Health & Safety Plan

TBC-HS-103

Fire Prevention Plan

Annex A

Wildfire Mitigation Plan

TABLE OF CONTENTS

FIGURES AND TABLES

ATTACHMENTS

0 GLOSSARY OF DEFINED TERMS

Term	Definition
10-hour dead fuel moisture content	Moisture content of small dead vegetation (e.g. grass, leaves, which burn quickly but not intensely), which can respond to changes in atmospheric moisture content within 10 hours.
Access and functional needs populations	Per Government Code § 8593.3 and D.19-05-042, individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency or who are non-English speaking, older adults, children, people living in institutionalized settings, or those who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or those who are pregnant.
Authority Having Jurisdiction	AHJ, party with assigned responsibility, depending on location and circumstance.
Asset (utility)	Electric lines, equipment, or supporting hardware.
At-risk species	Species of vegetation that have an elevated risk of (1) coming into contact with powerlines, (2) causing an outage or ignition, or (3) igniting easily whether due to inherent flammability characteristics or being in close proximity to potential arcing, sparks and/or other utility equipment thermal failures .
Baseline (ignition probability, maturity)	A measure, typically of the current state, to establish a starting point for comparison.
Carbon dioxide equivalent	Tons of greenhouse gases (GHG) emitted, multiplied by the global warming potential relative to carbon dioxide.
Circuit mile	The total length in miles of separate circuits regardless of the number of conductors used per circuit
Contractor	Any individual in the temporary and/or indirect employ of the utility whose limited hours and/or time-bound term of employment are not considered as “full-time” for tax and/or any other purposes.

Critical facilities and infrastructure	For brevity in the 2021 WMP, “critical facilitates and infrastructure” may be shortened to “critical infrastructure” and/or “critical facilities” throughout the WMP. Critical facilities and infrastructure is defined in accordance with the definition adopted in D.19-05-042 and modified in D.20-05-051: those facilities and infrastructure that are essential to the public safety and that require additional assistance and advance planning to ensure resiliency during de energization events. Namely:
	• Emergency Services Sector
	  ○ Police stations
	  ○ Fire station
	  ○ Emergency Operations Centers
	  ○ Public safety answering points
	• Government Facilities Sector
	  ○ Schools

Term	Definition
	○ Jails and prisons • Healthcare and Public Health Sector ○ Public Health Departments ○ Medical facilities, including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers and hospice facilities (excluding doctor offices and other non-essential medical facilities) • Energy Sector ○ Public and private utility facilities vital to maintaining or restoring normal service, including, but not limited to, interconnected publicly-owned utilities and electric cooperatives • Water and Wastewater Systems Sector ○ Facilities associated with the provision of drinking water or processing of wastewater including facilities used to pump, divert, transport, store, treat and deliver water or wastewater • Communications Sector ○ Communication carrier infrastructure including selective routers, central offices, head ends, cellular switches, remote terminals and cellular sites • Chemical Sector ○ Facilities associated with the provision of manufacturing, maintaining, or distributing hazardous materials and chemicals (including Category N-Customers as defined in D.01-06-085) • Transportation Sector ○ Facilities associated with automobile, rail, aviation, major public transportation, and maritime transportation for civilian and military purposes
Customer hours	Total number of customers, multiplied by the average number of hours (e.g. of power outage).
Data cleaning	Calibrating raw data to remove errors (including typographical and numerical mistakes).
Dead fuel moisture content	Moisture content of dead vegetation, which responds solely to current environmental conditions and is critical in determining fire potential.
Detailed inspection	In accordance with GO 165, an inspection 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.
Enhanced inspection	Inspection whose frequency and thoroughness exceeds the requirements of the detailed inspection, particularly if driven by risk calculations.
Evacuation impact	Number of people evacuated, with the duration for which they are evacuated, from homes and businesses, due to wildfires.

Term	Definition
Evacuation zone	Areas designated by CAL FIRE and local fire agency evacuation orders, to include both "voluntary" and "mandatory" in addition to other orders such as "precautionary" and "immediate threat".
Fire Season	The time of year that wildfires are most likely to take place for a given geographic region due to historical weather conditions, vegetative characteristics, and impacts of climate change. Goals and targets which have milestones related to the onset, duration, or end of "fire season" or "height of fire season" must be accompanied with calendar dates.
Frequently de-energized circuit	A circuit which has been de-energized pursuant to a de-energization event to mitigate the risk of wildfire three or more times in a calendar year.
Fuel density	Mass of fuel (vegetation) per area which could combust in a wildfire.
Fuel management	Removing or thinning vegetation to reduce the potential rate of propagation or intensity of wildfires.
Fuel moisture content	Amount of moisture in a given mass of fuel (vegetation), measured as a percentage of its dry weight.
Full-time employee	Any individual in the ongoing and/or direct employ of the utility whose hours and/or term of employment are considered as "full-time" for tax and/or any other purposes.
GO 95 nonconformance	Condition of a utility asset that does not meet standards established by General Order 95.
Greenhouse gas (GHG) emissions	Health and Safety Code 38505 identifies seven greenhouse gases that ARB is responsible to monitor and regulate in order to reduce emissions: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF3).
Grid hardening	Actions (such as equipment upgrades, maintenance, and planning for more resilient infrastructure) taken in response to the risk of undesirable events (such as outages) or undesirable conditions of the electrical system in order to reduce or mitigate those events and conditions, informed by an assessment of the relevant risk drivers or factors.
Grid topology	General design of an electric grid, whether looped or radial, with consequences for reliability and ability to support de-energization (e.g., being able to deliver electricity from an additional source).
High Fire Threat District (HFTD)	Per D.17-01-009, areas of the State designated by the CPUC and CAL FIRE to have elevated wildfire risk, indicating where utilities must take additional action (per GO 95, GO 165, and GO 166) to mitigate wildfire risk.
Highly rural region	In accordance with 38 CFR 17.701, "highly rural" shall be defined as those areas with a population of less than 7 persons per square mile. For the purposes of the WMP, "area" shall be defined as census tracts.
High Wind Warning (HWW)	Level of wind risk from weather conditions, as declared by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[1]

[1] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml

Term	Definition
HWW overhead (OH) Circuit Mile Day	Sum of overhead circuit miles of utility grid subject to High Wind Warnings (HWW, as defined by the National Weather Service) each day within a given time period, calculated as the number of overhead circuit miles that were under an HWW multiplied by the number of days those miles were under said HWW. For example, if 100 overhead circuit miles were under an HWW for 1 day, and 10 of those miles were under HWW for an additional day, then the total HWW OH circuit mile days would be 110.
Ignition probability	The relative possibility that an ignition will occur, probability is quantified as a number between 0% and 100% (where 0% indicates impossibility and 100% indicates certainty). The higher the probability of an event, the more certainty there is that the event will occur. (Often informally referred to as likelihood or chance).
Ignition-related deficiency	Any condition which may result in ignition or has previously resulted in ignition, even if not during the past five years.
Impact/consequence of ignitions	The effect or outcome of a wildfire ignition, affecting objectives, which may be expressed by terms including, although not limited to health, safety, reliability, economic and/or environmental damage.
Initiative	Measure or activity proposed or in process designed to reduce the consequences and/or probability of wildfire or PSPS.
Inspection protocol	Documented procedures to be followed in order to validate that a piece of equipment is in good condition and expected to operate safely and effectively.
Invasive species	Species that is: (1) non-native (or alien) to the ecosystem under consideration and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health.
Level 1 finding	In accordance with GO 95, an immediate safety and/or reliability risk with high probability for significant impact.
Level 2 finding	In accordance with GO 95, a variable (non-immediate high to low) safety and/or reliability risk.
Level 3 finding	In accordance with GO 95, an acceptable safety and/or reliability risk.
Life expectancy	Anticipated years that a piece of equipment can be expected to meet safety and performance requirements.
Limited English Proficiency (LEP)	Populations with limited English working proficiency based on the International Language Roundtable scale.
Line miles	The number of miles of transmission and/or distribution line. Differs from circuit miles because individual circuits, such as the two circuits of a double-circuit line, are not counted separately in circuit miles but are counted as separate total miles of line.
Live fuel moisture content	Moisture content within living vegetation, which can retain water longer than dead fuel.
Lost energy	Energy that would have been delivered were it not for an outage.
Major roads	Interstate highways, U.S. highways, state and county routes.
Match drop simulation	Wildfire simulation method that takes an arbitrary ignition and forecasts propagation and consequence/impact.

Term	Definition
Member of the public	Any individual not employed by the utility.
Multi-attribute value function	Risk calculation methodology introduced during CPUC's S-MAP and RAMP proceedings.
Near miss	Previously used to define an event with probability of ignition. Redefined under "Risk event."
Need for PSPS	When utilities' criteria for utilizing PSPS are met.
Noncompliant clearance	Rights-of-way whose vegetation is not trimmed in accordance with the requirements of GO 95.
Outages of the type that could ignite a wildfire	Outages that, in the judgement of the utility, could have ignited a wildfire.
Outcome metrics	Measurements of the performance of the utility and its service territory in terms of both leading and lagging indicators of wildfire, PSPS, and other consequences of wildfire risk, including the potential unintended consequences of wildfire mitigation work, such as acreage burned by utility-ignited wildfire.
Overcapacity	When the energy transmitted by utility equipment exceeds that of its nameplate capacity.
Patrol inspection	In accordance with GO 165, a simple visual inspection of applicable utility equipment and structures that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.
Percentile conditions	Top X% of a particular set (e.g. wind speed), based on a historical data set with sufficient detail. For example, "Top 95 percentile wind speeds in the last 5 years" would refer to the 5% of avg daily wind speeds recorded by each weather station. If 1,000 weather stations recorded average daily wind speeds over 10 days, then the 95th percentile wind speed would be the top 5% of weather station-days. In this example, there will be 10 days each with 1,000 weather station reports and a total of 10,000 weather station-days, so 50 observations will be in the top 5%. The lowest wind speed in this top 5% would be the "95th percentile wind speed".
Planned outage	Electric outage announced ahead of time by the utility.
Preventive maintenance (PM)	The practice of maintaining equipment on a regular schedule, based on risk, elapsed time, run-time meter readings, or number of operations. The intent of PM is to "prevent" maintenance problems or failures before they take place by following routine and comprehensive maintenance procedures. The goal is to achieve fewer, shorter, and more predictable outages.
Priority essential services	Critical first responders, public safety partners, critical facilities and infrastructure, operators of telecommunications infrastructure, and water utilities/agencies.
Program targets	Quantifiable measurements of activity identified in WMPs and subsequent updates used to show progress towards reaching the objectives, such as number of trees trimmed or miles of power lines hardened.

Term	Definition
Progress metrics	Measurements that track how much utility wildfire mitigation activity has changed the conditions of utility wildfire risk exposure or utility ability to manage wildfire risk exposure, in terms of leading indicators of ignition probability and wildfire consequences.
Property	Private and public property, buildings and structures, infrastructure, and other items of value that were destroyed by wildfire, including both third-party property and utility assets.
Public Safety Power Shutoff (PSPS) event	Defined as the time period from the first public safety partner notified of a planned public safety de-energization to the final customer re-energized.
PSPS risk	The potential for the occurrence of a PSPS event expressed in terms of a combination of various outcomes of the event and their associated probabilities.
PSPS weather	Weather that exceeds a utility's risk threshold for initiating a PSPS.
Red Flag Warning (RFW)	Level of wildfire risk from weather conditions, as declared by the National Weather Service. For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[2]
RFW Overhead (OH) Circuit Mile Day	Sum of overhead circuit miles of utility grid subject to Red Flag Warning each day within a given time period, calculated as the number of overhead circuit miles that were under an RFW multiplied by the number of days those miles were under said RFW. For example, if 100 overhead circuit miles were under an RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW OH circuit mile days would be 110.
Risk event	An event with probability of ignition, including wires down, contacts with objects, line slap, events with evidence of heat generation, and other events that cause sparking or have the potential to cause ignition. The following risk events all qualify as risk event: • Ignitions • Outages not caused by vegetation • Vegetation-caused outages • Wire-down events • Faults • Other risk events with potential to cause ignitions
Risk event simulation	Simulation of what the consequence would have been of an ignition had it occurred.
Risk-spend efficiency (RSE)	An estimate of the cost-effectiveness of initiatives, calculated by dividing the mitigation risk reduction benefit by the mitigation cost estimate based on the full set of risk reduction benefits estimated from the incurred costs. For ongoing initiatives, the RSE can be calculated by determining the "marginal benefit" of additional spending in the ongoing initiative. For example, the RSE of an ongoing initiative could be calculated by dividing the

[2] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml

Term	Definition
	mitigation risk reduction benefit from a 5% increase in spend by the cost associated with a 5% increase in spend.
Rule	Section of public utility code requiring a particular activity or establishing a particular threshold.
Run-to-failure	A maintenance approach that replaces equipment only when it fails.
Rural region	In accordance with GO 165, "rural" shall be defined as those areas with a population of less than 1,000 persons per square mile as determined by the United States Bureau of the Census. For the purposes of the WMP, “area” shall be defined as census tracts.
Safety Hazard	A condition that poses a significant threat to human life or property.
Simulated wildfire	Propagation and impact/consequence of a wildfire ignited at a particular point ('match drop'), as simulated by fire spread software.
Slash	Branches or limbs less than four inches in diameter, and bark and split products debris left on the ground as a result of utility vegetation management.
Span	The space between adjacent supporting poles or structures on a circuit consisting of electric lines and equipment. "Span level" refers to asset-scale granularity.
System Average Interruption Duration Index (SAIDI)	System-wide total number of minutes per year of sustained outage per customer served.
Third-party contact	Contact between a piece of electrical equipment and another object, whether natural (tree branch) or human (vehicle).
Time to expected failure	Time remaining on the life expectancy of a piece of equipment.
Top 30% of proprietary fire potential index	Top 30% of FPI or equivalent scale (e.g., “Extreme” on SCE’s FPI; “extreme”, 15 or greater, on SDG&E’s FPI; and 4 or above on PG&E’s FPI).
Trees with strike potential / hazard trees	Trees that could either 'fall in' to a power line, or have branches detach and 'fly in' to contact a power line in high-wind conditions.
Unplanned outage	Electric outage that occurs with no advance notice from the utility (e.g. blackout).
Urban region	In accordance with GO 165, "urban" shall be defined as those areas with a population of more than 1,000 persons per square mile as determined by the United States Bureau of the Census.
Utility-related ignition	Wildfires ignited by utility infrastructure or employees, including all wildfires determined by AHJ investigation to originate from ignition caused by utility infrastructure. For the purposes of the WMP, “area” shall be defined as census tracts.
Vegetation management	Trimming and clearance of trees, branches, and other vegetation that poses the risk of contact with electric equipment.
Vegetation risk index	Risk index indicating the probability of vegetation-related outages along a particular circuit, based on the vegetation species, density, height, and growth rate.

Term	Definition
Weather normalization	Adjusting metrics based on relative weather risk factors or indices
Wildfire impact/ consequence	The effect or outcome of a wildfire affecting objectives, which may be expressed, by terms including, although not limited to health, safety, reliability, economic and/or environmental damage.
Wildfire risk	The potential for the occurrence of a wildfire event expressed in terms of ignition probability, wildfire impact/consequence.
Wildfire-only WMP programs	Activities, practices, and strategies that are only necessitated by wildfire risk, unrelated to or beyond that required by minimum reliability and/or safety requirements. Such programs are not indicated or in common use in areas where wildfire risk is minimal (e.g., territory with no vegetation or fuel) or under conditions where wildfires are unlikely to ignite or spread (e.g., when rain is falling).
Wildland urban interface (WUI)	A geographical area identified by the state as a “Fire Hazard Severity Zone”, or other areas designated by the enforcing agency to be a significant risk from wildfires, established pursuant to Title 24, Part 2, Chapter 7A.
Wire down	Instance where an electric transmission or distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object.

EXECUTIVE SUMMARY

Trans Bay Cable LLC (U934-E) (Trans Bay) is a transmission-only utility with no retail/end-use customers. Trans Bay is the owner and operator of a 53-mile, approximately 400 MW, high voltage, direct-current (HVDC) submarine transmission cable buried at various depths beneath the San Francisco Bay Waters[3] (Bay Waters), with AC/DC converter stations (or substations) at each end (the TBC System).

Figure 1: Trans Bay Cable System

The TBC System's western converter station is in the City and County of San Francisco, a fully developed and urbanized area with minimal fire-threat risk. The eastern converter station is located in Pittsburg, CA which is adjacent to an area designated as a Tier 2 (Elevated) High Fire-Threat District ("HFTD") based on the California Public Utilities Commission's (CPUC or Commission) HFTD Map[4].

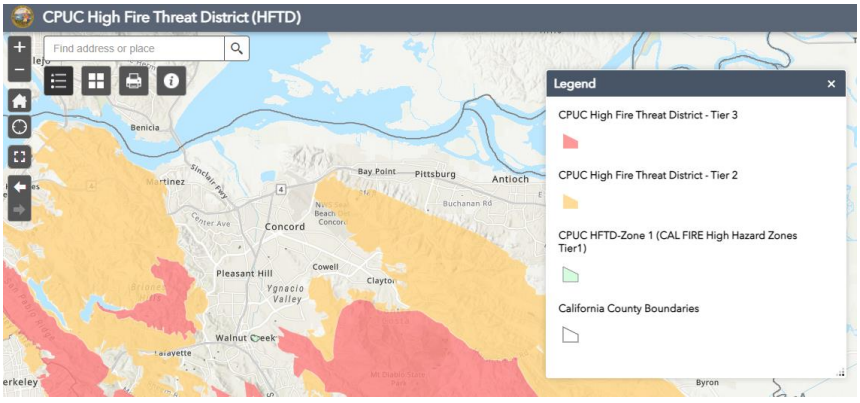

Figure 2: Tier 2 HFTD near Pittsburg, CA

[3] San Francisco Bay Waters is defined as the continuous waterway that includes the San Francisco Bay, San Pablo Bay, Carquinez Strait, Suisan Bay and Sacramento River delta.
[4] CPUC FireMap – https://ia.cpuc.ca.gov/firemap/

The submarine cable is fully submerged beneath the Bay Waters for approximately 53 miles (85km) and therefore has no fire-threat risk. The TBC System is connected to Pacific Gas & Electric (PG&E) substations in both San Francisco and Pittsburg, CA via underground AC cables. All aboveground transmission infrastructure is fully contained within the walls of the system's converter stations.

In recent years, catastrophic wildfires in California have escalated in frequency and scope. Per California Department of Forestry and Fire Protection (CAL FIRE) an estimated 2.6 million acres and 3,629 structures were damaged or destroyed as a result of fire in 2021[5]. Wildfires have had and continue to have significant and damaging effects on California. Although not all wildfires are linked to instigation by electric utility equipment, it is important to maintain persistent focus on mitigating activities and endeavors to reduce the risk that such equipment may have on the instigation of wildfires.

As a result of Trans Bay's limited footprint, the substantial hardening of its transmission infrastructure due to being underground or submerged, and having no transmission infrastructure in wildlands or in a wildland urban interface (WUI), Trans Bay does not maintain a program specifically geared towards wildfire mitigation. However, Trans Bay focuses on wildfire safety as part of its overall fire prevention program and is dedicated to having industry-leading fire mitigation capabilities. In 2021, Trans Bay made progress on its fire mitigation initiatives, executing on its capital improvements to enhance seismic resiliency of its transformers which support efforts to minimize the risk of utility equipment causing fire ignition.

Trans Bay participates in the CPUC wildfire mitigation workshops and continues to learn and implement applicable best practices in fire mitigation. Trans Bay is committed to continuous improvement of its overall fire prevention plans and processes which have the added benefit of mitigating wildfire risk. Trans Bay will continue to include new fire-prevention and related initiatives in its Wildfire Mitigation Plan (WMP) submissions.

[5] https://www.fire.ca.gov/incidents/2021/

1 PERSONS RESPONSIBLE FOR EXECUTING THE WMP

Instructions[6]: Provide an accounting of the responsibilities of the responsible person(s) executing the plan, including:

1. *Executive level with overall responsibility*
2. *Program owners specific to each component of the plan*

Title, credentials and components of responsible must be released publicly, but other contact information may be provided in a redacted file attached to the WMP submission.

Executive-level owner with overall responsibility

- Name and title: Alona Sias, President – Trans Bay Cable
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately

Program owners specific to each section of the plan

Note: A program owner may own multiple sections, and multiple components across sections, but each section must have a program owner accountable.

Section 1: Persons responsible for executing the plan

Program owner (add additional program owners if separated by component in section)

- Name and title: Alona Sias, President – Trans Bay Cable
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put "entire section"): Entire Section

Section 2: Adherence to statutory requirements

Program owner (add additional program owners if separated by component in section)

- Name and title: Alona Sias, President – Trans Bay Cable
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put "entire section"): Entire Section

Section 3: Actuals and planned spending

Program owner (add additional program owners if separated by component in section)

- Name and title: Mahogany Newell, Director of Operations – NextEra Energy Transmission
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put "entire section"): Entire Section

[6] Text in blue italics are instructions, prompts, and clarifications from Resolution WSD-011, Attachment 2.2 – 2021 Wildfire Mitigation Plan Guidelines Template (November 2020), as modified by the WSD on January 5, 2021, January 22, 2021, and January 25, 2021.

Section 4: Lessons learned and risk trends

Program owner (add additional program owners if separated by component in section)

- Name and title: Lenneal Gardner, Regulatory and Business Manager – Trans Bay Cable
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put “entire section”): Entire Section

Section 5: Inputs to the plan and directional vision

Program owner (add additional program owners if separated by component in section)

- Name and title: Mahogany Newell, Director of Operations – NextEra Energy Transmission
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put “entire section”): Entire Section

Section 6: Metrics and underlying data

Program owner (add additional program owners if separated by component in section)

- Name and title: Mahogany Newell, Director of Operations – NextEra Energy Transmission
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put “entire section”): Entire Section

Section 7: Mitigation initiatives

Program owner (add additional program owners if separated by component in section)

- Name and title: Michael Blunt, Operations Manager – Trans Bay Cable
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put “entire section”): Entire Section

Section 8: Public Safety Power Shutoff

Program owner (add additional program owners if separated by component in section)

- Name and title: Michael Blunt, Operations Manager – Trans Bay Cable
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put “entire section”): Entire Section

Section 9: Appendix

Program owner (add additional program owners if separated by component in section)

- Name and title: Lenneal Gardner, Regulatory and Business Manager – Trans Bay Cable
- Email: Redacted, provided separately
- Phone number: Redacted, provided separately
- Component (if entire section, put “entire section”): Entire Section

1.1 Verification

I am an officer of the applicant corporation herein, and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except as to matters which are therein stated on information or belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 6th, 2022.
At One California Street, Suite 1600, San Francisco, California 94111.

Alona Sias, President – Trans Bay Cable LLC
(Signature and Title of Corporate Officer)

2 ADHERENCE TO STATUTORY REQUIREMENTS

Section 2 comprises a "check list" of the Pub. Util. Code § 8386 © requirements and subparts. The utility is required to both affirm that the WMP addresses each requirement AND cite the section and page number where statutory compliance is demonstrated fully. Citations are required to use cross-referencing with hyperlinks. ***Note: Energy Safety reserves the right to automatically reject a WMP that does not provide substantiation for statutory compliance or does not provide citations to appropriate sections of the WMP.***

Table 2-1 provides an exemplar for the minimum acceptable level of information and citation for the statutory check list.

Table 2-1: Illustrative checklist

Requirement	*Description*	*WMP Section/Page*
2	*The objectives of the plan*	*Section 4.1 pg. 13*
10	*Protocols for the de-energization of the electrical corporation's transmission infrastructure, etc.*	*Section 5 overview, pg. 30-31*

Table 2-2 provides the full list of statutory requirements. A table similar to Table 2-2 is required with the appropriate citation for each requirement. If multiple WMP sections address a specific requirement, then references to all relevant sections with a brief indication of information provided in each section must be provided. The table must include each section reference separated by semi-colon (e.g., Section 5, pg. 30-32 (workforce); Section 7, pg. 43 (mutual assistance)) where appropriate, and associated hyperlinks to the referenced section.

Table 2-2: Statutory Compliance Matrix

Requirement	Description	WMP Section/Page
1	An accounting of the responsibilities of persons responsible for executing the plan	Section 1, pgs. 15-17
2	The objectives of the plan	Section 5.2 , pgs. 45-47
3	A description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks	Section 7, pgs. 58-68

4	A description of the metrics the electrical corporation plans to use to evaluate the plan's performance and the assumptions that underlie the use of those metrics	Section 6, pg.53
5	A discussion of how the application of previously identified metrics to previous plan performances has informed the plan	Section 4.1, pgs. 26-30
6	Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety. As part of these protocols, each electrical corporation shall include protocols related to mitigating the public safety impacts of disabling reclosers and deenergizing portions of the electrical distribution system that consider the impacts on all of the aspects listed in PU Code 8386c	Section 8.2, pgs. 81-83
7	Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines, including procedures for those customers receiving a medical baseline allowance as described in paragraph (6). The procedures shall direct notification to all public safety offices, critical first responders, health care facilities, and operators of telecommunications infrastructure with premises within the footprint of potential deenergization for a given event	Sections 8.1-8.4, pgs. 79-84
8	Identification of circuits that have frequently been de-energized pursuant to a de-energization event to mitigate the risk of wildfire and the measures taken, or planned to be taken, by the electrical corporation to reduce the need for, and impact of, future de-energization of those circuits, including, but not limited to, the estimated annual decline in circuit de-energization and de-energization impact on customers, and replacing, hardening, or undergrounding any portion of the circuit or of upstream transmission or distribution lines	Section 8.6, pg. 84
9	Plans for vegetation management	Sections 5.4.1-5.4.2, pgs. 50-51; Section 7.3, pg. 66
10	Plans for inspections of the electrical corporation's electrical infrastructure	Section 7.3, pgs. 63-68

11	Protocols for the deenergization of the electrical corporation's transmission infrastructure, for instances when the deenergization may impact customers who, or entities that, are dependent upon the infrastructure	Section 8, pgs.79-84
12	A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the electrical corporation's service territory, including all relevant wildfire risk and risk mitigation information that is part of the Safety Model Assessment Proceeding and the Risk Assessment Mitigation Phase filings	Section 4, pgs. 26-38
13	A description of how the plan accounts for the wildfire risk identified in the electrical corporation's Risk Assessment Mitigation Phase filing	Section 4.2, pg. 30
14	A description of the actions the electrical corporation will take to ensure its system will achieve the highest level of safety, reliability, and resiliency, and to ensure that its system is prepared for a major event, including hardening and modernizing its infrastructure with improved engineering, system design, standards, equipment, and facilities, such as undergrounding, insulation of distribution wires, and pole replacement	Section 4, pgs. 26-38; Section 5, pgs. 45-49; Section 7, pgs. 58-68
15	A description of where and how the electrical corporation considered undergrounding electrical distribution lines within those areas of its service territory identified to have the highest wildfire risk in a commission fire threat map	Section 9.4, pg. 96-97
16	A showing that the electrical corporation has an adequately sized and trained workforce to promptly restore service after a major event, taking into account employees of other utilities pursuant to mutual aid agreements and employees of entities that have entered into contracts with the electrical corporation	Section 5.4, pgs. 49-51
17	Identification of any geographic area in the electrical corporation's service territory that is a higher wildfire threat than is currently identified in a commission fire threat map, and where the commission should consider expanding the high fire threat district based on new information or changes in the environment	Section 4.2, pgs. 30-37
18	A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk that is consistent with the methodology used by other electrical corporations unless the commission determines otherwise	Section 4.2, pgs. 30-37

19	A description of how the plan is consistent with the electrical corporation's disaster and emergency preparedness plan prepared pursuant to Section 768.6, including plans to restore service and community outreach	Section 8, pgs.79-84
20	A statement of how the electrical corporation will restore service after a wildfire	Section 8, pgs.79-84
21	Protocols for compliance with requirements adopted by the commission regarding activities to support customers during and after a wildfire, outage reporting, support for low-income customers, billing adjustments, deposit waivers, extended payment plans, suspension of disconnection and nonpayment fees, repair processing and timing, access to electrical corporation representatives, and emergency communications	Section 8, pgs.79-84
22	A description of the processes and procedures the electrical corporation will use to do the following: (A) Monitor and audit the implementation of the plan. (B) Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies. (C) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules.	Section 7.2, pg. 62-68

3 ACTUALS AND PLANNED SPENDING FOR MITIGATION PLAN

3.1 Summary of WMP initiative expenditures

Table 3.1-1, summarizes the projected costs (in thousands of US $) per year over the three-year WMP cycle, including actual expenditures for past years. In Table 3.1-2, break out projected costs per category of mitigations, over the three-year WMP plan cycle. In reporting "planned" expenditure, use data from the corresponding year's WMP or WMP Update (i.e., 2020 planned expenditure must use 2020 WMP data). The financials represented in the summary tables below equal the aggregate spending listed in the mitigations financial tables reported quarterly. Nothing in this document is required to be construed as a statement that costs listed are approved or deemed reasonable if the WMP is approved, denied, or otherwise acted upon.

The TBC System is a 53-mile, approximately 400 MW, high voltage, direct-current (HVDC) submarine transmission cable buried at various depths beneath the Bay Waters, with AC/DC converter stations at each end. Specifically, the transmission system is comprised of the Pittsburg converter station, 230kV High Voltage AC Underground Cable, 200kV High Voltage DC Underground Cable – Pittsburg Location, +/-200kV High Voltage DC Submarine Cable, +/-200kV High Voltage DC Underground Cable – San Francisco Location, Potrero converter station, and 115kV High Voltage AC Underground Cable. Based on its review, Trans Bay has determined that its facilities located in San Francisco have minimal fire-threat risk as the area is fully developed and urbanized. The San Francisco facilities are also not located in a High Fire-Threat District (HFTD) or an area of increased wildfire risk per the CPUC's FireMap. The submarine cable has no wildfire risk because it is completely submerged beneath the Bay Waters for approximately 53 miles (85 km). Trans Bay's Pittsburg substation, however, is adjacent to a Tier 2 (Elevated) Fire-Threat area per the CPUC's Fire-Threat Map and a Community at Risk for wildfire (See Figure 2). Additionally, Trans Bay's Pittsburg station site also borders a decommissioned oil storage facility which is surrounded by land containing vegetative fuels (See Figure 9). A portion of the Trans Bay's HVDC and HVAC cable traverses this property underground and exits into the Suisun Bay and interconnects to the PG&E substation located there respectively.

Due to the limited scale and scope of Trans Bay's operations, the substantial hardening of Trans Bay's transmission infrastructure to wildfire risks due to being underground or submerged and having no transmission infrastructure in wildlands or in a wildland urban interface (WUI), Trans Bay does not maintain a program specifically geared towards wildfire mitigation. As such, Trans Bay does not typically have expenditures explicitly designated for wildfire mitigation initiatives, but rather expenditures in connection with overall fire prevention plan which have the added effect of mitigating wildfire risk.

Trans Bay recognizes that over the past five years there has been a rapid increase in the number and destructiveness of wildfires in California. 2020 was a record-breaking year for wildfires in California, and in 2021 an estimated 2.6 million acres burned according to CAL FIRE (See Footnote 5). While there have been no recent wildfires in Trans Bay's area of operation, there have been small low intensity fires in the Pittsburg area (See Figure 3). Considering these facts, Trans Bay

remains committed to mitigating overall fire prevention and reducing the risk of its transmission elements igniting a fire.

Figure 3: Smoke from Small Brush Fire Near the Converter Station in March 2019 (Copyright © 2019 KGO-TV) #3

Given the seismic and fire risk conditions of the areas where it operates and proximate source of vegetative fuels, Trans Bay continues to pursue appropriate fire mitigation initiatives. The 2022 initiatives are detailed in Section 7 of this WMP and are designed to further harden the asset and further reduce fire risk.

Trans Bay conducts its annual comprehensive assessment of its transmission elements using a Failure Modes and Effects Analysis (FMEA). The FMEA considers the potential failures from relevant facility components and assesses and prioritizes the potential risk, along with providing potential mitigations. The methodology and results of the FMEA and third-party wildfire mitigation assessment are further detailed in Sections 4 and 7 of this WMP.

As noted above, Trans Bay does not typically have expenditures explicitly designated for wildfire mitigation initiatives, but rather expenditures in connection with overall operational risk reduction, including fire prevention which in some instances have the added effect of mitigating wildfire risk. Considering this fact, in Table 3.1-1 and Table 3.1-2 Trans Bay's identifies spend on operational initiatives which may not have been driven by fire risk mitigation, but nonetheless have the benefit of incorporating fire mitigation elements as described above and detailed in Section 7 of this WMP.

Table 3.1-1: Summary of WMP Expenditures - Total

Year	Spend in thousands of $USD
2020 WMP Planned	11,322
2020 Actual	11,300
2020 Difference	22
2021 Planned	6,000
2021 Actual	5,800
2021 Difference	(200)
2022 Planned	610
2020-22 Planned (w/ 2020 and 2021 Actual)	17,710

Table 3.1-2: Summary of WMP Expenditures by Category

	2020			2021			2022	2020-2022 Planned (w/ 2020 and 2021 Actuals)
WMP Category	**Planned**	**Actual**	**Δ**	**Planned**	**Actual**	**Δ**	**Planned**	
Risk and Mapping	200	200	0	0	0	0	10	210
Situational Awareness	2,800	2,800	0	0	200	200	0	3,000
Grid Design and System Hardening	8,100	8,100	0	5,100	5,600	500	0	13,700
Asset Management and Inspections	0	0	0	0	0	0	0	200
Vegetation Management	0	0	0	0	0	0	0	0
Grid Operations	222	200	22	900	0	(900)	600	600
Data Governance	0	0		0	0	0	0	0
Resource Allocation	0	0		0	0	0	0	0
Emergency Planning	0	0		0	0	0	0	0
Stakeholder Cooperation and Community Engagement	0	0		0	0	0	0	0
Total	**11,322**	**11,300**	**22**	**6,000**	**5,800**	**(200)**	**610**	**17,710**

3.2 Summary of Ratepayer Impact

For each of the years in Table 3.2-1, report the actual and projected cost increases to ratepayers due to utility-related ignitions and wildfire mitigation activities engaged. For past years, account for all expenditures incurred in that year due to utility-related ignitions and wildfire mitigation activities. Below the table, describe the methodology behind the calculations.

Trans Bay is a transmission-only electrical corporation that does not have retail customers, and its rates and cost recovery are regulated by the Federal Energy Regulatory Commission (FERC) and recovered exclusively through the California Independent System Operator Corp.'s (CAISO) Transmission Access Charge (TAC). Trans Bay has not had any utility-ignited wildfires in its operational history, which includes the relevant reportable period (2016-2021). Moreover, 2022 annual CAISO-wide revenue requirement that is collected through the TAC is $2.71 billion and thus the annual customer impact of Trans Bay's wildfire mitigation activities given planned spend summarized in Table 3.1-1 would be *de minimis*. Therefore, Table 3.2-1 is not applicable and is intentionally provided with no ratepayer impact calculations.

Table 3.2-1: WMP Electricity cost increase to ratepayers

Outcome metric name	**Annual performance - Actual**							Unit(s)
	Actual						Projected	
	2016	2017	2018	2019	2020	2021	2022	
Increase in electric costs to ratepayer due to utility-ignited wildfires (total)	N/A	N/A	N/A	N/A	N/A	N/A	NA	Dollar value of average monthly rate increase attributable to utility-ignited wildfires per year (e.g., $3/month on average across customers for utility-ignited wildfires occurring in 20XX)
Increase in electric costs to ratepayer due to wildfire mitigation activities (total)	N/A	N/A	N/A	N/A	N/A	N/A	NA	Dollar value of average monthly rate increase attributable to WMPs per year

4 LESSONS LEARNED AND RISK TRENDS

4.1 Lessons Learned: how tracking metrics on the 2020 and 2021 plans informed the 2022 plan update

Describe how the utility's plan has evolved since the 2020 WMP and 2021 WMP Update submissions. Outline any major themes and lessons learned from the 2020 and 2021 plans, and subsequent implementation of the initiatives. In particular, focus on how utility performance against the metrics used has informed the 2022 WMP Update. Include an overview map of the utility's service territory. If any of the lessons learned are derived from data, include visual/graphical representations of this/these lesson(s) learned.

Trans Bay's service territory consists of a single transmission system in which the main transmission element is a submarine cable, as such many of the substantial and warranted efforts undertaken by utilities whose service territories include distribution customers and encompass wildlands and WUIs are not specifically applicable to Trans Bay. However, Trans Bay has identified that its Pittsburg converter station and connected underground transmission elements are located in a medium density urban area adjacent to a Tier 2 (Elevated) High Fire Threat District. Trans Bay's Pittsburg substation infrastructure is also proximate to vegetative fuels. Additionally, the TBC System is entirely located California's seismically active San Francisco Bay Area. As a result, Trans Bay considers seismic hardening of its facilities as a mitigation action to preclude ignition of proximate vegetative fuels from earthquake-deranged equipment. Figures 4-7 (pgs. 27-29) show the location of the TBC System, its components and fire threat districts proximate to the system's location.

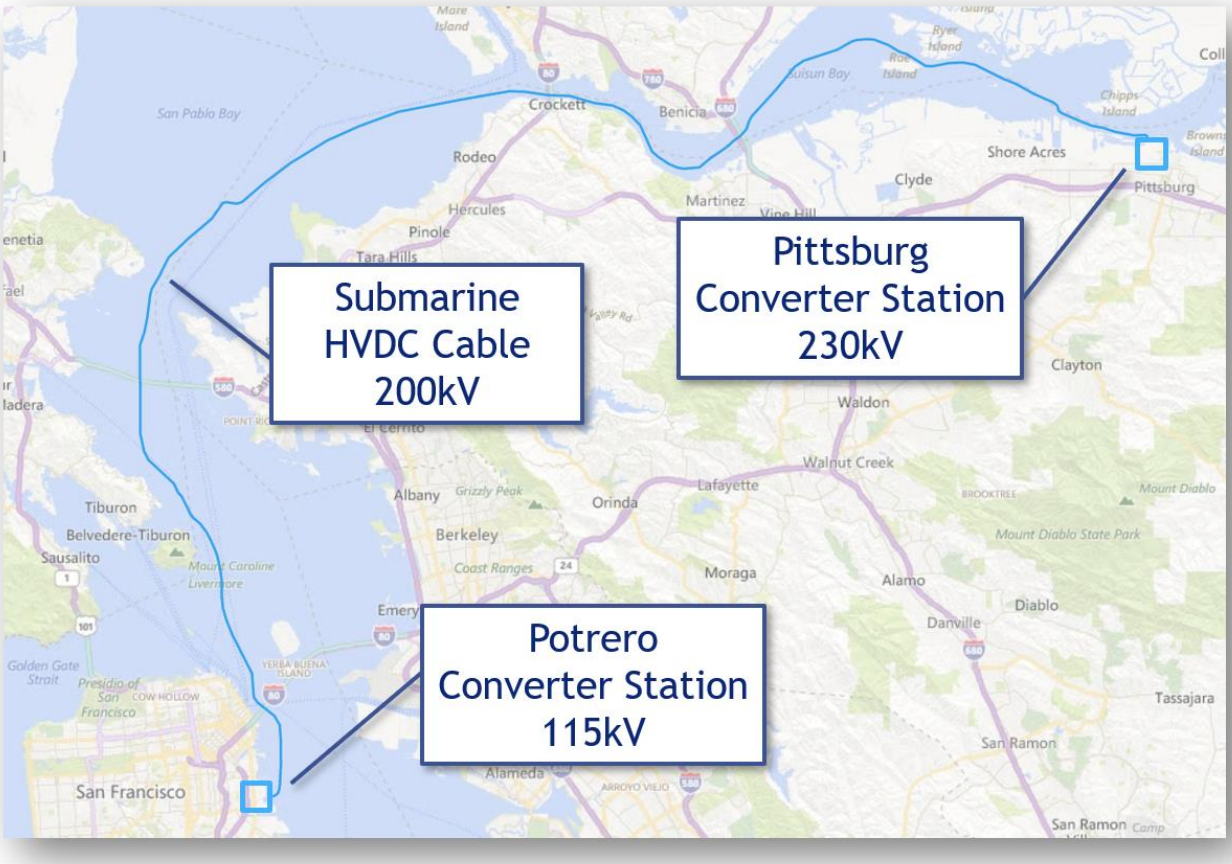

Figure 4: Overview of TBC Facilities and Service Territory

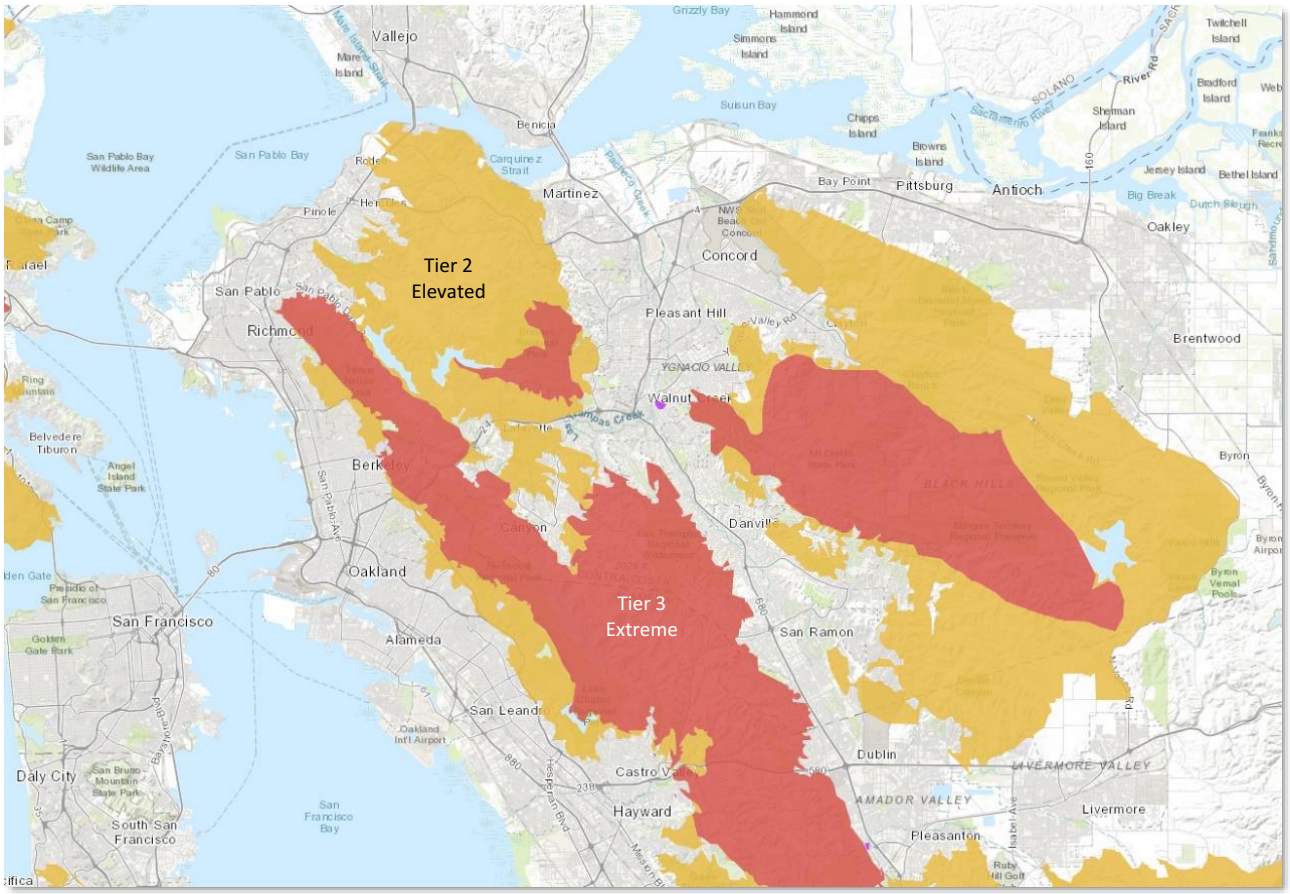

Figure 5: Map of HTFD Proximate to TBC Facilities

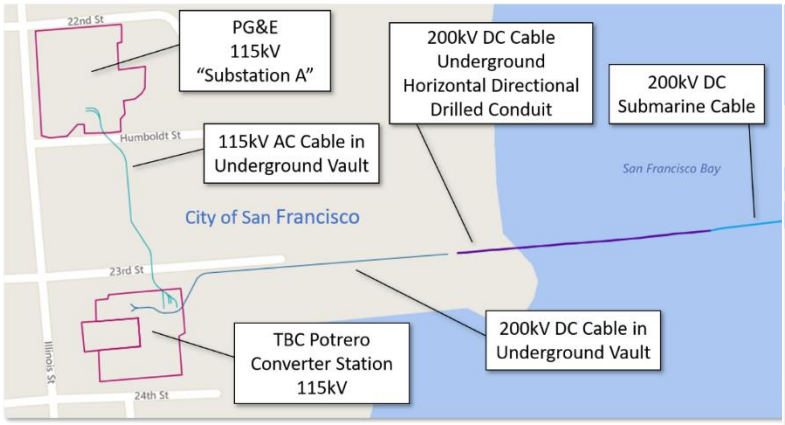

Figure 6: Overview of TBC San Francisco Facilities

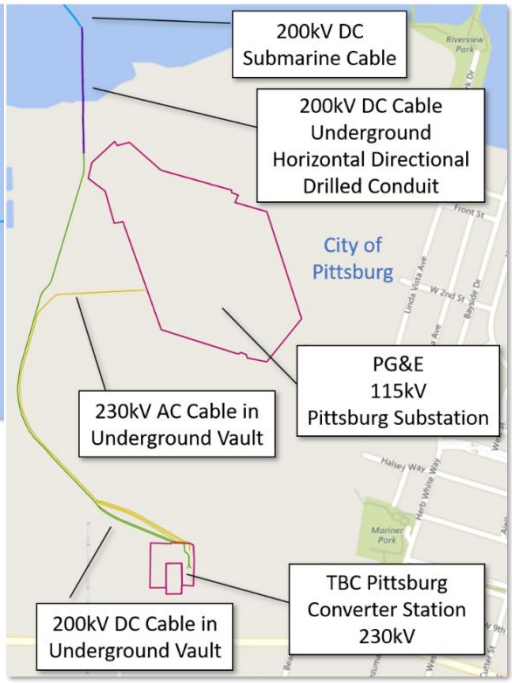

Figure 7: Overview of TBC Pittsburg Facilities

Due to the limited scale and scope of Trans Bay's operations, the substantial hardening of Trans Bay's transmission infrastructure to wildfire risks due to being underground or submerged and having no transmission infrastructure in wildlands or in a wildland urban interface (WUI), Trans Bay does not maintain programs specifically geared towards wildfire mitigation. However, Trans Bay does conduct operational safety and overall fire prevention planning which in some instances has the added effect of mitigating wildfire risk. Trans Bay maintains a fire prevention plan, and associated procedures and training. These activities reflect the preventative strategies and actions currently emplaced for fire prevention, suppression, and operational response to emergency situations.

Trans Bay utilized a third-party engineering study, conducted in 2020, to provide an initial baseline assessment of the fire harden capabilities of its substation design and equipment and review of planned initiatives to enhance fire protection and certain seismic upgrades to its main transformers. The study also afforded Trans Bay with additional recommendations for consideration to enhance control measures for improvement of its fire protection schema and philosophy. Trans Bay planned to review and include appropriate recommendations in its short term and mid-term capital program to improve operational safety and fire risk mitigation. In Q1 2022, Trans Bay contracted with another third-party to provide second level review of the 2020 study to verify the effectiveness and further prioritize fire mitigation initiatives.

Trans Bay completed the seismic upgrades to the main transformers in August 2021. This project was delayed from 2020, as Trans Bay elected to move completion of the seismic upgrades to

2021 so that the transmission system would remain available to continue transmitting power into San Francisco during the uncertainty caused by the COVID-19 pandemic. The seismic upgrades included the positioning of all site transformers on base isolators which significantly improves the capability of the transformers to resist derangement during a seismic event.

Trans Bay also implemented a transformer oil control system which provided new control and flow sensor on its main transformers. This system allows station personnel to have improved assess to oil flow indication and controls which allows for more accurate preventative maintenance. This system in conjunction with the transformer monitoring system, which was installed in 2020, provides enhanced data that can be utilized to assess transformer health and potentially predict transformer failure which has the potential for initiating an ignition event. Two projects, spare parts building fire suppression system installation and compressed gas cylinder enclosure, were delayed to challenges with scoping and availability of vendors and required materials in 2021. These projects remained scheduled for completion in 2022.

Trans Bay has the following lessons learned from the execution of its WMP to date.

1. Previous controls for fire prevention emplaced before the WMP have continued to sustain a record of zero (0) ignition incidents.
2. Red Flag Warnings (RFW) awareness does not change Trans Bay's operation profile.
3. Weather and RFW were assessed to have minimal operational impact on Trans Bay.
4. Trans Bay assessed that there is no foreseeable circumstance under which Trans Bay would issue a Public Safety Power Shutdown as discussed further in Section 8.
5. Trans Bay's service territory consists of a single transmission system in which the main transmission element is a submarine cable, as such many of the substantial and warranted efforts undertaken by utilities whose service territories include distribution customers and encompass wildlands and WUIs are not specifically applicable to Trans Bay.
6. Support from third-party risk assessments provide material benefit in the continuous evaluation of site enhancements and equipment procurement to further harden its facility against fire and to improve emergency response to fire ignition.
7. Continued participation in the CPUC wildfire mitigation workshops has provided valuable information the Trans Bay can leverage to further fire harden its infrastructure.

4.2 Understanding major trends impacting ignition probability and wildfire consequence

Describe how the utility assesses wildfire risk in terms of ignition probability and estimated wildfire consequence, including use of Multi-Attribute Risk Score (MARS) and Multi-Attribute Value Function (MAVF) as in the Safety Model and Assessment Proceeding (S-MAP)[7] and Risk Assessment Mitigation Phase (RAMP), highlighting changes since the 2020 WMP report. Include description of how the utility distinguishes between these risks and the risks to safety and

[7] Updates to S-MAP are currently in deliberation under proceeding R. 20-07-013 – Order Instituting Rulemaking to Further Develop a Risk-based Decision-making Framework for Electric and Gas Utilities.

reliability. List and describe each "known local condition" that the utility monitors per GO 95, Rule 31.1, including how the condition is monitored and evaluated. In addition:

A. *Describe how the utility monitors and accounts for the contribution of weather to ignition probability and estimated wildfire consequence in its decision-making, including describing any utility-generated Fire Potential Index or other measure (including input variables, equations, the scale or rating system, an explanation of how uncertainties are accounted for, an explanation of how this index is used to inform operational decisions, and an explanation of how trends in index ratings impact medium-term decisions such as maintenance and longer-term decisions such as capital investments, etc.).*

B. *Describe how the utility monitors and accounts for the contribution of fuel conditions to ignition probability and estimated wildfire consequence in its decision-making, including describing any proprietary fuel condition index (or other measures tracked), the outputs of said index or other measures, and the methodology used for projecting future fuel conditions. Include discussion of measurements and units for live fuel moisture content, dead fuel moisture content, density of each fuel type, and any other variables tracked. Describe the measures and thresholds the utility uses to determine extreme fuel conditions, including what fuel moisture measurements and threshold values the utility considers "extreme" and its strategy for how fuel conditions inform operational decision-making.*

With respect to the CPUC's Risk Assessment Mitigation Phase (RAMP) and Safety Model and Assessment Proceedings (S-MAP), Trans Bay is a transmission-only electrical corporation whose rates and cost recovery are regulated exclusively by FERC. As result, Trans Bay does not utilize RAMP or S-MAP. In the alternative, Trans Bay utilizes a Failure Modes and Effects Analysis (FMEA) process to assess wildfire risk.

The FMEA process is a risk assessment method developed by the National Aeronautics and Space Administration (NASA) as part of its Space Program, to identify potential failure modes, and assess and prioritize the overall risk presented by each failure mode. Risks are identified and ranked along three dimensions: Occurrence (likelihood of an event taking place); Severity (degree of impact of an event once it occurs); and Detection (ability to know when an event has occurred).

Through the FMEA process, Trans Bay conducts in-depth evaluation of the facility electrical components to identify and prioritize risks and risk drivers, mitigate identified risks, and create a process for re-evaluating and reprioritizing these elements. Each component of the TBC System is evaluated for its potential for failure, the effects from a failure, what typically causes a failure, what controls are in place to detect and prevent failure, what actions are taken to reduce the likelihood of failure and improve early detection, and who is responsible for implementing the actions.

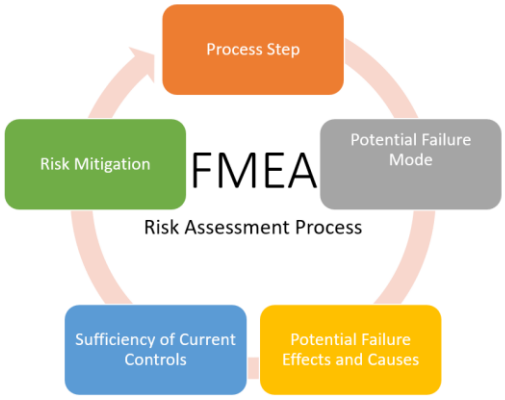

Figure 8: FMEA Risk Assessment Process Cycle

This risk assessment method has become a standard and best practice in many industries, in the areas of product and process design, as well as in quality management and continuous improvement frameworks, such as Lean Six Sigma. The general process of this methodology as applied by Trans Bay to identify and prioritize wildfire risks, drivers and mitigation measures consists of the following five steps:

- **Risk Identification**: for each major equipment component, a group of experienced SMEs brainstorm and capture all potential ways that component could cause an ignition event (failure modes).
- **Risk Driver Identification**: for each identified failure mode, the SMEs brainstorm and capture all potential root causes (drivers).
- **Risk Prioritization**: each risk driver identified is assessed against a pre-determined scale for each of the three dimensions of Occurrence, Severity and Detection, to calculate a Risk Priority Number (RPN). The drivers are then ranked by RPN, with the higher RPNs representing the higher overall risks.
- **Risk Mitigation**: for each of the risk drivers identified, starting with the highest RPNs, the SMEs brainstorm to identify and capture cost-effective mitigation measures, and determine who should implement each measure and when.
- **Risk Assessment and Re-prioritization**: once measures have been developed, and implementation plans established for each risk driver, the RPN is recalculated and a re-ranking is done to determine the new higher priority risk drivers.

This process can be applied iteratively, which allows for further improvements and refinement of a specific plan over time. Trans Bay is committed to continuous improvement of its wildfire strategy and thus annually refreshes the FMEA to reflect operational learnings from the field, learnings and best practices from other entities, innovation in wildfire-related mitigation measures, and participation in the CPUC's wildfire mitigation plan workshops.

As noted above, only Trans Bay's Pittsburg converter station and connected underground AC cables are adjacent to a Tier 2 (Elevated) HFTD. Trans Bay has determined that its facilities

location in San Francisco have minimal fire-threat risk as the area is fully developed and urbanized. The San Francisco facilities are also not located in a HFTD or an area of increased wildfire risk per the CPUC's Fire-Threat Map. The submarine cable has no wildfire risk because it is completed submerged beneath the Bay Waters for approximately 53 miles (85 km). There are no other "known local conditions" that Trans Bay monitors per GO 95, Rule 31.1.

With Trans Bay's transmission infrastructure being fully underground or submerged, and outside wildlands and wildland urban interface locations, weather has minimal capacity to increase in potential risk of ignition from Trans Bay's infrastructure. Trans Bay's perspective on these trends is shaped by its limited scale and scope of operations in comparison to other reporting utilities whose expansive service territories encompass wildlands and WUI and have infrastructure more susceptible to these trends.

Trans Bay's facilities utilize no overhead transmission lines. As a result, Trans Bay does not have a Vegetation Management Plan (VMP) and is not required to maintain a VMP under the North American Electric Reliability Corporation (NERC) Reliability Standards or any CAISO maintenance requirements. Trans Bay does undertake abatement of vegetative fuels on its converter stations, the cost of which is incorporated into landscape maintenance. The Pittsburg converter station is proximate to vegetative fuels in the form of a five (5) acre area which contains various native and non-native species of trees, shrubs, and grasses but all cable infrastructure traversing the area is underground. In this area equipment derangement resulting from environmental or man-made events, not weather or fuel conditions, would be the primary driver for potential fire ignition.

Figure 9: Vegetative Fuels Proximate to Pittsburg Station

As noted above, Trans Bay makes use of cable monitoring equipment to monitor cable status in real-time. Additionally, Trans Bay employs a Geographic Information System that provides high accuracy geo-plots of all Trans Bay facilities. This GIS also plots excavation notifications which helps to minimize the likelihood of derangement due to uncoordinated excavations all the cable

route. Lastly, the Pittsburg converter station is surrounded by a twelve (12) foot concrete perimeter wall and is hardscaped with asphalt and rock/gravel.

4.2.1 Service territory fire-threat evaluation and ignition risk trends

Present a map of the highest risk areas identified within the current High Fire Threat District (HFTD) tiers of the utility's service territory as a figure in the WMP. Discuss fire threat evaluation of the service territory to determine whether a modification to the HFTD is warranted (i.e., expansion beyond existing Tier 2 and Tier 3 areas). If the utility believes there are areas in its service territory that are not currently included in the HFTD but require prioritization for mitigation efforts, then the utility is required to provide a process outlining the formal steps necessary to have those areas considered for recognition in the CPUC-defined HFTD.[8] Include a discussion of any fire threat assessment of its service territory performed by the electrical corporation, highlighting any changes since prior WMP submissions. In the event that the utility's assessment determines the fire threat rating for any part of its service territory is insufficient (i.e., the actual fire threat is greater than what is indicated by the CPUC's Fire Threat Map and High Fire Threat District designations), the utility is required to identify those areas for potential HFTD modification, based on the new information or environmental changes, showing the differences on a map in the WMP. To the extent this identification relies upon a meteorological or climatological study, a thorough explanation and copy of the study must be included as an Appendix to the WMP.

List, describe, and map geospatially (where geospatial mapping is applicable) any macro trends impacting ignition probability and estimated wildfire consequence within utility service territory, highlighting any changes since the 2021 WMP report:

1. *Change in ignition probability and estimated wildfire consequence due to climate change*
2. *Change in ignition probability and estimated wildfire consequence due to relevant invasive species, such as bark beetles*
3. *Change in ignition probability and estimated wildfire consequence due to other drivers of change in fuel density and moisture*
4. *Population changes (including Access and Functional Needs population) that could be impacted by utility ignition*
5. *Population changes in HFTD that could be impacted by utility ignition*
6. *Population changes in WUI that could be impacted by utility ignition*
7. *Utility infrastructure location in HFTD vs non-HFTD*
8. *Utility infrastructure location in urban vs rural vs highly rural areas*

The TBC System's western converter station is in the City and County of San Francisco, a fully developed and urbanized area with minimal wildfire-threat risk. The submarine cable bundle is

[8] As there is no formal or standard process for modifying the HFTD maps defined by the CPUC, Utilities may utilize a similar approach adopted by SCE during the 2019 WMP review process described in D.19-05-038, p. 53. For this process, in August 2019 SCE submitted a petition to modify D.17-12-024 to recognize SCE-identified HFRA as HFTD Tier 2 areas.

fully submerged beneath the Bay Waters for approximately 53 miles (85km) and therefore has no fire-threat risk. The eastern converter station is located in Pittsburg, CA, a medium density urban area, which is adjacent to an area that is designated as a Tier 2 (Elevated) HFTD. Trans Bay believes that the current Fire-Threat designations are appropriate for the areas in which it operates.

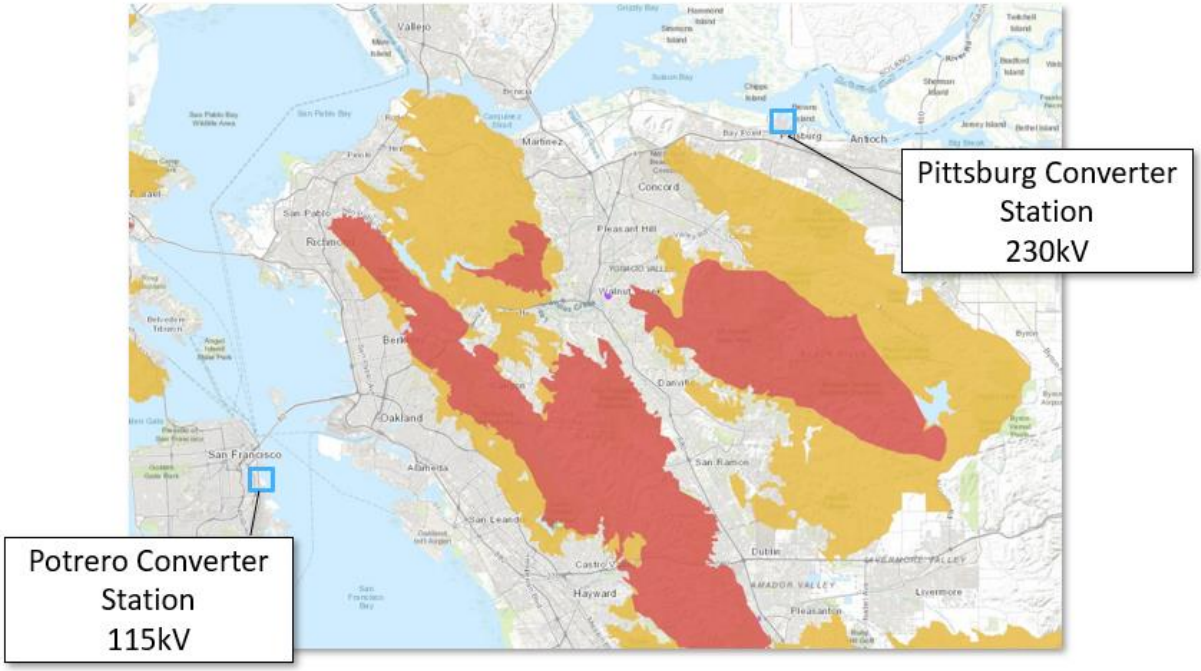

Figure 10: Trans Bay Station site locations on HFTD Map

Trans Bay provides the following comments on macro trends impacting ignition probability and estimated wildfire consequence within its service territory:

1. **Change in ignition probability and estimated wildfire consequence due to climate change**
   Trans Bay observes that increase drying of proximate vegetative fuels to the Trans Bay Pittsburg converter station driven by climate change represents a potential impacting trend on fire consequence. However, since the transmission facilities are underground or submerged, climate change is unlikely to materially impact ignition probability. Trans Bay does not reasonably foresee any macro trends in climate change which alter its current approach to fire protection, prevention, and response.

2. **Change in ignition probability and estimated wildfire consequence due to relevant invasive species, such as bark beetles**
   Trans Bay's transmission infrastructure is submerged, underground, or fully contained within the confines of the two (2) converter stations which are devoid of vegetation that could be impacted by invasive species. Trans Bay does not reasonably foresee any macro trends in connection with invasive species which alter its current approach to fire protection, prevention, and response.

3. **Change in ignition probability and estimated wildfire consequence due to other drivers of change in fuel density and moisture**
   Trans Bay observes that increase in the density of and drying of proximate vegetative fuels to the Trans Bay Pittsburg converter station driven by climate change represents a potential impacting trend on fire consequence. However, since the transmission facilities are underground or submerged, climate change is unlikely to materially impact ignition probability. Trans Bay does not reasonably foresee any macro trends which alter its current approach to fire protection, prevention, and response.

4. **Population changes (including Access and Functional Needs population) that could be impacted by utility ignition**
   Increase of population proximate to Trans Bay facilities and infrastructure is expected with increases in urban density. It is foreseeable that increased urban density may result in more construction in and around the underground cable path which may increase the opportunity for uncoordinated evacuation to disturb the cable. Trans Bay has identified this circumstance as an ignition probability driver. However, Trans Bay has never experienced an uncoordinated excavation that deranged an underground cable. Additionally, Trans Bay employs (i) a geographic information system that plots excavation notifications which helps to minimize the likelihood of derangement due to uncoordinated excavations all the cable route and (ii) a cable monitoring system which monitors various cable conditions in real time. Based on the foregoing, Trans Bay will continue to assess population change in its service area but does not reasonably foresee any macro trends which materially alter its current approach to fire protection, prevention, and response.

5. **Population changes in HFTD that could be impacted by utility ignition**
   Trans Bay does not have any infrastructure in HFTD and does not foresee any future expansion of HFTD encompassing Trans Bay infrastructure due to its location in a mid-density urban environment.

6. **Population changes in WUI that could be impacted by utility ignition**
   Trans Bay does not have any transmission infrastructure in wildlands. Trans Bay's Pittsburg converter station operates in a medium density urban area adjacent to the WUI identified in West Pittsburg. Increase of population proximate to Trans Bay facilities and infrastructure is expected with increases in urban density. As Trans Bay's utility infrastructure is underground or submerged, it does not reasonably foresee material impact in connection with population changes. Trans Bay does not reasonably foresee any macro trends which materially alter its current approach to fire protection, prevention, and response.

7. **Utility infrastructure location in HFTD vs non-HFTD**
   Trans Bay does not have any infrastructure in HFTD and does not foresee any future expansion of HFTD encompassing Trans Bay infrastructure due to its location.

8. **Utility infrastructure location in urban vs rural vs highly rural areas**
   Trans Bay's land infrastructure is only located in the high-density urban environment of San Francisco and the medium-density urban environment of Pittsburg. Trans Bay foresees an increase in urban density in both San Francisco and Pittsburg. As Trans Bay's utility infrastructure is underground or submerged, it does not reasonably foresee any macro trends which materially alter its current approach to fire protection, prevention, and response.

Trans Bay will continue to evaluate changes in ignition probability drivers on an annual basis.

4.3 Change in ignition probability drivers

Based on the implementation of the above wildfire mitigation initiatives, explain how the utility sees its ignition probability drivers evolving over the 3-year term of the WMP, highlighting any changes since the 2021 WMP report. Focus on ignition probability and estimated wildfire consequence reduction by ignition probability driver, detailed risk driver, and include a description of how the utility expects to see incidents evolve over the same period, both in total number (of occurrence of a given incident type, whether resulting in an ignition or not) and in likelihood of causing an ignition by type. Outline methodology for determining ignition probability from events, including data used to determine likelihood of ignition probability, such as past ignition events, number of risk events, and description of events (including vegetation and equipment condition).

Trans Bay conducts risk analysis and identification of risk drivers regarding wildfires in the context of proximity to high fire-risk areas, existence of vegetative fuels, nature and location of its transmission assets, and the effectiveness of implemented mitigants. As stated in Section 4.2, Trans Bay has determined that its facilities location in San Francisco have minimal fire-threat risk as the area is fully developed and urbanized. The San Francisco facilities are also not located in a HFTD or an area of increased wildfire risk per the CPUC's High Fire-Threat Map. The submarine cable has no wildfire risk because it is completed submerged beneath the Bay Waters for approximately 53 miles (85 km). Trans Bay's Pittsburg substation, however, is adjacent to a Tier 2 (Elevated) HFTD area per the CPUC's High Fire-Threat Map (See Figure 10). Trans Bay determines ignition probability drivers through use of FMEA and a third-party wildfire mitigation assessment. Trans Bay's fire mitigation strategy focuses on minimizing the likelihood of utility-caused ignitions and reducing the impact from an ignition should one occur.

The design of Trans Bay's transmission infrastructure provides inherent system hardening against wildfire risk. Additionally, Trans Bay is further hardening the site based on its third-party wildfire assessments, and operational safety goals of enhancing seismic hardening of the converter

station sites. Trans Bay has not experienced an ignition event in the history of its operation and therefore there is insufficient historical data upon which to evaluate or project the likelihood of ignition probability evolution.

4.4 Research proposals and findings

Report all utility-sponsored research proposals, findings from ongoing studies and findings from studies completed in 2020 and 2021 relevant to wildfire and PSPS mitigation.

4.4.1 Research proposals

Report proposals for future utility-sponsored studies relevant to wildfire and PSPS mitigation. Organize proposals under the following structure:

1. ***Purpose of research*** *– brief summary of context and goals of research*
2. ***Relevant terms*** *- Definitions of relevant terms (e.g., defining "enhanced vegetation management" for research on enhanced vegetation management)*
3. ***Data elements*** *- Details of data elements used for analysis, including scope and granularity of data in time and location (i.e., date range, reporting frequency and spatial granularity for each data element, see example table below)*
4. ***Methodology*** *- Methodology for analysis, including list of analyses to perform; section must include statistical models, equations, etc. behind analyses*
5. ***Timeline*** *- Project timeline and reporting frequency to the Office of Energy Infrastructure Safety*

Due to the limited scale and scope of Trans Bay's operations, Trans Bay does not engage in utility-sponsored research relevant to wildfires. However, Trans Bay does attend CPUC-sponsored workshops that highlight ongoing research and studies to learn and integrate best practices relevant to wildfire mitigation. Trans Bay will continue to monitor industry developments and emerging wildfire-related technologies and will evaluate their addition to Trans Bay's wildfire mitigation plan.

4.4.2 Research findings

Report findings from ongoing and completed studies relevant to wildfire and PSPS mitigation. Organize findings reports under the following structure:

1. ***Purpose of research*** *– Brief summary of context and goals of research*
2. ***Relevant terms*** *- Definitions of relevant terms (e.g., defining "enhanced vegetation management" for research on enhanced vegetation management)*
3. ***Data elements*** *- Details of data elements used for analysis, including scope and granularity of data in time and location (i.e., date range, reporting frequency and spatial granularity for each data element, see example table above)*

4. ***Methodology*** *- Methodology for analysis, including list of analyses to perform; section must include statistical models, equations, etc. behind analyses*
5. ***Timeline*** *- Project timeline and reporting frequency to the Office of Energy Infrastructure Safety. Include any changes to timeline since last update*
6. ***Results and discussion*** *– Findings and discussion based on findings, highlighting new results and changes to conclusions since last update*
7. ***Follow-up planned*** *– Follow up research or action planned as a result of the research*

As noted in Section 4.4.1 above, due to the limited scale and scope of Trans Bay's operations, Trans Bay does not engage in utility-sponsored research relevant to wildfires. As such there are no research findings to report.

4.5 Model and metric calculation methodologies

4.5.1 Additional models for ignition probability, wildfire and PSPS risk

Each utility is required to report details on the models and methodologies used to determine ignition probability, wildfire risk, and PSPS risk. This must include the following for each model – a list of all inputs, details of data elements used in the analysis, modeling assumptions and methodologies, input from Subject Matter Experts (SMEs), model verification and validation (e.g., equation(s), functions, algorithms or other validation studies), model uncertainty and accuracy, output (e.g., windspeed model) and applications of model in WMP (e.g., in selection of mitigations, decision-making).

The narrative for each model must be organized using the headings described below. A concise summary of the model(s) must be provided in the main body of the WMP in this section, with additional detail provided for each model in an appendix.

1. ***Purpose of model*** *– Brief summary of context and goals of model*
2. ***Relevant terms*** *- Definitions of relevant terms (e.g., defining "enhanced vegetation management" for a model on vegetation-related ignitions)*
3. ***Data elements*** *- Details of data elements used for analysis. Including at the minimum the following:*
    a. *Scope and granularity (or, resolution) of data in time and location (i.e., date range, spatial granularity for each data element, see example table above)*
    b. *Explain the frequency of data updates*
    c. *Sources of data. Explain in detail measurement approaches.*
    d. *Explain in detail approaches used to verify data quality.*
    e. *Characteristics of the data (field definitions / schema, uncertainties, acquisition frequency).*
    f. *Describe any process used to modify the data (such as adjusting vegetative fuel models for wildfire spread based on prior history and vegetation growth*
4. ***Modeling assumptions and limitations*** *– Details of each modeling assumption, its technical basis, and the resulting limitations of the model*

5. **Modeling methodology** – Details of the modeling methodology. Including at minimum the following:
    a. Model equations and functions
    b. Any additional input from Subject Matter Experts (SME) input
    c. Any statistical analysis or additional algorithms used to obtain output
    d. Details on the automation process for automated models.
6. ***Model uncertainty*** *– Details of the uncertainty associated with the model. This must include uncertainty related to the fundamental formulation of the model as well as due to uncertainty in model input parameters*.
7. ***Model verification and validation –*** *Details of the efforts undertaken to verify and validate the model performance. Including at minimum the following*:
    a. *Documentation describing the verification basis of the model, demonstrating that the software is correctly solving the equations described in the technical approach*.
    b. *Documentation describing the validation basis of the model, demonstrating the extent to which model predictions agree with real-world observations*.
8. ***Modeling frequency*** *– Details on how often the model is run (for example, quarterly to support risk planning versus daily to support on-going risk assessments)*.
9. ***Timeline for model development –*** *Model initiation and development progress over time. If updated in last WMP, provide update to changes since prior report*.
10. ***Application and results*** *– Explain where the model has been applied, how it has informed decisions, and any metrics or information on model accuracy and effectiveness collected in the prior year.*
11. ***Key improvements from working group*** *– For each model, describe changes which have been implemented as a result of wildfire risk modeling working group discussions. Provide a high-level summary of recommendations from the wildfire risk modeling working group*.

As described above in Sections 4.2 and 4.3, Trans Bay uses the FMEA methodology to evaluate wildfire risk and identify mitigation measures and previously engaged a third-party consultant to evaluate ignition probability and fire propagation risk at its Pittsburg converter station. Due to the limited scale and scope of Trans Bay's operations, Trans Bay does not employ other additional models for ignition probability, weather, wildfire, and public safety power shut-off (PSPS) risk.

4.5.2 Calculation of key metrics

Report details on the calculation of the metrics below. For each metric, a standard definition is provided with statute cited where relevant. The utility must follow the definition provided and detail the procedure they used to calculate the metric values aligned with these definitions. The utility must cite all data sources used in calculating the metrics below. In addition, the utility must include GIS layers showing Red Flag Warning (RFW) frequency and High Wind Warning (HWW) frequency (use data from the previous 5 years, 2016-2021), as well as GIS layers for distribution

of Access Functional Need (AFN) customers, and urban/rural/highly rural customers, and disadvantaged communities[9] in its service territory.

1. ***Red Flag Warning overhead circuit mile days*** *– Detail the steps to calculate the annual number of red flag warning (RFW) overhead (OH) circuit mile days. Calculated as the number of circuit miles that were under an RFW multiplied by the number of days those miles were under said RFW. Refer to Red Flag Warnings as issued by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[10] Detail the steps used to determine if an overhead circuit mile was under a Red Flag Warning, providing an example of how the RFW OH circuit mile days were calculated for a Red Flag Warning that occurred within utility territory over the last five years.*
2. ***High Wind Warning overhead circuit mile days*** *– Detail the steps used to calculate the annual number of High Wind Warning (HWW) overhead circuit mile days. Calculated as the number of overhead circuit miles that were under an HWW multiplied by the number of days those miles were under said HWW. Refer to High Wind Warnings as issued by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[11] Detail the steps used to determine if an overhead circuit mile was under a High Wind Warning, providing an example of how the OH HWW circuit mile days were calculated for a High Wind Warning that occurred within utility territory over the last five years.*
3. ***Access and Functional Needs population*** *– Detail the steps to calculate the annual number of customers that are considered part of the Access and Functional Needs (AFN) population. Defined in Government Code § 8593.3 and D.19-05-042 as individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency or who are non-English speaking,[12] older adults, children, people living in institutionalized settings, or those who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or those who are pregnant.*
4. ***Wildlife Urban Interface*** *– Detail the steps to calculate the annual number of circuit miles and customers in Wildlife Urban Interface (WUI) territory. WUI is defined as the area where houses exist at more than 1 housing unit per 40 acres and (1) wildland vegetation covers more than 50% of the land area (intermix WUI) or (2) wildland vegetation covers less than 50% of the land area, but a large area (over 1,235 acres) covered with more than 75% wildland vegetation is within 1.5 mi (interface WUI) (Radeloff et al, 2005).[13]*
5. ***Urban, rural and highly rural*** *– Detail the steps for calculating the number of customers and circuit miles in utility territory that are in highly rural, rural, and urban regions for each year. Use the following definitions for classifying an area highly rural/rural/urban (also referenced in glossary):*
    a. *Highly rural – In accordance with 38 CFR 17.701, "highly rural" shall be defined as those areas with a population of less than 7 persons per square mile as determined by the*

[9] Energy Safety recommends using CalEnviroScreen and Senate Bill 535 to identify disadvantaged communities.
[10] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml
[11] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml
[12] Guidance on calculating number of households with limited or no English proficiency can be found in D.20-04-003
[13] Paper can be found here - https://www.fs.fed.us/pnw/pubs/journals/pnw_2005_radeloff001.pdf with the latest WUI map (form 2010) found here - http://silvis.forest.wisc.edu/data/wui-change/

United States Bureau of the Census. For the purposes of the WMP, "area" shall be defined as census tracts.

b. *Rural – In accordance with GO 165, "rural" shall be defined as those areas with a population of less than 1,000 persons per square mile as determined by the United States Bureau of the Census. For the purposes of the WMP, "area" shall be defined as census tracts.*
c. *Urban – In accordance with GO 165, "urban" shall be defined as those areas with a population of more than 1,000 persons per square mile as determined by the United States Bureau of the Census. For the purposes of the WMP, "area" shall be defined as census tracts.*

Population density numbers are calculated using the American Community Survey (ACS) 1-year estimates on population density by census tract for each corresponding year (2016 ACS 1-year estimate for 2016 metrics, 2017 ACS 1-year estimate for 2017 metrics, etc.). For years with no ACS 1-year estimate available, use the 1-year estimate immediately before the missing year (use 2019 estimate if 2020 estimate is not yet published, etc.)

Due to the limited scale and scope of Trans Bay's operations, the substantial hardening of Trans Bay's transmission infrastructure to wildfire risks due to being underground or submerged, and having no transmission infrastructure in wildlands or in a wildland urban interface (WUI) a number of the metrics identified below are not applicable to Trans Bay. As a transmission-only utility, Trans Bay does not have any retail customers. The following section describes Trans Bay's response to the calculation of key metrics given Trans Bay's current footprint.

1. **Red Flag Warning overhead circuit mile days –** N/A. Trans Bay has no overhead circuits and Red Flag Warnings has negligible impact on Trans Bay operations.

2. **High Wind Warning overhead circuit mile days –** N/A. Trans Bay has no overhead circuits and High Wind Warnings has negligible impact on Trans Bay operations.

3. **Access and Functional Needs population –** N/A. Trans Bay is a transmission-only utility and does not have a traditional service territory or retail customers, therefore this metric is not applicable and is not calculated by Trans Bay.

4. **Wildfire Urban Interface –** N/A. Trans Bay does not have any transmission assets that are located in Wildfire Urban Interface territory.

5. **Urban, rural, and highly rural –** Trans Bay is a transmission-only utility and does not have a traditional service territory or retail customers, therefore this metric as it pertains to customers is not applicable and is not calculated by Trans Bay. Trans Bay does not have any transmission assets that are located in rural or highly rural areas. Trans Bay's San Francisco converter station is located in the City and County of San Francisco, a high-density urban area. Its Pittsburg converter station is located in the City of Pittsburg, Contra Costa County, a medium-density urban area. The connecting submarine cable is submerged under the Bay Waters for approximately 53 miles.

4.6 Progress reporting on key areas of improvement

Report progress on all key areas of improvement identified in Section 1.3 of the utility's 2021 Action Statement. Provide a summary table of the actions taken to address these key areas and report on progress made over the year. Summarize the progress in a table using a high-level bullet point list of key actions, strategies, schedule, timeline for completion, quantifiable performance-metrics, measurable targets, etc. The table must also include a cross-referenced link to a more detailed narrative and substantiation of progress in an Appendix. The summary table must follow the format illustrated in Table 4.6-1.

The WSD reviewed and approved Trans Bay's 2021 WMP without conditions (Full Approval) and did not identify any deficiencies or Key Areas of Improvement relevant to Trans Bay. Trans Bay notes, however, that the WSD did comment on three issue areas for Trans Bay to update on in its 2022 WMP update. Responses addressing the WSD's comments are redressed in Table 4.6-1 below.

Table 4.6-2: Progress on Key Areas of Improvement and Remedies, 2021

Utility-#	Issue title	Summary of Progress
Trans Bay	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.	Trans Bay does not have a specific wildfire mitigation program but undertakes various initiatives which may have the added effect of benefiting fire/wildfire risk reduction/mitigation. In 2021, Trans Bay completed installation of a document management system to more effectively manage storage, access and tracking of operational and maintenance documents. This project was not specifically related to wildfire mitigation but is relevant to the overall maturity of Trans Bay's document management and data governance for general operational needs. As such the cost for this project was not included as a wildfire mitigation initiative.
Trans Bay	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	During the 2020-2022 WMP cycle, Trans Bay has increased its emergency preparedness through: • creation of this wildfire mitigation plan, • engagement of third party site assessments (costs documented in Table 12 of Attachment 3),

	Remedy: TBC must justify the above maturity increases despite having no active initiatives in the emergency preparedness and planning category and reporting no spend for the 2020-2022 WMP cycle.	• purchase of on-site suppression resources and included training (costs documented in Table 12 of Attachment 3), • engagement of local fire department regarding on-site suppression resources (no cost), and • implementation of annual FMEA process to review failure modes of equipment with potential to instigate a fire, assess controls, and opportunities for risk reduction (no cost) As such, Trans Bay notes that (i) the costs of some initiatives which related to emergency preparedness and planning were more appropriately allocated under other initiatives and (ii) some actions taken were at no additional costs to operations. The above efforts are in addition to previously cited emergency action plans and procedures which are commensurate with scale, scope and siting of Trans Bay's operations.
Trans Bay	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 and reporting no spend for the 2020-2022 WMP cycle.	Trans Bay notes that it reviews and shares fire risk reduction best practices and information with its affiliates across its corporate enterprise particularly, Horizon West Transmission ("HWT"), which is a similarly situated transmission-only utility in California. HWT's experiences are invaluable as, unlike Trans Bay, the utility is located in a HFTD. As Trans Bay does not serve end-use customers or operate in wildlands or wildland-urban interfaces, Trans Bay does not anticipate engaging local communities at large. Trans Bay does maintain engagement with the local fire department through annual inspections/site visit.

5 INPUTS TO THE PLAN AND DIRECTIONAL VISION FOR WMP

5.1 Goal of Wildfire Mitigation Plan

The goal of the WMPs is shared across Energy Safety and all utilities: Documented reductions in the number of ignitions caused by utility actions or equipment and minimization of the societal consequences (with specific consideration to the impact on AFN populations and marginalized communities) of both wildfires and the mitigations employed to reduce them, including PSPS.

The following sub-sections report utility-specific objectives and program targets towards the WMP goal. No utility response is required for Section 5.1.

5.2 The Objectives of the plan

Objectives are unique to each utility and reflect the 1, 3, and 10-Year projections of progress towards the WMP goal. Objectives are determined by the portfolio of mitigation strategies proposed in the WMP. The objectives of the plan shall, at a minimum, be consistent with the requirements of California Public Utilities Code §8386(a) – Each electrical corporation shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment.

> *Describe utility WMP objectives, categorized by each of the following timeframes, highlighting changes since the prior WMP report:*
> 1. *Before the next Annual WMP Update*
> 2. *Within the next 3 years*
> 3. *Within the next 10 years – long-term planning beyond the 3-year cycle*

Trans Bay's WMP objectives have not changed from its CPUC-approved 2020 WMP report. The overarching objective of Trans Bay's WMP is to comply with applicable provisions of California Public Utilities Code (PU Code) Section 8386 (§8386)[14].

To meet the requirements of PU Code §8386, as applicable to Trans Bay, the objectives of this WMP are to maximize fire prevention efforts, build and maintain fire containment and extinguishing strategies which minimize the potential spread of wildfire that would ignite due to a Trans Bay transmission element, and finally ensure awareness and rapid communication of the start of fire at a Trans Bay facility. Trans Bay endeavors to maintain and operate its system in a manner that minimizes the risk of catastrophic wildfire posed by its transmission facilities. This WMP provides the direction for assessment of the risk of wildfire ignition; leverage preventative strategies and protocols currently in place for fire prevention, directives for operational response in the event of a wildfire or wildfire conditions, and system restoration in compliance with

[14] https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PUC&sectionNum=8386.

applicable provisions of PU Code §8386. Because this WMP will be actively reviewed and adaptively managed, future WMPs may include variations in content, format, covered assets, and/or approach.

Trans Bay has a vision of having class-leading fire-protected infrastructure and facilities that considers operational risks that include but are not limited to system faults, equipment failure, seismic events, flooding, wildfires, urban fires, tsunami, civil unrest, and insurgent action. Trans Bay assesses that addressing fire risk in this larger context will encompass the specific focus of wildfire mitigation.

The WMP recognizes the following facts relevant to assessing wildfire risk and establishing effective mitigations:

- Trans Bay only owns and operates transmission infrastructure with no distribution facilities.
- Trans Bay's transmission line is entirely underground or submerged beneath the Bay Waters and its substations are located in urban areas outside of wildlands and wildland urban interfaces.
- Trans Bay does not serve distribution or retail customers or any residential, commercial, or industrial interconnections.
- Trans Bay's transmission facilities are monitored 24 hours a day, 7 days a week while in operation by a certified and qualified System Operator with full authority, responsibility, and requisite emergency response training to take appropriate action to mitigate any fire risk posed, including Emergency Shut-Off as a measure of last resort.
- The Trans Bay Facilities are under the operational control of the CAISO.

Trans Bay has the following WMP objectives, categorized by different timeframes:

Before the next Annual WMP Update:

Trans Bay's primary objective is to further harden its Pittsburg facility through the completion of capital improvements for enhanced fire suppression and hardening substation and infrastructure elements to mitigate the potential risk from environmental or man-made events resulting in fire ignition. These upgrades will improve overall operational safety while having the added benefit of minimizing the potential for on-site ignition. Trans Bay will work towards achieving this objective through the specific measures detailed in Section 7.3.

Trans Bay will continue to periodically evaluate new technologies, materials, and methods for further reducing fire risk at its facilities.

Within the next 3 years:

Trans Bay endeavors to achieve the highest level of Wildfire Mitigation Maturity concordant with Trans Bay's scale and scope of operations. Trans Bay aims to evaluate and commence capital improvements related to increasing situational awareness and further hardening infrastructure elements to mitigate the potential fire risk from equipment derangement resulting from environmental or man-made events which could result in fire.

Within the next 10 years:

Trans Bay's longer-term objectives are consistent with its short-term objectives of minimizing the likelihood of an ignition event from its facilities and improving effective response to an ignition event should one occur. Additionally, over the next ten years, Trans Bay's objective is to sustain the highest level of Wildfire Mitigation Maturity commensurate with the scale and scope of its operations, as well as to implement a class-leading standard for fire-protected transmission facilities and infrastructure.

5.3 Plan program targets

Program targets are quantifiable measurements of activity identified in WMPs and subsequent updates used to show progress towards reaching the objectives, such as number of trees trimmed or miles of power lines hardened.

List and describe all program targets the electrical corporation uses to track utility WMP implementation and utility performance over the last five years. For all program targets, list the 2019 to 2021 performance, a numeric target value that is the projected target for end of year 2022 and 2023, units on the metrics reported, the assumptions that underlie the use of those metrics, update frequency, and how the performance reported could be validated by third parties outside the utility, such as analysts or academic researchers. Identified metrics must be of enough detail and scope to effectively inform the performance (i.e., reduction in ignition probability or wildfire consequence) of each targeted preventive strategy and program.

Pub. Util. Code Section 8386.3(c)(5) requires a utility to notify Energy Safety "after it completes a substantial portion of the vegetation management (VM) requirements in its wildfire mitigation plan." To ensure compliance with this statue, the utility is required to populate Table 5.3-1 with VM program targets that the utility can determine when it has completed a "substantial portion"[15] and that Energy Safety can subsequently audit. Energy Safety has provided some required, standardized VM targets below. It is expected that the utilities provide additional VM targets beyond those required. The identification of other VM targets and units for those targets

[15] Energy Safety intends to define "substantial portion" in its forthcoming Compliance Guidelines. This definition may be included in the Final version of the 2022 WMP Update Guidelines.

(e.g., for inspections, customer outreach, enhanced vegetation management, etc.) are at the discretion of the utility.

Additionally, in Table 5.3-1, utilities must populate the column "Target%/ Top-Risk%" for each 2022 performance target related to initiatives in the following categories: Grid design and system hardening; Asset management and inspections; and Vegetation management and inspections. This column allows utilities to identify the percentage of the target that will occur in the highest risk areas. For example, if a utility targets conducting 85% of its vegetation management program in the top 20% of its risk-areas, it should input "85/20" in this column. In the "Notes" column, utilities must provide definitions and sources for each of the "Top-Risk%" values provided. In the given example above, an acceptable response would be: "The top 20% of risk areas used for this target relate to the circuit segment risk rankings from [Utility Company's] Wildfire Risk Model outputs, as described in [hyperlink to Section XX] of the 2022 WMP Update."

Due to the limited scale and scope of Trans Bay's operations, the substantial hardening of Trans Bay's transmission infrastructure to wildfire risks due to being underground or submerged and having no transmission infrastructure in wildlands or in a wildland urban interface (WUI), Trans Bay does not maintain programs specifically geared towards wildfire mitigation.

Trans Bay's program targets are focused on successful implementation of prioritized mitigation/enhancement measures for operational risk, some of which may be relevant to but not solely implemented for wildfire mitigation. Trans Bay does not have any additional program targets to report and thus table 5.3-1 is purposefully left blank.

Table 5.3-1: List and description of program targets, last 5 years

Program target	2019		2020		2021		2022		Units	Audited by Third-party? (Y/N)	Notes (including definitions and sources for Top-Risk%)
	Target	Perf.	Target	Perf.	Target	Perf.	Target	Perf.			
Vegetation Inspections audited											
Poles Brushed per PRC 4292											
LiDar Vegetation											

Inspections-Distribution											
LiDar Vegetation Inspections-Distribution											
Substation Vegetation Inspections											

5.4 Planning for Workforce and Other Limited Resources

Report on worker qualifications and training practices regarding wildfire and PSPS mitigation for workers in the following target roles:

1. *Vegetation inspections*
2. *Vegetation management projects*
3. *Asset inspections*
4. *Grid hardening*
5. *Risk event inspection*

For each of the target roles listed above:

1. *List all worker titles relevant to target role (target roles listed above)*
2. *For each worker title, list and explain minimum qualifications with an emphasis on qualifications relevant to wildfire and PSPS mitigation. Note if the job requirements include the following:*
    a. *Going beyond a basic knowledge of General Order 95 requirements to perform relevant types of inspections or activities in the target role*
    b. *Being a "Qualified Electrical Worker" (QEW) and define what certifications, qualifications, experience, etc. is required to be a QEW for the target role for the utility.*
    c. *Include special certification requirements such as being an International Society of Arboriculture (ISA) Certified Arborist with specialty certification as a Utility Specialist*
3. *Report percentage of Full Time Employees (FTEs) in target role with specific job title*
4. *Provide a summarized report detailing the overall percentage of FTEs with qualifications listed in (2) for each of the target roles.*
5. *Report plans to improve qualifications of workers relevant to wildfire and PSPS mitigation. Utilities will explain how they are developing more robust outreach and onboarding training programs for new electric workers to identify hazards that could ignite wildfires.*

Considering Trans Bay's limited footprint with one transmission asset, Trans Bay has a small staff that oversees its operations, including asset inspection and management, maintenance, system operation and initial emergency response. All Trans Bay maintenance work, including asset inspections, is carried out by dedicated Trans Bay operations personnel, that, by reason of training, experience, and instruction, are qualified to perform the task, with support from qualified contractors as needed. Operations personnel maintain and operate the Trans Bay facilities in accordance with good utility practice, sound engineering judgment, the guidelines as outlined in applicable NERC reliability standards, laws, and regulations. Operators are trained for emergency scenarios and authorized to take precautionary measures such as reduction in power flow or initiating system shutdown when presented with system warnings or instruction from the CAISO or requests from PG&E. Infrastructure assessment is conducted by Trans Bay's operators and engineers who are charged with physically inspecting Trans Bay's substation and all equipment thereon, inspecting underground cable vaults and assessing cable surveys. All Trans Bay operations and engineering staff take proper care to ensure the safety of personnel and the public in performing maintenance, inspection, and repair duties.

Regarding Trans Bay's plans to improve qualifications of workers relevant to fire mitigation, Trans Bay actively maintains a procedure base that provides formal documentation detailing operational response and supporting information to circumstances that present a fire risk or could lead to equipment derangement that could pose the same risk. Trans Bay operations and engineering personnel are trained on all procedures relevant to emergency response, fire mitigation, and appropriate asset monitoring and protection protocols. These include specific procedures for Fire Prevention, Emergency Action, Emergency Operations, Fire System, and Asset Monitoring & protection. Additionally, as described above in Section 4 of this WMP, Trans Bay is committed to continuous improvement of its fire/wildfire-related plans, systems, and processes. As such, operations and engineering personnel, and EH&S manager actively engage in the annual update of the FMEA for the TBC System, which involves comprehensive review of potential failure modes at the facility and relevant mitigation measures based on the underlying risk. Trans Bay endeavors to continue its participation in CPUC initiatives to gain information and exposure to industry best practices relevant to fire/wildfire mitigation and utilize such information as a basis to update its personnel training, processes, and procedures accordingly.

Given Trans Bay's limited scope, footprint, and inherent fire-harden design, Trans Bay has no current plans to increase the size of its workforce.

5.4.1 Target role: Vegetation inspections

1. Worker titles in target role: N/A – Trans Bay's facilities are in an urban/industrial environment and its transmission facilities are either buried or submerged beneath Bay Area waters. Trans Bay's facilities utilize no overhead transmission lines. As a result, Trans Bay does not have a vegetation management program (VMP) and is not required to

maintain a VMP under NERC Reliability Standards or any CASIO maintenance requirements. Trans Bay makes quarterly reports to the Western Electric Coordinating Council (WECC), Trans Bay's Electric Reliability Organization (ERO) that Trans Bay has no requirement have a VMP.

2. Minimum qualifications: N/A
3. FTE percentages by title in target role: N/A
4. Percent of FTEs by high-interest qualification: N/A
5. Plans to improve worker qualifications: N/A

5.4.2 Target role: Vegetation management projects

1. Worker titles in target role: N/A – Trans Bay's facilities are in an urban/industrial environment and its transmission facilities are either buried or submerged beneath Bay Area waters. Trans Bay's facilities utilize no overhead transmission lines. As a result, Trans Bay does not have a VMP) and is not required to maintain a VMP under NERC Reliability Standards or any CASIO maintenance requirements. Trans Bay makes quarterly reports to WECC that Trans Bay has no requirement have a VMP.
2. Minimum qualifications: N/A
3. FTE percentages by title in target role: N/A
4. Percent of FTEs by high-interest qualification: N/A
5. Plans to improve worker qualifications N/A

5.4.3 Target role: Asset Inspections

1. Worker titles in target role: Operations Engineer, Operations Senior Engineer
2. Minimum qualifications: Bachelor's Degree in Engineering
3. FTE percentages by title in target role: 100%
4. Percent of FTEs by high-interest qualification: 100%
5. Plans to improve worker qualifications See response under Section 5.4

5.4.4 Target role: Grid hardening

1. Worker titles in target role: Operations Manager, Operations Senior Engineer, Operations Director
2. Minimum qualifications: Bachelor's Degree
3. FTE percentages by title in target role: N/A – 100%
4. Percent of FTEs by high-interest qualification: 100%
5. Plans to improve worker qualifications See response under Section 5.4

5.4.5 Target role: Risk event inspections

1. Worker titles in target role: Operations Manager, Environment Health & Safety Manager
2. Minimum qualifications: Bachelor's Degree

3. FTE percentages by title in target role 100%
4. Percent of FTEs by high-interest qualification: 100%
5. Plans to improve worker qualifications See response under Section 5.4

6 PERFORMANCE METRICS AND UNDERLYING DATA

Instructions: Section to be populated from Quarterly Reports. Tables to be populated are listed below for reference.

NOTE: Report updates to projected metrics that are now actuals (e.g., projected 2021 spend will be replaced with actual unless otherwise noted). If an actual is substantially different from the projected (>10% difference), highlight the corresponding metric in light green.

6.1 Recent performance on progress metrics, last 7 years

Instructions for Table 1 of Attachment 3:

In the attached spreadsheet document, report performance on the following metrics within the utility's service territory over the past seven years as needed to correct previously-reported data. Where the utility does not collect its own data on a given metric, the utility shall work with the relevant state agencies to collect the relevant information for its service territory, and clearly identify the owner and dataset used to provide the response in the "Comments" column.

Table 1 of Attachment 3: Recent performance on progress Metrics, last 7 years was provided as part of Trans Bay's Attachment 3 filed in the California Office of Energy Infrastructure Safety ("OEIS") Docket #2022-QDR on April 15, 2022.

6.2 Recent performance on outcome metrics, annual, last 7 years

Instructions for Table 2:

In the attached spreadsheet document, report performance on the following metrics within the utility's service territory over the past seven years as needed to correct previously-reported data. Risk events and utility-related ignitions are normalized by wind warning status (RFW & HWW). Where the utility does not collect its own data on a given metric, the utility is required to work with the relevant state agencies to collect the relevant information for its service territory, and clearly identify the owner and dataset used to provide the response in "Comments" column.

Provide a list of all types of findings and number of findings per type, in total and in number of findings per circuit mile.

Table 2 of Attachment 3: Recent performance on outcome metrics, last 7 years was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

6.3 Description of additional metrics

Instructions for Table 3 of Attachment 3:

In addition to the metrics specified above, list and describe all other metrics the utility uses to evaluate wildfire mitigation performance, the utility's performance on those metrics over the last seven years, the units reported, the assumptions that underlie the use of those metrics, and how the performance reported could be validated by third parties outside the utility, such as analysts or academic researchers. Identified metrics must be of enough detail and scope to effectively inform the performance (i.e., reduction in ignition probability or wildfire consequence) of each preventive strategy and program.

Table 3 of Attachment 3: List and description of additional metrics, last 7 years was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022..

6.4 Detailed information supporting outcome metrics

Enclose detailed information as requested for the metrics below.

Instructions for Table 4 of Attachment 3:

In the attached spreadsheet document, report numbers of fatalities attributed to any utility wildfire mitigation initiatives, as listed in the utility's previous or current WMP filings or otherwise, according to the type of activity in column one, and by the victim's relationship to the utility (i.e., full-time employee, contractor, of member of the general public), for each of the last five years as needed to correct previously reported data. For fatalities caused by initiatives beyond these categories, add rows to specify accordingly. The relationship to the utility statuses of full-time employee, contractor, and member of public are mutually exclusive, such that no individual can be counted in more than one category, nor can any individual fatality be attributed to more than one initiative.

Table 4 of Attachment 3: Fatalities due to utility wildfire mitigation initiatives, last 7 years was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

Instructions for Table 5 of Attachment 3:

In the attached spreadsheet document, report numbers of OSHA-reportable injuries attributed to any utility wildfire mitigation initiatives, as listed in the utility's previous or current WMP filings or otherwise, according to the type of activity in column one, and by the victim's relationship to the utility (i.e., full-time employee, contractor, of member of the general public), for each of the last seven years as needed to correct previously reported data. For members of the public, all injuries that meet OSHA-reportable standards of severity (i.e., injury or illness resulting in loss of consciousness or requiring medical treatment beyond first aid) must be included, even if those incidents are not reported to OSHA due to the identity of the victims.

For OSHA-reportable injuries caused by initiatives beyond these categories, add rows to specify accordingly. The victim identities listed are mutually exclusive, such that no individual victim can be counted as more than one identity, nor can any individual OSHA-reportable injury be attributed to more than one activity.

Table 5 of Attachment 3: OSHA-reportable injuries due to utility wildfire mitigation initiatives, last 7 years was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

6.5 Mapping recent, modelled, and baseline conditions

The utility must provide underlying data for recent conditions (over the last five years) of the utility's service territory in a downloadable shapefile GIS format, following the spatial reporting schema[16]. All data is reported quarterly, this is a placeholder for quarterly spatial data.

Please refer to Trans Bay's quarterly data report submitted May 2, 2022 to the OEIS SharePoint.

6.6 Recent weather patterns, last 7 years

Instructions for Table 6 Attachment 3:
In the attached spreadsheet document, report weather measurements based upon the duration and scope of NWS Red Flag Warnings, High wind warnings and upon proprietary Fire Potential Index (or other similar fire risk potential measure if used) for each year. Calculate and report 7-year historical average as needed to correct previously-reported data.

Table 6 of Attachment 3: Weather patterns, last 7 years was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

6.7 Recent and projected drivers of ignition probability

Instructions for Table 7.1 and Table 7.2 of Attachment 3:
(Table 7.1) In the attached spreadsheet document, report recent drivers of outages according to whether or not risk events of that type are tracked, the number of incidents per year (e.g., all instances of animal contact regardless of whether they caused an outage, an ignition, or neither), the rate at which those incidents (e.g., object contact, equipment failure, etc.) cause an ignition in the column, and the number of ignitions that those incidents caused by category, for each of last seven years as needed to correct previously-reported data. Calculate and include 5-year historical averages. This requirement applies to all utilities, not only those required to submit annual ignition data. Any utility that does not have complete 2021 ignition data compiled by the WMP deadline is required to indicate in the 2021 columns that said

[16] https://energysafety.ca.gov/wp-content/uploads/energy-safety-gis-data-reporting-standard_version2.1_09072021_final.pdf

information is incomplete. (Table 7.2) Similar to Table 7.1, but for ignition probability by line type and HFTD status, according to if ignitions are tracked.

Table 7.1 of Attachment 3: Key recent and projected drivers of outages, last 7 years and projections was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

Table 7.2 of Attachment 3: Key recent and projected drivers of ignition probability by Line type and HFTD status, last 7 years and projections was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

6.8 Baseline state of equipment and wildfire and PSPS event risk reduction plans

6.8.1 Current baseline state of service territory and utility equipment

Instructions for Table 8 of Attachment 3:
In the attached spreadsheet document, provide summary data for the current baseline state of HFTD and non-HFTD service territory in terms of circuit miles; overhead transmission lines, overhead distribution lines, substations, weather stations, and critical facilities located within the territory; and customers by type, located in urban versus rural versus highly rural areas and including the subset within the Wildland-Urban Interface (WUI) as needed to correct previously reported data.

The totals of the cells for each category of information (e.g., "circuit miles (including WUI and non-WUI)") would be equal to the overall service territory total (e.g., total circuit miles). For example, the total of number of customers in urban, rural, and highly rural areas of HFTD plus those in urban, rural, and highly rural areas of non-HFTD would equal the total number of customers of the entire service territory.

Table 8 of Attachment 3: State of service territory and utility equipment was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

6.8.2 Additions, removal, and upgrade of utility equipment by end of 3-year plan term

Instructions for Table 9 of Attachment 3:
In the attached spreadsheet document, input summary information of plans and actuals for additions or removals of utility equipment as needed to correct previously-reported data. Report net additions using positive numbers and net removals and undergrounding using negative numbers for circuit miles and numbers of substations. Report changes planned or actualized for that year – for example, if 10 net overhead circuit miles were added in 2020, then report "10" for 2020. If 20 net overhead circuit miles are planned for addition by 2022, with 15 being added by 2021 and 5 more added by 2022, then report "15" for 2022 and "5" for 2021. Do not report cumulative change across years. In this case, do not report "20" for 2022, but instead the number planned to be added for just that year, which is "5".

Table 9 of Attachment 3: Location of actual and planned utility equipment additions or removal year over year was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

Instructions for Table 10 of Attachment 3:

Referring to the program targets discussed above, report plans and actuals for hardening upgrades in detail in the attached spreadsheet document. Report in terms of number of circuit miles or stations to be upgraded for each year, assuming complete implementation of wildfire mitigation activities, for HFTD and non-HFTD service territory for circuit miles of overhead transmission lines, circuit miles of overhead distribution lines, circuit miles of overhead transmission lines located in Wildland-Urban Interface (WUI), circuit miles of overhead distribution lines in WUI, number of substations, number of substations in WUI, number of weather stations and number of weather stations in WUI as needed to correct previously-reported data.

If updating previously reported data, separately include a list of the hardening initiatives included in the calculations for the table.

Table 10 Attachment 3: Location of actual and planned utility infrastructure upgrades year over year was provided as part of Trans Bay's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

7 MITIGATION INITIATIVES

7.1 Wildfire mitigation strategy

Describe organization-wide wildfire mitigation strategy and goals for each of the following time periods, highlighting changes since the prior WMP report:

1. *By June 1 of current year*
2. *By Sept 1 of current year*
3. *Before the next Annual WMP Update*
4. *Within the next 3 years*
5. *Within the next 10 years*

The description of utility wildfire mitigation strategy shall:

A. *Discuss the utility's approach to determining how to manage wildfire risk (in terms of ignition probability and estimated wildfire consequence) as distinct from managing risks to safety and/or reliability. Describe how this determination is made both for (1) the types of activities needed and (2) the extent of those activities needed to mitigate these two different groups of risks. Describe to what degree the activities needed to manage wildfire risk may be incremental to those needed to address safety and/or reliability risks.*

B. *Discuss how risk modeling outcomes are used to inform decision-making processes and used to prioritize mitigation activities. Provide detailed descriptions including clear evaluation criteria[17] and visual aids (such as flow charts or decision trees). Provide an appendix (including use of relevant visual aids) with specific examples demonstrating how risk modeling outcomes are used in prioritizing circuit segments and selecting mitigation measures.*

C. *Include a summary of major investments and implementation of wildfire mitigation initiatives achieved over the past year, any lessons learned, any changed circumstances for the 2020 WMP term (i.e., 2020-2022), and any corresponding adjustment in priorities for the current year. Organize summaries of initiatives by the wildfire mitigation categories listed in Section 7.3.*

D. *List and describe all challenges associated with limited resources and how these challenges are expected to evolve over the next 3 years.*

E. *Outline how the utility expects new technologies and innovations to impact the utility's strategy and implementation approach over the next 3 years, including the utility's program for integrating new technologies into the utility's grid. Include utility research listed above in Section 4.4.*

F. *Provide a GIS layer[18] showing wildfire risk (e.g., MAVF); data should be as granular as possible.*

[17] "Evaluation criteria" should include all points of considerations including any thresholds and weights that may affect the outcome of their decision, as well as a descriptor of how it is evaluated (i.e. given a risk score, using SME expertise to determine that score, using a formula).

[18] GIS data that has corresponding feature classes in the most current version of Energy Safety GIS Data Reporting Standard will utilize the format for submission. GIS data that does not have corresponding feature classes shall be submitted in an ESRI compliant GDB and include a data dictionary as part of the metadata.

G. Provide GIS layers[19] for the following grid hardening initiatives: covered conductor installation;[20] undergrounding of electrical lines and/or equipment; and removal of electrical lines. Features must have the following attributes: state of hardening, type of hardening where known (i.e., undergrounding, covered conductors, or removal), and expected completion date. Provide as much detail as possible (circuit segment, circuit-level, etc.). The layers must include the following:

a. Hardening planned for 2022
b. Hardening planned for 2023
c. Hardening planned for 2024

H. Provide static (either in text or in an appendix), high-level maps of the areas where the utility will be prioritizing Grid Design and System Harding initiatives for 2022, 2023, and by 2032.

I. Provide a GIS layer for planned Asset Management and Inspections in 2022. Features must include the following attributes: type, timing, and prioritization of asset inspection. Inspection types must follow the same types described in Section 7.3.4, Asset Management and Inspections, and as applicable, should not be limited to patrols and detailed inspections.

J. Provide a GIS layer illustrating where enhanced clearances (12 feet or more) were achieved in 2020 and 2021, and where the utility plans to achieve enhanced clearances in 2022. Feature attributes must include clearance distance greater than or equal to 12 feet, if such data is available, either in ranges or as discrete integers (e.g., 12-15 feet, 15-20 feet, etc. OR 12, 13, 14, 15, etc.).

Trans Bay's asset footprint has not changed since the commencement of operations in 2010. As a result, Trans Bay's wildfire mitigation strategy has not materially changed since its inception in 2019. Trans Bay's current approach to wildfire mitigation and overall fire prevention remains consistent with its 2020 and 2021 WMP filings. Due to the limited scope and scale of Trans Bay operations, Trans Bay makes no specific distinction between efforts to manage wildfire risk and those to ensure the overall safety and reliability of its operations. While informed by industry wildfire mitigation efforts, the activities Trans Bay undertakes to ensure that fire protection and safety is maintained and enhanced in its facilities and infrastructure, are not exclusively undertaken for wildfire mitigation. Trans Bay's objectives for its wildfire mitigation strategy are provided in Section 5.2, however, Trans Bay maintains no programs, staff, equipment, or infrastructure solely dedicated to wildfire mitigation. In the alternative, Trans Bay maintains a robust Fire Prevention Program and operational practices in conjunction with the risk assessment and mitigation elements detailed in this plan that have the desired preventive/mitigative effect. As noted above, Trans Bay has assessed its transmission infrastructure and determined that its Pittsburg substation and locally connected infrastructure have the most relevant wildfire risk. Based on this determination, in 2020 Trans Bay engaged a third-party wildfire mitigation assessment of its

[19] Energy Safety acknowledges potential security concerns regarding aggregating and presenting critical electrical infrastructure in map form. Utilities may provide maps or GIS layers required by these Guidelines as confidential attachments when necessary.

[20] For a definition of "covered conductor installation" see Section 9 of Attachment 2.

Pittsburg substation to augment its overall fire prevention strategy. Trans Bay undertook a review of the recommendations and has already begun incorporating certain pertinent recommendations into its capital plan to enhance and improve its overall fire protection schema, philosophy and capabilities.

Trans Bay's approach to determining how to manage wildfire risk is informed by industry best practices, work with experienced internal and external SMEs as detailed in Section 4 of this WMP, and lessons learned through the CPUC's WMP proceedings. Trans Bay's strategies to manage wildfire risk are similar or related to strategies it undertakes to manage overall operational risks related to safety and reliability. As described in detail in Section 4 of this WMP, Trans Bay uses the FMEA process to identify and mitigate wildfire-related risks potentially instigated by its transmission infrastructure. Given that Trans Bay's Pittsburg substation is located near a Tier 2 (Elevated) HFTD, proximate to vegetative fuels (See Figure 9) and in a seismically active area, Trans Bay's fire and wildfire-related initiatives are primarily focused on infrastructure hardening, increased situational awareness, and effectiveness of fire-suppression capabilities.

In 2021, Trans Bay completed two operational risk mitigation initiatives which had the added benefit of reducing wildfire risk.

- **Situational Awareness and Forecasting:** Implementation of a transformer oil control system which provides enhanced control and flow sensing on its main transformers.
- **Grid Design and System Hardening:** Installation of seismic upgrades to its transformer to improve capability to resist derangement during a seismic event.

As far as challenges associated with limited resources, Trans Bay has dedicated operations and engineering personnel who oversee day-to-day operations, maintenance, and regular inspections of the TBC System. Trans Bay did encounter challenges sourcing vendors to construct two 2021 plan projects: spare parts building fire suppression system installation and compressed gas cylinder enclosure. However, both projects remain scheduled for completion in 2022 as originally forecasted.

Below Trans Bay describes how it will approach these strategies for each of the following time periods:

By June 1, 2022:

Trans Bay will begin its annual maintenance outage and commence certain capital improvements related to operational needs in the second quarter (Q2) of 2021. Trans Bay's goal by June 1, 2022 is to continue safe work conditions at the site and have no ignition incidents or near misses, especially because fire risk is typically the highest during construction, when many activities are occurring simultaneously and include grading/grubbing, vehicle operation, larger numbers of workers on the site, Hot Work, and other potential spark, flame, or heat causing activities. Trans Bay also endeavors to commence work on the compressed gas bottle farm.

By September 1, 2022:

Similar to above, Trans Bay's goals by September 1, 2022 are to have completed its site upgrades and have no ignition incidents or near misses.

Before the next annual WMP update:

Trans Bay's goal prior to the next annual WMP update in 2023 is to complete work on the following two initiatives from its third-party Wildfire Mitigation Assessment for the Pittsburg substation:

- Installation of a suppression system to compliment the fire detection system in the Spare Parts building
- Removal of the compressed gas cylinders from the Spare Parts building and construction of a protected housing for them outside the Spare Parts building

Within the next 3 years:

Trans Bay is investing in the utilization of non-SF6 Gas Insulated Substation (GIS) infrastructure installations at its substations. Trans Bay considers the use of GIS infrastructure as a mitigation action to preclude ignition of proximate vegetative fuels due to a reduced use of air insulated transmission elements present in the substation which are more susceptible to producing ignition sources if deranged or if a fault is experienced. Trans Bay has notional plans to initiate the planning for the implementation of non-SF6 GIS infrastructure at its Pittsburg substation within the next three years provided such systems are commercially available.

Within the next 10 years:

During the next ten years, Trans Bay's fire and wildfire mitigation strategies are expected to mature and evolve with the industry and the wildfire threat, including through Trans Bay's operational experience and lessons learned through the CPUC's wildfire mitigation process. Trans Bay also expects to leverage new technologies in the realm of fire safety as they become available and as determined applicable to its transmission system. There are notional plans to implement additional fire control measures to the transformer pits as well as implementation of SF6-free GIS infrastructure once the technology because commercially available at required voltages. Trans Bay is committed to the ongoing achievement and continuous improvement of its fire prevention goals and will invest appropriate resources in its transmission system in furtherance of this overall commitment.

7.2 Wildfire Mitigation Plan implementation

Describe the processes and procedures the electrical corporation will use to do all the following:

- *A. Monitor and audit the implementation of the plan. Include what is being audited, who conducts the audits, what type of data is being collected, and how the data undergoes quality assurance and quality control.*
- *B. Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies.*
- *C. Monitor and audit the effectiveness of inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules.*
- *D. Ensure that across audits, initiatives, monitoring, and identifying deficiencies, the utility will report in a format that matches across WMPs, Quarterly Reports, Quarterly Advice Letters,[21] and annual compliance assessment.*

Trans Bay has several processes and procedures in place to monitor wildfire plan implementation, as summarized below.

A. Monitoring and auditing the implementation of the plan. Per the established roles and responsibilities (see Section 1), Trans Bay's President has overall responsibility for WMP Compliance Assurance to ensure that the WMP obligations are met to include evaluating compliance risk associated with obligations and implementing predictive, detective, and corrective controls to mitigate the compliance risk. The President is directly supported in these endeavors by Trans Bay's Director of Operations – NEET, Environmental Health & Safety (EH&S) Manager and Regulatory and Business (R&B) Manager. These controls are used to identify any deficiencies in WMP implementation.

B. Identifying and correcting deficiencies in the plan. Trans Bay's operations and engineering personnel are responsible for implementing WMP in the field and reporting to the Engineering Manager and Operations Manager, who address any WMP deficiencies identified. The Director of Operations – NEET, EH&S and R&B Managers review any changes in the WMP, and annual WMP updates are approved by the Trans Bay President. Trans Bay WMPs filed to date have been approved by the CPUC without conditions, and the CPUC has not identified any deficiencies in Trans Bay's wildfire-related compliance.

C. Monitoring and auditing the effectiveness of inspections. The Operations Manager, supported by the EH&S Manager and R&B Manager, monitor and audit inspections conducted by operational staff to ensure sustainment of efforts to identify any potential sources of ignition.

[21] General Rule for filing Advice Letters are available in General Order 96-B: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M023/K381/23381302.PDF

The CAISO also conducts an annual audit of Trans Bay's maintenance practices which include inspections.

D. **Ensuring that utility reports in a format that matches across WMPs, Quarterly Reports, Quarterly Advice Letters, and annual compliance assessment.** Trans Bay's R&B Manager is responsible for ensuring that Trans Bay timely meets all WMP milestones (including annual WMP updates, quarterly reports, field inspections data, annual Maturity Model updates, responding to requests from the Wildfire Safety Division (WSD), etc.) in WSD-specified format. Trans Bay closely monitors all wildfire-related developments and updates released by the WSD to ensure timely and accurate compliance. Trans Bay's President reviews its WMP ahead of submission to the CPUC and/or OEIS.

7.3 Detailed wildfire mitigation programs

In this section, describe how the utility's specific programs and initiatives plan to execute the strategy set out in Section 5. The specific programs and initiatives are divided into 10 categories, with each providing a space for a narrative description of the utility's initiatives and a summary table for numeric input in the subsequent tables in this section. The initiatives are organized by the following categories provided in this section:

1. **Risk assessment and mapping**
   As previously indicated, Trans Bay utilizes the FMEA methodology for assessing risk, evaluating controls, and determining the effectiveness of initiatives. Trans Bay updates the FMEA annually to ensure continuous improvement of Trans Bay's wildfire mitigation strategy as new technologies and best practices emerge. In 2020, Trans Bay commissioned a third-party wildfire mitigation assessment to assess ignition risk and wildfire propagation in the area of Trans Bay's Pittsburg substation. A second level review of initiatives outlined in the 2020 assessment was conducted in Q1 2022 to provide supplemental evaluation of potential site enhancements.

2. **Situational awareness and forecasting**
   In 2020, Trans Bay implemented two (2) continuous monitoring sensors initiatives that provided operational risk mitigation. The first was a fiber-optic based cable monitoring system which allows Trans Bay to monitor the cable for physical vibration, temperature, and abnormal electrical discharge at the cable terminations. The second was a transformer monitoring system which has real-time oil analysis to detect and prevent internal faults on the transformer, as well as partial discharge monitoring of the transformer bushings to detect bushing degradation that could lead to failure. This system provides potentially predictive data on transformer failure which has the potential for initiating an ignition event. In 2021, Trans Bay implemented a transformer oil control system which provided new control and flow sensor on its main transformers. This system allows station personnel to have improved assess to oil flow indication and controls which allows for more accurate preventative maintenance. This system in

conjunction with the transformer monitoring system, which was installed in 2020, provides enhanced data that can be utilized to assess transformer health and potentially predict transformer failure which has the potential for initiating an ignition event.

For situational awareness, Trans Bay relies on its highly trained System Operators. TBC System Operators, as part of the initial qualifications, are trained regarding the potential weather impacts on system operability and fire risks using available local news sources and monitoring of reliability messaging tools. Trans Bay utilizes the Siemens SIMATIC WinCC platform, a scalable and innovative process-visualization system with numerous high-performance functions for monitoring the HVDC Converter, and associated transmission system. WinCC offers complete functionality for complex visualization tasks, Supervisory Control and Data Acquisition (SCADA) applications, and intelligent redundancy. The PC-based system acts as the human-machine interface for TBC System Operators, providing process supervision and control, long term data archiving, trending, and Sequence of Events recording at the Primary and Backup Transmission Operations Control Centers. Trans Bay is also directly supported in situational awareness of local conditions through close coordination with CAISO as Trans Bay's Balancing Authority and PG&E, Trans Bay's only neighboring Transmission Operator since Trans Bay operates completely within PG&E's service territory. As previously indicated, weather, RFW days, and fire index have been assessed as having negligible impact on Trans Bay's operational profile due to Trans Bay's transmission path being completely underground or submerged.

The nature of the AC/DC conversion system employed by Trans Bay has control and protection features that "Block" transmission within microseconds of a fault detection and will initiate an Emergency Shut Off in milliseconds; significantly faster than traditional interrupting devices employed in other transmission systems. Trans Bay's transmission system already possesses fault monitoring and detection capabilities that exceed that utilized in more traditional transmission systems.

3. Grid design and system hardening

The design of Trans Bay's transmission infrastructure provides inherent system hardening against wildfire risk. Trans Bay's transmission infrastructure, in its simplest form, consists of two converter station sites connected by an underground/submerged armored cable bundle. Outside of the converter station sites, the cable is completely underground or submerged beneath the Bay Area waters for approximately 53 miles. This is fully outside any HTFD or any reasonably foreseeable expansion of a HTFD. As such the cables are hardened or immune from causing a wildfire to occur as a result due to a fault or contact except in the circumstance of derangement due to uncoordinated excavations. Trans Bay employs a Geographic Information System that provides high accuracy geo-plots of all Trans Bay facilities. This system also plots excavation

notifications which helps to minimize the likelihood of derangement due to uncoordinated excavations all the cable route. Trans Bay's facility does not utilize any overhead lines.

Trans Bay's above ground air insulated conductoring and bus-work infrastructure are fully contained within the boundaries of its converter stations. The converter stations construction and configuration are largely the same with some differences in layout. They are surrounded by a twelve (12) foot concrete perimeter wall that is equipped with motion sensors and inward and outward facing cameras. There are also local fire department approved fire lanes completely around the site perimeter inside the perimeter wall. Each site contains Knox boxes accessible to Emergency Services. The converter stations as also equipped with monitoring, detection, alarm, and suppression systems that have been implemented and maintained per applicable codes and statutes and are annually inspected and approved by the local fire department. Trans Bay is actively undertaking efforts to transition its Pittsburg substation to SF6-free Gas Insulated Substation technology (pending commercial availability) which will reduce reliance upon air insulated conductoring and bus-work that are more susceptible to producing ignition events due to contact. In 2021, Trans Bay completed installation of seismic improvements to its transformers. The seismic upgrades included the positioning of all site transformers on base isolators which significantly improves the capability of the transformers to resist derangement during a seismic event; thus, reducing the likelihood of instigation of a transformer fire.

Trans Bay primarily relies on the protective systems intrinsic to the HVDC Modular Multilevel Voltage Source converter utilizing Siemens PLUS controls which implements protective "blocking" within microseconds of a fault and will initiate a trip offline within milliseconds which is comparable to fast-curve and sensitive relay settings; significantly faster than traditional interrupting devices employed in other transmission systems. Additionally, there is a manual shutdown button in each of the system's three (3) control rooms (2 in Pittsburg, 1 in San Francisco) that is easily accessible to the 24-hour System Operator, who is certified and qualified to initiate emergency procedures for system shutdown. Trans Bay also employs industry standard fault interruption methods via circuit breakers, protective relays, and surge arrestors.

4. Asset management and inspections

Trans Bay conducts weekly inspection of its converter stations using a formal checklist which includes line items that specifically address fire suppression system functionality, high-voltage equipment condition, and general facility condition. On a monthly basis, Trans Bay conducts inspection of the land cable infrastructure using formal checklist which includes line items that specifically address cable integrity and circumstances that could lead to loss of cable integrity. The aforementioned inspections are additive to the System's continuous monitoring capabilities described in section 2 above. Since its 2021 WMP, there has been no change to Trans Bay's asset management and inspections approach.

5. **Vegetation management and inspections**
   Trans Bay's facilities are in an urban/industrial environment and its transmission facilities are either buried or submerged beneath Bay Area waters. Trans Bay's facilities utilize no overhead transmission lines. As a result, Trans Bay does not have a VMP and is not required to maintain a VMP under NERC Reliability Standards or any CASIO maintenance requirements. Trans Bay makes quarterly reports to WECC, that Trans Bay has no requirement have a VMP. Trans Bay does undertake abatement of vegetative fuels on its converter stations at the cost of which is incorporated into landscape maintenance. Based on these factors, the initiatives in this category have nominal applicability to Trans Bay. Since its 2021 WMP, there has been no change to Trans Bay's vegetation abatement and inspections approach.

6. **Grid operations and protocols**
   Trans Bay does not employ automatic reclosers in its transmission system making this initiative not applicable to Trans Bay. Given the substantially hardened nature of Trans Bay's facilities and infrastructure described above and operation fully outside any HFTD within urban areas that public safety response is sufficient for fire suppression response. This precludes the necessity for dedicated ignition suppression response services or resources. Nevertheless, Trans Bay maintains its own Class B fire foam trailer, one at each site, which provides on-site fire suppressing capability. In 2021, Trans Bay engaged the local Pittsburg Fire department and conducted site walk through which including notification of foam trailer location and capabilities, site map, and locations of oil-containing assets. In addition to the protocols mentioned above, Trans Bay has an Emergency Operations Plan and an Emergency Action Plan to enable appropriate emergency response.

7. **Data governance**
   Trans Bay does not assess that dedicated data governance resources beyond those maintained for a wide spectrum of operational risk mitigation and safety are necessary for the limited scale and scope of Trans Bay's operations which are fully outside HTFDs and WUIs. Trans Bay does maintain a centralized secure repository for all fire prevention-related data, including all procedures and documents. In 2021, Trans Bay completed installation of a document management system to more effectively manage storage, access and tracking of operational and maintenance documents. This project was not specifically related to wildfire mitigation but is relevant to the overall maturity of Trans Bay's document management and data governance for general operational needs. As such the costs for this project was not included as a wildfire mitigation initiative.

8. **Resource allocation methodology**
   Due to the limited scale and scope of Trans Bay's operations, the substantial hardening of Trans Bay's transmission infrastructure to wildfire risks due to being underground or submerged, and having no transmission infrastructure in wildlands or in a wildland urban interface (WUI), Trans

Bay does not maintain special resource allocation specifically geared towards wildfire mitigation. Trans Bay's resource allocation is focused on overall operational safety which includes the prevention, detection, and prompt response to any emergency situation. Since its 2021 WMP, there has been no change to Trans Bay's resource allocation methodology.

9. Emergency planning and preparedness

Trans Bay maintains Emergency Action Plans appropriate to the scale and scope of operations that comply with the California Public Utilities Code 768.6, Cal/OSHA - Title 8 Regulations, Chapter 4, Subchapter 7, Group 1, Article 2, §3220 Emergency Action Plans, and adhere to the practices specified in the National Fire Protection Association (NFPA) 850 Manual, Recommended Practices for Fire Protection for Electric Generating Plants and High Voltage Direct Current converter stations. Trans Bay has no defined "service area", lacking any retail or distribution customers, significantly limiting the scope of disaster and emergency preparedness other than that of maintaining Trans Bay's own infrastructure to meet obligations supporting the Bulk Electric System. This precludes the need for significant capability to conduct community outreach, or public awareness campaigns regarding Trans Bay's emergency and disaster preparedness.

Trans Bay emergency preparedness planning and response is conducted in close coordination with CAISO and PG&E in addition to local emergency service providers appropriate to the limited scale and scope of Trans Bay operations. Relevant emergency operations procedures are routinely provided to CAISO and PG&E upon any update.

Initial response and coordination to any emergency condition begins with the Trans Bay System Operator who has full authority and responsibility to act autonomously to coordinate and conduct an emergency shutdown of Trans Bay's transmission system. TBC-OP-004 Emergency Operations and TBC-HS-200 Emergency Action plan provide clear guidance regarding required responses, communications, staff responsibilities, and key situational awareness capabilities to address the full range of foreseeable emergencies to include all those that could pose a fire risk. During the 2020-2022 WMP cycle, Trans Bay has increased its emergency preparedness through:

- the creation of this wildfire mitigation plan,
- engagement of third party site assessments (costs documented in Table 12 of Attachment 3),
- purchase of on-site suppression resources and included training (costs documented in Table 12 of Attachment 3),
- engagement of local fire department regarding on-site suppression resources (no cost), and
- implementation of annual FMEA process to review failure modes of equipment with potential to instigate a fire, assess controls, and opportunities for risk reduction

The above efforts are in addition to previously cited emergency action plans and procedures which are commensurate with scale, scope and siting of Trans Bay's operations.

10. Stakeholder cooperation and community engagement

As noted above, Trans Bay is a transmission-only utility which does not serve end-use customers or have a traditional service territory. As a result, Trans Bay does not anticipate providing customer support or engage with communities during an emergency. However, Trans Bay has protocols for communication and coordination with its primary stakeholders, including the CAISO and PG&E. Trans Bay's President or designee would be the lead in implementing this communications protocol during an emergency. Trans Bay notes that its reviews and shares fire risk reduction best practices and information with its affiliates across its corporate enterprise particularly, Horizon West Transmission ("HWT"), which is a similarly situated transmission-only utility in California. HWT's experiences are invaluable as, unlike Trans Bay, the utility is located in a HFTD. As Trans Bay does not serve end-use customers or operate in wildlands or wildland-urban interfaces, Trans Bay does not anticipate engaging local communities at large. Trans Bay does maintain engagement with the local fire department through annual inspections/site visit.

7.3.1 Financial data on mitigation initiatives, by category

Report actual and projected WMP expenditure, as well as the risk-spend-efficiency (RSE), for each initiative by HFTD tier (territory-wide, non-HFTD, HFTD zone 1, HFTD tier 2, HFTD tier 3) in Table 12 of Attachment 3.

Trans Bay has provided actual and projected WMP expenditure information for each initiative by HFTD tier (territory-wide, non-HFTD, HFTD zone 1, HFTD tier 2, HFTD tier 3) in Table 12 of Attachment 3.

7.3.2 Detailed information on mitigation initiatives by category and activity

Report detailed information for each initiative activity. For each initiative, organize details under the following headings:

1. ***Risk to be mitigated** / problem to be addressed*
2. ***Initiative selection** ("why" engage in activity) – include reference to and description of a risk informed analysis and/or risk model on empirical (or projected) impact of initiative in comparison to alternatives and demonstrate that outcomes of risk model are being prioritized*
3. ***Region prioritization** ("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk") and demonstrate that high-risk areas are being prioritized*
4. ***Progress on initiative** since the last WMP submission and plans, targets, and/or goals for the current year*

5. ***Future improvements to initiative*** *– include known future plans (beyond the current year) and new/novel strategies the utility may implement in the next 5 years (e.g., references to and strategies from pilot projects and researched detailed in Section 4.4.).*

List of initiative activities by category - *Detailed definitions for each mitigation activity are provided in the appendix*

Risk assessment and mapping

1. **A summarized risk map showing the overall ignition probability and estimated wildfire consequence along electric lines and equipment**
   Not applicable.
2. **Climate-driven risk map and modelling based on various relevant weather scenarios**
   Not applicable.
3. **Ignition probability mapping showing the probability of ignition along the electric lines and equipment**
   Not applicable.
4. **Initiative mapping and estimation of wildfire and PSPS risk-reduction impact**
   a) ***Risk to be mitigated / problem to be addressed****:* Enhanced awareness and verification of the effectiveness of recommended fire hardening measures, identified in the 2020 wildfire assessment, to materially reduce fire risk.
   b) ***Initiative selection*** *("why" engage in activity) include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Trans Bay engaged in this initiative to enhance its awareness and verification of effectiveness of certain recommended fire hardening measures at its Pittsburg substation. There were no other viable alternatives to this initiative.
   c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. Trans Bay only has one transmission asset which is located in the San Francisco Bay Area.
   d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Trans Bay completed this initiative in Q1 2022, by commissioning a third-party fire consultant to conduct a second level review of recommended fire hardening measures identified in the 2020 wildfire assessment. Trans Bay plans to move forward with its spare parts building suppression system and compressed gas bottle storage projects which are scheduled for completion in 2022. The amount spent on this initiative is provided in Table 12 of Attachment 3.
   e) ***Future improvements to initiative:*** Trans Bay will reevaluate conducting a similar assessment in the future as planning needs requires.
5. **Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment**
   a) ***Risk to be mitigated / problem to be addressed****:* Enhanced awareness of risk of wildfire propagation in case of a utility-cause ignition in the area

b) ***Initiative selection*** *("why" engage in activity) include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Trans Bay engaged in this initiative to enhance its awareness of wildfire propagation risk at its Pittsburg substation and to identify appropriate wildfire mitigation initiatives. There were no other viable alternatives to this initiative.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. Trans Bay only has one transmission asset which is located in the San Francisco Bay Area.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Trans Bay completed this initiative in 2020 by commissioning a third-party wildfire assessment that identified key wildfire-related risks, which assessed propagation of fire at its Pittsburg substation, and identified recommended fire hardening measures to enhance currently emplaced fire prevention, suppression, and emergency response control measures. Trans Bay completed this initiative in Q4 of 2020 and has undertaken efforts to review and incorporate the pertinent recommendations in its plans for enhancing fire safety control measures in the near, mid-term and long term. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** Trans Bay will reevaluate conducting a similar assessment in the future after all relevant recommended enhancements have been affected.

Situational awareness and forecasting

6. Advanced weather monitoring and weather stations

Not applicable to Trans Bay

7. Continuous monitoring sensors

a) ***Risk to be mitigated / problem to be addressed****:* Lack of real-time health monitoring for electric transformers to inform operational decisions. Lack of real-time status monitoring of the cable to inform operational decisions.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Electric transformers contain mineral oil that provides insulation and cooling. Transformer failures are frequently caused by a degradation of the mineral oil's dielectric properties, leading to an internal electrical arc. As the mineral oil degrades, gases are produced and dissolved into the oil. Analysis of the types and amounts of gases present in the mineral oil can provide valuable insights into the health of the transformer and can provide advanced warning of a potential failure if trends in the gases are tracked. Trans Bay decided to install transformer monitors at its substations in order to monitor and track the health of the transformers and to proactively identify potential vulnerabilities. When energized, high voltage transmission cables can instigate fires if they are struck, and the protective layers are ruptured. The cable monitoring system allows Trans Bay to monitor the cable for physical vibration, temperature, and abnormal electrical discharge at the cable terminations, all of which may evidence cable failure, fault, or potential derangement.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. Trans Bay only has one transmission asset which is located in the San Francisco Bay Area.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Trans Bay completed installation of the transformer monitoring and cable monitoring systems on the TBC System in 2020. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** N/A.

a) ***Risk to be mitigated / problem to be addressed****:* Need for enhanced capacity to assess transformer health and ability to conduct preventative maintenance.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Electric transformers contain mineral oil that provides insulation and cooling. Transformer failures are frequently caused by a degradation of the mineral oil's dielectric properties, leading to an internal electrical arc. Trans Bay decided to install transformer oil control system which provides oil flow indication and control on the base of the seismic platform. This allows for proper preventative maintenance of the transformer oil system and supports enhanced capacity to assess transformer health.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. Trans Bay only has one transmission asset which is located in the San Francisco Bay Area.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Trans Bay completed installation of the transformer oil controls in August 2021. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** N/A.

8. Fault indicators for detecting faults on electric lines and equipment
Not applicable

9. Forecast of a fire risk index, fire potential index, or similar
Not applicable.

10. Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions
Not applicable.

11. Weather forecasting and estimating impacts on electric lines and equipment
Not applicable.

Grid design and system hardening

12. Capacitor maintenance and replacement program
Not applicable.

13. Circuit breaker maintenance and installation to de-energize lines upon detecting a fault
Not applicable.

14. Covered conductor installation

Not applicable.

15. **Covered conductor maintenance**
Not applicable.

16. **Crossarm maintenance, repair, and replacement**
Not applicable.

17. **Distribution pole replacement and reinforcement, including with composite poles**
Not applicable.

18. **Expulsion fuse replacement**
Not applicable.

19. **Grid topology improvements to mitigate or reduce PSPS events**
Not applicable.

20. **Installation of system automation equipment**
Not applicable.

21. **Maintenance, repair, and replacement of connectors, including hotline clamps**
Not applicable.

22. **Mitigation of impact on customers and other residents affected during PSPS event**
Not applicable.

23. **Other corrective action**
    a) ***Risk to be mitigated / problem to be addressed****:* Seismic event could lead to derangement of transformers resulting in fire ignition
    b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* As described in Section 4, the TBC System is located the seismically active San Francisco Bay area. Seismic events are unpredictable, and a significant seismic event could cause derangement of one or more of Trans Bay's eight main transformers which may lead to fire ignition. Trans Bay considers seismic hardening of its facilities as a mitigation action to preclude ignition of proximate vegetative fuels from earthquake-deranged equipment. Trans Bay implemented seismic foundations for its main transformers to preclude damage during a seismic event that could generate fire risk.
    c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. Trans Bay only has one transmission asset which is located in the San Francisco Bay Area.
    d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Trans Bay completed the transformer seismic upgrades during 2021. The amount spent on this initiative is provided in Table 12 of Attachment 3.
    e) ***Future improvements to initiative****:* A third-party Wildfire Mitigation Assessment provided recommendations that certain additional improvements be made to the transformer pit areas

to further enhance fire prevention capabilities. Trans Bay is currently reviewing these initiatives for effectiveness and potential inclusion as part of future site upgrades.

24. **Pole loading infrastructure hardening and replacement program based on pole loading assessment program**
Not applicable.

25. **Transformers maintenance and replacement**
Not applicable.

26. **Transmission tower maintenance and replacement**
Not applicable.

27. **Undergrounding of electric lines and/or equipment**
Not applicable.

28. **Updates to grid topology to minimize risk of ignition in HFTDs**
Not applicable.

Asset management and inspections

29. **Detailed inspections of distribution electric lines and equipment**
Not applicable.

30. **Detailed inspections of transmission electric lines and equipment**
Not applicable.

31. **Improvement of inspections**
Not applicable.

32. **Infrared inspections of distribution electric lines and equipment**
Not applicable.

33. **Infrared inspections of transmission electric lines and equipment**
Not applicable.

34. **Intrusive pole inspections**
Not applicable.

35. **LiDAR inspections of distribution electric lines and equipment**
Not applicable.

36. **LiDAR inspections of transmission electric lines and equipment**
Not applicable.

37. **Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations**
Not applicable.

38. **Other discretionary inspection of transmission electric lines and equipment, beyond inspections mandated by rules and regulations**

Not applicable.

39. **Patrol inspections of distribution electric lines and equipment**
Not applicable.

40. **Patrol inspections of transmission electric lines and equipment**
Not applicable.

41. **Pole loading assessment program to determine safety factor**
Not applicable.

42. **Quality assurance / quality control of inspections**
Not applicable.

43. **Substation inspections**
Not applicable.

Vegetation management and inspections

44. **Additional efforts to manage community and environmental impacts**
Not applicable.

45. **Detailed inspections of vegetation around distribution electric lines and equipment**
Not applicable.

46. **Detailed inspections of vegetation around transmission electric lines and equipment**
Not applicable.

47. **Emergency response vegetation management due to red flag warning or other urgent conditions**
Not applicable.

48. **Fuel management and reduction of "slash" from vegetation management activities**
Not applicable.

49. **Improvement of inspections**
Not applicable.

50. **LiDAR inspections of vegetation around distribution electric lines and equipment**
Not applicable.

51. **LiDAR inspections of vegetation around transmission electric lines and equipment**
Not applicable.

52. **Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations**
Not applicable.

53. **Other discretionary inspection of vegetation around transmission electric lines and equipment, beyond inspections mandated by rules and regulations**
Not applicable.

54. Patrol inspections of vegetation around distribution electric lines and equipment
Not applicable.

55. Patrol inspections of vegetation around transmission electric lines and equipment
Not applicable.

56. Quality assurance / quality control of inspections
Not applicable.

57. Recruiting and training of vegetation management personnel
Not applicable.

58. Remediation of at-risk species
Not applicable.

59. Removal and remediation of trees with strike potential to electric lines and equipment
Not applicable.

60. Substation inspections
Not applicable.

61. Substation vegetation management
Not applicable.

62. Vegetation inventory system
Not applicable.

63. Vegetation management to achieve clearances around electric lines and equipment
Not applicable.

64. Vegetation management activities post-fire
Not applicable.

Grid operations and protocols

65. Automatic recloser operations
Not applicable.

66. Protective equipment and device settings
Not applicable.

67. Crew-accompanying ignition prevention and suppression resources and services
Not applicable.

68. Personnel work procedures and training in conditions of elevated fire risk
Not applicable.

69. Protocols for PSPS re-energization
Not applicable.

70. PSPS events and mitigation of PSPS impacts

Not applicable.

71. Stationed and on-call ignition prevention and suppression resources and services

a) ***Risk to be mitigated / problem to be addressed****:* A transformer failure that results in the ignition could lead to a Class B fire. An evaluation of off-site emergency response revealed that the ability of a responding fire department to adequately suppress a Class B fire may be lacking.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* A third-party Wildfire Mitigation Assessment evaluated that Class B fires are not typically encountered by municipal fire departments and as such the fire departments are not likely to be equipped with sufficient quantities of Class B foam to address a large-scale pool/spill fire resulting from a transformer failure. Moreover, none of the responding stations in the Pittsburg area have a supply of Class B foam. It was therefore recommended that Trans Bay purchase or coordinate the purchase of a foam supply for use by the responding fire department. As a result, Trans Bay elected to purchase two Class B foam trailers (one for each substation) to ensure adequate and ready suppression resources are available on site to address a fire instigated by a failed transformer.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. Trans Bay only has one transmission asset which is located in the San Francisco Bay Area.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* The Class B foam trailers were purchased in 2020 and the trailers were delivered and stationed at both substations in January 2021. The amount spent on this initiative is provided in Table 12 of Attachment 3. In 2021, Trans Bay engaged the local Pittsburg Fire department and conducted site walk through which including notification of foam trailer location and capabilities

e) ***Future improvements to initiative****:* Trans Bay will continue to evaluate the need for any appropriate changes to its stationed and on-call ignition prevention and suppression resources and services.

a) ***Risk to be mitigated*** */ problem to be addressed:* Improved suppression capabilities for Pittsburg substation structures to reduce the potential spread of fire.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* A third-party Wildfire Mitigation Assessment evaluated that the Spare Parts building at the Pittsburg substation, which houses Class A combustible materials has fire detection, but no fire suppression capabilities. Additionally, the spare parts building houses compressed gas cylinders utilized at the site. It was therefore recommended that Trans Bay (i) add a suppression system to compliment the fire detection system in the Spare Parts building and (ii) remove the gas cylinders and construct a protected housing for them outside the Spare Parts building. These projects were assessed as effective fire risk mitigation initiatives in a second level review that was conducted in Q1 2022.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. Trans Bay only has one transmission asset which is located in the San Francisco Bay Area.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* The projects were delayed due to challenges with scoping and availability of vendors and required materials in 2021. However, the projects remain scheduled for completion in 2022. The projected cost of the two initiatives is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative****:* Trans Bay will continue to evaluate the need for any appropriate changes to its stationed and on-call ignition prevention and suppression resources and services.

Data governance

72. Centralized repository for data

Not applicable.

73. Collaborative research on utility ignition and/or wildfire

Not applicable.

74. Documentation and disclosure of wildfire-related data and algorithms

Not applicable.

75. Tracking and analysis of risk event data

Not applicable.

Resource allocation methodology

76. Allocation methodology development and application

Not applicable.

77. Risk reduction scenario development and analysis

Not applicable.

78. Risk spend efficiency analysis – not to include PSPS

Not applicable.

Emergency planning and preparedness

79. Adequate and trained workforce for service restoration

Not applicable.

80. Community outreach, public awareness, and communications efforts

Not applicable.

81. Customer support in emergencies

Not applicable.

82. Disaster and emergency preparedness plan

Not applicable.

83. Preparedness and planning for service restoration
Not applicable.

84. Protocols in place to learn from wildfire events
Not applicable.

Stakeholder cooperation and community engagement

85. Community engagement
Not applicable.

86. Cooperation and best practice sharing with agencies outside CA
Not applicable.

87. Cooperation with suppression agencies
Not applicable.

88. Forest service and fuel reduction cooperation and joint roadmap
Not applicable.

8 PUBLIC SAFETY POWER SHUTOFF (PSPS)

8.1 Directional Vision for Necessity of PSPS

Describe any lessons learned from PSPS since the utility's last WMP submission and expectations for how the utility's PSPS program will evolve over the coming 1, 3, and 10 years. Be specific by including a description of the utility's protocols and thresholds for PSPS implementation. Include a quantitative description of how the circuits and numbers of customers that the utility expects will be impacted by any necessary PSPS events is expected to evolve over time. The description of protocols must be sufficiently detailed and clear to enable a skilled operator to follow the same protocols.

When calculating anticipated PSPS, consider recent weather extremes, including peak weather conditions over the past 10 years as well as recent weather years and how the utility's current PSPS protocols would be applied to those years.

Trans Bay has never issued a PSPS. Given that Trans Bay has no distribution system, no distribution or retail customers, and is already substantially hardened against wildfires, Trans Bay reasonably anticipates no future need to issue a PSPS. Trans Bay's service territory is fully encompassed by PG&E service territory with the Trans Bay Pittsburg converter station, the Trans Bay facility presenting the greatest risk to proximate vegetative fuels, interconnected to the nearby PG&E Pittsburg Substation which has comparable or greater wildfire risk profile. Trans Bay expects that PG&E doctrine regarding PSPS that impacts the PG&E Pittsburg Substation would be the prevailing driver of any PSPS impacts on Trans Bay service territory. Any PSPS issued by PG&E that impacted the Pittsburg Substation to the extent that Trans Bay's interconnection would be de-energized would take Trans Bay's transmission system offline. The quantitative description of such a PSPS implementation for Trans Bay is effectively binary – Trans Bay being either online or offline due to a PG&E issued PSPS whereby the TBC System would not be energized and therefore poses minimal to no fire risk to the public.

Based on the assessment that PG&E would be the sole driver of PSPS impact on the limited Trans Bay service territory, and lack of any reasonably foreseeable need for Trans Bay to issue a PSPS, Trans Bay is not in a position to provide meaningful input to an analysis of anticipated characteristics of PSPS use.

Initial response and coordination to any emergency condition begins with the Trans Bay System Operator who has full authority and responsibility to act autonomously to coordinate and conduct an emergency shutdown of the TBC System. TBC-OP-004 Emergency Operations and TBC-HS-200 Emergency Action plan provide clear guidance regarding required responses, communications, staff responsibilities, and key situational awareness capabilities to address the full range of foreseeable emergencies to include all those that could pose a fire risk.

Instructions for Table 8.1-1:

Rank order, from highest (1 – greatest anticipated change in reliability or impact on ignition probability or estimated wildfire consequence over the next 10 years) to lowest (9 - minimal change or impact, next

10 years), the characteristics of PSPS events (e.g., numbers of customers affected, frequency, scope, and duration), regardless of if the change is an increase or a decrease. To the right of the ranked magnitude of impact, indicate whether the impact would be a significant increase in reliability, a moderate increase in reliability, limited or no impact, a moderate decrease in reliability, or a significant decrease in reliability. For each characteristic, include comments describing the expected change and expected impact, using quantitative estimates wherever possible.

Trans Bay has never issued a PSPS. Given that Trans Bay has no distribution system, no distribution or retail customers, and is already substantially hardened against wildfires, Trans Bay reasonably anticipates no future need to issue a PSPS. Trans Bay's service territory is fully encompassed by PG&E service territory with the Trans Bay Pittsburg converter station, the Trans Bay facility presenting the greatest risk to proximate vegetative fuels, interconnected to the nearby PG&E Pittsburg Substation which has comparable or greater wildfire risk profile. Trans Bay expects that PG&E doctrine regarding PSPS that impacts the PG&E Pittsburg Substation would be the prevailing driver of any PSPS impacts on Trans Bay service territory.

Based on the assessment that PG&E would be the sole driver of PSPS impact on the limited Trans Bay service territory, and lack of any reasonably foreseeable need for Trans Bay to issue a PSPS, Trans Bay is not in a position to provide meaningful input to an analysis of anticipated characteristics of PSPS use. As such, Table 8.1-1 is not applicable and is intentionally provided with no rank order or PSPS characteristic assessment; only comments are provided.

Table 8.1-1: Anticipated characteristics of PSPS use over next 10 years

Rank order 1-9	PSPS characteristic	Significantly increase; increase; no change; decrease; significantly decrease	Comments
N/A	Number of customers affected by PSPS events (total)	N/A	Trans Bay has no distribution or retail customers.
N/A	Number of customers affected by PSPS events (normalized by fire weather, e.g., Red Flag Warning line mile days)	N/A	Trans Bay has no distribution or retail customers.
N/A	Frequency of PSPS events in number of instances where utility operating protocol requires de-energization of a circuit or portion thereof to reduce ignition probability (total)	N/A	Trans Bay has no reasonably foreseeable need to issue a PSPS due to the existent hardening of Trans Bay's transmission infrastructure.
N/A	Frequency of PSPS events in number of instances where utility operating protocol	N/A	Trans Bay has no reasonably foreseeable need to issue a

	requires de-energization of a circuit or portion thereof to reduce ignition probability (normalized by fire weather, e.g., Red Flag Warning line mile days)		PSPS due to the existent hardening of the TBC System.
N/A	Scope of PSPS events in circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization (total)	N/A	Trans Bay has no reasonably foreseeable need to issue a PSPS due to the existent hardening of the TBC's System.
N/A	Scope of PSPS events in circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization (normalized by fire weather, e.g., Red Flag Warning line mile days)	N/A	Trans Bay has no reasonably foreseeable need to issue a PSPS due to the existent hardening of the TBC's System.
N/A	Duration of PSPS events in customer hours (total)	N/A	Trans Bay has no distribution or retail customers.
N/A	Duration of PSPS events in customer hours (normalized by fire weather, e.g., Red Flag Warning line mile days)	N/A	Trans Bay has no distribution or retail customers.
9	Other (Describe) – Rank as 9 and leave other columns blank if no other characteristics associated with PSPS		

8.2 Protocols on Public Safety Power Shut-off

Describe protocols on Public Safety Power Shut-off (PSPS or de-energization), highlighting changes since the previous WMP submission:

1. *Method used to evaluate the potential consequences of PSPS and wildfires. Specifically, the utility is required to discuss how the relative consequences of PSPS and wildfires are compared and evaluated. In addition, the utility must report the wildfire risk thresholds and decision-making process that determine the need for a PSPS.*

2. *Strategy to minimize public safety risk during high wildfire risk conditions and details of the considerations, including but not limited to list and description of community assistance locations and services provided during a de-energization event.*
3. *Outline of tactical and strategic decision-making protocol for initiating a PSPS/de-energization (e.g., decision tree).*
4. *Strategy to provide for safe and effective re-energization of any area that was de-energized due to PSPS protocol.*
5. *Company standards relative to customer communications, including consideration for the need to notify priority essential services – critical first responders, public safety partners, critical facilities and infrastructure, operators of telecommunications infrastructure, and water utilities/agencies. This section, or an appendix to this section, shall include a complete listing of which entities the electrical corporation considers to be priority essential services. This section shall also include a description of strategy and protocols to ensure timely notifications to customers, including access and functional needs populations, in the languages prevalent within the utility's service territory.*
6. *Protocols for mitigating the public safety impacts of these protocols, including impacts on first responders, health care facilities, operators of telecommunications infrastructure, and water utilities/agencies.*

Trans Bay has never issued a PSPS. Given that Trans Bay has no distribution system, no distribution or retail customers, and is already substantially hardened against wildfires, Trans Bay reasonably anticipates no future need to issue a PSPS. Trans Bay's service territory is fully encompassed by PG&E's service territory with the Trans Bay Pittsburg converter station, the Trans Bay facility presenting the greatest risk being proximate vegetative fuels, interconnected to the nearby PG&E Pittsburg Substation which has comparable or greater wildfire risk profile. Trans Bay expects that PG&E doctrine regarding PSPS that impacts the PG&E Pittsburg Substation would be the prevailing driver of any PSPS impacts on Trans Bay service territory. Any PSPS issued by PG&E that impacted the Pittsburg Substation to the extent that Trans Bay's interconnection would be de-energized would take Trans Bay's transmission system offline. The quantitative description of such a PSPS implementation for Trans Bay is effectively binary, Trans Bay being either online or offline due to a PG&E issued PSPS whereby the Trans Bay transmission system would not be energized and therefore poses minimal to no fire risk to the public.

Based on the assessment that PG&E would be the sole driver of PSPS impact on the limited Trans Bay service territory, and lack of any reasonably foreseeable need for Trans Bay to issue a PSPS, Trans Bay is not in a position to provide meaningful input to an analysis of anticipated characteristics of PSPS use.

Trans Bay emergency preparedness planning and response is conducted in close coordination with CAISO and PG&E in addition to local emergency service providers appropriate to the limited scale and scope of Trans Bay operations. Relevant emergency operations procedures are routinely provided to CAISO and PG&E upon any update.

Initial response and coordination to any emergency condition begins with the Trans Bay System Operator who has full authority and responsibility to act autonomously to coordinate and conduct an emergency shutdown of Trans Bay's transmission system. TBC-OP-004 Emergency Operations and TBC-HS-200 Emergency Action plan provide clear guidance regarding required responses, communications, staff responsibilities, and key situational awareness capabilities to address the full range of foreseeable emergencies to include all those that could pose a fire risk.

8.3 Projected changes to PSPS impact

Describe organization-wide plan to reduce scale, scope and frequency of PSPS for each of the following time periods, highlighting changes since the prior WMP report and including key program targets used to track progress over time,

1. *By June 1 of current year*
2. *By September 1 of current year*
3. *By next WMP submission*

Trans Bay has never issued a PSPS. Given that Trans Bay has no distribution system, no distribution or retail customers, and its transmission system is substantially hardened against wildfires, Trans Bay reasonably anticipates no future need to issue a PSPS. As a result, Trans Bay does not have key program targets related to PSPS that it intends to track over time.

8.4 Engaging vulnerable communities

Report on the following:

1. *Describe protocols for PSPS that are intended to mitigate the public safety impacts of PSPS on vulnerable, marginalized and/or at-risk communities. Describe how the utility is identifying these communities.*
2. *List all languages which are "prevalent" in utility's territory. 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% or more of the population within a "public safety answering point" in the utility territory[22] (D.20-03-004).*
3. *List all languages for which public outreach material is available, in written or oral form.*
4. *Detail the community outreach efforts for PSPS and wildfire-related outreach. Include efforts to reach all languages prevalent in utility territory.*

As explained above, Trans Bay is a transmission-only utility which does not have or serve retail customers or have a traditional service territory. As result, Trans Bay does not engage vulnerable communities and further does not anticipate engaging with vulnerable communities regarding PSPS. Trans Bay does have a protocol for engaging with other critical stakeholders (e.g., CAISO, PG&E, local fire agencies, etc.)

[22] See Cal. Government Code § 53112

regarding any potential emergency event, including a PSPS event, as detailed in Trans Bay's Emergency Operations Plan and Emergency Action Plan.

8.5 PSPS-specific metrics

PSPS data reported quarterly. Placeholder tables below to be filled in based on quarterly data.

Instructions for PSPS table:

In the attached spreadsheet document, report performance on the following PSPS metrics within the utility's service territory over the past five years as needed to correct previously-reported data. Where the utility does not collect its own data on a given metric, the utility shall work with the relevant state agencies to collect the relevant information for its service territory, and clearly identify the owner and dataset used to provide the response in the "Comments" column.

Table 11 of Attachment 3: Recent use of PSPS and other PSPS metrics is provided in Attachment 3.

8.6 Identification of frequently de-energized circuits

Senate Bill 533 (2021) added an additional requirement to the WMPs. Pub. Util. Code Section 8386(c)(8) requires the "Identification of circuits that have frequently been de-energized[23] pursuant to a de-energization event to mitigate the risk of wildfire and the measures taken, or planned to be taken, by the electrical corporation to reduce the need for, and impact of, future de-energization of those circuits, including, but not limited to, the estimated annual decline in circuit de-energization and de-energization impact on customers, and replacing, hardening, or undergrounding any portion of the circuit or of upstream transmission or distribution lines." To comply with this statutory addition, utilities are required to populate Table 8.6-1 and provide a map showing the listed frequently de-energized circuits.

Trans Bay had no circuits which were de-energized pursuant to a de-energization event to mitigate the risk of wildfire in 2021. As a result, Table 8.6-2 is marked below as not applicable (N/A).

Table 8.6-2: Frequently de-energized circuits

ID of Circuit	County	Dates of Outages	# of Customers Affected	Measures taken, or planned to be taken, to reduce the need for, and impact of, future PSPS of circuit
N/A	N/A	N/A	N/A	N/A

[23] "Frequently de-energized circuit" has been defined in the glossary as "A circuit which has been de-energized pursuant to a de-energization event to mitigate the risk of wildfire three or more times in a calendar year."

9 APPENDIX

9.1 Definitions of initiative activities by category

Table 9-1: Definitions of initiative activities by category

Category	Initiative activity	Definition
A. Risk mapping and simulation	A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	Development and use of tools and processes to develop and update risk map and simulations and to estimate risk reduction potential of initiatives for a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Climate-driven risk map and modelling based on various relevant weather scenarios	Development and use of tools and processes to estimate incremental risk of foreseeable climate scenarios, such as drought, across a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Ignition probability mapping showing the probability of ignition along the electric lines and equipment	Development and use of tools and processes to assess the risk of ignition across regions of the grid (or more granularly, e.g., circuits, spans, or assets).
	Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	Development of a tool to estimate the risk reduction efficacy (for both wildfire and PSPS risk) and risk-spend efficiency of various initiatives.
	Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	Development and use of tools and processes to assess the impact of potential ignition and risk to communities (e.g., in terms of potential fatalities, structures burned, monetary damages, area burned, impact on air quality and greenhouse gas, or GHG, reduction goals, etc.).
B. Situational awareness and forecasting	Advanced weather monitoring and weather stations	Purchase, installation, maintenance, and operation of weather stations. Collection, recording, and analysis of weather data from weather stations and from external sources.
	Continuous monitoring sensors	Installation, maintenance, and monitoring of sensors and sensorized equipment used to monitor the condition of electric lines and equipment.
	Fault indicators for detecting faults on electric lines and equipment	Installation and maintenance of fault indicators.

Category	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.
C. Grid design and system hardening	Capacitor maintenance and replacement program	Remediation, adjustments, or installations of new equipment to improve or replace existing capacitor equipment.
	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Remediation, adjustments, or installations of new equipment to improve or replace existing fast switching circuit breaker equipment to improve the ability to protect electrical circuits from damage caused by overload of electricity or short circuit.
	Covered conductor installation	Installation of covered or insulated conductors to replace standard bare or unprotected conductors (defined in accordance with GO 95 as supply conductors, including but not limited to lead wires, not enclosed in a grounded metal pole or not covered by: a “suitable protective covering” (in accordance with Rule 22.8), grounded metal conduit, or grounded metal sheath or shield). In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5

Category	Initiative activity	Definition
		inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D.
	Covered conductor maintenance	Remediation and adjustments to installed covered or insulated conductors. In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D.
	Crossarm maintenance, repair, and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing crossarms, defined as horizontal support attached to poles or structures generally at right angles to the conductor supported in accordance with GO 95.
	Distribution pole replacement and reinforcement, including with composite poles	Remediation, adjustments, or installations of new equipment to improve or replace existing distribution poles (i.e., those supporting lines under 65kV), including with equipment such as composite poles manufactured with materials reduce ignition probability by increasing pole lifespan and resilience against failure from object contact and other events.
	Expulsion fuse replacement	Installations of new and CAL FIRE-approved power fuses to replace existing expulsion fuse equipment.
	Grid topology improvements to mitigate or reduce PSPS events	Plan to support and actions taken to mitigate or reduce PSPS events in terms of geographic scope and number of customers affected, such as installation and operation of electrical equipment to sectionalize or island portions of the grid, microgrids, or local generation.
	Installation of system automation equipment	Installation of electric equipment that increases the ability of the utility to automate system operation and monitoring, including equipment that can be adjusted remotely such as automatic reclosers (switching devices designed to detect and interrupt momentary faults that can reclose automatically and detect if a fault remains, remaining open if so).

Category	Initiative activity	Definition
	Maintenance, repair, and replacement of connectors, including hotline clamps	Remediation, adjustments, or installations of new equipment to improve or replace existing connector equipment, such as hotline clamps.
	Mitigation of impact on customers and other residents affected during PSPS event	Actions taken to improve access to electricity for customers and other residents during PSPS events, such as installation and operation of local generation equipment (at the community, household, or other level).
	Other corrective action	Other maintenance, repair, or replacement of utility equipment and structures so that they function properly and safely, including remediation activities (such as insulator washing) of other electric equipment deficiencies that may increase ignition probability due to potential equipment failure or other drivers.
	Pole loading infrastructure hardening and replacement program based on pole loading assessment program	Actions taken to remediate, adjust, or install replacement equipment for poles that the utility has identified as failing to meet safety factor requirements in accordance with GO 95 or additional utility standards in the utility's pole loading assessment program.
	Transformers maintenance and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing transformer equipment.
	Transmission tower maintenance and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing transmission towers (e.g., structures such as lattice steel towers or tubular steel poles that support lines at or above 65kV).
	Undergrounding of electric lines and/or equipment	Actions taken to convert overhead electric lines and/or equipment to underground electric lines and/or equipment (i.e., located underground and in accordance with GO 128).
	Updates to grid topology to minimize risk of ignition in HFTDs	Changes in the plan, installation, construction, removal, and/or undergrounding to minimize the risk of ignition due to the design, location, or configuration of utility electric equipment in HFTDs.
D. Asset management and inspections	Detailed inspections of distribution electric lines and equipment	In accordance with GO 165, careful visual inspections of overhead electric distribution lines and equipment where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded.
	Detailed inspections of transmission electric lines and equipment	Careful visual inspections of overhead electric transmission lines and equipment where individual pieces of equipment and structures are carefully

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

Category	Initiative activity	Definition
		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 consider many factors including the size, location, and type of pole; types of attachments; length of conductors attached; and number and design of supporting guys, per D.15-11-021.
	Quality assurance / quality control of inspections	Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes.
	Substation inspections	In accordance with GO 175, inspection of substations performed by qualified persons and according to the frequency established by the utility, including record-keeping.
E. Vegetation management and inspection	Additional efforts to manage community and environmental impacts	Plan and execution of strategy to mitigate negative impacts from utility vegetation management to local communities and the environment, such as coordination with communities, local governments, and agencies to plan and execute vegetation management work.
	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. Describe the frequency of inspection and maintenance programs.
	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. Describe the frequency of inspection and maintenance programs.

Category	Initiative activity	Definition
	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, management of all wood and "slash" from vegetation management activities	Plan and execution of fuel management activities in proximity to potential sources of ignition. This includes pole clearing per PRC 4292 and reduction or adjustment of live fuel (based on species or otherwise) and of dead fuel, including all downed wood and "slash" generated from vegetation management activities.
	Improvement of inspections	Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors.
	LiDAR inspections of vegetation around distribution electric lines and equipment	Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).
	LiDAR inspections of vegetation around transmission electric lines and equipment	Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).
	Other discretionary inspections of vegetation around distribution electric lines and equipment	Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Other discretionary inspections of vegetation around transmission electric lines and equipment	Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Patrol inspections of vegetation around distribution electric lines and equipment	Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business.
	Patrol inspections of vegetation around transmission electric lines and equipment	Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business.

Category	Initiative activity	Definition
	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. This includes identification of the percentage of vegetation inspections that are audited annually, as a program target in Table 5.3-1.
	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. Include discussion of continuous improvement of training programs and personnel qualifications.
	Remediation of at-risk species	Actions taken to reduce the ignition probability and wildfire consequence attributable to at-risk vegetation species, such as trimming, removal, and replacement.
	Removal and remediation of trees with strike potential to electric lines and equipment	Actions taken to remove or otherwise remediate trees that could potentially strike electrical equipment, if adverse events such as failure at the ground-level of the tree or branch breakout within the canopy of the tree, occur.
	Substation inspection	Inspection of vegetation surrounding substations, performed by qualified persons and according to the frequency established by the utility, including record-keeping.
	Substation vegetation management	Based on location and risk to substation equipment only, actions taken to reduce the ignition probability and wildfire consequence attributable to contact from vegetation to substation equipment.
	Vegetation management enterprise system	Inputs, operation, and support for a centralized vegetation management enterprise system updated based upon inspection results and management activities such as trimming and removal of vegetation.
	Vegetation management to achieve clearances around electric lines and equipment	Actions taken to ensure that vegetation does not encroach upon the minimum clearances set forth in Table 1 of GO 95, measured between line conductors and vegetation, such as trimming adjacent or overhanging tree limbs.

Category	Initiative activity	Definition
	Vegetation management activities post-fire	Vegetation management (VM) activities during post-fire service restoration including, but not limited to: activities or protocols that differentiate post-fire VM from programs described in other WMP initiatives; supporting documentation for the tool and/or standard the utility uses to assesses the risk presented by vegetation post-fire; and how the utility includes fire-specific damage attributes into its assessment tool/standard.
F. Grid operations and protocols	Automatic recloser operations	Designing and executing protocols to deactivate automatic reclosers based on local conditions for ignition probability and wildfire consequence.
	Crew-accompanying ignition prevention and suppression resources and services	Those firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, and water) that are deployed with construction crews and other electric workers to provide site-specific fire prevention and ignition mitigation during on-site work
	Personnel work procedures and training in conditions of elevated fire risk	Work activity guidelines that designate what type of work can be performed during operating conditions of different levels of wildfire risk. Training for personnel on these guidelines and the procedures they prescribe, from normal operating procedures to increased mitigation measures to constraints on work performed.
	Protocols for PSPS re-energization	Designing and executing procedures that accelerate the restoration of electric service in areas that were de-energized, while maintaining safety and reliability standards.
	PSPS events and mitigation of PSPS impacts	Designing, executing, and improving upon protocols to conduct PSPS events, including development of advanced methodologies to determine when to use PSPS, and to mitigate the impact of PSPS events on affected customers and local residents.
	stationed and on-call ignition prevention and suppression resources and services	Firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, firefighting foam, chemical extinguishing agent, and water) stationed at utility facilities and/or standing by to respond to calls for fire suppression assistance.
G. Data governance	Centralized repository for data	Designing, maintaining, hosting, and upgrading a platform that supports storage, processing, and utilization of all utility proprietary data and data compiled by the utility from other sources.
	Collaborative research on utility ignition and/or wildfire	Developing and executing research work on utility ignition and/or wildfire topics in collaboration with other non-utility partners, such as academic institutions and

Category	Initiative activity	Definition
		research groups, to include data-sharing and funding as applicable.
	Documentation and disclosure of wildfire-related data and algorithms	Design and execution of processes to document and disclose wildfire-related data and algorithms to accord with rules and regulations, including use of scenarios for forecasting and stress testing.
	Tracking and analysis of near miss data	Tools and procedures to monitor, record, and conduct analysis of data on near miss events.
H. Resource allocation methodology	Allocation methodology development and application	Development of prioritization methodology for human and financial resources, including application of said methodology to utility decision-making.
	Risk reduction scenario development and analysis	Development of modelling capabilities for different risk reduction scenarios based on wildfire mitigation initiative implementation; analysis and application to utility decision-making.
	Risk spend efficiency analysis	Tools, procedures, and expertise to support analysis of wildfire mitigation initiative risk-spend efficiency, in terms of MAVF and/ or MARS methodologies.
I. Emergency planning and preparedness	Adequate and trained workforce for service restoration	Actions taken to identify, hire, retain, and train qualified workforce to conduct service restoration in response to emergencies, including short-term contracting strategy and implementation.
	Community outreach, public awareness, and communications efforts	Actions to identify and contact key community stakeholders; increase public awareness of emergency planning and preparedness information; and design, translate, distribute, and evaluate effectiveness of communications taken before, during, and after a wildfire, including Access and Functional Needs populations and Limited English Proficiency populations in particular.
	Customer support in emergencies	Resources dedicated to customer support during emergencies, such as website pages and other digital resources, dedicated phone lines, etc.
	Disaster and emergency preparedness plan	Development of plan to deploy resources according to prioritization methodology for disaster and emergency preparedness of utility and within utility service territory (such as considerations for critical facilities and infrastructure), including strategy for collaboration with Public Safety Partners and communities.
	Preparedness and planning for service restoration	Development of plans to prepare the utility to restore service after emergencies, such as developing employee and staff trainings, and to conduct inspections and remediation necessary to re-energize lines and restore service to customers.

Category	Initiative activity	Definition
	Protocols in place to learn from wildfire events	Tools and procedures to monitor effectiveness of strategy and actions taken to prepare for emergencies and of strategy and actions taken during and after emergencies, including based on an accounting of the outcomes of wildfire events.
J. Stakeholder cooperation and community engagement	Community engagement	Strategy and actions taken to identify and contact key community stakeholders; increase public awareness and support of utility wildfire mitigation activity; and design, translate, distribute, and evaluate effectiveness of related communications. Includes specific strategies and actions taken to address concerns and serve needs of Access and Functional Needs populations and Limited English Proficiency populations in particular.
	Cooperation and best practice sharing with agencies outside CA	Strategy and actions taken to engage with agencies outside of California to exchange best practices both for utility wildfire mitigation and for stakeholder cooperation to mitigate and respond to wildfires.
	Cooperation with suppression agencies	Coordination with CAL FIRE, federal fire authorities, county fire authorities, and local fire authorities to support planning and operations, including support of aerial and ground firefighting in real-time, including information-sharing, dispatch of resources, and dedicated staff.
	Forest service and fuel reduction cooperation and joint roadmap	Strategy and actions taken to engage with local, state, and federal entities responsible for or participating in forest management and fuel reduction activities; and design utility cooperation strategy and joint stakeholder roadmap (plan for coordinating stakeholder efforts for forest management and fuel reduction activities).

9.2 Citations for relevant statutes, Commission directives, proceedings and orders

Throughout the WMP, cite relevant state and federal statutes, Commission directives, orders, and proceedings. Place the title or tracking number of the statute in parentheses next to comment, or in the appropriate column if noted in a table. Provide in this section a brief description or summary of the relevant portion of the statute. Track citations as end-notes and order (1, 2, 3…) across sections (e.g., if section 1 has 4 citations, section 2 begins numbering at 5).

The limited authorities referenced in this WMP are cited within the text of this plan or referenced in footnotes.

9.3 Covered Conductor Installation Reporting

In Section 7.3.2.3.3, Covered Conductor Installation, report on the following key information for covered conductor installation:

- *Methodology for installation and implementation*
- *Design and design considerations (such as selection of type of covered conductor, additional hardware needed for installation, pole strengthening or replacements, etc.)*
- *Implementation (including timeframes, prioritization, contractor and labor needs, etc.)*
- *Long-term operations and considerations (including maintenance, long-term effectiveness and feasibility, effectiveness monitoring, etc.)*
- *Key assumptions*
- *Cost effectiveness evaluations (including cost breakdown per circuit mile, comparison with alternatives, etc.)*
- *Any other activities relevant to the covered conductor installation*

This information must be derived from utility-specific programs and supplemented by the findings of the covered conductor working group.

This section is not applicable to as Trans Bay is a transmission-only utility without and distribution assets. The undergrounding of Trans Bay's transmission elements was part of the original system design when TBC was constructed in 2009 and the TBC system does not utilize covered conductors.

9.4 Undergrounding Implementation Reporting

In Section 7.3.3.16 Undergrounding of electric lines and/or equipment, report on the following key information for undergrounding implementation:

- *Methodology for installation and implementation*
- *Design and design considerations (such as permitting requirements, additional hardware needed for installation, etc.)*
- *Implementation (including timeframes, prioritization, contractor and labor needs, etc.)*
- *Long-term operations and considerations (including maintenance, long-term effectiveness and feasibility, effectiveness monitoring, etc.)*
- *Key assumptions*
- *Cost effectiveness evaluations (including cost breakdown per circuit mile, comparison with alternatives, etc.)*
- *Any other activities relevant to the undergrounding implementation*

This information must be derived from utility-specific programs.

This section is not applicable to as Trans Bay is a transmission-only utility without and distribution assets. The undergrounding of Trans Bay's transmission elements was part of the original system design when TBC was constructed in 2009.