Health & Safety Plan

TBC-HS-103

Fire Prevention Plan

Annex A

Wildfire Mitigation Plan

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1. Persons Responsible for the Execution of the Plan

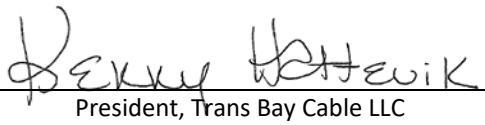
The Wildfire Mitigation Plan (WMP) is managed at the executive level by Trans Bay Cable's (TBC or the Company) Senior Director of Operations with ultimate oversight by TBC's President. The Senior Director of Operations manages the Operations staff who are tasked with 24/7 staffing of the TBC System Operator's Desk in the Control Room during system operations and conducting maintenance on the transmission facilities. 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 California Independent System Operator (CAISO) or requests from the Pacific Gas and Electric Company (PG&E). Infrastructure assessment is conducted by TBC's Operators and Engineers who are charged with physically inspecting TBC substation sites and all equipment thereon, inspecting underground cable vaults and assessing quarterly cable surveys. Engineers are directly managed by the Director of Engineering who is tasked with reviewing transmission asset and site assessments and, along with the Director of Operations, making recommendations to the Senior Director of Operations. Additionally, the Company's Environmental, Health and Safety Manager (EH&S Manager) manages TBC's general fire prevention plan, leads training, and assess overall program compliance. Reporting is managing by TBC's Principal Attorney. Internally, WMP review and revision is conducted by the EH&S Manager in conjunction with the Director of Engineering with approval by the Senior Director of Operations. Externally, the WMP shall be approved by the Commission in accordance with Senate Bill 901 and PUC §8386. A detailed breakdown of WMP roles and responsibilities to include accounting for each of the WMP sections and subsections is provided in Appendix 1 Roles and Responsibilities.

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 February 7, 2020 at San Francisco, California.



President, Trans Bay Cable LLC

2. Metrics and Underlying Data

Due to the limited scale and scope of TBC's operations, the substantial hardening of TBC'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), TBC

does not maintain programs specifically geared towards wildfire mitigation. However, TBC does maintain operational metrics regarding operational safety and overall fire prevention which are represented below where relevant.

After filing the 2019 WMP, TBC participated in the CPUC efforts to determine the best practices to develop relevant safety metrics. In this process, TBC has adopted the metrics developed under the auspices of the CPUC. The metrics employed by TBC are accurately represented in Table 1 and Table 2 below. Given TBC's operational circumstances, these metrics are considered sufficient to capture the performance of TBC's WMP. Additional metrics established exclusively for wildfire mitigation were not previously assessed as necessary and that continues to be the case, as indicated in Table 3 below.

Note: All data from Table 1 through Table 7, and Table 10 through Table 31 are provided in a data-delimited Excel format in Attachment 1 for ease of data integration. Only relevant data values are input. Fields (cells) for not- applicable data are left blank. Explanations regarding not-applicable data are provided in this document.

2.1 Lessons Learned

TBC 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 did not change TBC's operation profile.
3. Weather and RFW were assessed to have minimal operational impact on TBC.
4. TBC assessed that there is no foreseeable circumstance under which TBC would issue a Public Safety Power Shutdown. This is discussed further in Section 4.4 below.
5. TBC'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 TBC.
6. WMP requirements have prompted TBC to undertake comprehensive liability assessments of its Pittsburg Converter Station which, while operating in a medium density urban area outside High-Fire Threat District (HFTD) does have proximate vegetative fuels.
7. Participation in the CPUC wildfire mitigation workshops has provided valuable information the TBC can leverage to further fire harden its infrastructure.

2.2 Recent Performance on Progress Metrics – Last 5 Years

Table 1 below provides the recent performance on Progress Metrics for TBC's service territory over the past five (5) years.

Table 1 Recent Performance on Progress Metrics – Last 5 Year

#	Progress Metric Name	Annual Performance					Unit(s)	Comments
		2015	2016	2017	2018	2019		
1	Grid condition findings from inspection	0	0	0	0	0	Number of Level 1, 2, and 3 findings per mile of circuit in HFTD, and per total miles of circuit for each of the following inspection types: 1. Patrol inspections 2. Detailed inspections 3. Other inspection types	TBC has no infrastructure located in HFTD. TBC has 53 circuit miles of underground and submarine cable.
2	Vegetation clearance findings from inspection	N/A – TBC has no overhead lines requiring a vegetation management program					Percentage of right-of-way with noncompliant clearance based on applicable rules and regulations at the time of inspection, as a percentage of all right-of-way inspected	
3	Extent of grid modularization	N/A – TBC operates a single transmission element that cannot be modularized					Number of sectionalizing devices per circuit mile plus number of automated grid control equipment in: 1. HFTD 2. Non-HFTD	
4	Data collection and reporting					100%	Percent of data requested in SDR and WMP collected in initial submission	

2.3 Recent Performance on Outcome Metrics – Last 5 Years

Table 2 below the recent performance on Outcome Metrics for TBC's service territory over the past five (5) years to include metrics normalized for weather.

Table 2 Recent Performance on Outcome Metrics – Last 5 Years

Metric Type	#	Outcome Metric Name	Annual Performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
1. Near Misses	1.a.	Number of all events (such as unplanned outages, faults, conventional blown fuses, etc.) that could result in ignition, by type according to utility-provided list (total)	0	0	0	0	0	Number per year	
	1.b.	Number of all events (such as unplanned outages, faults, conventional blown fuses, etc.) that could result in ignition, by type according to utility-provided list (normalized)	0	0	0	0	0	Number per RFW circuit mile day per year	
	1.c.	Number of wires down (total)	N/A – All TBC transmission cables are underground or submerged					Number of wires down per year	
	1.d.	Number of wires down (normalized)						Number per RFW circuit mile day per year	
2. Utility inspection findings	2.a.	Number of Level 1 findings that could increase the probability of ignition discovered per circuit mile inspected	0	0	0	0	0	Average number of Level 1 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	
	2.b	Number of Level 2 findings that could increase the probability of ignition discovered per circuit mile inspected	0	0	0	0	0	Average number of Level 2 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	

Metric Type	#	Outcome Metric Name	Annual Performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
	2.c	Number of Level 3 findings that could increase the probability of ignition discovered per circuit mile inspected	0	0	0	0	0	Average number of Level 3 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	
3. Customer hours of PSPS and other outages	3.a.	Customer hours of planned outages including PSPS (total)	N/A – TBC has no distribution customers, has not issued a PSPS, and does not foresee a reasonably likely circumstance in which TBC would do so.					Total customer hours of planned outages per year	
	3.b.	Customer hours of planned outages including PSPS (normalized)						Total customer hours of planned outages per RFW circuit mile day per year	
	3.c.	Customer hours of unplanned outages, not including PSPS (total)						Total customer hours of unplanned outages per year	
	3.d.	Customer hours of unplanned outages, not including PSPS (normalized)						Total customer hours of unplanned outages per RFW circuit mile day per year	
	3.e.	Increase in System Average Interruption Duration Index (SAIDI)						Change in minutes compared to the previous year	
4. Utility ignited wildfire fatalities	4.a.	Fatalities due to utility-ignited wildfire (total)	0	0	0	0	0	Number of fatalities per year	
	4.b.	Fatalities due to utility-ignited wildfire (normalized)	0	0	0	0	0	Number of fatalities per RFW circuit mile day per year	
5. Accidental deaths resulting from utility wildfire mitigation initiatives	5.a.	Deaths due to utility wildfire mitigation activities (total)	0	0	0	0	0	Number of fatalities per year	
6. OSHA-reportable injuries from utility wildfire mitigation initiatives	6.a.	OSHA-reportable injuries due to utility wildfire mitigation activities (total)	0	0	0	0	0	Number of OSHA-reportable injuries per year	
	6.b.	OSHA-reportable injuries due to utility wildfire mitigation activities (normalized)	0	0	0	0	0	Number of OSHA-reportable injuries per year per 1000 line miles of grid	

Metric Type	#	Outcome Metric Name	Annual Performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
7. Value of assets destroyed by utility-ignited wildfire, listed by asset type	7.a.	Value of assets destroyed by utility-ignited wildfire (total)	0	0	0	0	0	Dollars of damage or destruction per year	
	7.b.	Value of assets destroyed by utility-ignited wildfire (normalized)	0	0	0	0	0	Dollars of damage or destruction per RFW circuit mile day per year	
8. Structures damaged or destroyed by utility-ignited wildfire	8.a.	Number of structures destroyed by utility-ignited wildfire (total)	0	0	0	0	0	Number of structures destroyed per year	
	8.b.	Number of structures destroyed by utility-ignited wildfire (normalized)	0	0	0	0	0	Number of structures destroyed per RFW circuit mile day per year	
9. Acreage burned by utility-ignited wildfire	9.a.	Acreage burned by utility-ignited wildfire (total)	0	0	0	0	0	Acres burned per year	
	9.b.	Acreage burned by utility-ignited wildfire (normalized)	0	0	0	0	0	Acres burned per RFW circuit mile day per year	
10. Number of utility wildfire ignitions	10.a.	Number of ignitions (total) according to existing ignition data reporting requirement	0	0	0	0	0	Number per year	
	10.b.	Number of ignitions (normalized)	0	0	0	0	0	Number per RFW circuit mile day per year	
	10.c.	Number of ignitions in HFTD (subtotal)	N/A – TBC does not operate transmission infrastructure directly within a HFTD					Number in HFTD per year	
	10.c.i	Number of ignitions in HFTD Zone 1						Number in HFTD Zone 1 per year	
	10.c.ii	Number of ignitions in HFTD Tier 2						Number in HFTD Tier 2 per year	
	10.c.iil	Number of ignitions in HFTD Tier 3						Number in HFTD Tier 3 per year	
	10.d.	Number of ignitions in HFTD (subtotal, normalized)						Number in HFTD per RFW circuit mile day per year	
	10.d.i.	Number of ignitions in HFTD Zone 1 (normalized)						Number in HFTD Zone 1 per RFW circuit mile day per year	

Metric Type	#	Outcome Metric Name	Annual Performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
	10.d.ii.	Number of ignitions in HFTD Tier 2 (normalized)						Number in HFTD Tier 2 per RFW circuit mile day per year	
	10.d.iii	Number of ignitions in HFTD Tier 3 (normalized)						Number in HFTD Tier 3 per RFW circuit mile day per year	
	10.e	Number of ignitions in non-HFTD (subtotal)	0	0	0	0	0	Number in non-HFTD per year	
	10.f	Number of ignitions in non-HFTD (normalized)	0	0	0	0	0	Number in non-HFTD per RFW circuit mile day per year	
11. Critical infrastructure impacted	11.a.	Critical infrastructure impacted by PSPS	N/A – TBC has no distribution customers, has not issued a PSPS, and does not foresee a reasonably likely circumstance in which TBC would do so.					Number of critical infrastructure (in accordance with D.19-05-042) locations impacted per hour multiplied by hours offline per year	
	11.b.	Critical infrastructure impacted by PSPS (normalized)						Number of critical infrastructure (in accordance with D.19-05-042) locations impacted per hour multiplied by hours offline per year	

2.4 Description of Additional Metrics

As TBC does not maintain metrics solely for wildfire mitigation. Table 3 below is intentionally blank.

Table 3 List and Description of Additional Metrics – Last 5 Years

Metric	Performance					Unit(s)	Underlying Assumptions	Third-Party Validation
	2015	2016	2017	2018	2019			

2.5 Description of Targets

Table 4 below details the 2019 WMP targets and TBC performance in accomplishing those targets. In addition to achieving zero ignition events, TBC sough to implement specific risk mitigations from 2019 WMP Risk Assessment that had planning and implementation horizons prior to 2020 understanding that these implementations, while relevant to wildfire mitigation, were not solely implemented for wildfire mitigation as they address a broader spectrum of operational risk. For the updated WMP Risk Assessment see Appendix 2.

Table 4 Description of Targets

Program Target	2019 Performance	Units	Underlying Assumptions	Third-Party Validation
Zero Ignition Events	0	Count	Any realization of a wildfire related risk would be initiated by an ignition event.	N/A
Third-party inspection of fire preparedness	80% - Effort by contracted third-party is ongoing as of the date of this WMP	Percent Complete	None	Effort conducted by a third-party
Installation of a real-time cable monitoring system capable of detecting excavations proximate to cable infrastructure	100%	Percent Complete	None	N/A

2.6 Detailed Information Supporting Outcome Metrics

Table 5 below provides the numbers of accidental deaths attributed to any TBC wildfire mitigation activities, as listed in TBC's 2019 WMP filing or otherwise, according to the type of activity for each of the last five (5) years.

Table 5 Accidental Deaths due to Wildfire Mitigation Initiatives – Last 5 Years

Activity	Victim															Total
	Full Time Employee					Contractor					Member of Public					
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Inspection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vegetation Management	N/A – TBC has no overhead lines requiring a vegetation management program															0

Activity	Victim															Total
	Full Time Employee					Contractor					Member of Public					
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Utility Fuel Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grid Hardening	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 6 below provides the numbers of OSHA-reportable injuries attributed to any TBC wildfire mitigation activities, as listed in TBC's 2019 WMP filing or otherwise, according to the type of activity for each of the last five (5) years.

Table 6 OSHA-reportable Injuries due to Wildfire Mitigation Initiatives – Last 5 Years

Activity	Victim															Total
	Full Time Employee					Contractor					Member of Public					
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Inspection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vegetation Management	N/A – TBC has no overhead lines requiring a vegetation management program															0
Utility Fuel Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grid Hardening	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TBC commissioned a third party assessment (see Attachment 2) of an ignition event from the Pittsburg Converter Station, the TBC facility considered most at-risk for catastrophic fire impact. This assessment evaluates two potential scenarios: (1) a western fire scenario in which fire spreads from the Pittsburg Converter Station westward into an area of natural scrub vegetation bounded on the north by the Suisun Bay and the south by residential area, and 2) an eastern fire scenario in which fire spreads from the Pittsburg Converter Station eastward into the medium-density urban area consisting of a mix of residential, commercial, and light industrial properties. The damage projections from the assessment ranged from $50M to as high as $930M in an extreme conflagration. Table 7 below cites Attachment 1 as the reference for the data indicated.

Table 7 Methodology for Potential Impact of Ignitions

List of All Data Inputs Used in Impact Simulation	Sources of Data Inputs	Data Selection and Treatment Methodologies	Assumptions, Including SME Input	Equations, Functions, or Other Algorithms Used	Output Type(s)	Comments
See Attachment 2	See Attachment 2	See Attachment 2	See Attachment 2	See Attachment 2 and Appendix 2	Potential Liability	Conducted for Pittsburg Converter Station

2.7 Mapping Recent, Modelled, and Baseline Conditions

Table 8 below indicates the map file requirements for recent conditions. All items are not applicable to TBC as indicated.

Table 8 Map File Requirements for Recent and Modelled Conditions of Utility Service Territory – Last 5 Years

Layer Name	Measurements	Units	Attachment Location
Recent weather patterns	Average annual number of Red Flag Warning days per square mile across service territory	Area, days, square mile resolution	N/A – Weather, RFW, and fire index has negligible impact on TBC operations. TBC has no organic capability to develop the dataset.
	Average 95th and 99th percentile wind speed and prevailing direction (actual)	Area, miles per hour, at a square mile resolution or better, noting where measurements are actual or interpolated	
Recent drivers of ignition probability	Date of recent ignitions categorized by ignition probability driver	Point, GPS coordinate, days, square mile resolution	N/A – TBC has experienced no ignition events.
Recent use of PSPS	Duration of PSPS events and area of the grid affected in customer hours per year	Area, customer hours, square mile resolution	N/A – TBC has never issued a PSPS.

Table 9 below indicates the map file requirements for baseline conditions projected for 2020. The preponderance of requirements are not applicable to TBC. TBC has provided shapefiles indicating the number and locations of critical facilities that in include the Converter Stations (substations) and transmission cables (though submerged and underground, not overhead). TBC has no retail customers, distribution lines, or weather stations.

Table 9 Map File Requirements for Baseline Condition of Utility Service Territory Projected for 2020

Layer Name	Measurements / variables	Units	Appendix Location
Current baseline state of service territory and utility equipment	Non-HFTD vs HFTD (Zone 1, Tier 2, Tier 3) regions of utility service territory	Area, square mile resolution per type	6.4 (for applicable items. See Table 32 below)
	Urban vs. rural vs. highly rural regions of utility service territory	Area, square mile resolution per type	
	WUI regions of utility service territory	Area, square mile resolution	
	Number and location of critical facilities	Point, GPS coordinate	
	Number and location of customers	Area, number of people, square mile resolution	
	Number and location of customers belonging to access and functional needs populations	Area, number of people, square mile resolution	
	Overhead transmission lines	Line, quarter mile resolution	
	Overhead distribution lines	Line, quarter mile resolution	
	Location of substations	Point, GPS coordinate	
	Location of weather stations	Point, GPS coordinate	
	All utility assets by asset type, model, age, specifications, and condition	Point, GPS coordinate	
Location of planned utility equipment additions or removal	Non-HFTD vs HFTD (Zone 1, Tier 2, Tier 3) regions of utility service territory	Line, quarter mile resolution	N/A – TBC has no planned infrastructure additions or removals in 2020 outside existent facilities.
	Urban vs. rural vs. highly rural regions of utility service territory	Line, quarter mile resolution	
	WUI regions of utility service territory	Line, quarter mile resolution	
	Circuit miles of overhead transmission lines	Line, quarter mile resolution	
	Circuit miles of overhead distribution lines	Line, quarter mile resolution	
	Location of substations	Point, GPS coordinate	

Layer Name	Measurements / variables	Units	Appendix Location
Planned 2020 WMP initiative activity per year	Location of 2020 WMP initiative activity for each activity as planned to be completed by the end of each year of the plan term	Line, quarter mile resolution	N/A – All TBC activity in 2020 will be confined to existing Converter Stations.

3. Baseline Ignition Probability and Wildfire Risk Exposure

Due to the limited scale and scope of TBC's operations consisting of a single underground/submarine HVDC transmission line and no distribution system or customers the ignition risk profile in comparison to other reporting utilities can reasonably be expected to be substantially different.

3.1 Recent Weather Patterns – Last 5 Years

With TBC's transmission infrastructure being fully underground or submerged, and outside wildlands and wildland urban interface locations, weather has minimal capacity to increase the potential risk of ignition from TBC infrastructure. TBC does not have programs, staff, or infrastructure to conduct meteorological data gathering lacking any specific operational need for an organic capability. Table 10 below is intentionally blank.

Table 10 Weather Patterns – Last 5 Years

Weather Measurement	**2015**	**2016**	**2017**	**2018**	**2019**	**5-Year Historical Average**	**Unit(s)**
Red Flag Warning Days							RFW circuit mile days per year
Days rated at the top 30% of proprietary fire potential index or similar fire risk index measure							Circuit mile days where proprietary measure rated above top 30% threshold[1] per year
95th percentile wind conditions							Circuit mile days with wind gusts over 95$_{th}$ percentile historical (meaning the prior 10 years, 2005-2014) conditions per year

Weather Measurement	2015	2016	2017	2018	2019	5-Year Historical Average	Unit(s)
99th percentile wind conditions							Circuit mile days with wind gusts over 99th percentile historical (meaning the prior 10 years, 2005-2014) conditions per year
Other							

3.2 Recent Drivers of Ignition Probability – Last 5 Years

Table 11 below provides data regarding recent drivers of ignition probability. TBC has experienced no ignition events in the past five (5) years precluding any basis for quantitative assessment of probability of ignition per event.

Table 11 Key Recent Drivers of Ignition Probability – Last 5 Years

Incident Type by Ignition Probability Driver		Near Miss Tracked? (Y/N)	Number of Incidents per Year						Average Percentage Probability of Ignition per Incident						Number of Ignitions per Year from this Driver					
			2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average
Contact from Object	All types of object contact	N	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Animal contact	N	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Balloon contact	N	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Vegetation contact	N	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Vehicle contact	N	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
Equipment / Facility Failure	All types	N	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Capacitor bank failure	Y	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Conductor failure - all	Y	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Conductor failure – wire down	N/A	N/A – All TBC conductor is underground or submerged.																	
	Fuse failure - all	N/A	N/A – TBC does not employ fuses in its transmission system.																	

Incident Type by Ignition Probability Driver		Near Miss Tracked? (Y/N)	Number of Incidents per Year						Average Percentage Probability of Ignition per Incident						Number of Ignitions per Year from this Driver					
			2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average
	Fuse failure – conventional blown fuse	N/A	N/A – TBC does not employ fuses in its transmission system.																	
	Lighting Arrestor Failure	Y	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Switch Failure	Y	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
	Transformer Failure	Y	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
Wire-to-Wire Contact / Contamination		N/A	N/A – All TBC conductor is underground or submerged XLPE cable with steel armor jackets.																	
Anchor Strike		Y	0	0	0	0	0		Unknown – Insufficient data						0	0	0	0	0	0
Uncoordinated Excavation		Y	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0
Other		Y	0	0	0	0	0	0	Unknown – Insufficient data						0	0	0	0	0	0

3.3 Recent Use of Public Safety Power Shutoff

TBC has no distribution system or retail customers, has not issued a PSPS, and does not foresee a reasonably likely circumstance where TBC would issue a PSPS (see Section 4.4). Table 12 below is intentionally blank.

Table 12 Recent Use of PSPS – Last 5 Years

PSPS Characteristic	2015	2016	2017	2018	2019	Unit(s)
Frequency of PSPS events (total)						Number of instances where utility operating protocol requires de-energization of a circuit or portion thereof to reduce ignition probability, per year
Frequency of PSPS events (normalized)						Number of instances where utility operating protocol requires de-energization of a circuit or portion thereof in order to reduce ignition probability, per RFW circuit mile day per year
Scope of PSPS events (total)						Circuit-events, measured in number of events multiplied by number of circuits de-energized per year
Scope of PSPS events (normalized)						Circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization per RFW circuit mile day per year
Duration of PSPS events (total)						Customer hours per year
Duration of PSPS events (normalized)						Customer hours per RFW circuit mile day per year
Other						

3.4 Baseline State of Equipment and Wildfire and PSPS Event Risk Reduction Plans

3.4.1 Current Baseline State of Service Territory and Utility Equipment

TBC operates a single HVDC transmission line from Pittsburg to San Francisco that consists of a 53-mile submarine cable and less than 1 mile of underground cable to connect to the Converter Stations at either end of the submarine cable as shown in Figure 1 below. No TBC transmission infrastructure is located directly in a HFTD, WUI, or rural area. The TBC Pittsburg Converter Station does operate in proximity to the WUI identified in West Pittsburg.

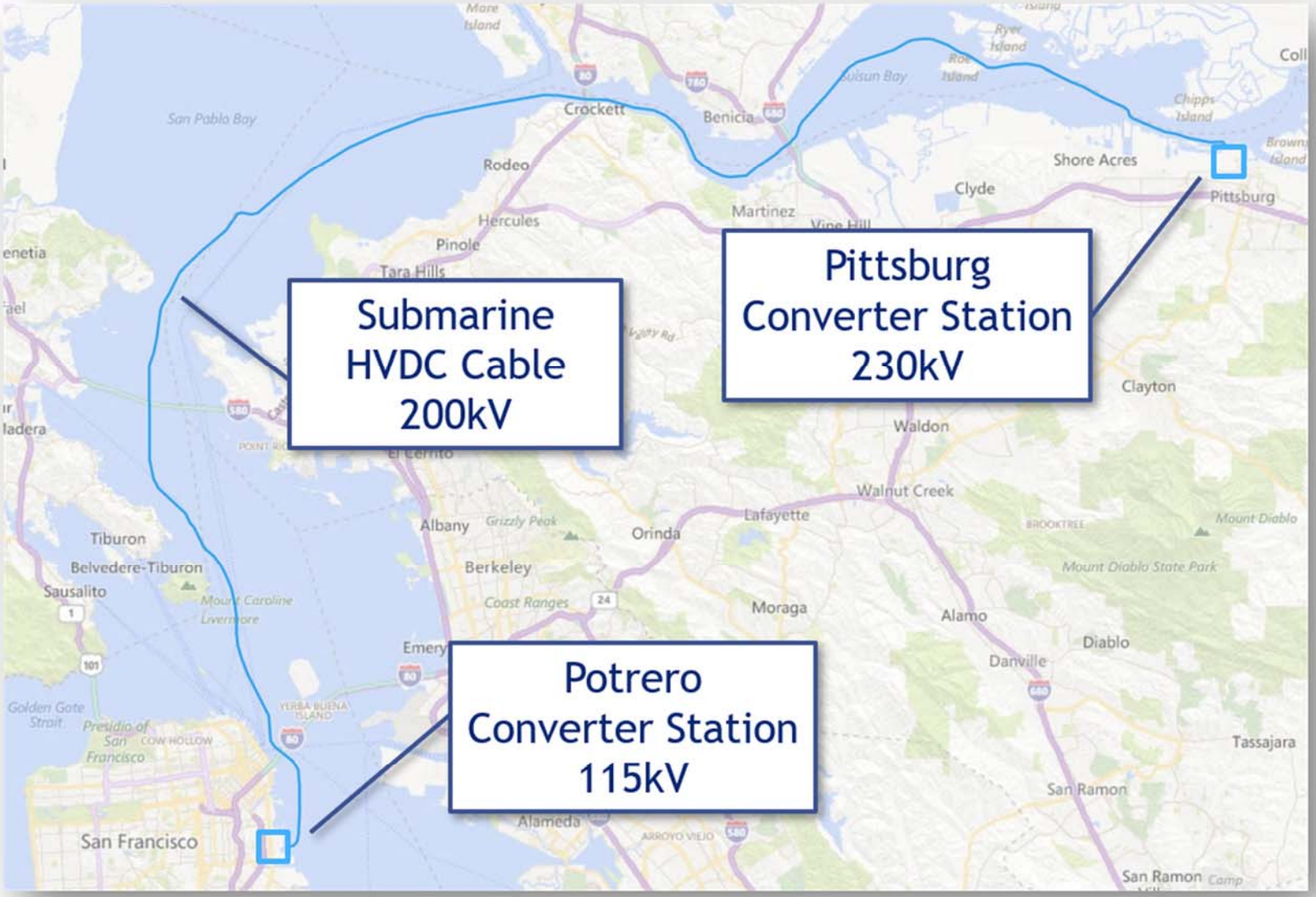


Figure 1 Overview of TBC Facilities and Service Territory

For the purposes of the WMP and Table 13 below which details the quantitative facility and service territory data required, TBC considers the HVDC transmission cable and each of the two Converter Stations to be critical facilities. Similarly, the two Converter Stations are considered substations for the purposed of the WMP. TBC has no distribution system or distribution/retail customers.

Table 13 Current Baseline State of Service Territory and Utility Equipment

Land Use	Characteristic Tracked	In Non-HFTD	In HFTD Zone 1	In HFTD Zone 2	In HFTD Zone 3
In Urban Areas	Circuit miles	<1	0	0	0
	Circuit miles in WUI	0	0	0	0
	Number of critical facilities	3	0	0	0
	Number of critical facilities in WUI	0	0	0	0
	Number of customers	0	0	0	0
	Number of customers in WUI	0	0	0	0
	Number of customers belonging to access and functional needs populations	0	0	0	0
	Number of customers belonging to access and functional needs populations in WUI	0	0	0	0
	Circuit miles of overhead transmission lines	0	0	0	0
	Circuit miles of overhead transmission lines in WUI	0	0	0	0
	Circuit miles of overhead distribution lines	0	0	0	0
	Circuit miles of overhead distribution lines in WUI	0	0	0	0
	Number of substations	2	0	0	0
	Number of substations in WUI	0	0	0	0
In Rural Areas	Circuit miles	0	0	0	0
	Circuit miles in WUI	0	0	0	0
	Number of critical facilities	0	0	0	0
	Number of critical facilities in WUI	0	0	0	0
	Number of customers	0	0	0	0
	Number of customers in WUI	0	0	0	0
	Number of customers belonging to access and functional needs populations	0	0	0	0
	Number of customers belonging to access and functional needs populations in WUI	0	0	0	0
	Circuit miles of overhead transmission lines	0	0	0	0
	Circuit miles of overhead transmission lines in WUI	0	0	0	0

Land Use	Characteristic Tracked	In Non-HFTD	In HFTD Zone 1	In HFTD Zone 2	In HFTD Zone 3
	Circuit miles of overhead distribution lines	0	0	0	0
	Circuit miles of overhead distribution lines in WUI	0	0	0	0
	Number of substations	0	0	0	0
	Number of substations in WUI	0	0	0	0
In Highly Rural Areas	Circuit miles	0	0	0	0
	Circuit miles in WUI	0	0	0	0
	Number of critical facilities	0	0	0	0
	Number of critical facilities in WUI	0	0	0	0
	Number of customers	0	0	0	0
	Number of customers in WUI	0	0	0	0
	Number of customers belonging to access and functional needs populations	0	0	0	0
	Number of customers belonging to access and functional needs populations in WUI	0	0	0	0
	Circuit miles of overhead transmission lines	0	0	0	0
	Circuit miles of overhead transmission lines in WUI	0	0	0	0
	Circuit miles of overhead distribution lines	0	0	0	0
	Circuit miles of overhead distribution lines in WUI	0	0	0	0
	Number of substations	0	0	0	0
	Number of substations in WUI	0	0	0	0

With TBC'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 TBC infrastructure. TBC does not have programs, staff, or infrastructure to conduct meteorological data gathering lacking any specific operational need for an organic capability. Table 14 below indicates the lack of any weather stations operated by TBC.

Table 14 Summary Data on Weather Station Count

Weather Station Count Type	Current Count	Unit(s)
Number of weather stations (total)	0	Total number located in service territory and operated by utility
Number of weather stations (normalized)	0	Total number located in service territory and operated by utility, divided by total number of circuit miles in utility service territory
Number of weather stations in non-HFTD (total)	0	Total number located in service territory and operated by utility

Weather Station Count Type	Current Count	Unit(s)
Number of weather stations in non-HFTD (normalized)	0	Total number located in non-HFTD service territory and operated by utility, divided by total number of circuit miles in non-HFTD service territory
Number of weather stations in HFTD Zone 1 (total)	0	Total number located in HFTD Zone 1 service territory and operated by utility
Number of weather stations in HFTD Zone 1 (normalized)	0	Total number located in HFTD Zone 1 service territory and operated by utility, divided by total number of circuit miles in HFTD Zone 1 service territory
Number of weather stations in HFTD Tier 2 (total)	0	Total number located in HFTD Tier 2 service territory and operated by utility
Number of weather stations in HFTD Tier 2 (normalized)	0	Total number located in HFTD Tier 2 service territory and operated by utility, divided by total number of circuit miles in HFTD Zone 1 service territory
Number of weather stations in HFTD Tier 3 (total)	0	Total number located in HFTD Tier 3 service territory and operated by utility
Number of weather stations in HFTD Tier 3 (normalized)	0	Total number located in HFTD Tier 3 service territory and operated by utility, divided by total number of circuit miles in HFTD Zone 1 service territory

For the purposes of the WMP, TBC fault indication is unitized to each Converter Station on either end of the submarine/underground transmission element. Each Converter Station maintains an independent and fully redundant fault detection system that is designed to communicate any fault indication to the remote Converter Station through a dedicated interstation fiber optic link.

Table 15 Summary Data on Fault indicator Count

Fault Indicator Count Type	Current Count	Unit(s)
Number of fault indicators (total)	2	Total number located in service territory and operated by utility
Number of fault indicators (normalized)	.04	Total number located in service territory and operated by utility, divided by total number of circuit miles in utility service territory
Number of fault indicators in non-HFTD (total)	2	Total number located in non-HFTD service territory and operated by utility
Number of fault indicators in non-HFTD (normalized)	.04	Total number located in non-HFTD service territory and operated by utility, divided by total number of circuit miles in non-HFTD service territory
Number of fault indicators in HFTD Zone 1 (total)	0	Total number located in HFTD Zone 1 service territory and operated by utility
Number of fault indicators in HFTD Zone 1 (normalized)	0	Total number located in HFTD Zone 1 service territory and operated by utility, divided by total number of circuit miles in HFTD Zone 1 service territory
Number of fault indicators in HFTD Tier 2 (total)	0	Total number located in HFTD Tier 2 service territory and operated by utility

Fault Indicator Count Type	Current Count	Unit(s)
Number of fault indicators in HFTD Tier 2 (normalized)	0	Total number located in HFTD Tier 2 service territory and operated by utility, divided by total number of circuit miles in HFTD Tier 2 service territory
Number of fault indicators in HFTD Tier 3 (total)	0	Total number located in HFTD Tier 3 service territory and operated by utility
Number of fault indicators in HFTD Tier 3 (normalized)	0	Total number located in HFTD Tier 3 service territory and operated by utility, divided by total number of circuit miles in HFTD Tier 3 service territory

3.4.2 Current Baseline State of Service Territory and Utility Equipment

As of the submission of this plan, TBC has no plans for expansion of facilities or its service territory as Table 16 below indicates.

Table 16 Location of Planned Utility Equipment Additions or Removal by End of 3-Year Plan Term

Land Use	Characteristic Tracked	Changes by End of 2022			
		In Non-HFTD	In HFTD Zone 1	In HFTD Zone 2	In HFTD Zone 3
In Urban Areas	Circuit miles	0	0	0	0
	Circuit miles in WUI	0	0	0	0
	Number of critical facilities	0	0	0	0
	Number of critical facilities in WUI	0	0	0	0
	Number of customers	0	0	0	0
	Number of customers in WUI	0	0	0	0
	Number of customers belonging to access and functional needs populations	0	0	0	0
	Number of customers belonging to access and functional needs populations in WUI	0	0	0	0
	Circuit miles of overhead transmission lines	0	0	0	0
	Circuit miles of overhead transmission lines in WUI	0	0	0	0
	Circuit miles of overhead distribution lines	0	0	0	0
	Circuit miles of overhead distribution lines in WUI	0	0	0	0
	Number of substations	0	0	0	0
	Number of substations in WUI	0	0	0	0
In Rural Areas	Circuit miles	0	0	0	0
	Circuit miles in WUI	0	0	0	0
	Number of critical facilities	0	0	0	0

Land Use	Characteristic Tracked	Changes by End of 2022			
		In Non-HFTD	In HFTD Zone 1	In HFTD Zone 2	In HFTD Zone 3
	Number of critical facilities in WUI	0	0	0	0
	Number of customers	0	0	0	0
	Number of customers in WUI	0	0	0	0
	Number of customers belonging to access and functional needs populations	0	0	0	0
	Number of customers belonging to access and functional needs populations in WUI	0	0	0	0
	Circuit miles of overhead transmission lines	0	0	0	0
	Circuit miles of overhead transmission lines in WUI	0	0	0	0
	Circuit miles of overhead distribution lines	0	0	0	0
	Circuit miles of overhead distribution lines in WUI	0	0	0	0
	Number of substations	2	0	0	0
	Number of substations in WUI	0	0	0	0
In Highly Rural Areas	Circuit miles	0	0	0	0
	Circuit miles in WUI	0	0	0	0
	Number of critical facilities	0	0	0	0
	Number of critical facilities in WUI	0	0	0	0
	Number of customers	0	0	0	0
	Number of customers in WUI	0	0	0	0
	Number of customers belonging to access and functional needs populations	0	0	0	0
	Number of customers belonging to access and functional needs populations in WUI	0	0	0	0
	Circuit miles of overhead transmission lines	0	0	0	0
	Circuit miles of overhead transmission lines in WUI	0	0	0	0
	Circuit miles of overhead distribution lines	0	0	0	0
	Circuit miles of overhead distribution lines in WUI	0	0	0	0
	Number of substations	0	0	0	0
	Number of substations in WUI	0	0	0	0

As of the submission of this plan, due to the existent substantial hardening of TBC transmission cables no additional hardening is deemed compulsory. In 2020, TBC is executing hardening of its Converter Stations (substations) in terms of seismic hardening of its eight (8) main transformers (1 per phase per Converter Station and installed spare). TBC considers seismic hardening of its facilities as

a mitigation action to preclude ignition of proximate vegetative fuels from earthquake-deranged equipment. Additionally, TBC is investing in Gas Insulated Substation (GIS) infrastructure installations in both Converter Stations. TBC considers 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 Converter Station which are more susceptible to producing ignition sources if deranged or if a fault is experienced. TBC is executing a plan to implement GIS on a portion of the San Francisco (Potrero) Converter Station in 2020. TBC is also executing a similar plan for installation of GIS infrastructure the Pittsburg Converter Station in 2021. TBC has notional plans to continue implementation of GIS infrastructure to the remaining portions of both Converter Stations in 2022. Lastly, TBC per its previously submitted WMP, has contracted a third-party to conduct a comprehensive engineering study to provide an assessment of alternatives for fire protection program and infrastructure. TBC expects that the result of this work will be further hardening of TBC Converter Stations in the 2020 through 2022 timeframe. Table 17 below provides the quantitative data required regarding TBC's planned upgrades.

Table 17 Location of Planned Utility Infrastructure Upgrades

Land Use	Characteristic Tracked	In Non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
Total circuit miles planned for hardening each year, all types and locations		0	0	0	0	0	0	0	0	0	0	0	0
Total number of substations planned for hardening each year, all locations		2	2	2	0	0	0	0	0	0	0	0	0
In Urban Areas	Circuit miles planned for grid hardening of overhead transmission lines	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead transmission lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead distribution lines to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead distribution lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead transmission lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Number of substations to harden	2	2	2	0	0	0	0	0	0	0	0	0
	Number of substations in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
In Rural Areas	Circuit miles planned for grid hardening of overhead transmission lines	0	0	0	0	0	0	0	0	0	0	0	0

	Circuit miles of overhead transmission lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead distribution lines to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead distribution lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead transmission lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Number of substations to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Number of substations in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
In highly rural areas	Circuit miles planned for grid hardening of overhead transmission lines	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead transmission lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead distribution lines to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead distribution lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit miles of overhead transmission lines in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Number of substations to harden	0	0	0	0	0	0	0	0	0	0	0	0
	Number of substations in WUI to harden	0	0	0	0	0	0	0	0	0	0	0	0

3.4.3 Status Quo Ignition Probability Drivers by Service Territory

Table 18 below provides data regarding the 5-year historical average of drivers of ignition probability. TBC has experienced no ignition events in the past five (5) years precluding any basis for quantitative assessment of probability of ignition per event. TBC has identified “Anchor Strike” that could derange the submarine cable and “Uncoordinated Excavation” that could derange underground cables as additional ignition probability drivers. TBC experienced an anchor strike in 2014 but it did not produce an ignition event. TBC has never experienced an uncoordinated excavation that deranged an underground cable.

Table 18 Key Drivers of Ignition Probability

Ignition Probability Drivers		Number of Incidents per Year (according to 5-year historical average)	Average Likelihood of Ignition per Incident	Ignitions from Driver (according to 5-year historical average)				
				Total	In Non-HFTD	In HFTD Zone 1	In HFTD Zone 2	In HFTD Zone 3
Contact from Object	All types of object contact	0	Unknown – Insufficient data	0	0	0	0	0
	Animal contact	0	Unknown – Insufficient data	0	0	0	0	0
	Balloon contact	0	Unknown – Insufficient data	0	0	0	0	0
	Vegetation contact	0	Unknown – Insufficient data	0	0	0	0	0
	Vehicle contact	0	Unknown – Insufficient data	0	0	0	0	0
Equipment / Facility Failure	All types	0	Unknown – Insufficient data	0	0	0	0	0
	Capacitor bank failure	0	Unknown – Insufficient data	0	0	0	0	0
	Conductor failure - all	0	Unknown – Insufficient data	0	0	0	0	0
	Conductor failure – wire down	N/A – All TBC conductor is underground or submerged.						
	Fuse failure - all	N/A – TBC does not employ fuses in its transmission system.						
	Fuse failure – conventional blown fuse	N/A – TBC does not employ fuses in its transmission system.						
	Lighting Arrestor Failure	0	Unknown – Insufficient data	0	0	0	0	0
	Switch Failure	0	Unknown – Insufficient data	0	0	0	0	0
	Transformer Failure	0	Unknown – Insufficient data	0	0	0	0	0
Wire-to-Wire Contact / Contamination		0	Unknown – Insufficient data	0	0	0	0	0
Anchor Strike		0	Unknown – Insufficient data	0	0	0	0	0
Uncoordinated Excavation		0	Unknown – Insufficient data	0	0	0	0	0
Other		0	Unknown – Insufficient data	0	0	0	0	0

4. Inputs to the Plan and Directional Vision for Wildfire Risk Exposure

TBC has a vision of having "world class" 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. TBC 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:

- TBC is a transmission-only utility and its rates and cost recovery are regulated exclusively by FERC.
- TBC operates in the Bay Area which does contain HFTD Tier 2 and Tier 3 areas. See Figure 2 below.[1]
- The TBC Pittsburg Converter Station operates in a medium density urban area adjacent to West Pittsburg, a high-risk community identified within the WUI, the area where homes and wildlands intermix, as published in the Federal Register in 2001[2]. TBC notes that in conducting its risk analysis it has considered WUI as defined by CAL FIRE[3]. Cities proximate to the Pittsburg Converter Station are also shown in the CAL FIRE Fire and Resource Assessment Program (FRAP) Northern California Communities at Risk from Wildfire map.[4]
- The TBC Pittsburg Converter Station operates proximate to an area with vegetative fuels. The bulk of the biomass of these fuels results from the watch catch coincident with a U.S. Army Corps of Engineers emplaced drainage infrastructure that serves the City of Pittsburg. Various native and non-native species of trees, shrubs and grasses grow in this five (5) acre (20,200 m^2) area.
- TBC's underground cable infrastructure in Pittsburg passes underneath areas proximate to vegetative fuels consisting of primarily marsh scrub. The cable is buried at a nominal depth of 3 to 11 feet and in steel reinforced concrete vaults covered with fluidized thermal backfill and appropriate markings to warn excavators. These transmission lines

[1] California Public Utility Commission, Fire Map, ia.cpuc.ca.gov/firemap/
[2] California Department of Forestry and Fire Protection CAL FIRE, Communities at Risk, osfm.fire.ca.gov/fireplan/fireplanning_communities_at_risk
[3] The wildland–urban interface (WUI) is commonly described as the zone where structures and other human development meet and intermingle with undeveloped wildland or vegetative fuels.
[4] California Department of Forestry and Fire Protection CAL FIRE, FRAP Northern California Communities at Risk from Wildfire map, osfm.fire.ca.gov/fireplan/pdf/CAR_north_map.pdf

are contained within XLPE insulating materials and steel cable armor that prevent contact with combustible materials.

- All of TBC above ground facilities fall within the city limits of Pittsburg, CA and San Francisco, CA.
- The primary transmission line is a submarine cable located on and buried within the seafloor of the Bay Area Waters (San Francisco Bay, San Pablo Bay, Carquinez Strait, and Suisun Bay) as shown in Figure 3 below.
- TBC's transmission lines are underground or underwater as shown in Figure 3 through Figure 5 below. As such they 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. TBC's above ground air insulated conductoring and bus-work infrastructure are fully contained within the boundaries of its Converter Substations.
- TBC only owns and operates transmission infrastructure with no distribution limiting the expanse of the system to a very defined geographic area.
- TBC has no distribution or retail customers or any residential, commercial, or industrial interconnections.
- Having no distribution system or customers, TBC has not issued a PSPS and does not foresee a reasonably likely circumstance in which TBC would do so. See Section 4.4 below for further discussion.
- TBC has a converter control and protection system which operates within milliseconds to block current flows and shutdown the converter due to phase-to-ground and phase-to-phase faults. Faults must be cleared and the converter restarted manually once shutdown has occurred. This is in addition to the employment of traditional substation interrupting devices (main circuit breakers).
- TBC's transmission system is monitored 24 hours a day 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 of the entire system.
- TBC's facility is under the operational control of the California Independent System Operator (CAISO) pursuant to the Transmission Control Agreement between the CAISO and TBC as a Participating Transmission Owner. TBC receives its power dispatching and power flow instructions from the CAISO. The CAISO is also the Balancing Authority for the area within which TBC's facilities are located and the CAISO has real-time system-wide view of 80% of California's transmission lines.
- TBC's area of operations is completely encompassed by the PG&E service territory.

- TBC is solely interconnected with PG&E at Pittsburg and Potrero Substations to the TBC Pittsburg Converter Station and from the TBC Potrero Converter Stations respectively. See Figure 4 and Figure 5 below.
- TBC is actively pursuing substantial seismic hardening and implementing Gas Insulated Substation technology. Discussed further in Section 3.4.2 above.

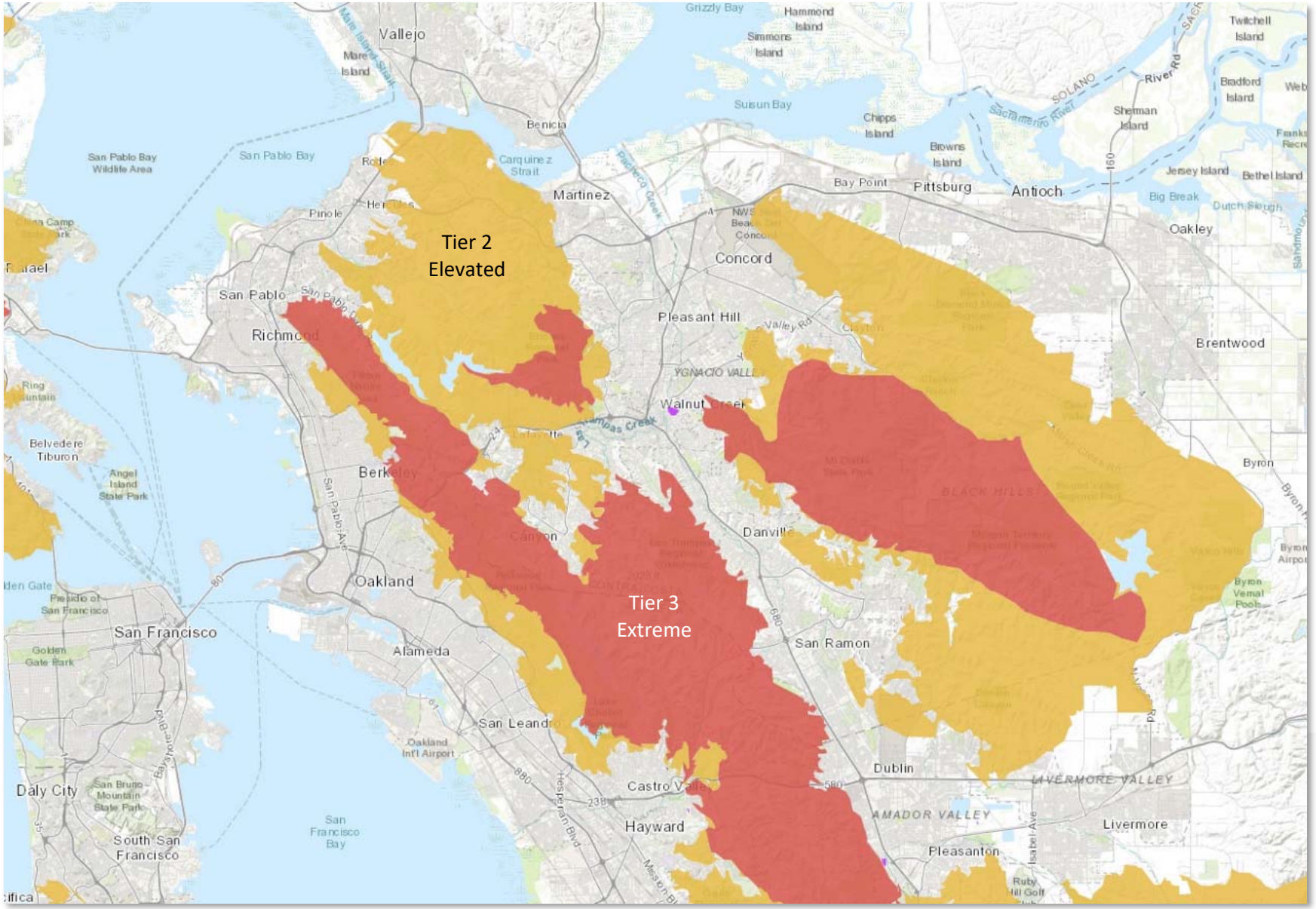


Figure 2 Map of HTFD Proximate to TBC Facilities

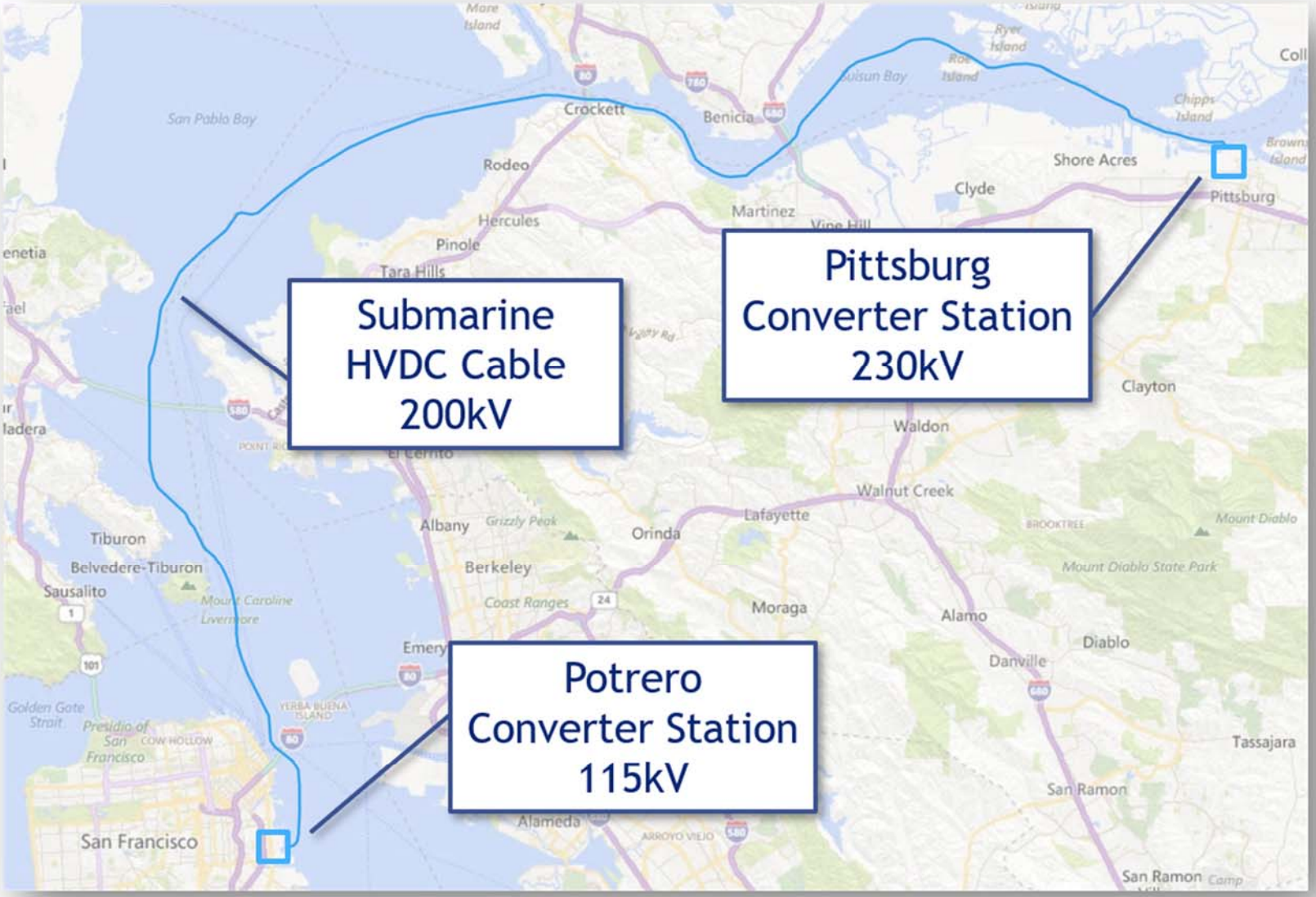


Figure 3 Overview of TBC Facilities and Service Territory

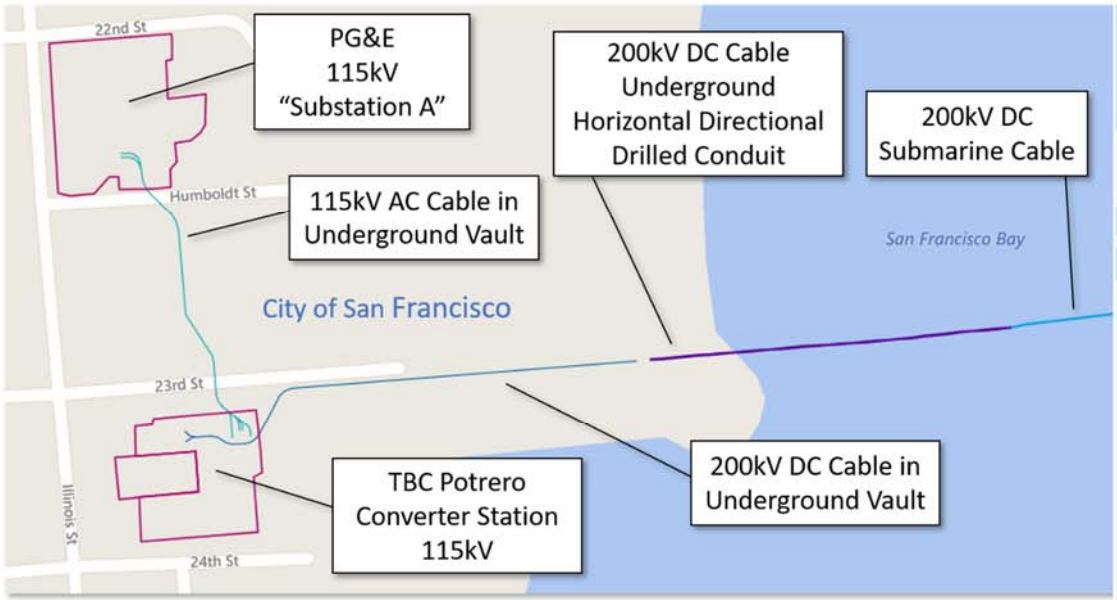


Figure 4 Overview of TBC Facilities in San Francisco

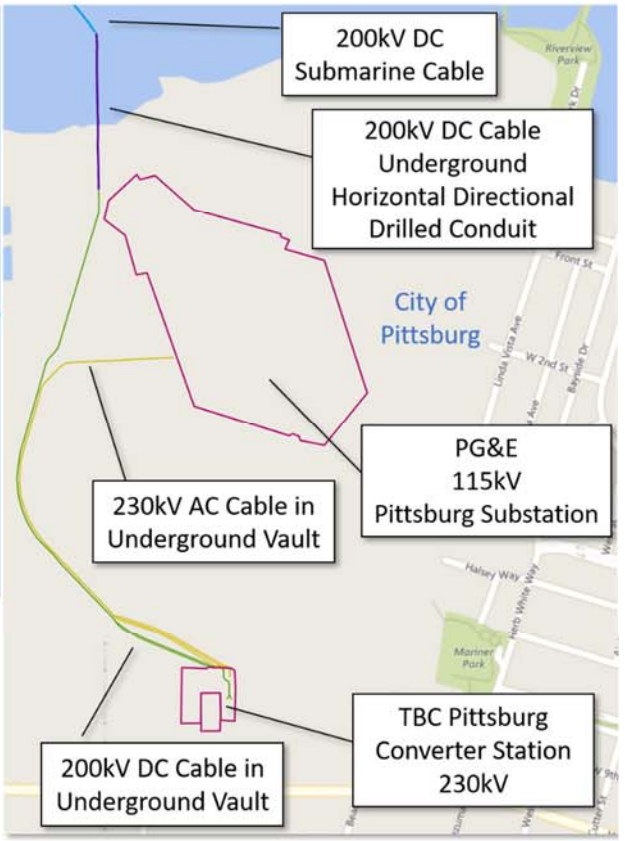


Figure 5 Overview of TBC Facilities in Pittsburg

4.1 Plan Objectives

To meet the requirements of SB 901 and PU Code §8386, as they apply to TBC, 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 TBC facility fault, and finally ensure awareness and rapid communication of the start of fire at a TBC facility. TBC shall construct, maintain, and operate its transmission facilities in a manner that minimizes the risk of catastrophic wildfire posed by its transmission facilities. This WMP sets forth the methodology for and 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. The following of the objectives for all future timeframes relevant to TBC's WMP and wildfire mitigation efforts.

4.1.1 Objective Timeframe: Upcoming 2020 Wildfire Season

- Maintain current fire prevention plan, and associated procedures and training. These activities reflect the preventative strategies and actions currently in place for fire prevention, suppression, and operational response to emergency situations.
- Enhance fire awareness, prevention, and training campaigns for TBC operations staff.
- Complete seismic upgrades to main transformers before being placed online during the Wildfire Season.
- Complete third-party engineering study to assess the alternatives for enhanced fire protection systems for the TBC Converter Stations.

4.1.2 Objective Timeframe: Prior to 20201 WMP Update

- Conduct a comprehensive Utility Wildfire Mitigation Maturity Assessment per CPUC guidance evaluating all initiatives for applicability for TBC.
- Implement risk mitigations from Risk Assessments that have planning and implementation horizons within the next required plan filing.
- Risk assessment of credible faults that pose a potential fire risk to surrounding areas or TBC facilities that could spread to surrounding areas.
- Commence capital improvements to enhance Converter Station fire protection.
- Commence capital improvements for enhanced infrastructure fire monitoring, awareness capabilities, and fire hardening infrastructure elements to mitigate the potential fire risk from equipment derangement resulting from environmental or man-made events which could result in fire. Enhanced seismic hardening will be an area of primary focus as derangement of equipment during an earthquake has been assessed as one of the primary modalities in which TBC facilities and infrastructure could pose a fire risk.

4.1.3 Objective Timeframe: Next 3 -Years

- Achieve the highest level of Wildfire Mitigation Maturity concordant with TBC's scale and scope of operations.
- Complete capital improvements for enhanced infrastructure fire monitoring, awareness capabilities, and fire hardening infrastructure elements to mitigate the potential fire risk from equipment derangement resulting from environmental or man-made events which could result in fire.
- TBC achieve a "world class" standard for fire protected facilities and infrastructure.

4.1.4 Objective Timeframe: Next 10 years

- Sustain the highest level of Wildfire Mitigation Maturity concordant with TBC's scale and scope of operations.
- TBC maintains a continuum of continuous improvement in sustaining a "world class" standard for fire protected facilities and infrastructure.

4.2 Understanding Major Trends Impacting Ignition Probability and Wildfire Consequence

TBC'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.

4.2.1 Service Territory Fire-Threat Evaluation and Ignition Risk Trends

Table 19 below provides TBC's assessment of service territory fire-threat evaluation and ignition risk trends. The rankings provided are highly subjective and should not be considered as representative of a wider outlook provided by reporting utilities with larger service areas.

Table 19 Macro Trends Impacting Ignition Probability and/or Wildfire Consequence

Rank	Macro trends impacting utility ignited ignition probability and estimated wildfire consequence by year 10	Comments
2	Change in ignition probability and estimated wildfire consequence due to climate change	Increase drying of proximate vegetative fuels to the TBC Pittsburg Converter Station represents the assessed second-most impacting trend.
8	Change in ignition probability and estimated wildfire consequence due to relevant invasive species, such as bark beetles	TBC'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.
1	Change in ignition probability and estimated wildfire consequence due to other drivers of change in fuel density and moisture	Increase in the density of and greater drying of proximate vegetative fuels to the TBC Pittsburg Converter Station represents the most impacting trend.

Rank	Macro trends impacting utility ignited ignition probability and estimated wildfire consequence by year 10	Comments
3	Population changes (including Access and Functional Needs population) that could be impacted by utility ignition	Increase of population proximate to TBC facilities and infrastructure is expected with increases in urban density.
6	Population changes in HFTD that could be impacted by utility ignition	TBC does not have any infrastructure in HFTD and does not foresee any future expansion of HFTD encompassing TBC infrastructure due to its location.
4	Population changes in WUI that could be impacted by utility ignition	TBC's Pittsburg Converter Station operates in a medium density urban area adjacent to the WUI identified in West Pittsburg.
5	Utility infrastructure location in HFTD vs non-HFTD	TBC does not have any infrastructure in HFTD and does not foresee any future expansion of HFTD encompassing TBC infrastructure due to its location.
7	Utility infrastructure location in urban vs rural vs highly rural areas	TBC's land infrastructure is only located in the high-density urban environment of San Francisco and the medium-density urban environment of Pittsburg.

4.3 Change in Ignition Probability Drivers

TBC 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 transmission assets, and effectiveness of implemented mitigants. TBC has conducted a review of the CPUC Fire-Threat Map, HFTD and CAL Fire's North California Communities at Risk Map to evaluate the fire-threat in the areas where its transmission facilities exist. Based on its review, TBC 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). TBC's Pittsburg Station site, 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. Additionally, TBC's Pittsburg Station site also borders a decommissioned oil storage facility which is surrounded by land containing vegetative fuels. A portion of the TBC'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.

The following comprehensive list of TBC transmission system facilities and infrastructure were considered in the wildfire risk assessment:

- Pittsburg Converter Station
- 230kV High Voltage AC Transmission Line
- +/-200kV High Voltage DC Land Transmission Line – Pittsburg Location
- +/-200kV High Voltage DC Submarine Transmission Line
- +/-200kV High Voltage DC Land Transmission Line – San Francisco Location
- Potrero Converter Station
- 115kV High Voltage AC Transmission Line

TBC's risk assessment methodology and results are detailed in Appendix 2.

4.4 Directional Vision for Necessity of Public Safety Power Shutoff

TBC has never issued a PSPS. Given that TBC has no distribution system, no distribution or retail customers, and is already substantially hardened against wildfires, TBC reasonably anticipates no future need to issue a PSPS. TBC's service territory is fully encompassed by PG&E service territory with the TBC Pittsburg Converter Station, TBC's 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 to that of the TBC Pittsburg Converter Station. TBC expects that PG&E doctrine regarding PSPS that impacts the PG&E Pittsburg Substation would be the prevailing driver of any PSPS impacts on TBC service territory. Any PSPS issued by PG&E that impacted the Pittsburg Substation to the extent that TBC's interconnection would be de-energized would take TBC's transmission system offline. The quantitative description of such a PSPS implementation for TBC is effectively binary, TBC being either online or offline due to a PG&E issued PSPS whereby the TBC 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 TBC service territory, and lack of any reasonably foreseeable need for TBC to issue a PSPS, TBC is not in a position to provide meaningful input to an analysis of anticipated characteristics of PSPS use. As such, Table 20 below is intentionally provided with no rank order or PSPS characteristic assessment; only comments are provided.

Table 20 Anticipated Characteristics of PSPS Use Over Next 10 Years

Rank Order 1-9	PSPS Characteristic	Significantly Increase; Increase; No Change; Decrease; Significantly Decrease	Comments
	Number of customers affected by PSPS events (total)		TBC has no distribution or retail customers.
	Number of customers affected by PSPS events (normalized by fire weather, e.g., Red Flag Warning line mile days)		TBC has no distribution or retail customers.
	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)		TBC has no reasonably foreseeable need to issue a PSPS due to the existent hardening of TBC's transmission infrastructure.
	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 (normalized by fire weather, e.g., Red Flag Warning line mile days)		TBC has no reasonably foreseeable need to issue a PSPS due to the existent hardening of TBC's transmission infrastructure.
	Scope of PSPS events in circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization (total)		TBC has no reasonably foreseeable need to issue a PSPS due to the existent hardening of TBC's transmission infrastructure.
	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)		TBC has no reasonably foreseeable need to issue a PSPS due to the existent hardening of TBC's transmission infrastructure.
	Duration of PSPS events in customer hours (total)		TBC has no distribution or retail customers.
	Duration of PSPS events in customer hours (normalized by fire weather, e.g., Red Flag Warning line mile days)		TBC has no distribution or retail customers.
	Other		

5. Wildfire Mitigation Strategy and Relevant Operations Programs

5.1 Wildfire Mitigation Strategy

Due to the limited scope and scale of TBC operations, TBC 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 TBC undertakes to ensure that fire protection and safety is maintained and enhanced in its facilities and infrastructure, are not exclusively undertaken for wildfire mitigation. TBC's objectives for its wildfire mitigation strategy are provided in Section 4.1 above, however, TBC maintains no programs, staff, equipment, or infrastructure solely dedicated to wildfire mitigation. TBC 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 effect.

TBC did not implement any initiatives solely focused on wildfire mitigation in 2020. TBC was engaged in the wildfire mitigation maturation efforts sponsored by the CPUC in 2020.

5.2 Wildfire Mitigation Plan Implementation

5.2.1 Monitoring and Auditing of Plan Implementation

Per the established roles and responsibilities (see Appendix 1), the EH&S Manager is responsible 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. These controls are used to identify any deficiencies in WMP execution.

5.2.2 Identifying and Correcting Plan Deficiencies

Per the established roles and responsibilities (see Appendix 1), the Director of Engineering shall address any WMP deficiencies identified through WMP Compliance Assurance activity, change in regulation, or change in infrastructure. The Senior Director of Operations shall review any changes in the WMP with an updated WMP approved by the TBC President.

5.2.3 Monitoring and Auditing of Inspections

Per the established roles and responsibilities (see Appendix 1), the Director of Operations, supported by the EH&S Manager, shall monitor and audit inspections conducted by operational staff to ensure sustainment of efforts to identify any potential sources of ignition. CAISO conducts annual audit of TBC maintenance practices to include inspections.

5.2.4 Wildfire-Related Operational Decision-making

TBC has no special protocols for operational decision-making associated with wildfires. TBC maintains no specialized datasets or dashboards associated with wildfires or wildfire mitigation.

5.2.5 Operational Practices Relevant to Wildfire Mitigation

As indicated in the wildfire risk assessment (see Appendix 2), TBC's routine operational practices are deemed to be effective mitigating actions for the wildfire risk that TBC's facility and infrastructure pose. Key elements of TBC's operational practices that support fire prevention are:

- While the TBC transmission system is in operation, a TBC System Operator is stationed 24 hours with direct access to all system controls via Human Machine Interface and facility monitoring features via security applications.
- TBC System Operators are formally granted, in writing, the responsibility and authority needed to empower them to take self-directed action to effectively intervene in developing circumstances to break the chain of fire causality, up to and including complete system shutdown.
- The TBC System Operator has direct awareness of system operation via the Human Machine Interface, which represents TBC's Supervisory Control and Data Acquisition (SCADA) system, controlling the transmission system operations that includes telemetry, indications, and alarms indicating abnormal conditions that may pose a fire risk.
- TBC System Operators maintain awareness regarding weather conditions that could pose a fire risk as part of their normal duties in accordance with their qualification training.
- TBC System Operators have access to closed circuit cameras for the site that allow monitoring of the Converter Station perimeter.
- TBC regional situational awareness is supported by persistent contact with CAISO, who has sufficient staff and resources to provide awareness of regional conditions.
- TBC maintains 24-hour on-site security staff.
- Both TBC System Operator and 24-hour security staff have full authority to summon emergency services if deemed necessary.
- TBC employs a Geographic Information System that alerts on and geo-plots excavation notifications in TBC's operating area for immediate evaluation by the TBC System Operator and subsequently by an Operations Engineer, if required.

- Maintenance requirements are conducted on a routine basis as per approved Operational Maintenance Program audited by CAISO on an annual basis.
- Routine compliance with NERC Protective and Control (PRC) standards appropriate to TBC equipment monitored and audited per the Electric Reliability Organization (ERO) Compliance Oversight Plan (COP).
- Conduct of weekly inspection of the Converter Station using a formal checklist which includes line items that specifically address fire suppression system functionality, high-voltage equipment condition, and general facility conditions.
- Conduct of monthly inspection of the land cable infrastructure using formal checklist which includes line items that specifically address cable integrity and circumstances that could lead to losses of cable integrity.
- TBC 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. The following is a listing of the procedures relevant to emergency response, fire mitigation, and appropriate asset monitoring and protection protocols:

  TBC-HS-103 Fire Prevention

  TBC-HS-200 Emergency Action Plan

  TBC-OP-004 Emergency Operations

  TBC-MP-741 Fire System

  TBC-OP-020 Asset Monitoring & Protection
- Documented training conducted annually on the TBC-HS-200 Emergency Action Plan to meet Cal/OSHA – Title 8 Regulations, Chapter 4, Subchapter 7, Group 1, Article 2, §3220.
- TBC maintains a Primary Backup and Secondary Backup Control Center that provides the same functionality regarding system operation and facility oversight as the Control Center normally used for operations, exceeding regulatory requirements.

5.3 Detailed Wildfire Mitigation Programs

As previously stated above, TBC maintains no programs, staff, equipment, or infrastructure solely dedicated to wildfire mitigation. In the following sections, a narrative is provided regarding TBC practices that are relevant to the indicated wildfire mitigation initiative category and comments provided for each individual initiative as applicable.

5.3.1 Risk Assessment and Mapping

As detailed in TBC Wildfire Risk Assessment (see Appendix 2), the ignition risks to proximate vegetative fuels are limited to a small number of discrete locations in TBC's service territory defined by a single transmission path. TBC has also assessed that weather and RFW have limited operational relevance given the existent substantial hardening of TBC's system. Lastly, as discussed in Section 4.4 above, TBC reasonably foresees no circumstance in which TBC would issue a PSPS. Based on these factors, the initiatives in this category have nominal applicability to TBC. As such, Table 21 below is intentionally blank.

Table 21 Detailed Wildfire Mitigation – Risk Assessment and Mapping

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
A summarized risk map showing the overall ignition probability and estimated wildfire consequence along electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
	2019 Plan													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Climate-driven risk map and modelling based on various relevant weather scenarios	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Ignition probability mapping showing the probability of ignition along the electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Weather-driven risk map and modelling based on various relevant weather scenarios	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Weather-driven risk map and modelling based on various relevant weather scenarios	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.2 Situational Awareness and Forecasting

In 2019, TBC implemented two (2) continuous monitoring sensors that provided operational risk mitigation. The first was in the form of a fiber-optic based cable monitoring system capable of detecting uncoordinated excavation which risks derangement of underground cable potential leading to an ignition event. The second was a real-time transformer oil dissolved gas analysis system that provides potentially predictive data on transformer failure which has the potential for initiating an ignition event.

For situational awareness, TBC 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. TBC is also directly supported in situational awareness of local conditions through close coordination with CAISO as TBC's Balancing Authority and PG&E, TBC's only neighboring Transmission Operator since TBC 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 TBC's operational profile due to TBC's transmission path being completely underground or submerged.

The nature of the AC/DC conversion system employed by TBC 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. TBC's transmission system already possesses fault monitoring and detection capabilities that exceed that utilized in more traditional transmission systems.

Based on these factors the initiatives in this category have nominal applicability to TBC, Table 22 below is intentionally blank.

Table 22 Detailed Wildfire Mitigation – Situational Awareness and Forecasting

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Advanced weather monitoring and weather stations	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Continuous monitoring sensors	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Fault indicators for detecting faults on electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Forecast of a fire risk index, fire potential index, or similar	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Weather forecasting and estimating impacts on electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.3 Grid Design and System Hardening

The design of TBC's transmission infrastructure provides inherent system hardening against wildfire risk. TBC'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 a distance of 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. TBC employs a Geographic Information System that provides high accuracy geo-plots of all TBC facilities. This GIS also plots excavation notifications which helps to minimize the likelihood of derangement due to uncoordinated excavations all the cable route. TBC's facility does not utilize any overhead lines.

TBC'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. TBC is actively undertaking efforts to transition its Converter Stations to Gas Insulated Substation technology which will reduce reliance upon air insulated conductoring and bus-work that are more susceptible to producing ignition events due to contact.

TBC primarily relies on the protective systems intrinsic to the HVDC Modular Multilevel Voltage Source Converter using 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. TBC also employs industry standard fault interruption methods via circuit breakers, protective relays, and surge arrestors.

Based on the configuration of TBC's system that is substantially hardened against wildfire the preponderance initiatives in this category have limited to no applicability to TBC. Those that are applicable are related to maintenance or improvements to system automation that are undertaken by TBC are primarily driven by operational factors other than wildfire mitigation. Lastly, as discussed

in Section 4.4 above, TBC reasonably foresees no circumstance in which TBC would issue a PSPS. As such, Table 23 below is intentionally blank.

Table 23 Detailed Wildfire Mitigation – Grid Design and System Hardening

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Capacitor maintenance and replacement program	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Covered conductor installation	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Covered conductor maintenance	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Crossarm maintenance, repair, and replacement	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Distribution pole replacement and reinforcement, including with composite poles	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Expulsion fuse replacement	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Grid topology improvements to mitigate or reduce PSPS events	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Installation of system automation equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Maintenance, repair, and replacement of connectors, including hotline clamps	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Mitigation of impact on customers and other residents affected during PSPS event	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Other corrective action	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Pole loading infrastructure hardening and replacement program based on pole loading assessment program	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Transformers maintenance and replacement	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
.Transmission tower maintenance and replacement	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Undergrounding of electric lines and/or equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Updates to grid topology to minimize risk of ignition in HFTDs	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.4 Asset Management and Inspections

TBC has no distribution system or distribution/retail customers making those initiatives in this category not applicable to TBC. Submerged and underground transmission lines cannot be LiDAR scanned or effectively patrolled making those initiatives not applicable to TBC. TBC has conducted LiDAR scans of its main transformers associated with seismic upgrade initiatives. As indicated in Section 5.3.3 above, TBC does not employ overhead lines or the associated towers or poles making the associated initiatives in this category likewise inapplicable to TBC. The remaining initiatives regarding asset management and inspections are applicable to TBC. They, however, are conducted to address a wide spectrum of operational risk mitigation beyond wildfire mitigation. Based on these factors, the initiatives in this category have nominal applicability to TBC. As such, Table 24 below is intentionally blank.

Table 24 Detailed Wildfire Mitigation – Asset Management and Inspections

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Detailed inspections of distribution electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Detailed inspections of transmission electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Improvement of inspections	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Infrared inspections of distribution electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Infrared inspections of transmission electric lines and equipment 6	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Intrusive pole inspections	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
LiDAR inspections of distribution electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
LiDAR inspections of transmission electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Other discretionary inspection of transmission electric lines and equipment, beyond inspections mandated by rules and regulations	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Patrol inspections of distribution electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Patrol inspections of transmission electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Pole loading assessment program to determine safety factor	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Quality assurance / quality control of inspections	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Substation inspections	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.5 Vegetation Management and Inspections

TBC's facilities are in an urban/industrial environment and its transmission facilities are either buried or submerged beneath Bay Area waters. TBC's facilities utilize no overhead transmission lines. As a result, TBC does not have a Vegetation Management Plan ("VMP") and is not required to maintain a VMP under NERC Reliability Standards or any CASIO maintenance requirements. TBC makes quarterly reports to the Western Electric Coordinating Council (WECC), TBC's Electric Reliability Organization (ERO) that TBC has no requirement have a VMP. TBC does undertake abatement of vegetative fuels on its Converter Stations at minimal cost incorporated into landscape maintenance. Based on these factors, the initiatives in this category have nominal applicability to TBC. As such, Table 25 below is intentionally blank.

Table 25 Detailed Wildfire Mitigation – Vegetation Management and Inspections

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Additional efforts to manage community and environmental impacts	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Detailed inspections of vegetation around distribution electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Detailed inspections of vegetation around transmission electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Emergency response vegetation management due to red flag warning or other urgent conditions	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Fuel management and reduction of “slash” from vegetation management activities	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Improvement of inspections	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
LiDAR inspections of vegetation around distribution electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
LiDAR inspections of vegetation around transmission electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Other discretionary inspection of vegetation around transmission electric lines and equipment, beyond inspections mandated by rules and regulations	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Patrol inspections of vegetation around distribution electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Patrol inspections of vegetation around transmission electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Quality assurance / quality control of inspections	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Recruiting and training of vegetation management personnel	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Remediation of at-risk species	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Removal and remediation of trees with strike potential to electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Substation inspections	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Substation vegetation management	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Vegetation inventory system	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Vegetation management to achieve clearances around electric lines and equipment	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.6 Grid Operations and Protocols

TBC does not employ automatic reclosers in its transmission system making this initiative not applicable to TBC. Given the substantially hardened nature of TBC'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. Based on these factors, the initiatives in this category have no applicability to TBC. As such, Table 26 below is intentionally blank.

Table 26 Detailed Wildfire Mitigation – Grid Operations and Protocols

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Automatic recloser operations	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Crew-accompanying ignition prevention and suppression resources and services	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Personnel work procedures and training in conditions of elevated fire risk	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Protocols for PSPS re-energization	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
PSPS events and mitigation of PSPS impacts	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Stationed and on-call ignition prevention and suppression resources and services	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.7 Data Governance

TBC 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 TBC's operations which are fully outside HTFDs and WUIs. Comprehensive wildfire research and assessments is deemed more appropriate for reporting utilities that have services territories that encompass HFTD and WUI. Based on these factors, the initiatives in this category have nominal applicability to TBC. As such, Table 27 below is intentionally blank.

Table 27 Detailed Wildfire Mitigation – Data Governance

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Centralized repository for data	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Collaborative research on utility ignition and/or wildfire	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Documentation and disclosure of wildfire-related data and algorithms	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Tracking and analysis of near miss data	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.8 Resource Allocation Methodology

TBC does not allocate resources solely for wildfire risk mitigation. Based on this factor, the initiatives in this category have no applicability to TBC. As such, Table 28 below is intentionally blank.

Table 28 Detailed Wildfire Mitigation – Resource Allocation Methodology

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Allocation methodology development and application	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Risk reduction scenario development and analysis	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Risk spend efficiency analysis	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.9 Emergency Planning and Preparedness

TBC 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. TBC 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 TBC'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 TBC's emergency and disaster preparedness.

TBC 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 TBC 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 TBC System Operator who has full authority and responsibility to act autonomously to coordinate and conduct an emergency shutdown of TBC'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.

TBC lacks a substantial work force or any training provided to that workforce that would allow them to contribute meaningfully to any mutual aid requirement and is fully reliant on contracted services to recover from anything other than the most minimal amount of damage sustained to TBC's infrastructure and facilities. The technical workforce is sufficient to conduct restoration activities with proper contractor support.

Based on these factors, the initiatives in this category have nominal applicability to TBC in the narrow context of wildfire mitigation. As such, Table 29 below is intentionally blank.

Table 29 Detailed Wildfire Mitigation – Emergency Planning and Preparedness

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Adequate and trained workforce for service restoration	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Community outreach, public awareness, and communications efforts	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Customer support in emergencies	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Disaster and emergency preparedness plan	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Preparedness and planning for service restoration	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Protocols in place to learn from wildfire events	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.10 Stakeholder Cooperation and Community Engagement

TBC has no defined "service area", lacking any retail or distribution customers. This precludes the need for a significant capability to conduct community outreach, or public awareness campaigns regarding TBC's operations. Comprehensive stakeholder and community engagement is deemed more appropriate for reporting utilities that have services territories that encompass HFTD and WUI with distribution customers. Based on these factors, the initiatives in this category have no applicability to TBC. As such, Table 30 below is intentionally blank.

Table 30 Detailed Wildfire Mitigation – Stakeholder Cooperation and Community Engagement

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Community engagement	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Cooperation and best practice sharing with agencies outside CA	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

Initiative Activity	Year	Total per Initiative Spend	Line Miles to be Treated	Spend per Treated Line Mile	Ignition Probability Drivers Targeted	Risk Reduction	Risk-Spend Efficiency	Other Risk Drivers Addressed	Existing / New	Existing: What Proceeding has Reviewed Program	New: Memorandum Account	In or Exceeding Compliance with Regulations	Cite Associated Rule	Comments
Cooperation with suppression agencies	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													
Forest service and fuel reduction cooperation and joint roadmap	2019 Plan													
	2019 Actual													
	2020													
	2021													
	2022													
	2020-2022 Plan Total													

5.3.11 Definitions of Initiatives by Category

Category	Initiative	Definition
A. Risk mapping and simulation	A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	Development and use of tools and processes to develop and update risk map and simulations and to estimate risk reduction potential of initiatives for a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Climate-driven risk map and modelling based on various relevant weather scenarios	Development and use of tools and processes to estimate incremental risk of foreseeable climate scenarios, such as drought, across a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Ignition probability mapping showing the probability of ignition along the electric lines and equipment	Development and use of tools and processes to assess the risk of ignition across regions of the grid (or more granularly, e.g., circuits, spans, or assets).

Category	Initiative	Definition
	Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	Development of a tool to estimate the risk reduction efficacy (for both wildfire and PSPS risk) and risk-spend efficiency of various initiatives.
	Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	Development and use of tools and processes to assess the impact of potential ignition and risk to communities (e.g., in terms of potential fatalities, structures burned, monetary damages, area burned, impact on air quality and greenhouse gas, or GHG, reduction goals, etc.).
B. Situational Awareness and Forecasting	Advanced weather monitoring and weather stations	Purchase, installation, maintenance, and operation of weather stations. Collection, recording, and analysis of weather data from weather stations and from external sources.
	Continuous monitoring sensors	Installation, maintenance, and monitoring of sensors and sensorized equipment used to monitor the condition of electric lines and equipment.
	Fault indicators for detecting faults on electric lines and equipment	Installation and maintenance of fault indicators.
	Forecast of a fire risk index, fire potential index, or similar	Index that uses a combination of weather parameters (such as wind speed, humidity, and temperature), vegetation and/or fuel conditions, and other factors to judge current fire risk and to create a forecast indicative of fire risk. A sufficiently granular index shall inform operational decision-making.
	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	Personnel position within utility service territory to monitor system conditions and weather on site. Field observations shall inform operational decisions.
	Weather forecasting and estimating impacts on electric lines and equipment	Development methodology for forecast of weather conditions relevant to utility operations, forecasting weather conditions and conducting analysis to incorporate into utility decision-making, learning and updates to reduce false positives and false negatives of forecast PSPS conditions.
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.

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

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

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

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

Category	Initiative	Definition
	Other discretionary inspections of vegetation around distribution electric lines and equipment	Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Other discretionary inspections of vegetation around transmission electric lines and equipment	Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Patrol inspections of vegetation around distribution electric lines and equipment	Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business.
	Patrol inspections of vegetation around transmission electric lines and equipment	Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business.
	Quality assurance / quality control of vegetation inspections	Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes.
	Recruiting and training of vegetation management personnel	Programs to ensure that the utility is able to identify and hire qualified vegetation management personnel and to ensure that both full-time employees and contractors tasked with vegetation management responsibilities are adequately trained to perform vegetation management work, according to the utility's wildfire mitigation plan, in addition to rules and regulations for safety.
	Remediation of at-risk species	Actions taken to reduce the ignition probability and wildfire consequence attributable to at-risk vegetation species, such as trimming, removal, and replacement.
	Removal and remediation of trees with strike potential to electric lines and equipment	Actions taken to remove or otherwise remediate trees that could potentially strike electrical equipment, if adverse events such as failure at the ground-level of the tree or branch breakout within the canopy of the tree, occur.
	Substation inspection	Inspection of vegetation surrounding substations, performed by qualified persons and according to the frequency established by the utility, including record-keeping.
	Substation vegetation management	Based on location and risk to substation equipment only, actions taken to reduce the ignition probability and wildfire consequence attributable to contact from vegetation to substation equipment.
	Vegetation inventory system	Inputs, operation, and support for centralized inventory of vegetation clearances updated based upon inspection results, including (1) inventory of species, (2) forecasting of growth, (3) forecasting of when growth threatens minimum right-of-way clearances (“grow-in” risk) or creates fall-in/fly-in risk.

Category	Initiative	Definition
	Vegetation management to achieve clearances around electric lines and equipment	Actions taken to ensure that vegetation does not encroach upon the minimum clearances set forth in Table 1 of GO 95, measured between line conductors and vegetation, such as trimming adjacent or overhanging tree limbs.
F. Grid Operations and Protocols	Automatic recloser operations	Designing and executing protocols to deactivate automatic reclosers based on local conditions for ignition probability and wildfire consequence.
	Crew-accompanying ignition prevention and suppression resources and services	Those firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, and water) that are deployed with construction crews and other electric workers to provide site-specific fire prevention and ignition mitigation during on-site work
	Personnel work procedures and training in conditions of elevated fire risk	Work activity guidelines that designate what type of work can be performed during operating conditions of different levels of wildfire risk. Training for personnel on these guidelines and the procedures they prescribe, from normal operating procedures to increased mitigation measures to constraints on work performed.
	Protocols for PSPS re-energization	Designing and executing procedures that accelerate the restoration of electric service in areas that were de-energized, while maintaining safety and reliability standards.
	PSPS events and mitigation of PSPS impacts	Designing, executing, and improving upon protocols to conduct PSPS events, including development of advanced methodologies to determine when to use PSPS, and to mitigate the impact of PSPS events on affected customers and local residents.
	Stationed and on-call ignition prevention and suppression resources and services	Firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, firefighting foam, chemical extinguishing agent, and water) stationed at utility facilities and/or standing by to respond to calls for fire suppression assistance.
G. Data Governance	Centralized repository for data	Designing, maintaining, hosting, and upgrading a platform that supports storage, processing, and utilization of all utility proprietary data and data compiled by the utility from other sources.
	Collaborative research on utility ignition and/or wildfire	Developing and executing research work on utility ignition and/or wildfire topics in collaboration with other non-utility partners, such as academic institutions and research groups, to include data-sharing and funding as applicable.
	Documentation and disclosure of wildfire-related data and algorithms	Design and execution of processes to document and disclose wildfire-related data and algorithms to accord with rules and regulations, including use of scenarios for forecasting and stress testing.
	Tracking and analysis of near miss data	Tools and procedures to monitor, record, and conduct analysis of data on near miss events.
H. Resource Allocation Methodology	Allocation methodology development and application	Development of prioritization methodology for human and financial resources, including application of said methodology to utility decision-making.

Category	Initiative	Definition
	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.
	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.

Category	Initiative	Definition
	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).

5.4 Methodology for Enterprise-Wide Safety Risk and Wildfire-Related Assessment

TBC utilizes a comprehensive approach to enterprise-wide safety risk and wildfire-related risk assessment. The fire risk assessment for TBC Facilities includes a minimum of three TBC risk assessment approaches, all of which are consistent with fire threat and equipment failure methods and are repeatable processes.

5.4.1 Site Fire Environment Risk Assessment

A third-party fire protection consultant conducts this repeatable evaluation that includes assessment of TBC facilities and surrounding terrain, vegetative fuels, regional weather patterns, and regional fire history. Fire behavior modeling is conducted to determine (a) the anticipated risk to downwind assets from an ignition and (b) the potential extreme fire behavior and flame lengths so that electrical equipment and components could be appropriately setback and defended and to minimize the possibility that on-site fire could spread to off-site vegetation. The assessment includes evaluation of the local fire response capabilities and resources, their response time, and availability of mutual aid. Among the factors evaluated are:

- **Fire risks:** construction and operation;
- **Site and facility ignition sources**: equipment, personnel, processes;
- **Fire prevention strategies:** design, maintenance, inspections, monitoring;
- **Mitigation measures:** reduced fire risk;
- **Code compliance**: documented compliance with state, county, and other codes and guidelines;
- **Fire agency coordination**: Firefighting and emergency response technical evaluation, training, and coordination; and
- **Fire response resource needs**: agreement providing funding to Contra Costa County Fire Department and San Francisco Fire Department as appropriate.

5.4.2 Facility Equipment Assessment

TBC 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. This is a repeatable process that will be employed on at least an annual basis by TBC. This Failure Modes and Effects Analysis (FMEA) process is described in detail below. Each component of a TBC Facility 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.

TBC utilizes a FMEA program for evaluating risk associated with the TBC Facilities, as described above. The FMEA 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).

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 TBC to identify and prioritize wildfire risks, drivers and mitigation measures consists of the following five steps:

1. **Risk Identification**: for each major equipment component, a group of experienced Subject Matter Experts (SMEs) brainstorm and capture all potential ways that component could cause an ignition event (failure modes)
2. **Risk Driver Identification**: for each identified failure mode, the SMEs brainstorm and capture all potential root causes (drivers)
3. **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
4. **Risk Mitigation**: for each of the risk drivers identified, starting with the highest RPNs, the SMEs brainstorm to identify and capture effective mitigation measures, and determine who should implement each measure and when
5. **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.

5.4.3 Fire Risk Assessment Workshop

TBC conducts a risk assessment workshop that includes SMEs from its in-house team as well as third-party consultants (Dudek, Accenture Consulting, Capstone Fire and Safety Management, and Jensen Hughes). The team identifies and prioritizes risk drivers, risks, and programs and strategies to address identified risks.

5.5 Planning for Workforce and Other Limited Resources

Due to TBC's limited scale and scope of operations, TBC does not reasonably foresee resource constraints as a hindrance in wildfire mitigation in TBC's circumstances as a redundant transmission path into San Francisco. TBC does not have a substantial work force or any training provided to that workforce that would allow them to contribute meaningfully to any mutual aid requirement and is fully reliant on contracted services to recover from anything other than the most minimal amount of damage sustained to TBC's infrastructure and facilities. The technical workforce is sufficient to conduct restoration activities with proper contractor support.

5.6 Expected Outcomes of 3-Year Plan

5.6.1 Planned Utility Infrastructure Construction and Upgrades

TBC expects no change to the geographic location of its transmission lines which are fully underground or submerged during the three-year plan period. These transmission lines are not located in a HTFD, being substantially under the San Francisco Bay, and are not reasonably expected to fall into any expanded HTFD in the foreseeable future.

TBC has no distribution lines and has no plans to implement any form of distribution system in the three-year plan period as this would require substantial changes in the TBC tariff.

As discussed in Section 3.4.2 above, TBC is undertaking a number of initiatives to implement seismic hardening and GIS infrastructure that reduces system susceptibility to producing ignition events under earthquake and catastrophic fault conditions as part of an overall operational risk mitigation strategy. As also indicated in in Section 3.4.2 above, driven by TBC's wildfire mitigation and overall operational risk mitigation strategy, TBC has contracted a third-party to conduct a comprehensive engineering study focused on identifying opportunities to allow TBC to achieve "world class" status as a fire protected facility in an effort to reduce overall fire risk to the surrounding community to negligible levels.

Due to the substantial hardening of the transmission infrastructure already in place, a history of not producing any ignition producing events, and a proactive approach to enhancing fire protection TBC anticipates a continuance of a trend of zero incidents as shown in Table 31 below. Having not experienced any ignition events in the history of TBC, this precludes any basis for quantitative assessment of probability of ignition per event specific to TBC's facilities and infrastructure.

Table 31 Change in Drivers of Ignition Probability Taking into Account Planned Initiatives for Each Year of Plan

Incident Type by Ignition Probability Driver	Detailed Risk Driver	Near Miss Tracked? (Y/N)	Number of Incidents per Year			Average Percentage Likelihood of Ignition per Incident			Number of Ignitions per Year		
			2020	2021	2021	2020	2021	2022	2020	2021	2022
Contact from Object	All types of object contact	N	0	0	0	Unknown – Insufficient data			0	0	0
	Animal contact	N	0	0	0	Unknown – Insufficient data			0	0	0
	Balloon contact	N	0	0	0	Unknown – Insufficient data			0	0	0

Incident Type by Ignition Probability Driver	Detailed Risk Driver	Near Miss Tracked? (Y/N)	Number of Incidents per Year			Average Percentage Likelihood of Ignition per Incident			Number of Ignitions per Year		
			2020	2021	2021	2020	2021	2022	2020	2021	2022
	Vegetation contact	N	0	0	0	Unknown – Insufficient data			0	0	0
	Vehicle contact	N	0	0	0	Unknown – Insufficient data			0	0	0
Equipment / Facility Failure	All types	Y	0	0	0	Unknown – Insufficient data			0	0	0
	Capacitor bank failure	Y	0	0	0	Unknown – Insufficient data			0	0	0
	Conductor failure - all	Y	0	0	0	Unknown – Insufficient data			0	0	0
	Conductor failure – wire down	N/A – All TBC conductor is underground or submerged.									
	Fuse failure - all	N/A – TBC does not employ fuses in its transmission system.									
	Fuse failure – conventional blown fuse	N/A – TBC does not employ fuses in its transmission system.									
	Lighting Arrestor Failure	Y	0	0	0	Unknown – Insufficient data			0	0	0
	Switch Failure	Y	0	0	0	Unknown – Insufficient data			0	0	0
	Transformer Failure	Y	0	0	0	Unknown – Insufficient data			0	0	0
Wire-to-Wire Contact / Contamination		Y	0	0	0	Unknown – Insufficient data			0	0	0
Anchor Strike		Y	0	0	0	Unknown – Insufficient data			0	0	0
Uncoordinated Excavation		Y	0	0	0	Unknown – Insufficient data			0	0	0
Other		Y	0	0	0	Unknown – Insufficient data			0	0	0

5.6.2 Protocols for Public Safety Power Shutoff

Per Section 4.4 above, TBC does not have any distribution or retail customers and as such does not reasonably foresee any circumstance where TBC would issue a PSPS. Furthermore, since TBC resides within PG&E's service territory, TBC would be taken

offline pursuant to PG&E-issued PSPS that affected PG&E's Pittsburg substation, thus limiting any capacity for TBC's transmission service instigate an ignition event.

6. Utility GIS Attachments

6.1 Recent Weather Patterns

Not applicable. Weather, RFW, and fire index has negligible impact on TBC operations. TBC has no organic capability to develop the dataset.

6.2 Recent Drivers of Ignition Probability

Not applicable. TBC has experienced no ignition events.

6.3 Recent Use of PSPS

Not applicable. TBC has never issued a PSPS.

6.4 Current Baseline State of Service Territory and Utility Equipment

TBC has provided the applicable shapefiles as indicated in Table 32 below.

Table 32 Current Baseline State of Service Territory and Utility Equipment GIS Data

Measurements / Variables	Comment / Filename
Non-HFTD vs HFTD (Zone 1, Tier 2, Tier 3) regions of utility service territory	N/A – TBC has no facilities or infrastructure in HFTD.
Urban vs. rural vs. highly rural regions of utility service territory	N/A – TBC's land facilities and infrastructure are all located in urban areas.
WUI regions of utility service territory	N/A – TBC has no facilities or infrastructure in WUI.
Number and location of critical facilities	TBC_Facilities_2020-02 (.cpg, .dbf, .prj, .shp, .shx, as required) Filed as a Confidential Document.
Number and location of customers	N/A – TBC has no distribution customers.
Number and location of customers belonging to access and functional needs populations	N/A – TBC has no distribution customers.
Overhead transmission lines	N/A – TBC has no overhead transmission lines.
Overhead distribution lines	N/A – TBC has no distribution lines.
Location of substations	TBC_Facilities (.cpg, .dbf, .prj, .shp, .shx, as required) Filed as a Confidential Document.
Location of weather stations	N/A – TBC does not operate weather stations.
All utility assets by asset type, model, age, specifications, and condition	TBC_Assets_2020-02 (.cpg, .dbf, .prj, .shp, .shx, as required) Filed as a Confidential Document.

6.5 Location of Planned Utility Equipment Additions and Removal

Not applicable. TBC has no planned infrastructure additions or removals in 2020 outside existent facilities.

6.6 Planned 2020 WMP Initiative Activity by End-2022

Not applicable. TBC has no planned WMP initiative activity by end-2022 that would impact geographic data provided.

7. Appendices/Attachments

Appendix 1 – Roles and Responsibilities

Appendix 2 – Wildfire Risk Assessment

Attachment 1 – Wildfire Mitigation Plan Data Tables – Excel Format

Attachment 2 – Analysis of Potential Economic Impacts of Wildfires Emanating from Trans Bay Cable LLC's Pittsburg Sub-Station (sic), The Claro Group, Jonathan Yoder, Ph.D. and George Hansen, dated 2019-09-20 Filed as a Confidential Document.

8. References

Reference A – Public Utilities Code §8386

Reference B – California Senate Bill 901

Reference C – California Public Utilities Code 768

Reference D – Cal/OSHA – Title 8 Regulations, Chapter 4, Subchapter 7, Group 1, Article 2, §3220 Emergency Action Plans

Reference E – NFPA 850 Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations

Appendix 1 Roles and Responsibilities

TBC's apportionment of roles and responsibilities relevant to the WMP are provided in Table 33 below.

Table 33 WMP Roles and Responsibilities

Position / Roles and Responsibilities	Specific WMP Sections and Subsections
President • Overall Executive Oversight • WMP Approval • Stakeholder Engagement – Executive Level	1, 1.1,
Senior Director of Operations • Emergency contact • Stakeholder Engagement – Senior Level • Communications with CAISO – Senior Level • WMP Execution	1, 4, 4.4, 5, 5.1, 5.2.5, 5.6.2
Principal Attorney • Communications with CPUC • WMP Compliance Reporting • WMP review	1

Director of Engineering
• Fire Incident Commander (Primary)
• Communications with CAISO
  ○ Policies and Procedures
  ○ Transmission Planning
• WMP Development and Updates
  ○ Changes of facilities
  ○ New facilities
  ○ New regulations
  ○ Climate change effects
• WMP Compliance Implementation
• WMP Deficiency Resolution
• WMP Metrics Development
• WMP Data Governance
  ○ WMP Geographic Data
  ○ WMP Knowledge Management
	1, 2, 2.1, 2.4, 2.5, 2.7, 3, 3.1, 3.4, 4, 4.1, 4.1.1-4, 4.2, 4.2.1, 4.3, 4.4, 5, 5.1, 5.2, 5.2.2, 5.2.4, 5.2.5, 5.3, 5.3.1-11, 5.4, 5.4.1-3, 5.5. 5.6, 5.6.1, 6, 6.1-5, 7, 8

Director of Operations
• Fire Incident Commander (Backup)
• Communications with CAISO
  ○ Operating Plans
  ○ Maintenance
• Operations Plan
• Inspection Plan and Conduct
  ○ Monitoring
  ○ Auditing
  ○ Training
• Maintenance Plan and Conduct
  ○ Monitoring
  ○ Auditing
  ○ Training
• Vegetative Fuel Abatement
	1, 5.2.3, 5.2.5, 5.5

Position / Roles and Responsibilities	Specific WMP Sections and Subsections

Environmental Health & Safety Manager
• WMP Compliance Assurance
  ○ Monitoring
  ○ Auditing
• WMP Metrics Tracking
  ○ Ignitions
  ○ Plan performance
• Hot Work Protocols and Procedures
• Site Safety Officer
• Emergency Response Plan and Training
• Fire Safety and Protection Training
	1, 2.2, 2.3, 2.5. 2.6, 3.2, 3.3. 3.4.1, 3.4.2, 3.4.3, 5.2.1, 5.2.2, 5.2.3, 5.2.5

TBC System Operator
• Bulk Electric System Operation
• Real-Time Condition Monitoring
  ○ Weather
  ○ RFW Days
  ○ Bulk Electric System Conditions
  ○ Active Fires
• Communications with CAISO – Real Time Operations
• Initial Emergency Response
  ○ Controlling Actions
  ○ System Shutdown
	1, 5.2.5

Appendix 2 Wildfire Risk Assessment

1. Methodology

The TBC methodology for assessing Wildfire risk is concordant with TBC's Operational Risk Management practices for all operations. It recognizes the limited scale and scope of TBC's operations relative to other utilities who have larger territories, greater diversity of operations, and direct responsibility to residential, commercial, and industrial customers. In this methodology TBC provides a description of the risk and assigns the assessed risk a (C)onsequence and (L)ikelihood rating of one (1) to five (5) in increasing order of severity and of occurrence respectively. These ratings are multiplied to achieve a Risk Level. For any Risk Level above six (6), as shown in Figure 6 below, mitigation measures may be warranted. If mitigation measures are implemented, a subsequent assessment is made for (C)onsequence and (L)ikelihood rating to achieve a Residual Risk level with further evaluation and mitigating steps implemented as deemed necessary.

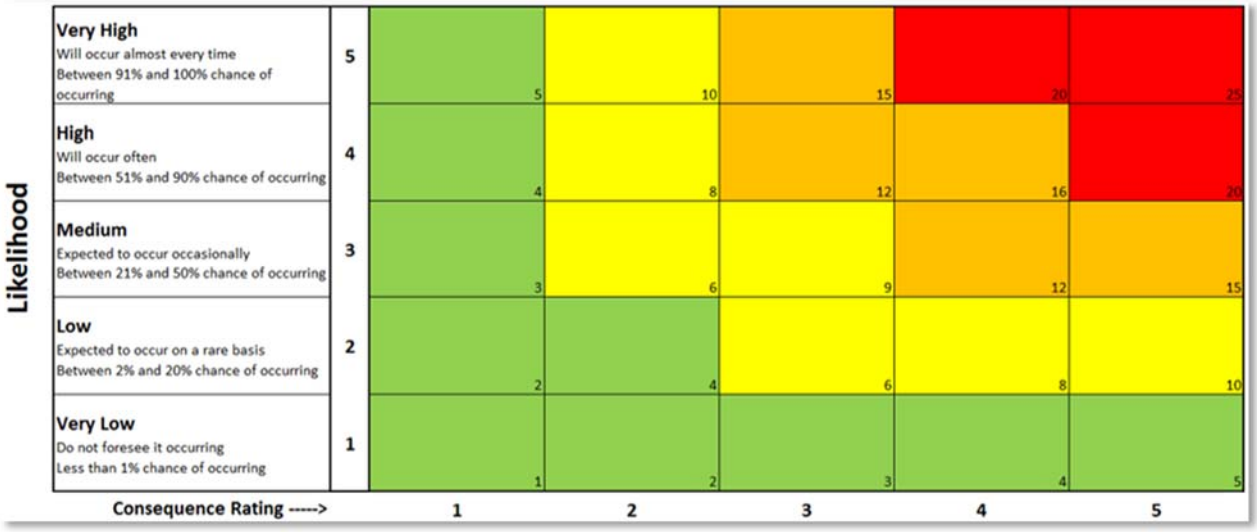


Figure 6 Risk Assessment Heat Map

2. Risk Identification, Risk Driver Description, Mitigation, and Prioritization

This section provides TBC's assessment relevant to wildfires that details the risks, describes the risk drivers, identifies the mitigations, and sets the priorities for each element of TBC's system infrastructure. The specific (C)onsequence Ratings relevant to TBC's wildfire risk assessment are given in Table 34 below.

Table 34 Wildfire Risk Consequence Rating

Consequence Rating		Description
5	Extremely Severe	Catastrophic and wide spread damage to wildlands and bordering communities resulting in any loss of life, significant long-term health effects attributable to the fire, extensive destruction of private and public property , expected to exceed $100M, and extended (>2 months) periods of outage to achieve system restoration.
4	Very Severe	Extensive damage throughout the area with impacts to WUI and potential impacts directly to wildlands resulting in debilitating injuries or possibility of any assessed long-term health effects attributable to the fire, extensive damage to private or public property expected to range from $10M-$100M, and outages of up to 2 months to achieve system restoration.
3	Severe	Damage extends beyond proximate vegetative fuels and with potential impacts to the WUI, injuries requiring extensive recovery but not debilitating or any assessed long-term health effects attributable to the fire, damage to private or public property, expected to be less than $10M, and an outage of 1-2 weeks to achieve system restoration.
2	Moderate	Damage limited to proximate vegetative fuels of (<5 Acre, (20,200 m^2)), no debilitating injuries or any assessed long-term health effects attributable to the fire, minimal damage to private or public property, expected to be less than $1M, and minimal outage required to achieve system restoration.
1	Minimal	Minimal damage limited to proximate vegetative fuels, no injuries or long-term health effect attributable to the fire, no destruction of private or public property, and no outage required to achieve system restoration.

Mitigations are annotated as either (I)mplemented specifying that the mitigation is fully in place or assessed as (R)equired needing future implementation to further mitigate risk. Those mitigations requiring future implementation are given priorities using a one (1) to five (5) numerical scale in increasing level of priority.

The following comprehensive list of TBC transmission system facilities and infrastructure were considered in for the wildfire risk assessment:

- Pittsburg Converter Station
- 230kV High Voltage AC Transmission Line
- +/-200kV High Voltage DC Land Transmission Line – Pittsburg Location
- +/-200kV High Voltage DC Submarine Transmission Line
- +/-200kV High Voltage DC Land Transmission Line – San Francisco Location
- Potrero Converter Station
- 115kV High Voltage AC Transmission Line

The detailed wildfire risk assessment for the above facilities and infrastructure follow below.

2.1 Pittsburg Converter Station Risk Assessment

Facility Description: Facility within the city limits of Pittsburg, CA constructed to perform conversion from 230kV AC to +/- 200kV DC. Interconnected with the PG&E Pittsburg 230kV substation via underground HVAC cables. Connected to the Potrero Converter Station via +/-200kV HVDC land and submarine cable infrastructure.

The impact assessment of a fire sourced from the Pittsburg Converter Station is detailed in Attachment 1 which fully justifies the Consequence level assessed for this facility.

Table 35 Wildfire Risk Assessment for Pittsburg Converter Station

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
Design and Construction				
	C: 5 Extremely Severe Ignition of a catastrophic fire resulting from the derangement of TBC infrastructure due to human action or other catastrophic event in proximity to a medium density urban area would result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low Design of the Converter Station provides system hardening as transmission lines are either underground or surrounded within a twelve-foot concrete wall. TBC site has approved fire lanes ringing the	Proximity to wildlands	I: TBC Converter Station constructed outside Wildlands R: None	N/A
		Proximity of facilities to vegetative fuels	I: Operational areas of Converter Station devoid of any vegetative fuels. I: Routine review of state of vegetative fuels in adjacent site with site superintendent I: Vegetation abatement conducted on adjacent site in coordination with adjacent site superintendent. R: None	N/A
		Proximity of facilities to WUI “at risk” communities	I: Above ground facility equipment is located in an industrial area of Pittsburg I: Operational areas of site surrounded on all sides by a twelve (12) foot reinforced concrete perimeter wall R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	Converter Station inside the perimeter wall with ready access to hydrants. Assessed potential impact of fire due to catastrophic failure e.g. due to a seismic event has a residual Risk Level (CxL): 10 A: Additional risk mitigation warranted for seismic hardening of elements of TBC high-voltage infrastructure or automated firefighting for BES Elements. Implementation of additional mitigants would reduce the assessed likelihood to 1 (Very Low) with a Residual Risk Level (CxL) assessed to be 5 requiring no further mitigation.	Degree of compliance with facility fire protection codes and statutes in construction	I: Facility maintains local fire department approved fire lanes completely around the site perimeter inside perimeter wall I: Monitoring, detection, alarm and suppression systems implemented and maintained per applicable codes and statutes R: None	N/A
		Proximity of above-ground high voltage infrastructure to facility perimeter	I: Blast walls surrounding main transformers located on the Converter Station I: All above ground infrastructure set back from facility perimeter by fire lane ringing the site. R: None	N/A
		Responsiveness of designed protection systems interrupting an electrical fault as an ignition source	I: The nature of the AC/DC conversion system employed by TBC has 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 I: Use of traditional fault interruption devices in the Converter Station R: None	N/A
		Degree of facility and infrastructure hardening from derangement	I: Transmission elements designed to be completely underground I: Blast walls and perimeter wall. I: Seismic upgrades to converter system to mitigate possible derangement during a seismic event that could present a fire risk R: Implement seismic foundations for main transformers to preclude damage during seismic event that could generate fire risk	5

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
		Modality of ignition from deranged high voltage infrastructure	I: Required surge arresters and grounding grid implemented at Converter Station clear of fuel sources to mitigate a phase to ground arc as an ignition source I: Mitigation of the spread of molten metal, sparks, or hot fragments as an ignition source from catastrophic failure of an above ground high voltage infrastructure element addressed by the setback of equipment from site perimeter, blast walls, and perimeter wall. R: Implement automated firefighting system for main transformers to contain and prevent fire due to transformer faults	5
Inspection and Maintenance				
	C: 5 Extremely Severe -Ignition of a catastrophic fire resulting from the derangement of TBC equipment due improper maintenance or inadequate equipment inspections in proximity to a medium density urban area would result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessment based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required. Validation of practice via third-party review of	Effectiveness of maintenance practices in preventing catastrophic derangement of equipment that would present a fire risk	I: Maintenance requirements are conducted on a routine basis as per approved Operational Maintenance Program audited by CAISO on an annual basis. R: None	N/A
		Effectiveness of maintenance practices in maintaining protective system equipment to preclude failure or misoperation that would present a fire risk	I: Maintenance requirements are conducted on a routine basis as per approved Operational Maintenance Program audited by CAISO on an annual basis. I: Routine compliance with NERC Protective and Control (PRC) standards appropriate to TBC equipment monitored and audited per the Electric Reliability Organization (ERO) Compliance Oversight Plan (COP). R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	inspection and maintenance practices relevant to fire prevention warranted.	Effectiveness of routine facility inspection to identify fire risks	I: Conduct of weekly inspection of the Converter Station using a formal checklist which includes line items that specifically address fire suppression system functionality, high-voltage equipment condition, and general facility conditions. R: Third party inspection of fire preparedness and internal inspection and review processes.	3
Operational Practices				
	C: 5 Extremely Severe - Poor operational control of high voltage equipment by failing to intervene in circumstances that could lead to catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessment based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Authority of System Operators to effectively intervene to break the chain of fire causality	I: TBC System Operators are formally granted, in writing, the responsibility and authority per the following statement: "[The System Operator] is hereby granted the responsibility and authority, during normal and emergency conditions, to take or direct timely and appropriate real-time actions at the Trans Bay Cable Facility to ensure the stable and reliable operation of the Bulk Electric System. The actions may be performed without obtaining approval from higher-level personnel within Trans Bay Cable." This empowers the TBC System Operator to take appropriate timely autonomous action to mitigate fire risks which would pose a risk to stable and reliable operations. This includes the authority to initiate an Emergency Shut-Off completely terminating system operation and mitigate fire risk. R: None	N/A
		Degree of formal documentation available detailing operational response and supporting information to circumstances that present a fire risk	I: The following TBC procedures provide specific procedures, guidance, and information to support an effective response to operational circumstances than may pose a fire risk: TBC-HS-103 Fire Prevention TBC-HS-200 Emergency Action Plan TBC-OP-004 Emergency Operations TBC-MP-741 Fire System R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
		Training provided to staff to respond to emergency conditions that could present a fire risk	I: Documented training conducted annually on the TBC-HS-200 Emergency Action Plan to meet Cal/OSHA – Title 8 Regulations, Chapter 4, Subchapter 7, Group 1, Article 2, §3220 R: None	N/A
		Degree of operational oversight of facility and system operations to mitigate fire risk	I: While the TBC transmission system is in operation a TBC System Operator is stationed 24 hours with direct access to all system controls via Human Machine Interface and facility monitoring features via security applications R: None	N/A
		Degree of redundancy in operational control capability to take action to mitigate fire risk in the event of loss of primary control capability.	I: TBC maintains a Primary Backup and Secondary Backup Control Center that provides the same functionality regarding system operation and facility oversight as the Control Center normally used for operations R: None	N/A
Situational/Conditional Awareness				
	C: 5 Very Severe - Lack of situational awareness contributing to the development of circumstances that could lead to catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessed based on implemented mitigations. Risk Level (CxL): 5 Risk Acceptable - Additional mitigations not required.	Degree of awareness regarding facility conditions that could lead to circumstances that pose a fire risk	I: The TBC System Operator has direct awareness of fire protection system functionality fed directly to the Human Machine Interface controlling the transmission system operations I: TBC fire systems are monitored 24 hours via a third party vendor. R: None	N/A
		Degree of awareness regarding abnormal system operations that could result in conditions posing a fire risk	I: The TBC System Operator has direct awareness of system operation via the Human Machine Interface controlling the transmission system operations that includes telemetry, indications, and alarms indicating abnormal conditions that may pose a fire risk. R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
		Degree of awareness regarding environmental conditions posing a fire risk	I: TBC System Operators maintain awareness regarding weather conditions that could pose a fire risk as part of their normal duties in accordance with their qualification training. R: None	N/A
		Degree of awareness regarding the proximity of vegetative fuel to Converter Station	I: TBC System Operators have access to closed circuit cameras for the site that allow monitoring of the Converter Station perimeter. I: TBC System Operators are familiar with site conditions as they also serve as the maintenance staff conducting maintenance and inspections (see above). R: None	N/A
		Degree of awareness regarding the regional conditions that may contribute to fire risk	I: TBC regional situational awareness is supported by persistent contact with CAISO who has sufficient staff and resources to provide awareness of regional conditions R: None	N/A
Response and Recovery				
	C: 5 Extremely Severe - Inadequate fire suppression response that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands.	Degree of responsiveness of emergency services to combat a fire	I: Contra Costa Fire Station 84 is 1.2 miles distant by most direct route with a nominal response time of 5-7 minutes. I: Contra Costa Fire Station 86 is 3.0 miles distant by most direct route with a nominal response time of 6-9 minutes. I: Contra Costa Fire Station 87 is 3.7 miles distant by most direct route with a nominal response time of 10-15 minutes. R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	L: 2 Low - Assessed based on implemented mitigations and proximity of emergency services. Risk Level (CxL): 10 A: Risk Acceptable	Degree of access afforded to emergency services to combat a fire	I: Emergency services have Knox Box access to the Converter Station. I: Converter Station has fire lanes around its perimeter. I: Converter station has paved road access from two directions. I: Service road behind Converter Station provides immediate proximate access to locations with vegetative fuels. R: None	N/A
		Degree of responsiveness regarding summoning emergency services to combat a fire	I: Both TBC System Operator and 24-hour security staff have full authority to summon emergency services if deemed necessary I: Converter Station fire protection system provides direct alerting of local emergency services through a third-party vendor. R: None	N/A
		Availability of spare equipment to allow for rapid restoration to service to reduce overall fire risk resulting from increased Bulk Electric System stress resulting from any outage	I: TBC maintains a Spare Equipment Strategy compliant with CAISO standards R: None	N/A
Topographical Factors				
	C: 5 Extremely Severe -Topological factors present that could impede emergency response that would complicate fire suppression response that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and	Presence of slopes proximate to the Converter Station that would impede emergency response	I: The Converter Station is situated on a flat plain with no substantial slope. R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on existent topological features. Risk Level (CxL): 10 A: Risk Acceptable	Presence of natural features that would impede emergency response.	I: Converter Station lies within a fully developed industrial area without natural features that would substantially impede emergency response. R: None	N/A
Climatological Factors				
	C: 5 Extremely Severe - Climatological factors present that could accelerate fire propagation that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on existent location and low biomass of proximate vegetative fuels. Risk Level (CxL): 10 A: Risk Acceptable	Degree climatological factors influence fire risk.	I: Urban location of the Converter Station and relatively low biomass of proximate vegetative fuels subject to drying make climatological factors influencing fire risk negligible. R: None	N/A

2.2 230kV High Voltage AC Transmission Line Risk Assessment

Infrastructure Description: Three (3) high voltage AC transmission cables in an underground duct bank connecting the Pittsburg Converter Station to the PG&E Pittsburg Substation running for 0.6 miles (1 km). Cables are located underneath the NRG property adjacent to the Pittsburg Converter Station which also encompasses the PG&E Pittsburg Substation. Includes Horizontally Directionally Drilled (HDD) section underneath an existent sanitary sewer and drainage ditch.

Table 36 Wildfire Risk Assessment for 230kV High Voltage AC Transmission Line

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
Design and Construction				
	C: 5 Extremely Severe - Ignition of a catastrophic fire resulting from the derangement of TBC infrastructure due to human action or other catastrophic event in proximity to a medium density urban area would result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessed based on cable design and installation Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Proximity to wildlands	I: Underground cable constructed outside Wildlands R: None	N/A
		Proximity of cable to vegetative fuels	I: Cable HDD section under location of the bulk of the proximate vegetative fuels to depths of 20-40 feet (6-12m) I: Vegetative fuels proximate to remaining underground cable run consists of low marsh scrub with limited biomass I: Routine review of state of vegetative fuels in adjacent site with site superintendent I: Vegetation abatement conducted on adjacent site in coordination with adjacent site superintendent. R: None	N/A
		Proximity of cable to WUI “at risk” communities	I: Cable located in industrial area of Pittsburg remote from edifices R: None	N/A
		Degree of cable exposure in circumstance of derangement that could pose a fire risk	I: Due to burial of the cable and the grounding path afforded by the cable armor the degree of exposure of an ignition source arc that could be presented to a fuel source is negligible R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
		Responsiveness of designed protection systems interrupting an electrical fault on the cable as an ignition source	I: The nature of the AC/DC conversion system employed by TBC has 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 I: Use of traditional fault interruption devices to de-energize cable in event of a fault R: None	N/A
		Degree of cable infrastructure hardening from derangement	I: Cable buried to a depth of 36-129 inches (91-328 cm) (excepting HDD section addressed above) I: Cable contained within a concrete vault covered by 27-120 inches (65-305 cm) of fluidized thermal backfill R: None	N/A
		Modality of ignition from deranged high voltage cable	I: Cable armor provides grounding path for ignition arc mitigation I: The spread of molten metal or sparks as an ignition source from derangement of the cable assessed as infeasible from a buried location R: None	N/A
Inspection and Maintenance				
	C: 5 Extremely Severe - Ignition of a catastrophic fire resulting from the loss of cable integrity attributable to improper maintenance or inadequate cable inspections in proximity to a	Effectiveness of maintenance practices in ensuring no loss of cable integrity that would present a fire risk	I: Maintenance requirements are conducted on a routine basis as per approved Operational Maintenance Program audited by CAISO on an annual basis R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	medium density urban area would result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessed based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required..	Effectiveness of routine cable inspection to identify fire risks	I: Conduct of monthly inspection of the land cable infrastructure using formal checklist which includes line items that specifically address cable integrity and circumstances that could lead to losses of cable integrity R: None	N/A
Operational Practices				
	C: 5 Extremely Severe - Poor operational control of cable infrastructure by failing to intervene in circumstances that could lead could lead to cable derangement resulting catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessed based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Degree of formal documentation available detailing operational efforts to preclude circumstances leading to cable derangement that could that present a fire risk	I: The following TBC procedures provide specific procedures, guidance, and information to support an effective response to operational circumstances that could lead to cable derangement that may pose a fire risk: TBC-OP-020 Asset Monitoring & Protection R: None	N/A
		Authority of System Operators to effectively intervene to break the chain of fire causality	See Operational Practice associated with Pittsburg Converter Station Risk Assessment above.	N/A
		Training provided to staff to respond to possible circumstances leading to cable derangement that could that present a fire risk	I: Documented training conducted as part of TBC System Operator initial qualification and sustainment training as required regarding the procedural requirements of TBC-OP-020 Asset Monitoring & Protection R: None	N/A
		Degree of operational oversight of cable operations to mitigate fire risk	See Operational Practice associated with Pittsburg Converter Station Risk Assessment above.	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
Situational/Conditional Awareness				
	C: 5 Extremely Severe - Lack of situational awareness contributing to the development of circumstance that could lead could lead to cable derangement resulting catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on implemented mitigations. Risk Level (CxL): 10 A: Risk Acceptable - While not primarily driven by wildfire risk mitigation TBC has installed a real time cable monitoring for improved situational awareness regarding activity proximate to underground cable infrastructure.	Degree of awareness regarding activity that could lead to cable derangement that could that present a fire risk	I: TBC employs a Geographic Information System that alerts on and geo-plots USAN excavation notifications in TBC's operating area for immediate evaluation by the TBC System Operator and subsequently by on Operations Engineer, if required. I: Installation of real-time cable monitoring system capable of detecting excavations proximate to cable infrastructure R:None	N/A
		Degree of awareness regarding the proximity of vegetative fuel to the cable	I: TBC System Operators are familiar with cable conditions as they also serve as the maintenance staff conducting maintenance and inspections (see above). R: None	N/A
		Degree of awareness regarding the regional conditions that may contribute to fire risk	See Situational/Conditional Awareness associated with Pittsburg Converter Station Risk Assessment above.	N/A
Response and Recovery				
	C: 5 Extremely Severe - Inadequate fire suppression response that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands.	Degree of responsiveness of emergency services to combat a fire resulting from cable derangement	I: Contra Costa Fire Station 84 is 1.2 miles distant by most direct route with a nominal response time of 5-7 minutes. I: Contra Costa Fire Station 86 is 3.0 miles distant by most direct route with a nominal response time of 6-9 minutes. I: Contra Costa Fire Station 87 is 3.7 miles distant by most direct route with a nominal response time of 10-15 minutes. R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	L: 2 Low - Assessed based on implemented mitigations and proximity of emergency services. Risk Level (CxL): 10 A: Risk Acceptable	Degree of access afforded to emergency services to combat a fire resulting from cable derangement	I: Service roads on NRG site allow immediate direct access to all cable locations by emergency services R: None	N/A
		Degree of responsiveness regarding summoning emergency services to combat a fire resulting from cable derangement	See Response and Recovery associated with Pittsburg Converter Station Risk Assessment above.	N/A
Topographical Factors				
	C: 5 Extremely Severe -Topological factors present that could impede emergency response that would complicate fire suppression response that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on existent topological features. Risk Level (CxL): 10 A: Risk Acceptable	Presence of slopes proximate to the Converter Station that would impede emergency response to combat a fire resulting from cable derangement	I: The cable burial location is situated on a flat plain with no substantial slope. R: None	N/A
		Presence of natural features that would impede emergency response.	I: The cable lies within a fully developed industrial area without natural features that would substantially impede emergency response R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
Climatological Factors				
	C: 5 Extremely Severe - Climatological factors present that could accelerate fire propagation that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on existent location, underground burial, and low biomass of proximate vegetative fuels. Risk Level (CxL): 10 A: Risk Acceptable	Degree climatological factors influence fire risk.	I: Urban location of the cable, its underground burial, and relatively low biomass of proximate vegetative fuels subject to drying make climatological factors influencing fire risk negligible R: None	N/A

2.3 +/-200kV High Voltage DC Land Transmission Line – Pittsburg Location Risk Assessment

Infrastructure Description: Two high voltage DC transmission cables in an underground duct bank connecting the Pittsburg Converter Station to the TBC +/-200kV High Voltage DC Submarine Transmission Line running for 0.7 miles (1.1 km) to the shoreline. Cables are located underneath the NRG property adjacent to the Pittsburg Converter Station. Includes two (2) Horizontally Directionally Drilled (HDD) sections with one being underneath an existent sanitary sewer and drainage ditch and the other representing the land to water transition to the submarine cable. Since the last WMP submission the risk assessment is updated to reflect the installation of a real-time cable monitoring system.

Table 37 Wildfire Risk Assessment for +/-200kV High Voltage DC Land Transmission Line – Pittsburg Location

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
Design and Construction				
	C: 5 Extremely Severe - Ignition of a catastrophic fire resulting from the derangement of TBC infrastructure due to human action or other catastrophic event in proximity to a medium density urban area would result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessed based on cable design and installation Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Proximity to wildlands	I: Underground cable constructed outside Wildlands R: None	N/A
		Proximity of cable to vegetative fuels	I: Cable HDD section under location of the bulk of the proximate vegetative fuels to depths of 20-40 feet (6-12m) I: Vegetative fuels proximate to remaining underground cable run consists of low marsh scrub with limited biomass I: Routine review of state of vegetative fuels in adjacent site with site superintendent I: Vegetation abatement conducted on adjacent site in coordination with adjacent site superintendent. R: None	N/A
		Proximity of cable to WUI “at risk” communities	I: Cable located in industrial area of Pittsburg remote from edifices R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
		Degree of cable exposure in circumstance of derangement that could pose a fire risk	I: Due to burial of the cable and the grounding path afforded by the cable armor the degree of exposure of an ignition source arc that could be presented to a fuel source is negligible R: None	N/A
		Responsiveness of designed protection systems interrupting an electrical fault on the cable as an ignition source	I: The nature of the AC/DC conversion system employed by TBC has 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 I: Use of traditional fault interruption devices to de-energize cable in event of a fault R: None	N/A
		Degree of cable infrastructure hardening from derangement	I: Cable buried to a depth of 36-114 inches (91-290 cm) (excepting HDD section addressed above) I: Cable contained within a concrete vault covered by 27-105 inches (65-305 cm) of fluidized thermal backfill R: None	N/A
		Modality of ignition from deranged high voltage cable	I: Cable armor provides grounding path for ignition arc mitigation I: The spread of molten metal or sparks as an ignition source from derangement of the cable assessed as infeasible from a buried location R: None	N/A
Inspection and Maintenance				
	C: 5 Extremely Severe - Ignition of a catastrophic fire resulting from the loss of cable integrity attributable to improper maintenance or inadequate cable inspections in proximity to a	Effectiveness of maintenance practices in ensuring no loss of cable integrity that would present a fire risk	I: Maintenance requirements are conducted on a routine basis as per approved Operational Maintenance Program audited by CAISO on an annual basis R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	medium density urban area would result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessed based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Effectiveness of routine cable inspection to identify fire risks	I: Conduct of monthly inspection of the cable infrastructure using formal checklist which includes line items that specifically address cable integrity and circumstances that could lead to losses of cable integrity R: None	N/A
Operational Practices				
	C: 5 Extremely Severe - Poor operational control of cable infrastructure by failing to intervene in circumstances that could lead could lead to cable derangement resulting catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 1 Very Low - Assessed based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Degree of formal documentation available detailing operational efforts to preclude circumstances leading to cable derangement that could that present a fire risk	I: The following TBC procedures provide specific procedures, guidance, and information to support an effective response to operational circumstances that could lead to cable derangement that may pose a fire risk: TBC-OP-020 Asset Monitoring & Protection R: None	N/A
		Authority of System Operators to effectively intervene to break the chain of fire causality	See Operational Practice associated with Pittsburg Converter Station Risk Assessment above.	N/A
		Training provided to staff to respond to possible circumstances leading to cable derangement that could that present a fire risk	I: Documented training conducted as part of TBC System Operator initial qualification and sustainment training as required regarding the procedural requirements of TBC-OP-020 Asset Monitoring & Protection R: None	N/A
		Degree of operational oversight of cable operations to mitigate fire risk	See Operational Practice associated with Pittsburg Converter Station Risk Assessment above.	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
Situational/Conditional Awareness				
	C: 5 Extremely Severe - Lack of situational awareness contributing to the development of circumstance that could lead could lead to cable derangement resulting catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on implemented mitigations. Risk Level (CxL): 10 A: Risk Acceptable. While not primarily driven by wildfire risk mitigation TBC has installed a real time cable monitoring for improved situational awareness regarding activity proximate to underground cable infrastructure.	Degree of awareness regarding activity that could lead to cable derangement that could that present a fire risk	I: TBC employs a Geographic Information System that alerts on and geo-plots USAN excavation notifications in TBC's operating area for immediate evaluation by the TBC System Operator and subsequently by on Operations Engineer, if required. I: Installation of real-time cable monitoring system capable of detecting excavations proximate to cable infrastructure R: None	N/A
		Degree of awareness regarding the proximity of vegetative fuel to the cable	I: TBC System Operators are familiar with cable conditions as they also serve as the maintenance staff conducting maintenance and inspections (see above). R: None	N/A
		Degree of awareness regarding the regional conditions that may contribute to fire risk	See Situational/Conditional Awareness associated with Pittsburg Converter Station Risk Assessment above.	N/A
Response and Recovery				
	C: 5 Extremely Severe - Inadequate fire suppression response that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands.	Degree of responsiveness of emergency services to combat a fire resulting from cable derangement	I: Contra Costa Fire Station 84 is 1.2 miles (1.9 km) distant by most direct route with a nominal response time of 5-7 minutes. I: Contra Costa Fire Station 86 is 3.0 miles (4.8 km) distant by most direct route with a nominal response time of 6-9 minutes. I: Contra Costa Fire Station 87 is 3.7 miles (6 km) distant by most direct route with a nominal response time of 10-15 minutes. R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	L: 2 Low - Assessed based on implemented mitigations and proximity of emergency services. Risk Level (CxL): 10 A: Risk Acceptable	Degree of access afforded to emergency services to combat a fire resulting from cable derangement	I: Service roads on NRG site allow immediate direct access to all cable locations by emergency services R: None	N/A
		Degree of responsiveness regarding summoning emergency services to combat a fire resulting from cable derangement	See Response and Recovery associated with Pittsburg Converter Station Risk Assessment above.	N/A
Topographical Factors				
	C: 5 Extremely Severe -Topological factors present that could impede emergency response that would complicate fire suppression response that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on existent topological features. Risk Level (CxL): 10 A: Risk Acceptable	Presence of slopes proximate to the Converter Station that would impede emergency response to combat a fire resulting from cable derangement	I: The cable burial location is situated on a flat plain with no substantial slope R: None	N/A
		Presence of natural features that would impede emergency response.	I: The cable lies within a fully developed industrial area without natural features that would substantially impede emergency response R: None	N/A

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
Climatological Factors				
	C: 5 Extremely Severe - Climatological factors present that could accelerate fire propagation that would allow the development of a catastrophic fire in proximity to a medium density urban area could result significant property damage and high potential for loss of life with the possibility of reaching Wildlands. L: 2 Low - Assessed based on existent location, underground burial, and low biomass of proximate vegetative fuels. Risk Level (CxL): 10 A: Risk Acceptable	Degree climatological factors influence fire risk	I: Urban location of the cable, its underground burial, and relatively low biomass of proximate vegetative fuels subject to drying make climatological factors influencing fire risk negligible R: None	N/A

2.4 +/-200kV High Voltage DC Submarine Transmission Line Wildfire Risk Assessment

Infrastructure Description: Two high voltage DC transmission cables connecting the Pittsburg Converter Station to the Potrero Converter Station running for 53 miles (85 km) underneath Suisun Bay, the Carquinez Strait, San Pablo Bay, and San Francisco Bay. Cables are located underneath the NRG property adjacent to the Pittsburg Converter Station. The cables are under a minimum water depth of 8 feet (2.4 meters) at MLLW (NAVD88) with a nominal burial depth of 4-6 feet (1.2-1.8m).

Due to the submerged and buried nature of this element of the TBC transmission system, lack of any proximity to vegetative fuels, and location remote from any wildlands and WUI it is deemed to pose no wildfire risk. A comprehensive wildfire risk assessment has been determined not to be necessary.

2.5 +/-200kV High Voltage DC Land Transmission Line – San Francisco Location Risk Assessment

Infrastructure Description: Two high voltage DC transmission cables in an underground duct bank connecting the Potrero Converter Station to the TBC +/-200kV High Voltage DC Submarine Transmission Line running for 0.2 miles (0.4 km) to the shoreline. Cables are located underneath 23rd Street. Includes one (1) Horizontally Directionally Drilled (HDD) section representing the land to water transition to the submarine cable.

Due to the completely urban environment surrounding the cable, lack of proximity to vegetative fuels other that urban landscaping, being underground in a duct back, and location remote from any wildlands and WUI it is deemed to pose no wildfire risk. A comprehensive wildfire risk assessment has been determined not to be necessary.

2.6 Potrero Converter Station Risk Assessment

Facility Description: Facility within the city limits of San Francisco, CA constructed to perform conversion from +/- 200kV DC to 115kV AC. Interconnected with the PG&E San Francisco 115kV “Substation A” via underground HVAC cables. Connected to the Pittsburg Converter Station via +/-200kV HVDC land and submarine cable infrastructure.

Due to the completely urban environment surrounding the Potrero Converter Station, lack of proximity to vegetative fuels other that urban landscaping, and location remote from any wildlands and WUI it is deemed to pose no wildfire risk. A comprehensive wildfire risk assessment has been determined not to be necessary.

2.7 115kV High Voltage AC Transmission Line

Infrastructure Description: Six (6) high voltage AC transmission cables in an underground duct bank connecting the Potrero Converter Station to the PG&E San Francisco 115kV “Substation

A" running for 725 feet (222 m) to the point of interconnection. Excepting street crossings, the cables are located underneath the PG&E Substation.

Due to the completely urban environment surrounding the cable, lack of proximity to vegetative fuels other that urban landscaping, being underground in a duct back, and location remote from any wildlands and WUI it is deemed to pose no wildfire risk. A comprehensive wildfire risk assessment has been determined not to be necessary.