BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to Senate Bill 901 (2018)	Rulemaking 18-10-007 (Filed October 25, 2018)

TRANS BAY CABLE LLC'S (U934-E) SUBMISSION OF ITS WILDFIRE MITIGATION PLAN

Lenneal Gardner

Corporate Counsel for
Trans Bay Cable LLC
One Letterman Dr., Suite C5-100
San Francisco, CA 94129
Phone: (415) 291-2300
Facsimile: (415) 651-9500
Email:lenneal.gardner@transbaycable.com

February 6, 2019

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I. INTRODUCTION

In accordance with the Administrative Law Judge's Rule on Wildfire Mitigation Plan Template, and Adding Additional Parties as Respondents, Trans Bay Cable LLC ("TBC") respectfully submits is Wildfire Mitigation Plan.

II. BACKGROUND

In response to the recent catastrophic wildfires in California, the state senate passed Senate Bill 901 ("SB 901"). SB 901 requires utilities operating in California to adopt wildfire mitigation plans subject to the review and approval of the California Public Utilities Commission (the "Commission"). The Commission instituted the above captioned rulemaking proceeding on October 25, 2018, providing guidance regarding the framework, details, content and deliverables of the wildfire mitigation plans to be with the Commission by February 6, 2019. On January 17, 2019, the assigned Administrative Law Judge issued a Ruling, naming

TBC and three other independent transmission owners as additional respondents with instructions to file a wildfire mitigation plan with the Commission by February 6, 2019.

III. TBC Wildfire Mitigation Plan

In response to the January 17, 2019 Ruling, TBC now respectfully submits its Wildfire Mitigation Plan which utilizes the Wildfire Mitigation Template attached to the January 17, 2019 Ruling. TBC's Wildfire Mitigation Plan was developed based on thoughtful risk analysis and strategy to mitigate the wildfire risks in accordance with SB 901. TBC looks forward to working with the Commission, other parties and stakeholders to continually improve its Wildfire Mitigation Plan pursuant to SB 901.

Respectfully submitted,

TRANS BAY CABLE LLC

/s/ Lenneal K. Gardner

Lenneal K. Gardner
Corporate Counsel
One Letterman Dr., C-5 Suite 100
San Francisco, CA 94129
Phone: (415) 291-2300
Facsimile: (415) 651-9500
Email: lenneal.gardner@transbaycable.com

February 6, 2019

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Wildfire Mitigation Plan

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1. Purpose

Trans Bay Cable ("TBC") is the owner and operator of a 400MW high voltage direct current transmission system located in the San Francisco Bay Area in California. TBC recognizes that, similar to other transmission operators, it maintains electric lines and equipment that by their nature pose significant threat of fire ignition to the areas in which it operates. Fire ignition has to potential to turn into uncontrollable fire resulting in, among other things, significant loss of human life, catastrophic damage to property, and irreparable harm to the environment. TBC operates mainly in San Francisco, CA, a high density urban area, the waters of the Bay, and Pittsburg, CA, a medium density urban area with observed high risk to wildfire. TBC's transmission system as discussed in this document was designed to be mostly underground with the exception of its substations which are surrounded by concrete walls. TBC's design limits, but cannot wholly prevent fire ignition or wildfire instigation resulting from its equipment. Therefore the follow plan has been developed to assess and provide supplemental measures to mitigate wildfire ignition resulting from TBC's transmission system.

The purpose of this Wildfire Mitigation Plan (the "WMP") is to ensure that TBC (i) maintains a plan for wildfire mitigation on its transmission infrastructure; (ii) maintains its plan consistent with the requires of California Public Utilities Code Section 8386; and (iii) provides for a methodology to update its plan to account for changes resulting from environmental, geographical, or regulatory requirements. This WMP functions in conjunction with TBC's Fire Prevention Plan (FPP) and together serve to reduce the potential risk of catastrophic wildfire posed by TBC's transmission infrastructure and to prevent loss of life and property resultant from such catastrophic wildfire.

2. Guidelines and Background Information

2.1 Authority

This procedure may not be modified without the approval of the Vice President of Operations.

2.2 Review & Revision

TBC Staff shall review and revise this procedure per the below guidance.

2.2.1 Criteria

TBC staff shall review this procedure to ensure adherence to current enforceable regulatory governance, agreements, and standards. Any changes to the documentation listed in the References section shall be considered potential cause for review and revision, if needed.

2.2.2 Frequency

This plan shall be reviewed in the same periodicity as the TBC-HS-103 Fire Prevention Plan as an annex of that plan and in compliance with the annual submission schedule established by the California Public Utilities Commission (CPUC).

2.2.3 Revision Actions

The following actions are required when this procedure is revised:

- Training regarding the changes in procedure shall be conducted with TBC Engineers, Operations and Maintenance Technicians, and EH&S Manager.

2.3 Compliance

Compliance Requirements addressed by this procedure:

- California Public Utilities Code §8386 as modified by Senate Bill 901 (Stats. 2018, Ch. 626)

2.4 Retention/Filing

TBC Staff shall maintain copies of this procedure in the following locations:

- Electronic: TBC network share drive and/or TBC web portal

3. Definitions

All defined terms (capitalized), except those specifically listed below, are provided in TBC-OP-013 (Glossary).

Wildfire –

1. An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.[1]
2. A fire occurring on wildland that is not meeting management objectives and requires a suppression response.[2]

Wildland –

1. An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities.[3]

Wildland Fire –

1. Any fire occurring on undeveloped land.[4]

[1] National Wildfire Coordinating Group definition: www.nwcg.gov/glossary/a-z
[2] California Department of Forestry and Fire Protection CAL FIRE Fire Planning Terminology: http://cdfdata.fire.ca.gov/fire_er/fpp_terminology
[3] National Wildfire Coordinating Group definition: www.nwcg.gov/glossary/a-z
[4] California Department of Forestry and Fire Protection CAL FIRE Fire Planning Terminology: dfdata.fire.ca.gov/fire_er/fpp_terminology

Wildland Urban Interface –

1. Commonly described as the zone where structures and other human development meet and intermingle with undeveloped wildland or vegetative fuels.[5]

4. Plan

The WMP is established such that any construction, maintenance, and operation of TBC transmission lines and equipment shall be conducted in a manner that will minimize the risk of initiating catastrophic wildfire resulting from electrical lines and equipment owned and operated by TBC. The WMP recognizes the following facts relevant to assessing wildfire risk and establishing effective mitigations:

- TBC operates in the Bay Area which does contain areas of Tier 2 and Tier 3 fire risk. See Figure 1 Map of Fire Risk Proximate to TBC Facilities below.[6]
- The TBC Pittsburg Converter Substation operates adjacent to West Pittsburg, a high-risk community identified within the wildland-urban interface, the area where homes and wildlands intermix, as published in the Federal Register in 2001[7]. Cities proximate to the Pittsburg Converter Substation are also shown in the CAL FIRE Fire and Resource Assessment Program (FRAP) Northern California Communities at Risk from Wildfire map.[8]
- The TBC Pittsburg Converter Substation 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 concrete vaults covered with fluidized thermal backfill and appropriate markings to warn excavators. These transmission lines 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.

[5] California Department of Forestry and Fire Protection CAL FIRE Fire Planning Terminology: http://cdfdata.fire.ca.gov/fire_er/fpp_terminology
[6] California Public Utility Commission, Fire Map, ia.cpuc.ca.gov/firemap/
[7] California Department of Forestry and Fire Protection CAL FIRE, Communities at Risk, osfm.fire.ca.gov/fireplan/fireplanning_communities_at_risk
[8] 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

- The primary transmission line is a submarine cable located on and buried within seafloor of the Bay Area Waters (San Francisco Bay, San Pablo Bay, Carquinez Strait, and Suisun Bay) as shown in Figure 2.
- TBC's transmission lines are underground or underwater as shown in Figure 2 through Figure 4 below. As such they are hardened and unlikely to cause 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 customers or any residential, commercial, or industrial interconnections.
- 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.
- 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 Pacific Gas & Electric Company ("PG&E") service territory except the submarine cable in Bay Area waters.

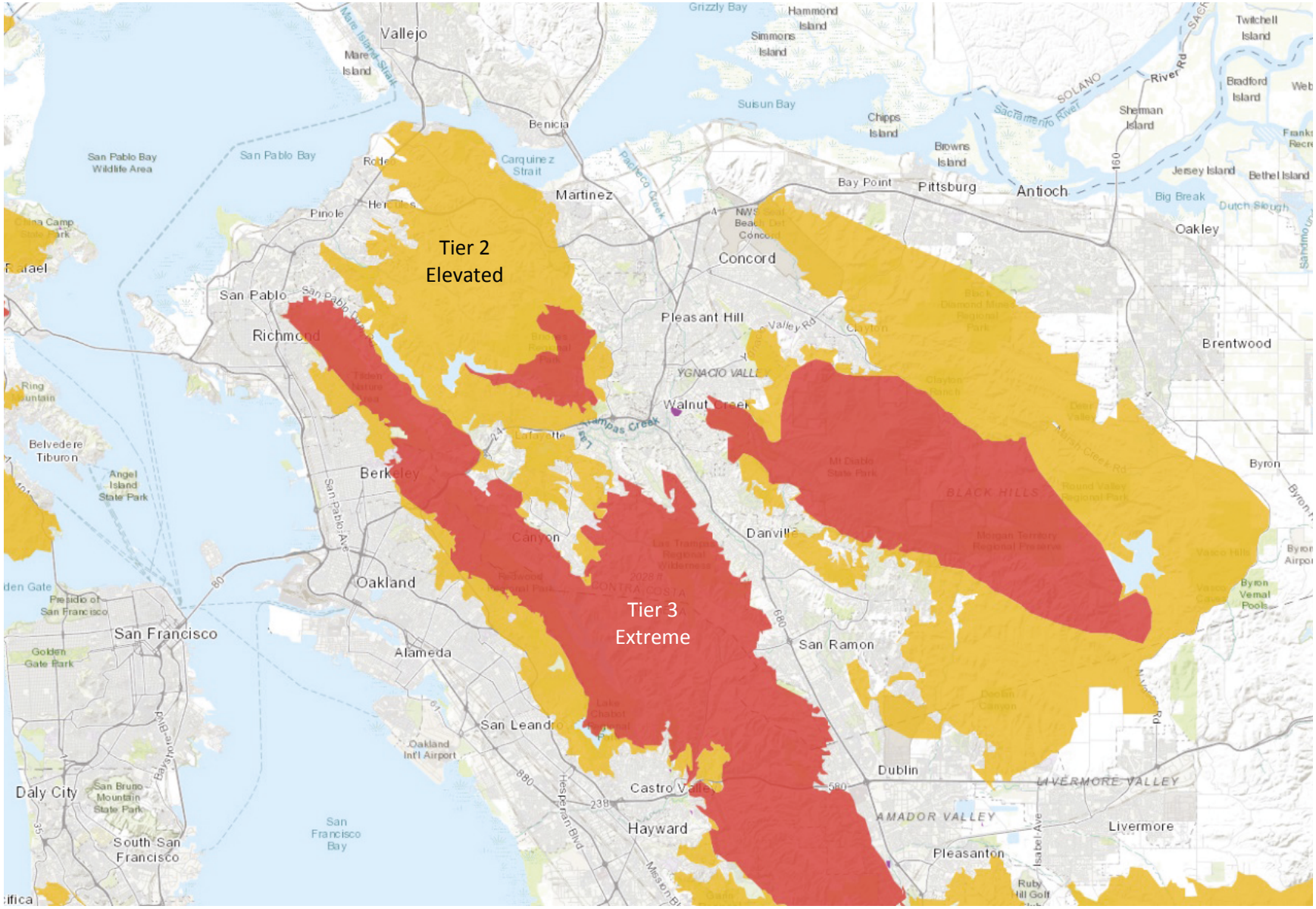

Figure 1 Map of Fire Risk Proximate to TBC Facilities

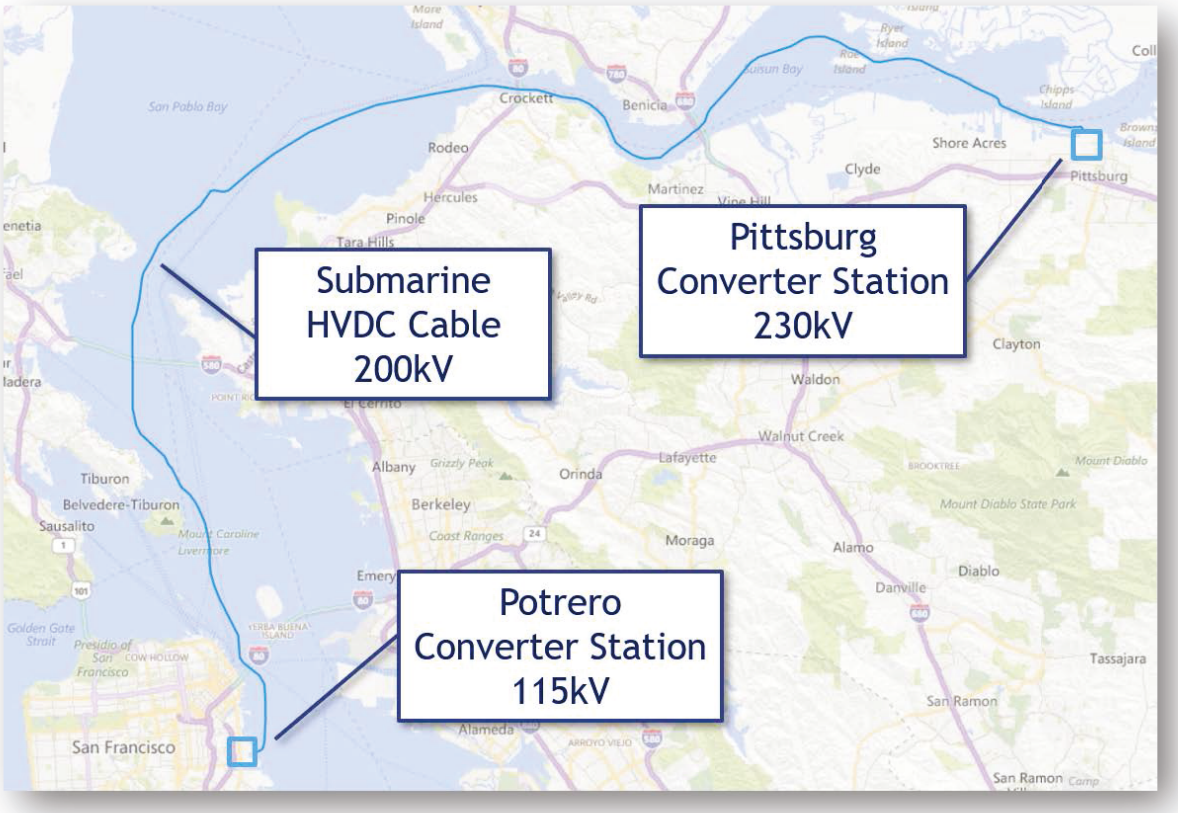

Figure 2 Overview of TBC Facilities

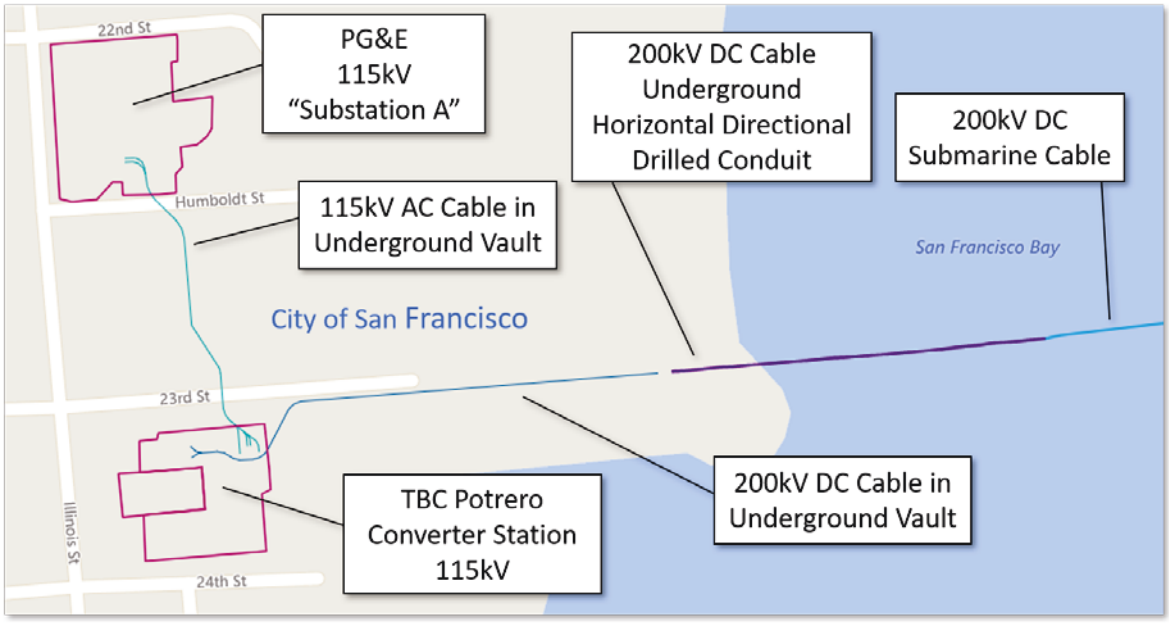

Figure 3 Overview of TBC Facilities in San Francisco

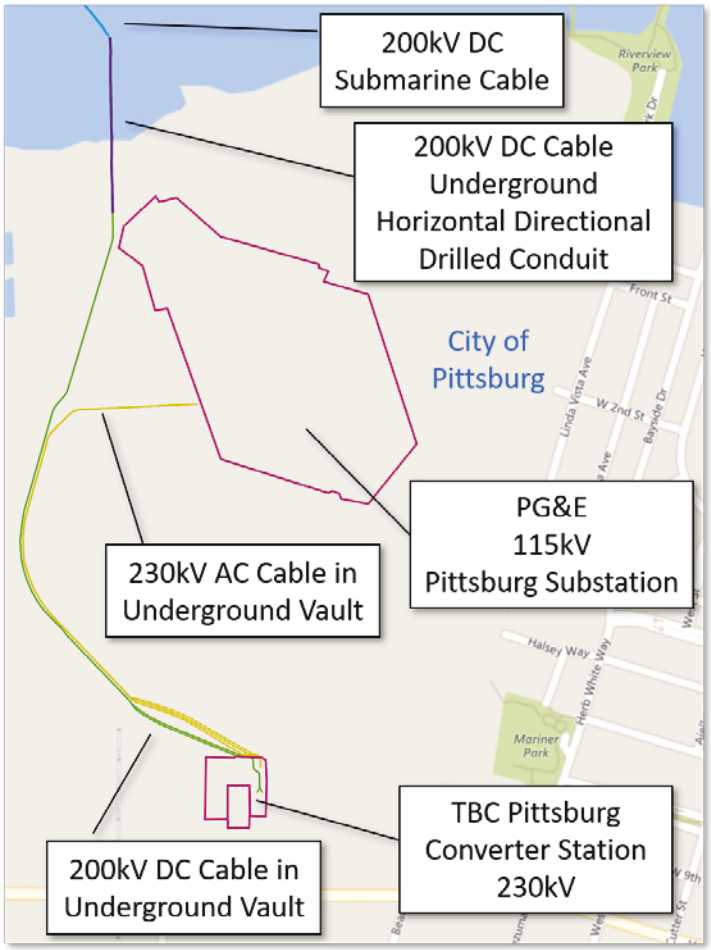

Figure 4 Overview of TBC Facilities in Pittsburg

4.1 Objectives[9] [10]

To meet the requirements of Senate Bill 901 and PUC §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. This WMP sets forth development courses for the needed capabilities to complete

[9] California Senate Bill 901, Reference 2
[10] California Public Utilities Code §8386(a)

the objectives. Lastly, it identifies Company personnel responsible for executing the various elements of the WMP.

4.1.1 Objective Timeframe: Upcoming 2019 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.
- Risk assessment of the project footprint and cable rights-of-way to ascertain whether there have been environmental, geographic or regulatory changes warranting revision of the TBC HS-103 Fire Prevention Plan.
- Risk assessment of credible faults that pose a potential risk to surrounding areas or TBC facilities that could spread to surrounding areas.
- Identify improved 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.
- Enhance fire awareness, prevention, and training campaigns for TBC operations staff.

4.1.2 Objective Timeframe: Prior to Next Plan Filing

- Implement risk mitigations from Risk Assessments that have planning and implementation horizons within the next required plan filing.
- Implement improvements to fire monitoring and awareness capabilities identified from previous objective.
- Implement fire hardening techniques and efforts identified in previous objective.

4.1.3 Objective Timeframe: Next 5 years

- All potential fire risks identified in the risk assessment fully mitigated.

4.2 Description of Preventative Strategy[11]

TBC shall seek to prevent and minimize the risk of electric transmission instigated Wildfires in all future timeframes by continued compliance with its fire prevention plans, operations maintenance schedules and practices, and employee training. TBC recognizes that because of its location and unique transmission facilities, its wildfire risk prevention strategy may differ

[11] California Senate Bill 901, Reference 3

from those of utilities with material overhead transmission and distribution facilities. Nevertheless, TBC employs a holistic approach to fire/emergency prevention which is interspersed throughout its maintenance and operations program. TBC's wildfire prevention strategy includes infrastructure mitigants such as underground and submerged transmission lines; design mitigants such as control and protection schemes with automated shutdown protocols; capital improvements such as cable monitoring, seismic upgrades, and operational programs such as routine visual inspections and assessments of equipment condition.

4.3 Risk Analysis & Risk Drivers[12]

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 notes that in conducting its risk analysis it has considered wildland-urban interface ("WUI") as defined by CAL FIRE[13]. TBC observes that its Pittsburg Converter Substation borders a decommissioned oil storage facility which is surrounded by land containing vegetative fuels and a portion of the TBC's HVDC and HVAC cable traverses this property underground and exits in the Suisun Bay and interconnects to the PG&E substation located there respectively. The Pittsburg Converter Stations is also located adjacent to West Pittsburg, a high-risk community identified within the wildland-urban interface maintained by CAL FIRE.

4.3.1 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 5 below, mitigation measures are 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.

[12] California Senate Bill 901, Reference 10,11,14,15

[13] 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.

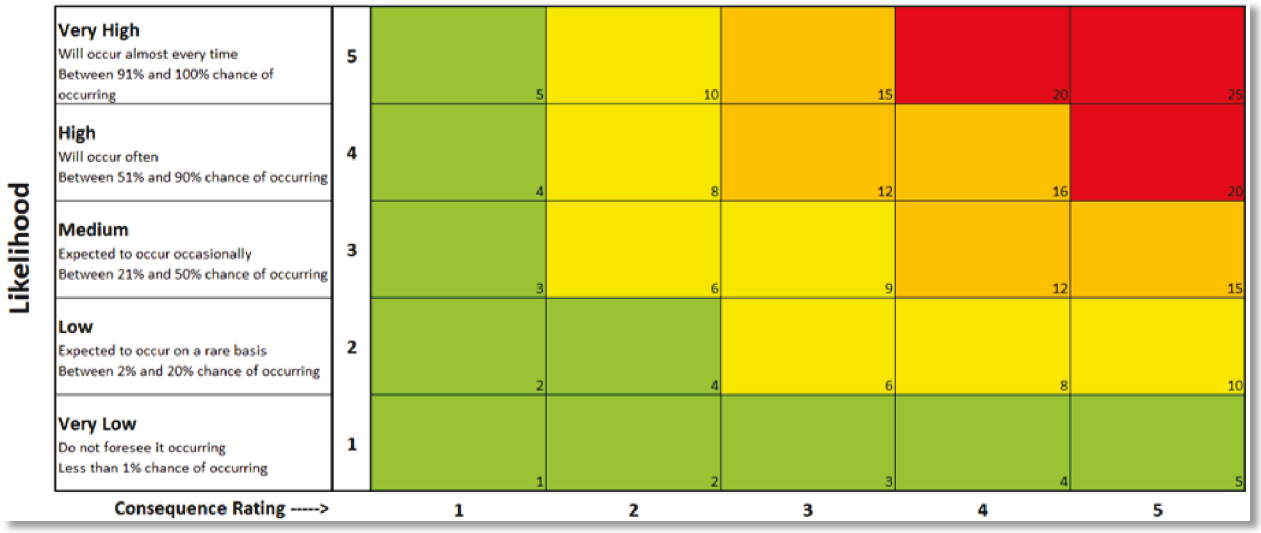

Figure 5 Risk Assessment Heat Map

4.3.2 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 1 below.

Table 1 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 Substation
- 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 Substation
- 115kV High Voltage AC Transmission Line

The detailed wildfire risk assessment for the above facilities and infrastructure are detailed in Table 2 through Table 4 below.

4.3.2.1 Pittsburg Converter Substation 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 Substation via +/-200kV HVDC land and submarine cable infrastructure.

Table 2 Wildfire Risk Assessment for Pittsburg Converter Substation

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 Substation 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 Converter Substation 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	Proximity to wildlands	I: TBC Converter Substation constructed outside Wildlands R: None	N/A
		Proximity of facilities to vegetative fuels	I: Operational areas of Converter Substation 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
		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

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
	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.	Proximity of above-ground high voltage infrastructure to facility perimeter	I: Blast walls surrounding main transformers located on the Converter Substation 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 Substation 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 Substation 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 Substation 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 Substation	I: TBC System Operators have access to closed circuit cameras for the site that allow monitoring of the Converter Substation 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. L: 1 Very Low - Assessed based on implemented mitigations and proximity of emergency services. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Degree of responsiveness of emergency services to combat a fire	I: Contra Costa Fire Station 84 is 1.2 miles distance by most direct route with a nominal response time of 5-7 minutes. I: Contra Costa Fire Station 86 is 3.0 miles distance by most direct route with a nominal response time of 6-9 minutes. I: Contra Costa Fire Station 87 is 3.7 miles distance 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)
		Degree of access afforded to emergency services to combat a fire	I: Emergency services have Knox Box access to the Converter Substation. I: Converter Substation has fire lanes around its perimeter. I: Converter Substation has paved road access from two directions. I: Service road behind Converter Substation 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 Substation 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

Risk Category	Wildfire Risk Level (CxL) (C)onsequence / (L)likelihood (A)ssessment	Drivers	Mitigation(s) (I)mplemented/(R)equired	Priority (if Required)
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: 1 Very Low - Assessed based on existent topological features. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Presence of slopes proximate to the Converter Substation that would impede emergency response	I: The Converter Substation is situated on a flat plain with no substantial slope. R: None	N/A
		Presence of natural features that would impede emergency response.	I: Converter Substation lies within a fully developed industrial area without natural features that would substantially impede emergency response.	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: 1 Very Low - Assessed based on existent location and low biomass of proximate vegetative fuels. Risk Level (CxL): 1 Very Low A: Risk Acceptable - Additional mitigations not required.	Degree climatological factors influence fire risk.	I: Urban location of the Converter Substation and relatively low biomass of proximate vegetative fuels subject to drying make climatological factors influencing fire risk negligible. R: None	N/A

4.3.2.2 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 Substation 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 Substation which also encompasses the PG&E Pittsburg Substation. Includes Horizontally Directionally Drilled (HDD) section underneath an existent sanitary sewer and drainage ditch.

Table 3 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 Substation 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 Substation 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: 1 Very Low - Assessed based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required. While not primarily driven by wildfire risk mitigation TBC plans installation of 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 Underground Service Alert of Northern California and Nevada (USAN) excavation notifications in TBC's operating area for immediate evaluation by the TBC System Operator and subsequently by on Operations Engineer, if required. R: Installation of real-time cable monitoring system capable of detecting excavations proximate to cable infrastructure	4
		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 Substation 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 distance by most direct route with a nominal response time of 5-7 minutes. I: Contra Costa Fire Station 86 is 3.0 miles distance by most direct route with a nominal response time of 6-9 minutes. I: Contra Costa Fire Station 87 is 3.7 miles distance 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: 1 Very Low - Assessed based on implemented mitigations and proximity of emergency services. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	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 Substation 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: 1 Very Low - Assessed based on existent topological features. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Presence of slopes proximate to the Converter Substation 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: 1 Very Low - Assessed based on existent location, underground burial, and low biomass of proximate vegetative fuels. Risk Level (CxL): 1 Very Low A: Risk Acceptable - Additional mitigations not required.	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

4.3.2.3 +/-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 Substation 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 Substation. 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.

Table 4 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
		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 36-114 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 Substation 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 Substation 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: 1 Very Low - Assessed based on implemented mitigations. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required. While not primarily driven by wildfire risk mitigation TBC plans installation of 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. R: Installation of real-time cable monitoring system capable of detecting excavations proximate to cable infrastructure	4
		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 Substation 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 distance by most direct route with a nominal response time of 5-7 minutes. I: Contra Costa Fire Station 86 is 3.0 miles distance by most direct route with a nominal response time of 6-9 minutes. I: Contra Costa Fire Station 87 is 3.7 miles distance 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: 1 Very Low - Assessed based on implemented mitigations and proximity of emergency services. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	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 Substation 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: 1 Very Low - Assessed based on existent topological features. Risk Level (CxL): 5 A: Risk Acceptable - Additional mitigations not required.	Presence of slopes proximate to the Converter Substation 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: 1 Very Low - Assessed based on existent location, underground burial, and low biomass of proximate vegetative fuels. Risk Level (CxL): 1 Very Low A: Risk Acceptable - Additional mitigations not required.	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

4.3.2.4 +/-200kV High Voltage DC Submarine Transmission Line Wildfire Risk Assessment

Infrastructure Description: Two high voltage DC transmission cables connecting the Pittsburg Converter Substation to the Potrero Converter Substation running for 53 miles (85 km) underneath Suisun Bay, the Carquinez Strait, San Pablo Bay, and San Francisco Bay. 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.

4.3.2.5 +/-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 Substation 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) HDD section representing the land to water transition to the submarine cable.

Risk is assessed as Extremely Severe resulting from ignition of a catastrophic fire resulting from the derangement of TBC infrastructure due to human action or other catastrophic event in proximity to a high density urban area would result significant property damage and high potential for loss of life. TBC also observes that this area of San Francisco is currently under construction and development and it will likely continue into the foreseeable future. Likelihood is assessed as Very Low based on cable design and installation.

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 for this asset.

4.3.2.6 Potrero Converter Substation 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 Substation via +/-200kV HVDC land and submarine cable infrastructure.

The (R)isk is assessed as Extremely Severe resulting from ignition of a catastrophic fire resulting from the derangement of TBC infrastructure due to human action or other catastrophic event in proximity to a high density urban area would result significant property

catastrophic event in proximity to a high density urban area would result significant property damage and high potential for loss of life. The (L)ikelihood is assessed as Low because the design of the Converter Substation provides system hardening as transmission lines are either underground or surrounded within a twelve-foot concrete wall. The site has approved fire lanes ringing the Converter Substation inside the perimeter wall with ready access to hydrants. TBC notes that this area of San Francisco is currently under construction and development and it will likely continue into the foreseeable future.

TBC observes that due to the completely urban environment surrounding the Potrero Converter Substation, 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 for this asset.

4.3.2.7 115kV High Voltage AC Transmission Line

Infrastructure Description: Six (6) high voltage AC transmission cables in an underground duct bank connecting the Potrero Converter Substation 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.

The (R)isk is assessed as Extremely Severe resulting from ignition of a catastrophic fire resulting from the derangement of TBC infrastructure due to human action or other catastrophic event in proximity to a high density urban area would result significant property damage and high potential for loss of life. The (L)ikelihood is assessed as Very Low based on cable design and installation.

TBC observes that 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 for this asset.

4.3.3 Accounting of Wildfire Risk Identified in or Since RAMP

Not applicable to TBC. See Section 4.3.2 above for assessment of wildfire risk.

4.3.4 Fire-Threat Evaluation

TBC has conducted a review of the California Public Utilities Commission's ("CPUC") Fire-Threat Map, High Fire-Threat District ("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 Substation 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 Substation 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 in the Suisun Bay and interconnects to the PG&E substation located there respectively. The proximity to areas of elevated risk is reflected in TBC's risk assessment for its Pittsburg facilities as shown in Section 4.3.2 above in Table 2 through Table 4.

4.3.5 Wildfire Prevention Strategy and Programs[14]

Due to the limited scope and scale of TBC operations the totality of TBC's wildfire prevention strategy may be found in Section 4.2 above. Without transmission infrastructure located in wildlands or WUI, or above ground (i.e. overhead lines), TBC maintains no specific programs emplaced solely for the prevention of wildfires. TBC maintains a Fire Prevention Program and operational practices detailed in Section 4.3.6 below in conjunction with the risk assessment and mitigation elements annotated in this plan that have the desired preventive effect. TBC additionally notes there are no costs for wildfire prevention/mitigation currently reflected in its revenue requirement as approved by the Federal Energy Regulatory Commission ("FERC").

4.3.6 Operational Practices

As indicated in the wildfire risk assessment above, TBC's routine operational practices are deemed to be effective mitigants 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 autonomous action to effectively intervene in developing circumstances to break the chain of fire causality to include 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.

[14] California Senate Bill 901, 6, 7, 8, 9, 12

- 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 Substation 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 USAN excavation notifications in TBC's operating area for immediate evaluation by the TBC System Operator and subsequently by on 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 Substation 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.

4.3.7 Plans for Inspections and Maintenance of Electrical Infrastructure

TBC maintains a maintenance and inspection schedule that requires inspection of all land based infrastructure on a no less than monthly basis with Converter Stations being inspected on a weekly basis. These inspections are formally conducted using established checklists that include line items that specifically address assessment of fire prevention systems and identifying circumstances that could lead to equipment derangement (e.g. uncoordinated excavation)

TBC employs a Geographic Information System that provides high accuracy geo-plots of all TBC facilities. TBC also has as-built CAD drawings of all its transmission facilities. While there are no formal plans in place, TBC can meet with the appropriate CPUC and CAL Fire personnel to develop a plan provide data necessary to satisfy wildfire risk mitigation efforts.

4.3.8 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 substation sites connected by an underground/submerged armored cable bundle. Outside of the converter substation sites, the cable is completely underground or submerged beneath the Bay Area waters for a distance of approximately 53 miles. As such the cables are hardened and unlikely to cause a wildfire to occur as a result due to a fault or contact except in the circumstance of derangement due to uncoordinated excavations. As noted above, TBC employs a Geographic Information System (GIS) that provides high accuracy geo-plots of all TBC facilities. This GIS also plots dig notifications from USAN which helps to minimize the likelihood of derangement due to uncoordinated excavations all the cable route. TBC's facility also 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 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.

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. 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.

4.3.9 Vegetation Management Plan

As noted above, 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.

4.3.10 Protocols on Situational Awareness and Determination of Local Conditions

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 operating completely within their service territory.

4.3.11 Protocols on Public Safety Power Shut-off

As noted above TBC's facilities are mostly located in an urban/industrial environment and its transmission facilities are either buried or submerged beneath Bay Area waters. As a result, TBC's facilities are generally low risk to Public Safety with respect to wildfire instigation. While TBC's Pittsburg Converter Substation does border an Elevated Risk area, TBC has a number of mitigants in place which makes the likelihood of wildfire instigation low. Per manufacturer's design the facility's protection scheme has features that "Block" transmission within microseconds of a fault detection and will initiate an Emergency Shut Off in milliseconds 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 and to respond dynamically to system conditions and requests from the CASIO. Reenergization of the facility is only initiated by approval of the VP of Operations or the CEO. Reenergization of the facility is also coordinated with the CAISO which provides an additional

layer of safety to the public as the CAISO has a system-wide view over all transmission assets in its operational territory.

4.3.12 Alternative Technologies

As noted in Section 4.3.8 above, TBC's system is designed to automatically shut down when anomalous operation conditions are observed by the facility's monitoring systems. Per manufacturer's design the facility's protection scheme has 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. As a result, the timeframe for potential fire ignition is significantly reduced.

As a detective control associated with fire mitigation, TBC employs a Geographic Information System that provides high accuracy geo-plots of all TBC facilities coupled with functions that plot notifications from the USAN. The assessment of USAN notifications allows for intervention in excavation activity with the vicinity of the underground cable.

4.3.13 Post Incident Recovery

Recovery from a circumstance leading to a fire event resulting from the derangement of TBC equipment or infrastructure is supported by the following elements:

- An established long-lead time equipment spare strategy that complies with the standards set by the CAISO.
- Established and robust support relationships with equipment vendors
- Established System Restoration Plan established in coordination with CAISO and PG&E

4.4 Emergency Preparedness and Response[15]

4.4.1 General Description

TBC maintains Emergency Action Plans appropriate to the scale and scope of operations 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 that of maintaining TBC's own infrastructure to meet obligations supporting the Bulk Electric System. This precludes the need for a significant capability to conduct community outreach, or public awareness campaigns regarding TBC's emergency and disaster preparedness.

[15] California Senate Bill 901, Reference 13, 16, 17, 18

4.4.2 Coordination with Disaster and Emergency 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 as previously indicated in Section 4.3.6, 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 work force 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.

4.4.3 Customer Support Emergencies

TBC has no end-use customers as it does not provide any retail or distribution services. As such the provision of customer support during emergencies is not applicable. Nevertheless, TBC would execute its Emergency and Disaster Preparedness Plan to maintain a state of readiness to support grid restoration at the CAISO's instruction.

4.5 Performance Metrics and Monitoring[16]

4.5.1 Accountabilities and Responsibilities

The WMP is managed at the executive level by TBC's Vice President of Operations with ultimate oversight by TBC's Chief Executive Officer. The Director of Operations manages the Operations staff who are tasked with 24/7 manning of the 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 CAISO or requests from PG&E. Infrastructure assessment is conducted by TBC's Operators and Asset Engineers who are charged with physically inspecting TBC substation sites and all equipment thereon, inspecting underground cable vaults and assessing quarterly cable surveys. Construction standards are assigned to

[16] California Senate Bill 901, Reference 1, 4, 5, 19

Asset Engineers and supporting by third party civil engineers. Asset 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 Vice President 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. As noted above TBC, per NERC Reliability Standards is not required to have a Vegetation Management Program as a result of the nature of its transmission facilities. Reporting is managing by TBC's in-house counsel. Internally, WMP review and revision is conducted by the EH&S Manager in conjunction with the Director of Engineering with approval by the Vice President of Operations. Externally, the WMP shall be approved by the Commission in accordance with Senate Bill 901 and PUC §8386.

4.5.2 Description of Metrics

As TBC does not maintain preventive strategies or programs geared specifically to wildfire mitigation there is a reliance on the use of established metrics for routine performance of operations.

4.5.3 Description of Processes and Procedures for Internal Controls

4.5.3.1 Plan Monitoring and Auditing

TBC shall evaluate this plan in conjunction with the TBC-HS-103 Fire Prevention Plan the required annual basis per the schedule established by the CPUC.

4.5.3.2 Identification and Correction of Plan Deficiencies

TBC shall establish action items and mitigation projects as required to address any plan deficiencies as they arise.

4.5.3.3 Equipment Monitoring and Auditing

See Section 4.3.6 Operational Practices above.

5. 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

6. Appendices

Appendix 1 – Wildfire Mitigation Strategies and Programs

Appendix 1 Wildfire Mitigation Strategies and Programs

Program/Strategy (§8386(c)(3))	Asset Addressed (§8386(c)(3))	Annual Cost (Capital v Expense)[17]	Costs Currently Reflected in Revenue Requirement (Provide Decision Reference)[18] (§8386(j))	Compliance Requirement? (Provide Code/GO Reference)[19]	Identify any Aspects of Plan/Strategy and Associated Funding That Is or Will Be Addressed in Another Case (Identify the Case) (§8386(j))	Identify Any Memorandum Accounts Where Costs of Program/Strategy Are Being Tracked and Explain How Double Tracking Is Prevented (§8386(j))	Previously included in RAMP? (§8386(c)(11))	Evaluation Metrics(s) (§8386(c)(4))	Assumptions Underlying Metric (§8386(c)(4))
OPERATIONAL MANAGEMENT									
Blocking Reclosers	N/A Note 1	$0	$0	N/A	None	N/A	Note 2	N/A	N/A
Fast-Curve Settings	N/A Note 3	$0	$0	N/A	None	N/A	Note 2	N/A	N/A
Sensitive Relay Settings	N/A Note 3	$0	$0	N/A	None	N/A	Note 2	N/A	N/A
Red Flag Warning Period	N/A Note 4	$0	$0	N/A	None	N/A	Note 2	N/A	N/A
Wildfire Infrastructure Protection Teams	N/A Note 4	$0	$0	N/A	None	N/A	Note 2	N/A	N/A
Others (list separately)									

[17] Scoping Memo at 4: “in evaluating the proposed plans the Commission may weigh the potential cost implications of measures proposed in the plans.”
[18] If for Only Part of Budget Identify the $ for that Part and Explain Part
[19] If for only Part of Budget Identify the $ for that Part and Explain Part that is Not Compliance.

Program/Strategy (§8386(c)(3))	Asset Addressed (§8386(c)(3))	Annual Cost (Capital v Expense)[17]	Costs Currently Reflected in Revenue Requirement (Provide Decision Reference)[18] (§8386(j))	Compliance Requirement? (Provide Code/GO Reference)[19]	Identify any Aspects of Plan/Strategy and Associated Funding That Is or Will Be Addressed in Another Case (Identify the Case) (§8386(j))	Identify Any Memorandum Accounts Where Costs of Program/Strategy Are Being Tracked and Explain How Double Tracking Is Prevented (§8386(j))	Previously included in RAMP? (§8386(c)(11))	Evaluation Metrics(s) (§8386(c)(4))	Assumptions Underlying Metric (§8386(c)(4))
PLANS FOR INSPECTIONS									
Conduct of Weekly Inspection of the Watch	Pittsburg Converter Substation Inspection Note 5	$0	$0	No	None	N/A	Note 2	N/A	N/A
Conduct of Weekly Inspection of the Watch	Potrero Converter Substation Inspection Note 5	$0	$0	No	None	N/A	Note 2	N/A	N/A
Monthly Inspection of Cable Infrastructure	Buried HVAC and HVDC Cables Inspection Note 5	$0	$0	No	None	N/A	Note 2	N/A	N/A
SYSTEM HARDENING									
Pole Loading	N/A Note 5	$0	$0	No	None	N/A	Note 2	N/A	N/A
Conductor	N/A Note 7	$0	$0	No	None	N/A	Note 2	N/A	N/A
Undergrounding	Note 7	$0	$0	No	None	N/A	Note 2	N/A	N/A
Others (list separately)									

Program/Strategy (§8386(c)(3))	Asset Addressed (§8386(c)(3))	Annual Cost (Capital v Expense)[17]	Costs Currently Reflected in Revenue Requirement (Provide Decision Reference)[18] (§8386(j))	Compliance Requirement? (Provide Code/GO Reference)[19]	Identify any Aspects of Plan/Strategy and Associated Funding That Is or Will Be Addressed in Another Case (Identify the Case) (§8386(j))	Identify Any Memorandum Accounts Where Costs of Program/Strategy Are Being Tracked and Explain How Double Tracking Is Prevented (§8386(j))	Previously included in RAMP? (§8386(c)(11))	Evaluation Metrics(s) (§8386(c)(4))	Assumptions Underlying Metric (§8386(c)(4))
VEGETATION MANAGEMENT									
Compliance Related Work (list each separately)	N/A Note 8	$0	$0	NERC FAC-003-4 Note 9	None	N/A	Note 2	N/A	N/A
List Programs Beyond Compliance (list each separately)	N/A Note 8	$0	$0	No	None	N/A	Note 2	N/A	N/A
SITUATIONAL AWARENESS									
Weather Stations	N/A Note 10	$0	$0	No	None	N/A	Note 2	N/A	N/A
Cameras	N/A Note 10	$0	$0	No	None	N/A	Note 2	N/A	N/A
Others (List separately)									

Notes:

1. TBC has no overhead lines so blocking reclosers would not be employed in TBC operations.
2. RAMP not applicable to TBC.
3. 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 within milliseconds which is comparable to fast-curve and sensitive relay settings.
4. TBC has no facilities or infrastructure in wildlands or WUI that would necessitate taking additional measures associated with Red Flag Warning Periods or maintaining Wildfire Infrastructure Protection Teams.
5. TBC inspects all land cable infrastructure on a no less than monthly basis and Converter Stations on a weekly basis as a matter of normal maintenance practice and not associated with a program specifically established to mitigate wildfires.

6. TBC has no overhead line supported by poles requiring pole loading assessments or upgrades.
7. TBC's transmission lines are all buried or submerged based on initial design and require no conductor hardening as a mitigant.
8. TBC has no overheads lines or infrastructure necessitating a VMP.
9. TBC submits quarterly reports to WECC indicating that a VMP is not required.
10. TBC has no facilities or infrastructure in wildlands or WUI that would necessitate establishing weather stations or cameras to provide SA regarding these areas. TBC maintains 24 hour surveillance cameras on the perimeter of its converter substation for security and operational oversight.