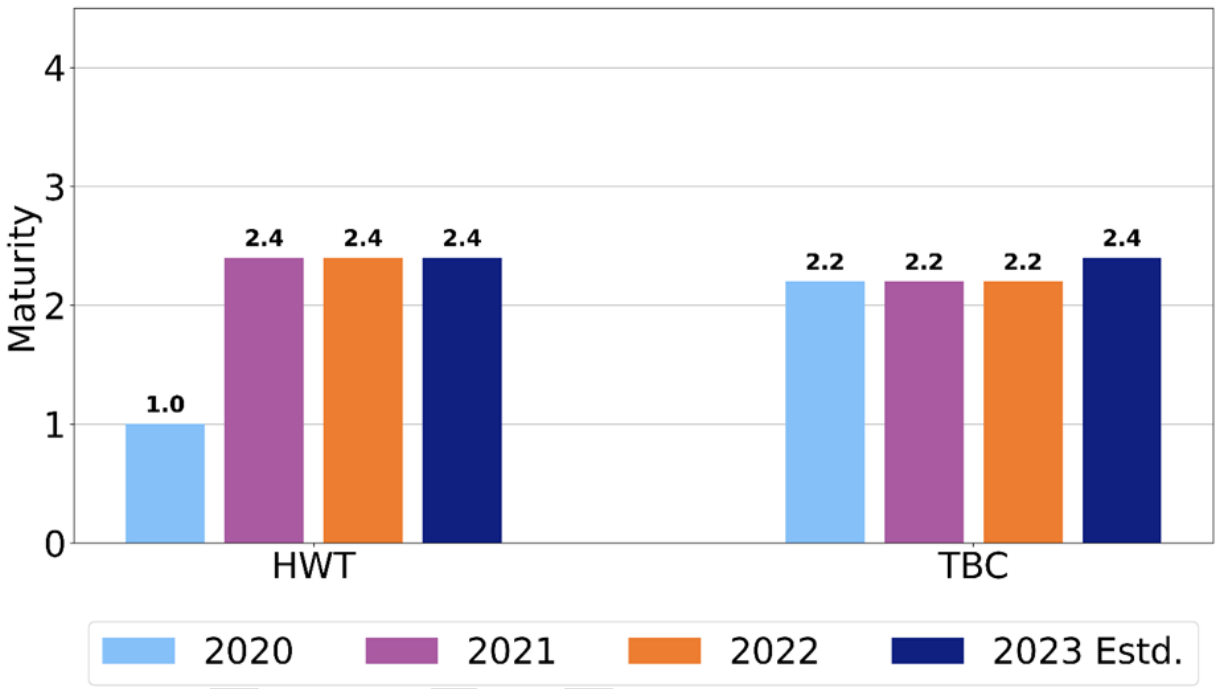
- Capacitor maintenance and replacement
- Circuit breaker maintenance and installation to de-energize lines upon detecting a fault
- Covered conductor installation
- Covered conductor maintenance
- Crossarm maintenance, repair, and replacement
- Distribution pole replacement and reinforcement, including with composite poles
- Expulsion fuse replacement
- Grid topology improvements to mitigate or reduce PSPS events
- Installation of system automation equipment
- Maintenance, repair, and replacement of connectors, including hotline clamps
- Mitigation of impact on customers and other residents affected during PSPS events
- Other corrective action
- Pole loading infrastructure hardening and replacement program based on pole loading assessment program
- Transformer maintenance and replacement
- Transmission tower maintenance and replacement
- Undergrounding of electric lines and equipment
- Updates to grid topology to minimize risk of ignition in the HFTD
- Other areas if an initiative cannot feasibly be classified within those listed above

4.6.3.1 Maturity Assessment

According to its responses to the 2022 Maturity Survey, TBC's overall maturity levels remained stagnant in grid design and system hardening throughout the current WMP cycle, as seen in Figure 4.6.3-1 below. From 2021 to 2022, TBC progressed in the following responses:

- TBC added egress as an input to grid topology design.[36]
- TBC shares information regarding pilot and commercial deployments with other utilities, although partners are limited, while previously TBC did not share this information with partners.[37]

Figure 4.6.3-1: ITO Maturity Levels for Grid Design and System Hardening (2020-2022 Actual, 2023 Estimated)



4.6.3.2 TBC Progress

Energy Safety finds that TBC has sufficiently and satisfactorily documented its grid design and system hardening. Given the primarily undergrounded nature of TBC's facilities, most hardening initiatives suggested by the WMP Guidelines do not apply to TBC's facilities. Hardening initiatives are limited to the above-ground substation. TBC's existing above-

[36] Trans Bay Cable's 2022 Utility Mitigation Maturity Survey, response to C.III.d.

[37] Trans Bay Cable's 2022 Utility Mitigation Maturity Survey, response to question C.V.b "Are results of pilot and commercial deployments, including project performance, project cost, geography, climate, vegetation etc. shared in sufficient detail to inform decision making at other utilities?" under the capability "grid design and asset innovation."

ground air-insulated conductoring and bus-work are all within TBC's converter stations with concrete perimeter walls, motion sensors, and fire suppression equipment. TBC has made the following progress in this category in the current WMP cycle:

- TBC is transitioning its Pittsburg substation to SF6-free gas-insulated technology, which reduces the reliance on air-insulated conductoring and bus-work, thereby reducing risk of ignitions from contact.
- TBC installed protective systems that work within microseconds in the event of a fault, as well as 24-hour system operator oversight with manual shutdown power.
- In 2021, TBC completed seismic improvements to its transformers, including installation of base isolators, which decrease the risk of transformer fires during a seismic event.

4.6.3.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the grid design and system hardening section of its 2022 Update.

4.6.4 Asset Management and Inspections

The asset management and inspections section of the Guidelines[38] requires the utility to discuss power line and infrastructure inspections for distribution and transmission assets within the HFTD, including infrared, light detection and ranging (LiDAR), substation, patrol, and detailed inspections designed to minimize the risk of its facilities or equipment causing wildfires. The utility must describe its protocols relating to maintenance of any electric lines or equipment that could, directly or indirectly, relate to wildfire ignition. The utility must also describe how it ensures inspections are done properly through a program of quality control.

4.6.4.1 Maturity Assessment

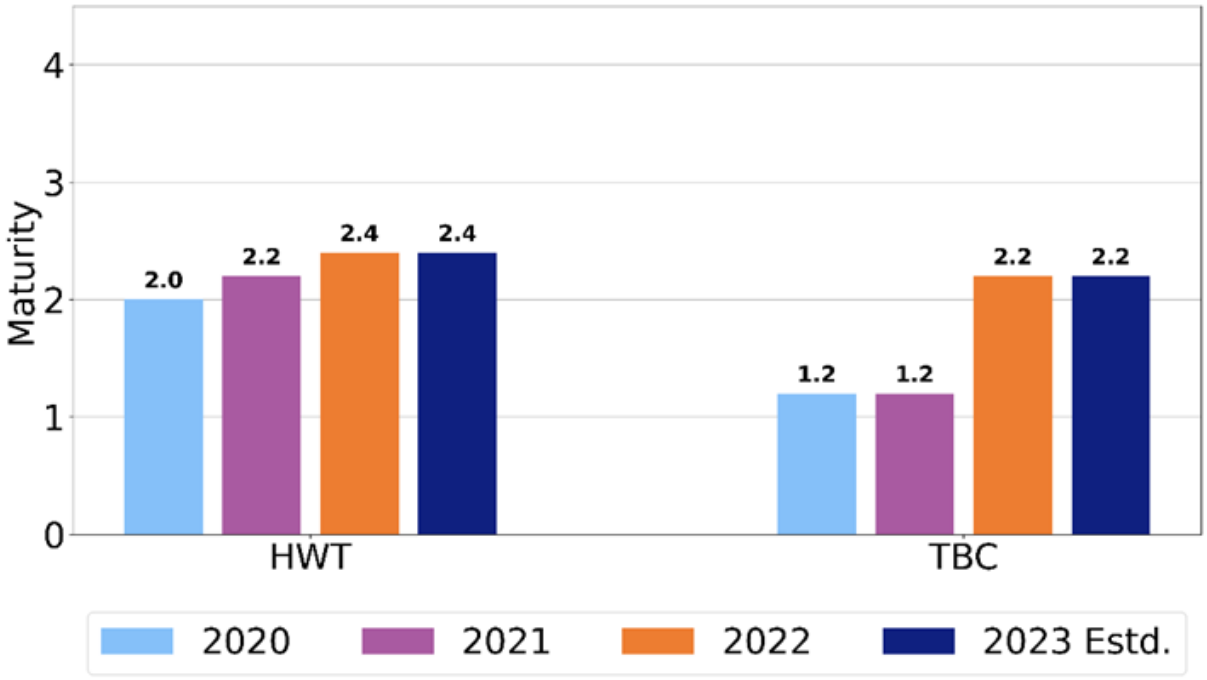
According to its responses to the 2022 Maturity Survey, TBC's maturity levels increased from 2021 to 2022 in asset management and inspections. This is the first increase during the current WMP cycle (Figure 4.6.4-1) for this category. It is due to TBC implementing continuous

[38] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 p. 75 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

monitoring sensors in 2022,[39] as discussed in Section 4.6.2, "Situational Awareness and Forecasting."

TBC now takes performance history and past operating conditions into account when performing maintenance and repairs.[40] Furthermore, TBC increased its maturity level in four questions relating to continuous monitoring sensors, as discussed above.

Figure 4.6.4-1: ITO Maturity Levels for Asset Management and Inspections (2020-2022 Actual, 2023 Estimated)



4.6.4.2 TBC Progress

TBC has not made any changes to its asset management and inspection practices since its 2021 Update. However, Energy Safety finds that TBC has sufficiently and satisfactorily documented its asset management and inspections. TBC has made the following progress thus far in the current WMP cycle:

[39] Trans Bay Cable's 2022 Utility Wildfire Mitigation Maturity Survey, responses to D.I.c, D.II.c, D.II.f, and D.II.i.

[40] Trans Bay Cable's 2022 Utility Wildfire Mitigation Maturity Survey, response to D.IV.c.

- TBC performs weekly inspections to check its fire suppression system and high-voltage equipment. TBC also performs monthly inspections to check cable integrity.
- TBC implemented continuous monitoring sensors to help track and monitor asset health, as discussed in Section 4.6.2, "Situational Awareness and Forecasting."

4.6.4.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the asset management and inspections section of its 2022 Update.

4.6.5 Vegetation Management and Inspections

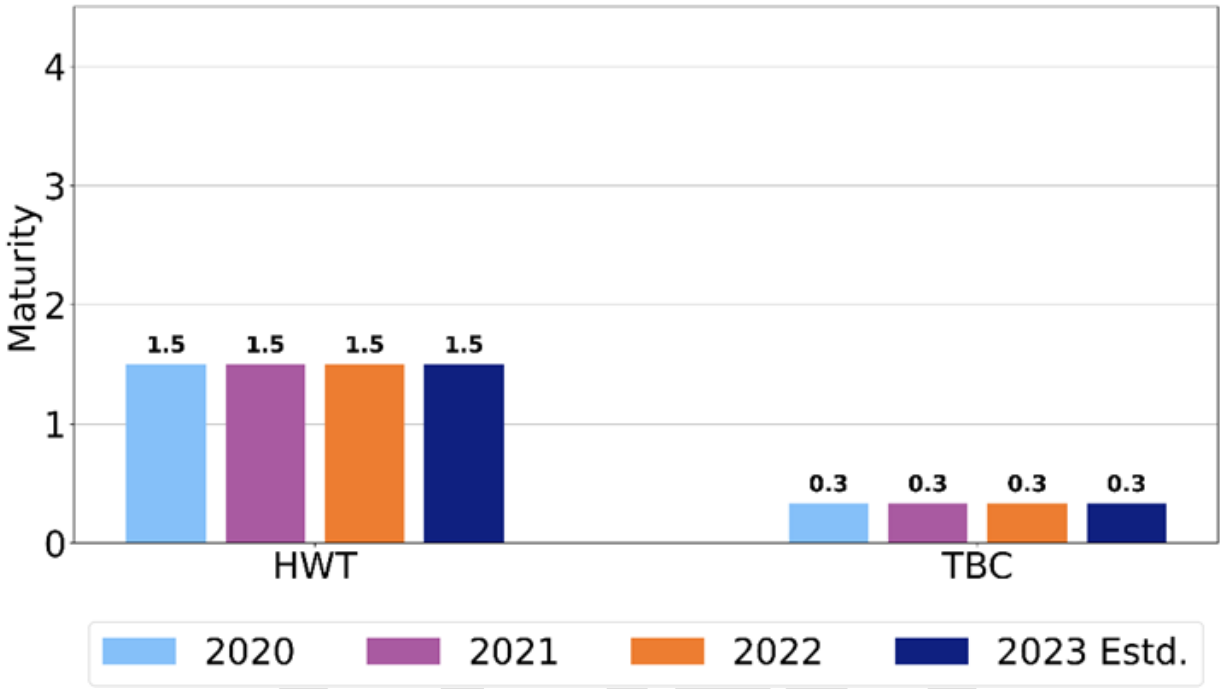
The vegetation management and inspections section of the Guidelines[41] requires utilities to discuss vegetation management inspections. The discussion must include inspections that go beyond existing regulation, as well as remote sensing inspections, and patrol inspections of vegetation around distribution and transmission lines and equipment. Utilities must also discuss quality control of those inspections and limitations on the availability of workers. In addition, they must discuss collaborative efforts with local land managers, including efforts to maximize benefit from fuel treatment activities and fire break creation as well as the collaborative development of methods for identifying "at-risk" vegetation, determining trim clearances beyond minimum regulations, and identifying and mitigating impacts from tree trimming and removal (e.g., erosion, flooding).

4.6.5.1 Maturity Assessment

TBC's maturity level in vegetation management and inspections has remained the same (0.3) since 2020 (Figure 4.6.5-1).

[41] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 pp. 75–76 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

Figure 4.6.5-1: ITO Maturity Levels for Vegetation Management and Inspections (2020–2022, 2023 Estimated)



1.1.1.1 TBC Progress

TBC's facilities are in an urban/industrial environment, and its transmission facilities are either buried or submerged beneath the San Francisco Bay. At its above-ground converter stations, TBC abates vegetative fuels as part of landscape maintenance.[42]

Considering TBC's facilities rarely (if ever) have an opportunity to come into contact with vegetation, it may not be prudent for TBC to increase its maturity level for vegetation management and inspections. A maturity increase in those areas may not reduce risk and might detract from other, more prudent actions designed to reduce TBC's risk such as equipment failure risk mitigation.

Energy Safety finds that TBC has sufficiently and satisfactorily documented its vegetation management practices and protocols.

[42] TBC's 2022 Update, p. 66.

4.6.5.2 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the vegetation management and inspections section of its 2022 Update.

4.6.6 Grid Operations and Operating Protocols, Including PSPS

The grid operations and operating protocols section of the Guidelines[43] requires discussion of ways the utility operates its system to reduce wildfire risk. For example, disabling the reclosing function of automatic reclosers[44] during periods of high fire danger (e.g., Red Flag Warning conditions) can reduce utility ignition potential by minimizing the energy released and the duration of the release when there is a fault. This section also requires discussion of work procedures in conditions of elevated fire risk and protocols to reduce the frequency and scope of de-energization, including PSPS events (e.g., through sectionalization). Further, this section requires the utility to report whether it has stationed and/or on-call ignition prevention and suppression resources and services.

4.6.6.1 Maturity Assessment

Throughout the current WMP cycle, TBC has not improved in maturity in grid operations and operating protocols (Figure 4.6.6-1). TBC's average maturity level for this category remained largely the same from 2020 to 2022 according to its responses to the 2022 Maturity Survey. TBC's decrease in maturity in grid operations and operating protocols from 2021 to 2022 is due to its response to survey question F.V.b "How automated is the process for inspecting de-energized sections of the grid prior to re-energization?" In 2021, TBC responded (iv) "Primarily automated, minimal manual inputs," whereas in 2022 TBC responded (i) "Manual process, not automated at all."[45]

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[43] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 p. 76 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

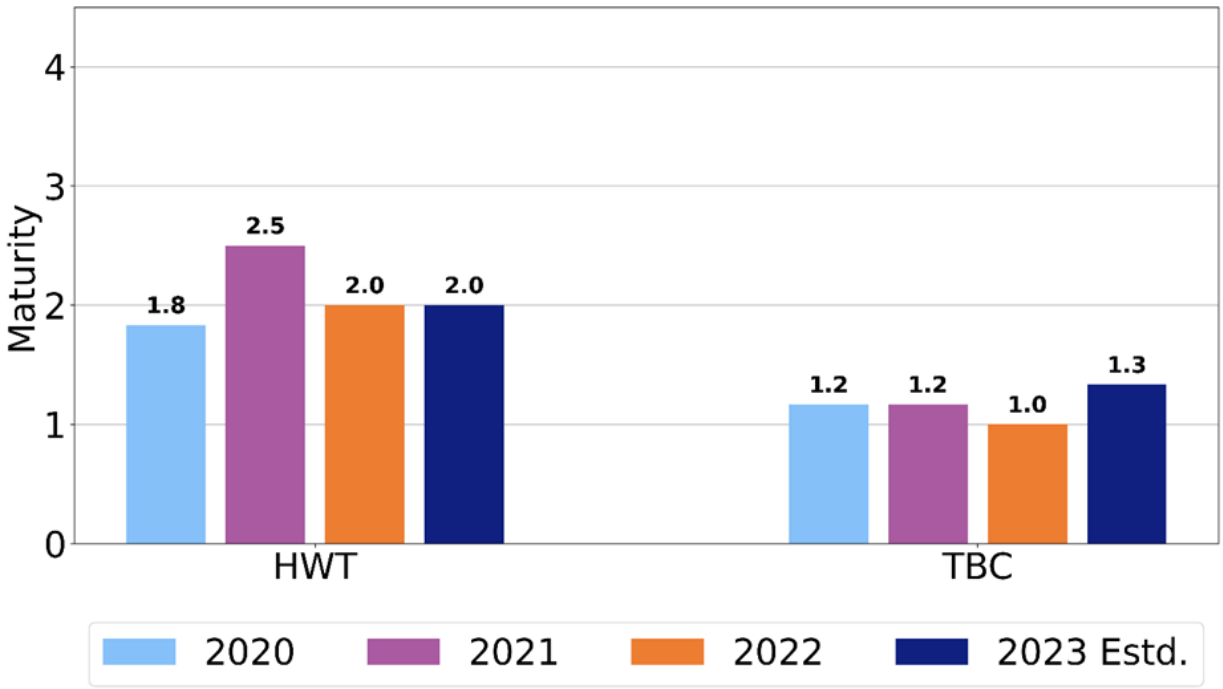
[44] A recloser is a switching device that is designed to detect and interrupt momentary fault conditions. The device can reclose automatically and reopen if a fault condition is still detected. However, if a recloser closes a circuit that poses the risk of ignition, wildfire may be the result. For that reason, reclosers are disabled in certain high fire risk conditions. During overcurrent situations, circuit breakers trip a switch that shuts off power to the electrical line.

[45] Trans Bay Cable's 2022 Utility Mitigation Maturity Survey, response to F.V.b.

Energy Safety sent TBC a data request on July 20, 2022, to clarify this decrease in maturity.[46] TBC responded by stating that its 2022 response was a correction to an erroneous selection in 2021. TBC clarified that it "conducts a manual process of inspecting its two substations prior to re-energization."[47]

TBC has improved in maturity based on its response to question F.II.c "Does the utility use predictive modeling to estimate the expected life and make equipment maintenance, rebuild, or replacement decisions based on grid operating history, and is that model reviewed?" It indicated in 2021 that "modeling is not used," and it indicated in 2022 that "modeling is used, but not evaluated by external experts."[48] TBC projects a slight increase in maturity in this category by 2023 (from a 1.0 in 2022 to a 1.3 by 2023).

Figure 4.6.6-1: ITO Maturity Levels for Grid Operations (2020-2022 Actual, 2023 Estimated)



[46] Data Request OEIS-TBC-22-004.

[47] TBC's response to Data Request OEIS-TBC-22-004, p. 1.

[48] Trans Bay Cable's 2022 Utility Mitigation Maturity Survey, response to F.II.c.

4.6.6.2 TBC Progress

Given the primarily underground and underwater nature of TBC's facilities, TBC has demonstrated sufficient grid operations and operating protocols relating to wildfire risk and fire suppression. TBC maintains an Emergency Operations Plan and Emergency Action Plan in the event a fire-related emergency occurs. TBC does not use any automatic reclosers. Therefore, it does not have any applicable changes to sensitivity settings for protective devices.

TBC has made the following progress thus far in the current WMP cycle:

- In 2021, TBC reports that it completed a walk-through with the local fire department. This included notifying the department of the availability and location of TBC's new Class B fire foam trailer and site map, as well as of the location of oil-containing assets. The foam trailer was brought in at the start of 2021 to address potential transformer failures.
    - Energy Safety encourages continued engagement with the Pittsburg Fire Department and regular walk-throughs to maintain shared knowledge of TBC's facilities and foam trailer location and capabilities.
- In Q1 2022, a third-party review of the substation recommended implementing a suppression system in TBC's spare parts building, as well as moving gas cylinders outdoors and constructing protective housing around them. TBC is in the process of taking action in response to these recommendations.

4.6.6.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the grid operations and operating protocols section of its 2022 Update.

4.6.7 Data Governance

The data governance section of the Guidelines[49] requires the utility to report information on its initiatives to create a centralized wildfire-related data repository, conduct collaborative

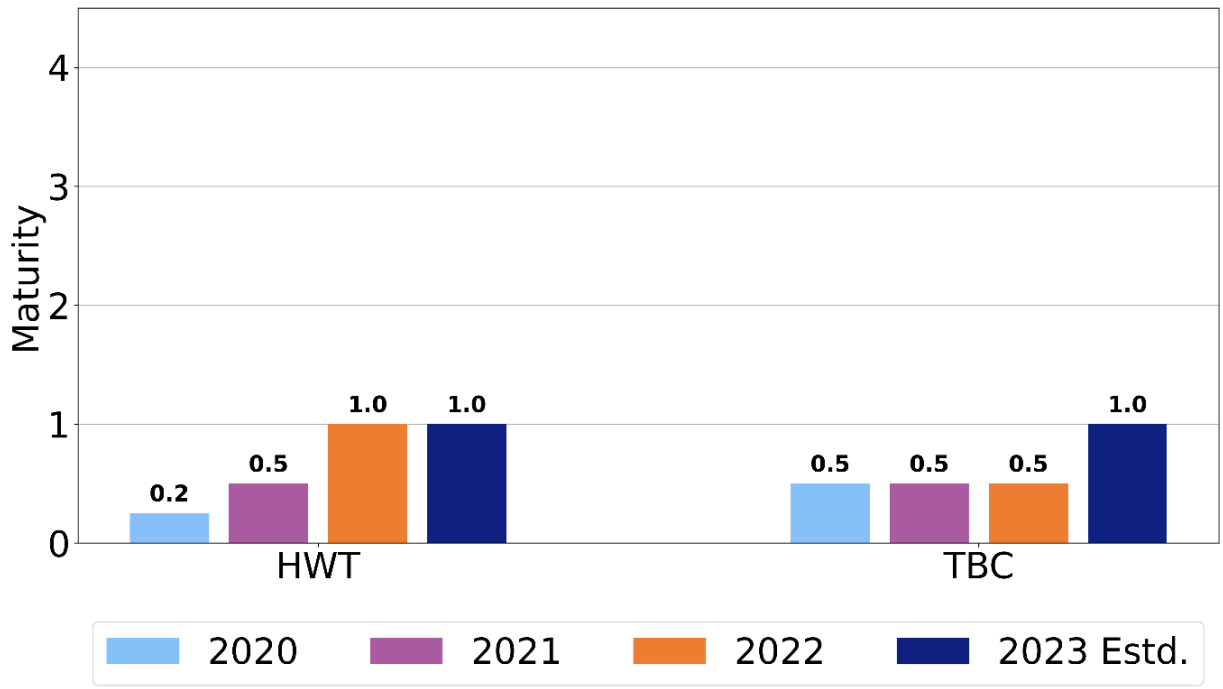
[49] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 pp. 76–77 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

research on utility ignition and wildfire, document and share wildfire-related data and algorithms, and track and analyze near-miss data.

4.6.7.1 Maturity Assessment

In its responses to the 2022 Maturity Survey, TBC reported low maturity, unchanged over the current WMP cycle (Figure 4.6.7-1). TBC projects a small increase in maturity by the end of the cycle. It attributes this to two specific capabilities: development of a centralized database and use of advanced analytics. In previous years, TBC reported planned increases in some additional data governance capabilities. It now reports that these capabilities will not increase. Because of the scope of its operations, and the resulting lack of large volumes of data to be managed, Energy Safety finds this logical and sufficient.

Figure 4.6.7-1: ITO Maturity Levels for Data Governance (2020-2022 Actual, 2023 Estimated)



4.6.7.2 TBC Progress

TBC has made no progress and has no initiatives for data governance. Because of the scope of its operations, and the resulting lack of large volumes of data to be managed, Energy Safety finds this logical and sufficient.

4.6.7.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the data governance section of its 2022 Update.

4.6.8 Resource Allocation Methodology

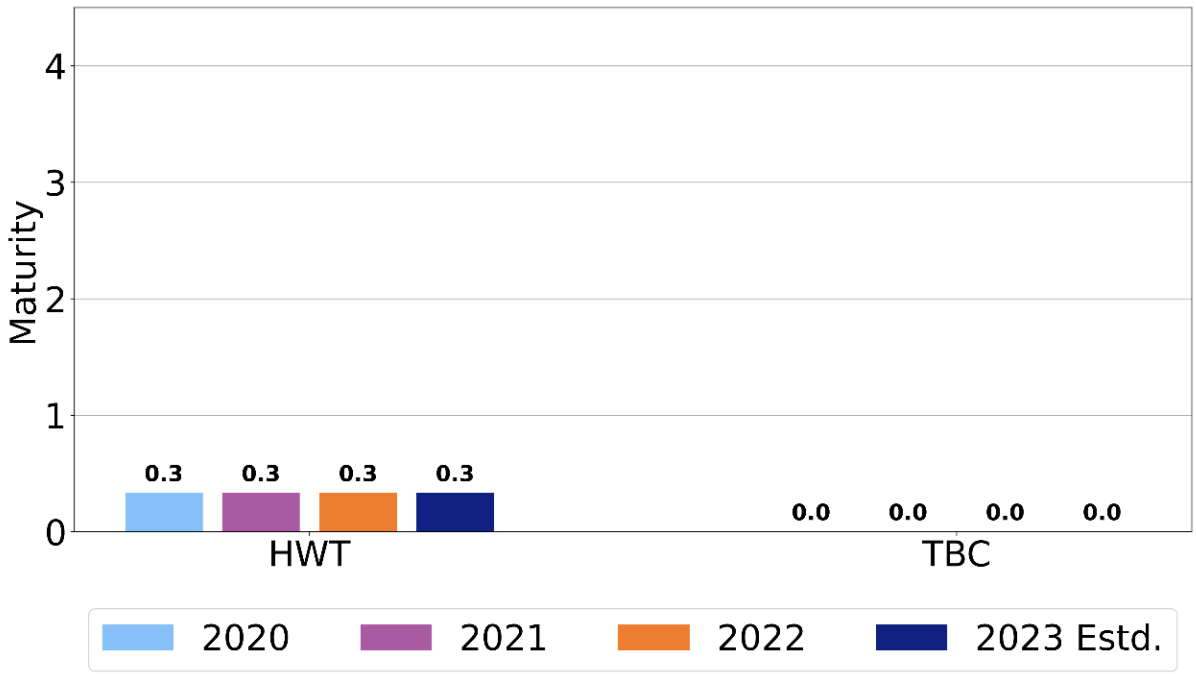
The resource allocation methodology section of the Guidelines[50] requires the utility to describe its methodology for prioritizing programs by cost effectiveness. Utilities must discuss their risk reduction scenario analysis and provide a risk-spend efficiency (RSE) analysis for each aspect of the plan.

4.6.8.1 Maturity Assessment

TBC has exhibited a maturity level of zero in the resource allocation methodology category throughout the current WMP cycle (Figure 4.6.8-1). Because of TBC's reduced wildfire risk (due to the reported significant hardening of its infrastructure, the limited scale of its operational scope, and its mostly underground facilities), TBC does not maintain resource allocation specifically for wildfire mitigation. Therefore, it is appropriate for TBC to have a maturity level of zero.

Figure 4.6.8-1: ITO Maturity Levels for Resource Allocation Methodology (2020-2022 Actual, 2023 Estimated)

[50] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 p. 77 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.



4.6.8.2 TBC Progress

The objectives of TBC's resource allocation strategy are focused on preventing and detecting wildfire ignition risks and enabling prompt emergency response at TBC facilities. Since its 2021 Update, there has been no change to TBC's resource allocation methodology.[51] Energy Safety finds that TBC has satisfactorily documented its resource allocation methodology practices and finds this portion of TBC's 2022 Update to be sufficient. TBC must address any changes in its resource allocation practices or capabilities in its 2023 WMP.

4.6.8.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the resource allocation methodology section of its 2022 Update.

[51] TBC's 2022 Update, p. 67.

4.6.9 Emergency Planning and Preparedness

The emergency planning and preparedness section of the Guidelines[52] requires the utility to provide a general description of its overall emergency preparedness and response plan, including a discussion of how the plan is consistent with legal requirements for customer support before, during, and after a wildfire. This discussion must cover support for low-income customers, billing adjustments, deposit waivers, extended payment plans, suspension of disconnection and nonpayment fees, and repairs. The utility is also required to describe emergency communications before, during, and after a wildfire in languages deemed prevalent in its territory (Decision 19-05-036, supplemented by Decision 20-03-004),[53] and other languages required by the CPUC.

This section of the Guidelines also requires discussion of the utility'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 utility has an adequately sized and trained workforce to promptly restore service after a major event.

4.6.9.1 Maturity Assessment

TBC's maturity in the emergency planning and preparedness category has remained largely at the same level across the current WMP cycle according to its responses to the 2022 Maturity Survey (Figure 4.6.9-1). From 2021 to 2022, TBC reports a slight decrease in emergency planning and preparedness maturity (from a 1.2 to a 1.0). This decrease in maturity is due to TBC's responses to five survey questions: I.III.a "Does the utility provide clear and substantially complete communication of available information relevant to affected customers?"; I.III.b "Does the utility provide clear and substantially complete communication of available information relevant to affected customers?"; I.III.c "Does the utility provide clear and substantially complete communication of available information relevant to affected customers?"; I.V.e "Does the utility provide clear and substantially

[52] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 p. 77 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

[53] A language is prevalent if it is spoken by 1,000 or more persons in the utility's territory or if it is spoken by 5 percent or more of the population within a "public safety answering point" in the utility territory. See California Government Code section 53112 for more information.

complete communication of available information relevant to affected customers?"; and I.V.i "Does the utility provide clear and substantially complete communication of available information relevant to affected customers?"

Energy Safety sent TBC a data request on July 20, 2022, to clarify this decrease in maturity.[54] TBC clarified for survey questions I.III.a—I.III.b that TBC "does not have any retail or distribution customers. As such many of the questions in this survey are not specifically applicable to Trans Bay."[55] TBC also stated that "in lieu of 'Not Applicable' being available as a response, the most appropriate response available was selected."[56] Related to survey question I.V.e, TBC similarly stated that given its lack of distribution and retail customers, as well as minimal ratepayer impact, "making feedback and recommendations public does not materially advance TBC's wildfire risk reduction and management."[57] Related to survey question I.V.i, TBC clarified that given the majority of its facilities being underground or submerged, its fire prevention needs are different from traditional utilities with overhead lines, although TBC does informally review and monitor the experience of its peer ITO Horizon West Transmission (HWT) as part of its overall safety risk monitoring and management.[58]

Despite this slight decrease in maturity, TBC still reports a maturity level in this category comparable to HWT and projects a maturity increase in 2023.

[54] Data Request OEIS-TBC-22-004.

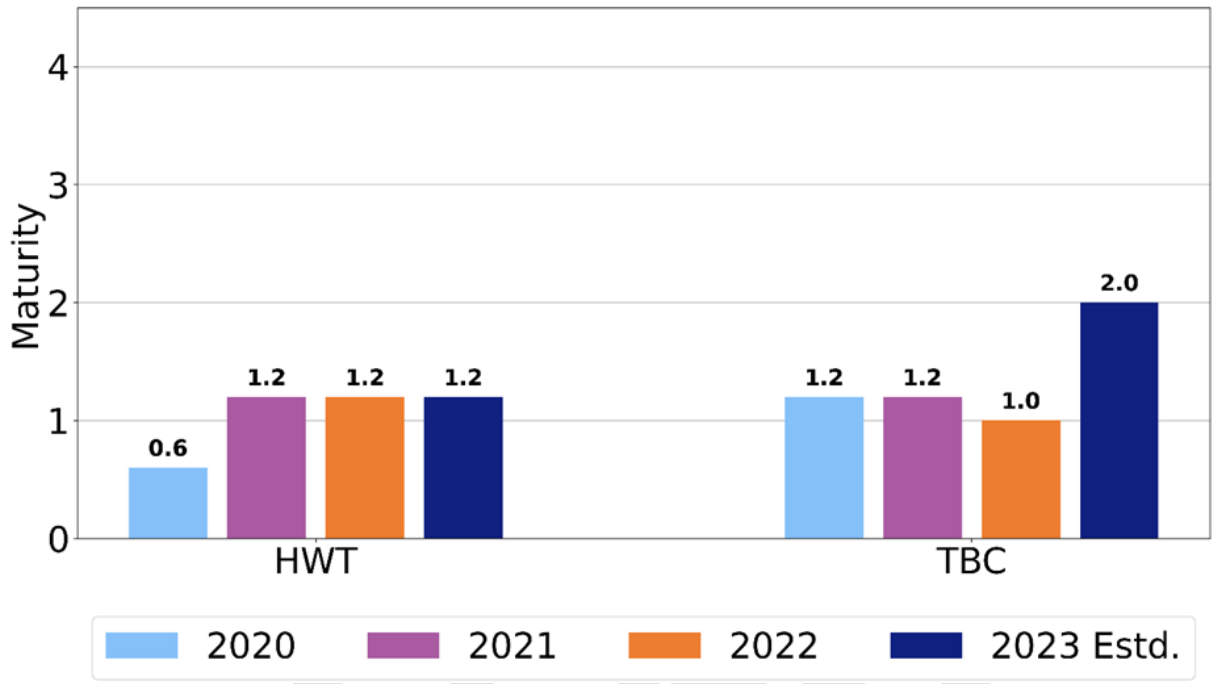
[55] Data Request OEIS-TBC-22-004.

[56] Data Request OEIS-TBC-22-004, pp. 2-3.

[57] Data Request OEIS-TBC-22-004, p. 3.

[58] Data Request OEIS-TBC-22-004.

Figure 4.6.9-1: ITO Maturity Levels for Emergency Planning (2020-2022 Actual, 2023 Estimated)



4.6.9.2 TBC Progress

In Energy Safety's Action Statement on TBC's 2021 Update, Energy Safety identified one issue and corresponding remedy in this category for TBC to address in its 2022 Update.[59] In 2021, TBC reported a maturity increase in emergency planning and preparedness, despite having no active initiatives and no expenditures for the current WMP cycle for this category. In its 2022 Update, TBC responded by providing information on improvements made to emergency preparedness. These improvements include purchasing on-site suppression resources, engaging with a local fire department, and implementing an annual Failure Modes and Effects Analysis to "review failure modes of equipment with potential to instigate a fire, assess controls, and opportunities for risk reduction."[60] Energy Safety finds that TBC's response addresses the issue and corresponding remedy.

[59] Energy Safety's Action Statement on Trans Bay Cable's 2021 WMP Update, pp. 24–25.

[60] TBC 2022 Update, pp. 43–44.

Besides responding to the 2021 issue described above, TBC reports no changes to its emergency planning and preparedness practices. TBC has demonstrated sufficient emergency planning and preparedness practices. While TBC does not have a defined service area or distribution customers, it maintains an Emergency Operations Plan and an Emergency Action Plan in the event of a fire-related emergency. TBC also coordinates its preparedness planning and response with the California Independent System Operator (CAISO), PG&E, and local emergency service providers.

4.6.9.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the emergency planning and preparedness section of its 2022 Update.

4.6.10 Stakeholder Cooperation and Community Engagement

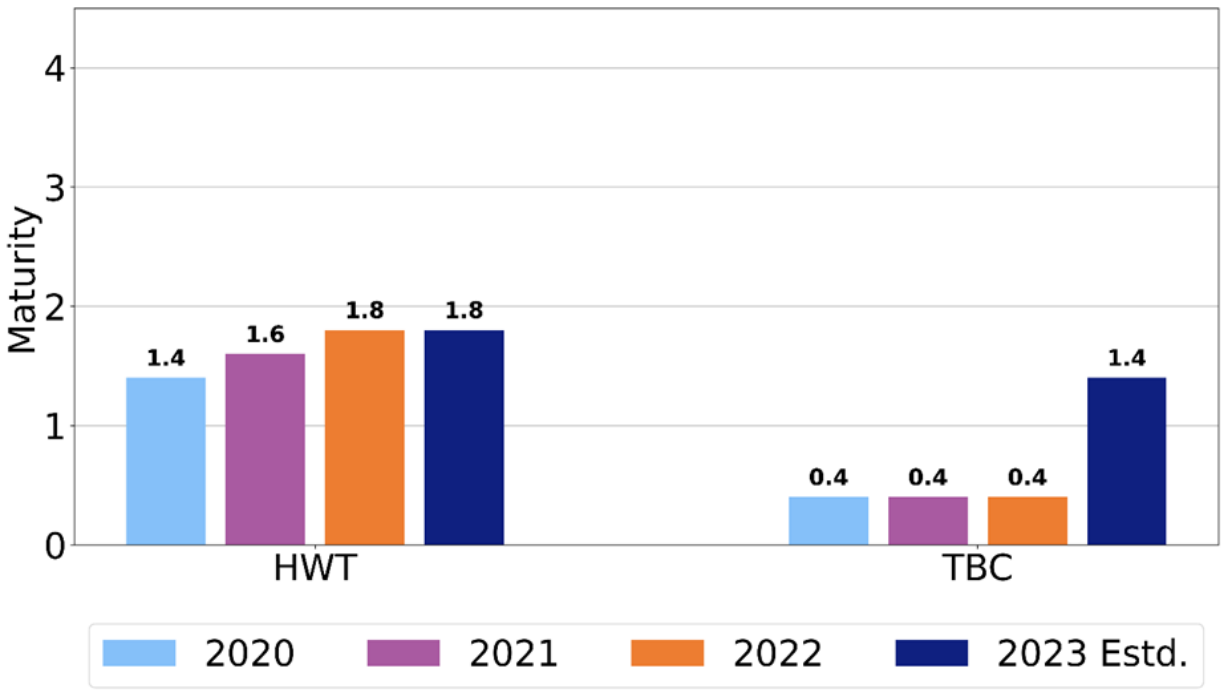
The stakeholder cooperation and community engagement section in the Guidelines[61] requires the utility to report on the extent to which it will engage the communities it serves. This engagement includes cooperating and sharing best practices with community members, agencies outside California, fire suppression agencies, the U.S. Forest Service, and others engaged in vegetation management or fuel reduction.

4.6.10.1 Maturity Assessment

TBC's maturity in the stakeholder cooperation and community engagement category has remained at 0.4 throughout the current WMP cycle (Figure 4.6.10-1). TBC's peer, HWT, has a significantly higher maturity level, 1.8 in 2022. TBC does, however, project an increase to a maturity level to 1.4 in 2023.

Figure 4.6.10-1: ITO Maturity Levels for Stakeholder Cooperation (2020-2022 Actual, 2023 Estimated)

[61] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.7.3 p. 77 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.



1.1.1.2 TBC Progress

In its Action Statement on TBC's 2021 Update, Energy Safety identified one issue and corresponding remedy in stakeholder cooperation and community engagement for TBC to address in its 2022 Update.[62] In 2021, TBC reported a maturity increase in stakeholder cooperation and community engagement, despite having no active initiatives and no expenditures for the current WMP cycle for this category. In its 2022 Update, TBC responded by providing information on its stakeholder engagement activities. TBC stated that it reviews and shares best practices on fire risk reduction with its CAISO affiliates, particularly HWT, given its similar position as a transmission-only California ITO and given HWT's experiences being located within a high fire threat district (HFTD) area. TBC also stated that it maintains engagement with a local fire department through its annual inspections and site visits. Energy Safety finds TBC's response satisfies this issue and corresponding remedy.

TBC reports no changes to its stakeholder cooperation and community engagement practices. However, TBC has demonstrated sufficient stakeholder cooperation and community engagement practices. While TBC is a transmission-only ITO, and as such does

[62] Energy Safety's Action Statement on Trans Bay Cable's 2021 WMP Update, pp. 24–25.

not serve end-use customers, and does not have a traditional service territory, it does maintain communication and coordination protocols for engagement with its primary stakeholders, including the CAISO and PG&E. As noted above, TBC also reviews and shares fire risk reduction best practices and information with its affiliates and engages with its local fire department.

4.6.10.2 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the stakeholder cooperation and community engagement section of its 2022 Update.

4.7 Public Safety Power Shutoff (PSPS), Including Directional Vision for PSPS

In recent years, utilities have increasingly used Public Safety Power Shutoffs to mitigate wildfire risk. PSPS events introduce substantial risk to the public and impose a significant burden on public services that must activate during these events. Energy Safety supports the use of PSPS only as a last resort and expects the utilities to present clear plans for reducing the scale, scope, and frequency of PSPS events.

In 2021, Energy Safety separated the reporting of PSPS from the reporting of mitigations and progress metrics to reflect the definition of PSPS as a last resort rather than a mitigation option (pursuant to CPUC Guidance Resolution WSD-002 and CPUC PSPS decisions 19-05-036 and 20-03-004).[63] This section of the Guidelines[64] requires utilities to report their current and projected progress in PSPS mitigation, including lessons learned from the prior year, de-energization and re-energization protocols, PSPS outcome metrics, plans to reduce future PSPS impacts, and community engagement. The Guidelines specifically require utilities to

[63] When calculating RSE for PSPS, electrical corporations generally assume 100 percent wildfire risk mitigation and very low implementation costs because societal costs and impact are not included. When calculated this way, PSPS will always rise to the top as a wildfire mitigation tool, but it will always fail to account for its true costs to customers. Therefore, electrical corporations shall not rely on RSE calculations as a tool to justify the use of PSPS.

[64] 2022 Wildfire Mitigation Plan Guidelines Template, Attachment 2.8 pp. 78–83 (accessed March 6, 2022): https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51912&shareable=true.

address Senate Bill 533[65] requirements to identify circuits that have frequently been de-energized and provide measures for how utilities will reduce the need for, and impact of, future de-energization of those circuits.

TBC is a transmission-only ITO, with no distribution system and no distribution or end-use customers. Further, TBC indicates it is substantially hardened against wildfires. TBC's transmission infrastructure is submerged, underground, or fully contained within the confines of the two converter stations which are devoid of vegetation. TBC reports that de-energization from PG&E, whose territory surrounds TBC's, would be the sole driver of PSPS impact on the limited TBC service territory. There is no foreseeable need for TBC to issue a PSPS.

TBC had no circuits de-energized pursuant to a PSPS event in 2021. The utility reports no significant changes to its PSPS vision or implementation from its approved 2021 Update.

4.7.1 Maturity Assessment

The Maturity Model does not include a distinct PSPS category. PSPS questions in the Maturity Survey are found under capabilities in various maturity categories. There were minor changes in TBC's maturity level based on answers to questions about protocols for PSPS between 2021 and 2022. See also additional discussion in Section 4.6.6.1, "Grid Operations and Operating Protocols, Including PSPS, Maturity Assessment." Energy Safety finds this logical and sufficient.

TBC is a transmission-only ITO that does not serve end-use customers and only has control over implementing PSPS on its system, which does not impact customers with potential de-energization. TBC states that a PSPS event triggered by PG&E that impacts the PG&E Pittsburg Substation would be the prevailing driver of any PSPS impacts on TBC service

[65] Senate Bill No. 533, Chapter 244, An act to amend Section 8386 of the Public Utilities Code, relating to electricity: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB533 (accessed April 11, 2022).

territory. De-energization of the PG&E Pittsburg Substation would take TBC's transmission system offline.

4.7.2 TBC Progress

TBC does not serve end-use customers or have a traditional service territory and does not expect to need to implement a PSPS. Thus, TBC does not have key program targets related to PSPS that it intends to track over time. TBC does not anticipate engaging with vulnerable communities regarding PSPS. However, in its Emergency Operations Plan and Emergency Action Plan, TBC has a protocol for engaging with other critical stakeholders (e.g., CAISO, PG&E, local fire agencies) regarding a potential PSPS event.

Energy Safety finds that TBC has satisfactorily documented its PSPS practices and capabilities.

4.7.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for TBC under the PSPS section of its 2022 Update.

5. Next Steps

TBC is expected to continue to mature over the coming year.

5.1 Change Orders

If TBC seeks to modify (reduce, increase, or end) WMP mitigation measures in response to data and results on electrical corporation ignition risk reduction impacts, TBC must submit a Change Order Report. At a high level, the objective of the change order process is to ensure the electrical corporation continues to follow the most effective and efficient approach to mitigating its wildfire risk. This could change as new information becomes available and as the electrical corporation gains experience and measures the outcomes of its initiatives. The Change Order Report must include significant shifts in the WMP starting from the date the WMP was submitted to Energy Safety for review.

The change order process is not the appropriate forum for the utility to change underlying assumptions, nor should the utility submit a change order that negates the strategic direction of its WMP. While Energy Safety promotes continued growth in response to new information, a utility should not make significant changes to its mitigation strategy over the course of the plan year.

The change order process provides a mechanism for the electrical corporation to make adjustments based on new information and experience. The goal of this process is to ensure that utilities make significant changes to their WMPs only if the utilities demonstrate these changes to be improvements per WMP approval criteria (i.e., completeness, technical feasibility, effectiveness, and resource use efficiency). Another goal of the change order process is to maximize Energy Safety's visibility and ability to respond to changes to the approved plan as efficiently and in as streamlined a way as possible. Finally, a change order allows the utility to explain whether a change is intentional or inadvertent.

Energy Safety has released its draft Change Order Guidelines for 2022.[66]

[66] Download the Draft 2022 Change Order Guidelines: https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52638&shareable=true (accessed July 19, 2022).

6. Consultation with the Office of the State Fire Marshal

The Office of the State Fire Marshal is a CAL FIRE program. Public Utilities Code section 8386.3(a) requires Energy Safety to consult with the Office of the State Fire Marshal in reviewing electrical corporations' WMPs and WMP Updates. Energy Safety and CAL FIRE have a memorandum of understanding in place to facilitate this consultation.[67] The Office of the State Fire Marshal participated in all aspects of the evaluation, but this Decision does not purport to speak for the Office of the State Fire Marshal or CAL FIRE.

[67] Required by Public Utilities Code § 8386.5.

7. List of TBC Areas for Continued Improvement and Required Progress

Energy Safety evaluated 2022 Updates with a particular focus on how each utility is driving down the risk of utility-related ignitions. The evaluation included assessing the utility's progress implementing wildfire mitigation initiatives, evaluating the feasibility of its strategies, and measuring year-to-year trends. As a result of this evaluation, Energy Safety found no areas for continued improvement for TBC in response to its 2022 Update.

8. Conclusion

TBC's 2022 Update is approved.

Catastrophic wildfires remain a serious threat to the health and safety of Californians. Electrical corporations, including TBC, must continue to make progress toward reducing utility-related ignition risk. Energy Safety expects TBC to effectively implement its wildfire mitigation activities to reduce the risk of utility-related ignitions and the potential catastrophic consequences if an ignition occurs. TBC must meet the commitments in its 2022 Update to ensure it meaningfully reduces utility-related ignition within its service territory.

Lucy Morgans
Program Manager | Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

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APPENDICES

Appendices

Appendix A. Status of 2021 WMP Issues

Energy Safety's 2021 Update Action Statement for each utility contained a set of "issues" and associated "remedies." Each issue was categorized into one of three groups:

- *Critical issues* were those for which Energy Safety issued a Revision Notice to the utility with required remedies. The utility submitted a revised Update addressing the critical issues, and Energy Safety re-evaluated the Update with the utility's revisions. Upon that review, issues may have been downgraded to either "key areas for improvement" or "additional issues," or were fully resolved.
- *Key areas for improvement* were areas Energy Safety identified as significant to reducing utility-related wildfire risk. Energy Safety provided remedies that utilities were required to address over the course of the year. Utilities were required to report on progress in these key areas in a progress report submitted to Energy Safety on November 1, 2021.
- *Additional issues* were those Energy Safety identified as areas for continued improvement to increase the maturity of the utility's wildfire mitigation capabilities. Energy Safety provided remedies that utilities were required to address over the course of the year. Utilities were required to report on progress in the 2022 Update.

Issues identified in 2021 either have been resolved or are incorporated in the 2022 areas for continued improvement.

Energy Safety did not identify key areas for improvement for TBC in 2021. Energy Safety listed issues and associated remedies in some evaluation sections. These are presented in Table A-1 below. The status column indicates whether each has been fully remedied. If not, the column notes where to find more information in this Decision.

Table A-1. TBC 2021 Key Issues Status

Issue #	Title	Status
Under Data Governance p. 22	Issue: TBC reports maturity increases for data governance despite having no active initiatives in the data governance category and reporting no spend for the 2020-2022 WMP cycle. Remedy: TBC must justify the above maturity increases despite having no active initiatives in the data governance category and reporting no spend for the 2020-2022 WMP cycle.	TBC sufficiently addressed the required remedy.
Under Emergency Planning and Preparedness p. 24	Issue: TBC reports maturity increases for emergency preparedness and planning despite having no active initiatives in the emergency preparedness category and reporting no spend for the 2020-2022 WMP cycle. Remedy: TBC must justify the above maturity increases despite having no active initiatives in the emergency preparedness and planning category and reporting no	TBC sufficiently addressed the required remedy.

Issue #	Title	Status
	spend for the 2020-2022 WMP cycle.	
Under Stakeholder Cooperation and Community Engagement p. 26	Issue: TBC reports maturity increases for stakeholder cooperation and community engagement despite having no active initiatives in this category and reporting no spend for the 2020-2022 WMP cycle. Remedy: TBC must justify the above maturity increases despite having no active initiatives in the stakeholder cooperation and community engagement category and reporting no spend for the 2020-2022 WMP cycle.	TBC sufficiently addressed the required remedy.

Appendix B. Energy Safety Data Request Responses

The following are Energy Safety data requests and TBC's responses referenced in the Decision above.

All 2022 data requests received and responded to by TBC are available on its 2022 Update web page: https://www.transbaycable.com/wildfire-safety.html.

Regarding: TBC's responses to the 2022 Wildfire Mitigation Maturity Survey

Data Request: OEIS-TBC-22-003 (Question 1)

Request date: July 11, 2022

Request:

Q01. 1. Regarding TBC's responses to the 2022 Wildfire Mitigation Maturity Survey:

a. For Question A.III.b, last year TBC projected using monetary damages, impact on air quality, and impact on GHG reduction goals for ignition consequence by January 1, 2023. However, now TBC no longer projects increasing in maturity for this question by 2023.

i. Explain why TBC is no longer projecting this increase.

ii. Does TBC plan on using these metrics in the future? If so, provide a timeline and description of TBC's plan to do so.

b. For Question A.III.g, last year TBC projected including up-to-date moisture content and local weather patterns to estimate ignition risk impact by January 1, 2023. However, now TBC no longer projects increasing in maturity for this question by 2023.

i. Explain why TBC is no longer projecting this increase.

ii. Does TBC plan on using these inputs in the future? If so, provide a timeline and description of TBC's plan to do so.

c. For Question A.IV.b, last year TBC projected reaching a level of mostly automated for its ignition risk reduction impact assessment tool by January 1, 2023. However, now TBC no longer projects increasing in automation by 2023.

i. Explain why TBC is no longer projecting this increase.

ii. Does TBC plan on increasing automation of its ignition risk reduction impact assessment tool? If so, provide a timeline and description of TBC's plan to do so.

d. For Question A.V.b, last year TBC projected reaching a level of mostly automated for its risk mapping algorithm updates by January 1, 2023. However, now TBC no longer projects increasing in automation by 2023.

i. Explain why TBC is no longer projecting this increase.

ii. Does TBC plan on increasing automation of its risk mapping algorithm updates? If so, provide a timeline and description of TBC's plan to do so.

e. For Question A.V.e, last year TBC projected reaching a semi-automated process for detecting risk model deviations by January 1, 2023. However, now TBC only projects using a manual process by 2023.

i. Explain why TBC is no longer projecting this increase.

ii. Does TBC plan on increasing automation of its risk model deviation detection? If so, provide a timeline and description of TBC's plan to do so.

Response date: July 14, 2022

Response:

Q01. Regarding TBC's responses to the 2022 Wildfire Mitigation Maturity Survey:

a. For Question A.III.b, last year TBC projected using monetary damages, impact on air quality, and impact on GHG reduction goals for ignition consequence by January 1, 2023. However, now TBC no longer projects increasing in maturity for this question by 2023.

i. Explain why TBC is no longer projecting this increase.

TBC engaged a third-party to assess the potential economic impacts of wildfires emanating from TBC's Pittsburg station in September 2019. This report was provided as a confidential document as part of TBC's 2020 Wildfire Mitigation Plan submission. TBC's facilities had not substantially changed since the creation of the 2019 report and thus its analysis remain current. Given TBC's limited footprint and scale of operations, the metrics discussed in the report are deemed sufficient to assess the consequence of ignition risk. TBC will reassess increasing maturity in this area should a change to TBC's physical footprint occur or there is material change to the area surrounding the Pittsburg Substation.

ii. Does TBC plan on using these metrics in the future? If so, provide a timeline and description of TBC's plan to do so.
No, see response to request Q01.a.i above.

b. For Question A.III.g, last year TBC projected including up-to-date moisture content and local weather patterns to estimate ignition risk impact by January 1, 2023. However, now TBC no longer projects increasing in maturity for this question by 2023.

i. Explain why TBC is no longer projecting this increase.
The majority of TBC's transmission infrastructure is either underground or submerged and is thus not affected by weather. The portion of TBC's transmission infrastructure that is above ground is located in a hardscaped facility outside of any HFTD or wildland urban interfaces. As noted in TBC's 2022 WMP report, weather has immaterial impact on TBC's operations (see TBC WMP at pgs. 42 and 64). As such additional maturity in this area is unlikely to translate to material reduction in wildfire risk. Therefore TBC no longer projects increasing maturity for this specific area. TBC will reassess increasing maturity in this area should a change to TBC's physical footprint occur.

ii. Does TBC plan on using these inputs in the future? If so, provide a timeline and description of TBC's plan to do so.
No, see response to request Q01.b.i. above.

c. For Question A.IV.b, last year TBC projected reaching a level of mostly automated for its ignition risk reduction impact assessment tool by January 1, 2023. However, now TBC no longer projects increasing in automation by 2023.

i. Explain why TBC is no longer projecting this increase.
TBC has a limited footprint with most of its transmission facilities either underground or submerged. The portion of TBC's transmission infrastructure that is above ground is located in a hardscaped facility outside of any HFTD or wildland urban interfaces. TBC manual annual failure modes and effects analysis risk assessment, in conjunction with its routine inspections and real-time system monitoring capabilities is deemed sufficient for TBC's size and scale of operations. Therefore TBC no longer projects increasing maturity for this specific area. TBC will reassess increasing maturity in this area should a change to TBC's physical footprint occur.

ii. Does TBC plan on increasing automation of its ignition risk reduction impact assessment tool? If so, provide a timeline and description of TBC's plan to do so.
No, see response to request Q01.c.i. above.

d. For Question A.V.b, last year TBC projected reaching a level of mostly automated for its risk mapping algorithm updates by January 1, 2023. However, now TBC no longer projects increasing in automation by 2023.

i. Explain why TBC is no longer projecting this increase.
TBC has a limited footprint with most of its transmission facilities either underground or submerged. The portion of TBC's transmission infrastructure that is above ground is located in a hardscaped facility outside of any HFTD or wildland urban interfaces. TBC's manual mapping and assessment of risk through its annual failure modes and effects analysis risk assessment, in conjunction with its routine inspections and real-time system monitoring capabilities is deemed sufficient for TBC's size and scale of operations. Therefore TBC no longer projects increasing maturity for this specific area. TBC will reassess increasing maturity in this area should a change to TBC's physical footprint occur.

ii. Does TBC plan on increasing automation of its risk mapping algorithm updates? If so, provide a timeline and description of TBC's plan to do so.
No, see response to request Q01.d.i. above.

e. For Question A.V.e, last year TBC projected reaching a semi-automated process for detecting risk model deviations by January 1, 2023. However, now TBC only projects using a manual process by 2023.

i. Explain why TBC is no longer projecting this increase.
TBC believes this request is in connection with A.V.c and responds accordingly. TBC has a limited footprint with most of its transmission facilities either underground or submerged. The portion of TBC's transmission infrastructure that is above ground is located in a hardscaped facility outside of any HFTD or wildland urban interfaces. A manual process to detect risk model deviations is deemed sufficient for TBC's size and scale of operations. Therefore TBC no longer projects increasing maturity for this specific area. TBC will reassess increasing maturity in this area should a change to TBC's physical footprint occur.

ii. Does TBC plan on increasing automation of its risk model deviation detection? If so, provide a timeline and description of TBC's plan to do so.

No, see response to request Q01.e.i. above.

Regarding: TBC's responses to the 2022 Wildfire Mitigation Maturity Survey

Data Request: OEIS-TBC-22-004 (Question 1)

Request date: July 20, 2022

Request:

Q01. Regarding TBC's responses to the 2022 Wildfire Mitigation Maturity Survey, TBC's responses indicate decreased maturity from 2021 to 2022 in two categories, grid operations and operating protocols and emergency planning and preparedness, on the following questions:

a. For question F.V.b "How automated is the process for inspecting de-energized sections of the grid prior to re-energization?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 with the highest-maturity response, (iv) "Primarily automated, minimal manual inputs," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 with the lowest-maturity response, (i) "Manual process, not automated at all."
b. For question I.III.a "Does the utility provide clear and substantially complete communication of available information relevant to affected customers?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 (ii) "Yes," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 (i) "No."
c. For question I.III.b "What percent of affected customers receive complete details of available information?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 with the highest-maturity response, (v) ">99.9% of customers," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 with the lowest-maturity response, (i) "≤95% of customers."
d. For question I.III.c "What percent of affected medical baseline customers receive complete details of available information?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 with the highest-maturity response, (v) "100% of medical baseline customers," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 with the lowest-maturity response, (i) "≤99% of medical baseline customers."

e. For question I.V.e "Are feedback and recommendations on potential improvements made public?" in 2021 TBC responded for the current year (2021) (i) "No" and for the start of 2023 (ii) "Yes," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 (i) "No."
f. For question I.V.i "Does the utility have a process to conduct reviews after wildfires in other the territory of other utilities and states to identify and address areas of improvement?" in 2021 TBC responded for the current year (2021) (i) "No" and for the start of 2023 (ii) "Yes," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 (i) "No."

These decreases in maturity and projected maturity from 2021 to 2022 are not reflected in TBC's 2022 Update. TBC does not discuss any areas of decreased maturity regarding its grid operations and protocols or its emergency planning and preparedness since last year's WMP Update submission. For each of the above instances of decreased maturity and decreased projected maturity, describe the changes that led to the decreases. If applicable, include the page number in TBC's 2022 Update where the change is discussed.

Response date: July 25, 2022

Response:

Q01. Regarding TBC's responses to the 2022 Wildfire Mitigation Maturity Survey, TBC's responses indicate decreased maturity from 2021 to 2022 in two categories, grid operations and operating protocols and emergency planning and preparedness, on the following questions:

a. For question F.V.b "How automated is the process for inspecting de-energized sections of the grid prior to re-energization?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 with the highest-maturity response, (iv) "Primarily automated, minimal manual inputs," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 with the lowest-maturity response, (i) "Manual process, not automated at all." **TBC's 2022 response is a correction to an erroneous selection in 2021. TBC's system is a single line transmission system and not a grid. The system monitoring is automated through utilization of the human machine interface (HMI) as described on page 64 of TBC's 2022 WMP Plan. When energized various automated and continuous monitoring inputs are feed into the HMI which is monitored by TBC system operators 24/7/365. When the line is de-**

energized, the entire system is de-energized and therefore automated and continuous monitoring inputs are disabled. TBC conducts a manual process of inspecting its two substations prior to re-energization, in addition to confirmation checks with Pacific Gas & Electric that its Pittsburg and Potrero stations are ready to send and receive power, in that order.

b. For question I.III.a "Does the utility provide clear and substantially complete communication of available information relevant to affected customers?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 (ii) "Yes," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 (i) "No."
As TBC noted in its response to J.V.e, in both the 2021 and 2022 surveys, "Trans Bay also does not have any retail or distribution customers. As such many of the questions in this survey are not specifically applicable to Trans Bay. Trans Bay notes that in lieu of 'Not Applicable' being available as a response, the most appropriate response available was selected." As such the response to this question would be 'Not Applicable' but it is not available as an option. Upon review, TBC determined that selection of the lowest maturity level was more akin to "Not applicable" than the selection of the highest level of maturity.

c. For question I.III.b "What percent of affected customers receive complete details of available information?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 with the highest-maturity response, (v) ">99.9% of customers," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 with the lowest-maturity response, (i) "≤95% of customers."
As TBC noted in its response to J.V.e, in both the 2021 and 2022 surveys, "Trans Bay also does not have any retail or distribution customers. As such many of the questions in this survey are not specifically applicable to Trans Bay. Trans Bay notes that in lieu of 'Not Applicable' being available as a response, the most appropriate response available was selected." As such the response to this question would be 'Not Applicable' but it is not available as an option. Upon review, TBC determined that selection of the lowest maturity level was more akin to "Not applicable" than the selection of the highest level of maturity.

d. For question I.III.c "What percent of affected medical baseline customers receive complete details of available information?" in 2021 TBC responded for both the current year (2021) and for the start of 2023 with the highest-maturity response, (v) "100% of medical baseline customers," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 with the lowest-maturity response, (i) "≤99% of medical baseline customers."

As TBC noted in its response to J.V.e, in both the 2021 and 2022 surveys, "Trans Bay also does not have any retail or distribution customers. As such many of the questions in this survey are not specifically applicable to Trans Bay. Trans Bay notes that in lieu of 'Not Applicable' being available as a response, the most appropriate response available was selected." As such the response to this question would be 'Not Applicable' but it is not available as an option. Upon review, TBC determined that selection of the lowest maturity level was more akin to "Not applicable" than the selection of the highest level of maturity.

e. For question I.V.e "Are feedback and recommendations on potential improvements made public?" in 2021 TBC responded for the current year (2021) (i) "No" and for the start of 2023 (ii) "Yes," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 (i) "No."

As stated in its WMP, TBC does not have a specific wildfire mitigation program but implements prioritized mitigation/enhancement measures for operational risk, some of which may be relevant to but not solely implemented for wildfire mitigation (See TBC 2022 WMP pgs. 14, 22, 49 and 68). TBC's transmission system is not sited in any wildlands or wildland urban interfaces, and is mostly underground or submerged. Additionally, TBC does not have any distribution or retail customers and any projects which have wildfire mitigations impacts have de minimis impact on California ratepayers. (See 2021 and 2022 Survey Response to J.V.e and TBC 2022 WMP pgs. 25, 46, 67-68 and 79). As such, making feedback and recommendations on potential improvements public does not materially advance TBC's wildfire risk reduction and management.

f. For question I.V.i "Does the utility have a process to conduct reviews after wildfires in other the territory of other utilities and states to identify and address areas of improvement?" in 2021 TBC responded for the current year (2021) (i) "No" and for the start of 2023 (ii) "Yes," whereas in 2022 TBC responded for both the current year (2022) and for the start of 2023 (i) "No."

As TBC is a unique facility with the majority of its facilities underground or submerged, and outside of wildlands or wildland urban interfaces, its fire prevention needs are different from tradition utilities with overhead lines. As such, TBC does not have a formal process for reviewing wildfires in the territory of other utilities. TBC does informally review and monitor the experience of its affiliate, Horizon West Transmission, which is a transmission-only facility that is sited in a Tier 2 HFTD, as part of overall corporate safety risk monitoring and management.

These decreases in maturity and projected maturity from 2021 to 2022 are not reflected in TBC's 2022 Update. TBC does not discuss any areas of decreased maturity regarding its grid operations and protocols or its emergency planning and preparedness since last year's WMP Update submission. For each of the above instances of decreased maturity and decreased projected maturity, describe the changes that led to the decreases. If applicable, include the page number in TBC's 2022 Update where the change is discussed.

Appendix C. Comments on the Draft Decision

This appendix will contain Energy Safety's summary of stakeholder comments on the draft Decision.

Appendix D. The Ten Maturity and Mitigation Initiative Categories

The following table presents the ten categories of questions on the Maturity Survey, and, where relevant, the version of the category name used in the 2022 WMP Guidelines or Decisions. All mitigation programs and initiatives should fit into one or more of the following categories. Some examples of activities or data products that fit under each category are listed.

Maturity and Mitigation Categories	Examples of Activities
1. Risk mapping and simulation; Per WMP Guidelines/this Decision document: Risk assessment and mapping	Risk and ignition probability mapping; match drop simulations; consequence mapping
2. Situational awareness and forecasting	Weather monitoring; weather station installation; fault indicator technology implementation; fire potential index
3. Grid design and system hardening	Capacitor maintenance and replacement; covered conductor installation and maintenance; expulsion fuse replacement; pole loading infrastructure hardening and replacement
4. Asset management and inspections	Infrared, LiDAR, or drone inspections and routine or detailed patrol inspections of distribution/transmission electric lines and equipment; intrusive pole inspections; pole loading assessments; quality assurance and quality control of inspections
5. Vegetation management and inspections	Fuel management and reduction of "slash"; LiDAR or drone inspections and routine or detailed patrol inspections of vegetation

	around distribution/transmission electric lines and equipment; inventory, remediation, or removal of hazardous vegetation; quality assurance and quality control of vegetation management inspections
6. Grid operations and protocols; Per this Decision document: Grid operations and operating protocols, including PSPS	Automatic recloser operations; protocols for re-energization after PSPS; mitigation of PSPS impacts; work procedures and training in conditions of elevated fire risk
7. Data governance	Centralized data repository; ignition/wildfire collaborative research; documentation/disclosure of wildfire-related data and algorithms; risk event data tracking and analysis
8. Resource allocation methodology	Method of allocation of resources; method of calculating the risk-spend efficiency of initiatives (not including PSPS, which is not considered a mitigation initiative within WMPs); risk reduction scenario development and analysis
9. Emergency planning and preparedness	Ensuring the utility has an adequate and trained workforce for service restoration; community outreach, public awareness, and communications efforts; customer support during emergencies
10. Stakeholder cooperation and community engagement	Cooperation with suppression agencies; community engagement efforts; sharing best practices and cooperating with agencies outside California; coordinating fuel management with the U.S Forest Service

Appendix E. Definition of Initiatives by Category

Category A. Risk Mapping and Simulation / Risk Assessment and Mapping

Category A. Risk Mapping and Simulation / Risk Assessment and Mapping Initiative Activity	Definition
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 modeling 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

Category A. Risk Mapping and Simulation / Risk Assessment and Mapping Initiative Activity	Definition
	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.).

Category B. Situational Awareness and Forecasting

Category B. Situational Awareness and Forecasting Initiative Activity	Definition
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.

Category B. Situational Awareness and Forecasting Initiative Activity	Definition
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 C. Grid Design and System Hardening

Category C. Grid Design and System Hardening Initiative Activity	Definition
Capacitor maintenance and replacement program	Remediation, adjustments, or installations of new equipment to improve or replace existing capacitor equipment.

Category C. Grid Design and System Hardening Initiative Activity	Definition
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

Category C. Grid Design and System Hardening Initiative Activity	Definition
	(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

Category C. Grid Design and System Hardening Initiative Activity	Definition
	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.
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

Category C. Grid Design and System Hardening Initiative Activity	Definition
	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.

Category C. Grid Design and System Hardening Initiative Activity	Definition
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 the HFTD	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 the HFTD.

Category D. Asset Management and Inspections

Category D. Asset Management and Inspections Initiative Activity	Definition
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

Category D. Asset Management and Inspections Initiative Activity	Definition
	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)

Category D. Asset Management and Inspections Initiative Activity	Definition
	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 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).
LiDAR inspections of transmission 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).
Other discretionary inspection of distribution 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

Category D. Asset Management and Inspections Initiative Activity	Definition
	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 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.
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.
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

Category D. Asset Management and Inspections Initiative Activity	Definition
	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.

Category E. Vegetation Management and Inspections

Category E. Vegetation Management and Inspections Initiative Activity	Definition
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

Category E. Vegetation Management and Inspections Initiative Activity	Definition
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.

Category E. Vegetation Management and Inspections Initiative Activity	Definition
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).
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

Category E. Vegetation Management and Inspections Initiative Activity	Definition
	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,

Category E. Vegetation Management and Inspections Initiative Activity	Definition
	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.

Category E. Vegetation Management and Inspections Initiative Activity	Definition
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 F. Grid Operations and Operating Protocols

Category F. Grid Operations and Operating Protocols Initiative Activity	Definition
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

Category F. Grid Operations and Operating Protocols Initiative Activity	Definition
	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.

Category G. Data Governance

Category G. Data Governance Initiative Activity	Definition
Centralized repository for data	Designing, maintaining, hosting, and upgrading a platform that supports storage, processing, and utilization of all utility

Category G. Data Governance Initiative Activity	Definition
	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.

Category H. Resource Allocation Methodology

Category H. Resource Allocation Methodology Initiative Activity	Definition
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 modeling capabilities for different risk reduction scenarios based on wildfire mitigation initiative

Category H. Resource Allocation Methodology Initiative Activity	Definition
	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 I. Emergency Planning and Preparedness

Category I. Emergency Planning and Preparedness Initiative Activity	Definition
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

Category I. Emergency Planning and Preparedness Initiative Activity	Definition
	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.

Category J. Stakeholder Cooperation and Community Engagement

Category J. Stakeholder Cooperation and Community Engagement Initiative Activity	Definition
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

Category J. Stakeholder Cooperation and Community Engagement Initiative Activity	Definition
	utility cooperation strategy and joint stakeholder roadmap (plan for coordinating stakeholder efforts for forest management and fuel reduction activities).

Appendix F. Glossary of Terms

Term	Definition
AB	Assembly bill
AFN	Access and functional needs
ALJ	Administrative law judge
BVES	Bear Valley Electric Service
CAISO	California Independent System Operator
Cal Advocates	Public Advocate's Office
CAL FIRE	California Department of Forestry and Fire Protection
CBO	Community-based organization
CEJA	California Environmental Justice Alliance
CNRA	California Natural Resources Agency
CPUC	California Public Utilities Commission
D.	Decision
DFA	Distribution fault anticipation
DR	Data request
EBMUD	East Bay Municipal Utility District
EFD	Early fault detection
EPIC	Electric Program Investment Charge

Term	Definition
EPUC	Energy Producers and Users Coalition
EVM	Enhanced vegetation management
FERC	Federal Energy Regulatory Commission
FGDC	Federal Geographic Data Committee
FIRIS	Fire Integrated Real Time Intelligence System
FMEA	Failure Modes and Effects Analysis
FPI	Fire Potential Index
GIS	Geographic information systems
GO	General order
GPI	Green Power Institute
GRC	General rate case
HFRA	High fire risk area
HFTD	High fire threat district
HWT or Horizon West	Horizon West Transmission
I.	Investigation
ICS	Incident command system or structure
IOU	Investor-owned utility

Term	Definition
ISA	International Society of Arboriculture
ITO	Independent transmission operator
IVM	Integrated vegetation management
IVR	Interactive voice response
JIS	Joint information system
kV	Kilovolt
Liberty	Liberty Utilities / CalPeco Electric
LiDAR	Light detection and ranging
LTE	Long-term evolution
Maturity Model	Utility Wildfire Mitigation Maturity Model
Maturity Survey	Utility Wildfire Mitigation Maturity Survey
MARS	Multi-attribute risk score
MAVF	Multi-attribute value function
MBL	Medical Baseline
MGRA	Mussey Grade Road Alliance
MMAA	Mountain Mutual Aid Association
NERC	North American Electric Reliability Corporation
NFDRS	National Fire Danger Rating System
OCFA	Orange County Fire Authority

Term	Definition
OEIS or Energy Safety	Office of Energy Infrastructure Safety
OP	Ordering paragraph
OPD	Open phase detection
OPW	Outage-producing winds
PG&E	Pacific Gas and Electric Company
PLP	Pole Loading Assessment Program
PMO (PacifiCorp)	Project Management Office
PMO (SCE)	Public Safety Program Management Office
PMU	Phasor measurement unit
PoF	Probability of failure
PoI	Probability of ignition
PRC	Public Resources Code
PSPS	Public Safety Power Shutoff
Pub. Util. Code or PU Code	Public Utilities Code
QA	Quality Assurance
QC	Quality Control
R.	Rulemaking
RAMP	Risk Assessment and Management Phase
RAR	Remote automatic reclosers

Term	Definition
RBDM	Risk-based decision making
RCP	Remedial compliance plan
RCRC	Rural County Representatives of California
REFCL	Rapid earth fault current limiter
RFW	Red Flag Warning
RSE	Risk-spend efficiency
SAWTI	Santa Ana Wildfire Threat Index
SB	Senate bill
SCADA	Supervisory control and data acquisition
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric Company
S-MAP	Safety Model Assessment Proceeding, now the Risk-Based Decision-Making Framework Proceeding
SMJU	Small and multijurisdictional utility
SUI	Wildland-urban interface
TAT	Tree Assessment Tool
TBC	Trans Bay Cable
TURN	The Utility Reform Network
USFS	United States Forest Service

Term	Definition
VM	Vegetation management
VRI	Vegetation Risk Index
WMP	Wildfire Mitigation Plan
WRRM	Wildfire Risk Reduction Model
WSAB	Wildfire Safety Advisory Board
WSD	Wildfire Safety Division
WSIP	Wildfire Safety Inspection Program

Appendix G. Numerical Maturity Summary

Please reference the 2022 Guidelines 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 TBC's responses to the 2022 Utility Wildfire Mitigation Maturity Survey.

Summary maturity table: TBC

*Years correspond to maturity as of January 1st of the reported year.

Legend: Maturity Levels

0	1	2	3	4

Category	Capability 1	Capability 2	Capability 3	Capability 4	Capability 5	Capability 6
A. Risk Assessment and Mapping	1. Climate scenario modeling	2. Ignition risk estimation	3. Estimation of wildfire consequences for communities	4. Estimation of wildfire and PSPS risk-reduction impact	5. Risk maps and simulation algorithms	
	2020: 1 2021: 1 2022: 1 2023: 1	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 1 2021: 1 2022: 1 2023: 1	2020: 0 2021: 0 2022: 0 2023: 1	
B. Situational Awareness and Forecasting	6. Weather variables collected	7. Weather data resolution	8. Weather forecasting ability	9. External sources used in weather forecasting	10. Wildfire detection processes and capabilities	
	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 1 2021: 1 2022: 1 2023: 1	2020: 1 2021: 1 2022: 1 2023: 1	
C. Grid design and system hardening	11. Approach to prioritizing initiatives across territory	12. Grid design for minimizing ignition risk	13. Grid design for resiliency and minimizing PSPS	14. Risk-based grid hardening and cost efficiency	15. Grid design and asset innovation	
	2020: 4 2021: 4 2022: 4 2023: 4	2020: 3 2021: 3 2022: 3 2023: 3	2020: 0 2021: 0 2022: 0 2023: 0	2020: 3 2021: 3 2022: 3 2023: 3	2020: 1 2021: 1 2022: 1 2023: 2	
D. Asset management and inspections	16. Asset inventory and condition assessments	17. Asset inspection cycle	18. Asset inspection effectiveness	19. Asset maintenance and repair	20. QA/QC for asset management	
	2020: 0 2021: 0 2022: 2 2023: 2	2020: 1 2021: 1 2022: 1 2023: 1	2020: 1 2021: 1 2022: 2 2023: 2	2020: 2 2021: 2 2022: 4 2023: 4	2020: 2 2021: 2 2022: 2 2023: 2	
E. Vegetation management and inspections	21. Vegetation inventory and condition assessments	22. Vegetation inspection cycle	23. Vegetation inspection effectiveness	24. Vegetation grow-in mitigation	25. Vegetation fall-in mitigation	26. QA/QC for vegetation management
	2020: 0 2021: 0 2022: 0 2023: 0	2020: 1 2021: 1 2022: 1 2023: 1	2020: 1 2021: 1 2022: 1 2023: 1	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0
F. Grid operations and protocols	27. Protective equipment and device settings	28. Incorporating ignition risk factors in grid control	29. PSPS op. model and consequence mitigation	30. Protocols for PSPS initiation	31. Protocols for PSPS re-energization	32. Ignition prevention and suppression
	2020: 0 2021: 0 2022: 0 2023: 0	2020: 1 2021: 1 2022: 2 2023: 2	2020: 1 2021: 1 2022: 1 2023: 1	2020: 1 2021: 1 2022: 1 2023: 1	2020: 4 2021: 4 2022: 1 2023: 1	2020: 0 2021: 0 2022: 1 2023: 3
G. Data governance	33. Data collection and curation	34. Data transparency and analytics	35. Near-miss tracking	36. Data sharing with research community		
	2020: 0 2021: 0 2022: 0 2023: 2	2020: 0 2021: 0 2022: 0 2023: 0	2020: 1 2021: 1 2022: 1 2023: 1	2020: 1 2021: 1 2022: 1 2023: 1		
H. Resource allocation methodology	37. Scenario analysis across different risk levels	38. Presentation of relative risk spend efficiency for portfolio of initiatives	39. Process for determining risk spend efficiency of vegetation management	40. Process for determining risk spend efficiency of system hardening	41. Portfolio-wide initiative allocation methodology	42. Portfolio-wide innovation in new wildfire initiatives
	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0	2020: 0 2021: 0 2022: 0 2023: 0
I. Emergency planning and preparedness	43. Wildfire plan integrated with overall disaster/ emergency plan	44. Plan to restore service after wildfire related outage	45. Emergency community engagement during and after wildfire	46. Protocols in place to learn from wildfire events	47. Processes for continuous improvement after wildfire and PSPS	
	2020: 0 2021: 0 2022: 0 2023: 3	2020: 3 2021: 3 2022: 3 2023: 3	2020: 1 2021: 1 2022: 0 2023: 0	2020: 2 2021: 2 2022: 2 2023: 4	2020: 0 2021: 0 2022: 0 2023: 0	
J. Stakeholder cooperation and community engagement	48. Cooperation and best practice sharing with other utilities	49. Engagement with communities on utility wildfire mitigation initiatives	50. Engagement with LEP and AFN populations	51. Collaboration with emergency response agencies	52. Collaboration on wildfire mitigation planning with stakeholders	
	2020: 0 2021: 0 2022: 0 2023: 2	2020: 0 2021: 0 2022: 0 2023: 3	2020: 0 2021: 0 2022: 0 2023: 0	2020: 2 2021: 2 2022: 2 2023: 2	2020: 0 2021: 0 2022: 0 2023: 0	