

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) REPORT
ON DATA COLLECTION FOR WILDFIRE
MITIGATIONS PLANS**

Lenneal Gardner

Principal Attorney
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

July 30, 2019

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) REPORT
ON DATA COLLECTION FOR WILDFIRE MITIGATIONS PLANS**

Trans Bay Cable LLC (U934-E) ("TBC") hereby files its Report on Data Collection for Wildfire Mitigations Plans (the "Report on Data Collection") pursuant to Ordering Paragraph No. 2 of California Public Utilities Commission's Guidance Decision on 2019 Wildfire Mitigation Plans Submitted Pursuant to Senate Bill 901 issued on June 3, 2019. TBC's Report on Data Collection is submitted as an Attachment to this filing.

Respectfully submitted,

TRANS BAY CABLE LLC

/s/ Lenneal K. Gardner

Lenneal K. Gardner

Principal Attorney

One Letterman Dr., C-5 Suite 100

San Francisco, CA 94129

Phone: (415) 291-2300

Facsimile: (415) 651-9500

Email: lenneal.gardner@transbaycable.com

July 30, 2019

ATTACHMENT

TRANS BAY CABLE LLC (U934-E)

Report on Data Collection for Wildfire Mitigation Plans

July 30, 2019



Trans Bay Cable LLC (U934-E)

TBC-REPORT-WMP-01

Data Collection for Wildfire Mitigation Plans

**Submitted Pursuant to California Public Utilities Commission Decision
19-05-036**

July 30, 2019

Table of Contents

1. Purpose	3
2. Background	3
3. Definitions	6
4. Data and Map Product Catalog	7
5. Data Dictionary	8
6. Fire Prevention Performance Metrics	10
7. Proposed Data Collection Initiatives	11
8. Proposed Data Collection Areas / Schedule	11
9. Data Availability	11
10. Consultations	12
11. References	12

List of Tables

Table 1 Data and Map Product Catalog	7
Table 2 Fire Mitigation Data Dictionary	8
Table 3 Geographic Shapefiles	9
Table 4 Fire Prevention Performance Metrics	10

List of Figures

Figure 1 Overview of TBC Facilities	4
Figure 2 Overview of TBC Facilities in Pittsburg	4
Figure 3 Map of Fire Risk Proximate to TBC Facilities	5

1. Purpose

This report is intended to meet the requirements specified in Ordering Paragraph 2 of the California Public Utilities Commission’s Decision No. 19-05-036 (See: Reference A) by providing specifications of the data sets and metrics Trans Bay Cable (TBC) proposes to use to for evaluating the effectiveness of the TBC Wildfire Mitigation Plan (WMP). Additionally, it provides TBC’s input regarding data acquisition, analysis, and management relevant to industry wildfire mitigation efforts derived from TBC’s operational experience.

2. Background

The key element of the TBC transmission system is a high voltage direct current (HVDC) cable running 53 miles from the Pittsburg Converter Station to the Potrero Converter Station located in San Francisco (see Figure 1 Overview of TBC Facilities). The Potrero Converter Station (not shown) is fully within the confines of the city of San Francisco and assessed as having minimal wildfire risk. The Pittsburg Converter Station (see Figure 2 Overview of TBC Facilities in Pittsburg) is located in an area of proximate vegetative fuels and is subject to a wildfire risk assessment. Due to the scale, scope, and nature of TBC’s operation, which occurs outside wildlands but proximate to a wildland urban interface (see Figure 3 Map of Fire Risk Proximate to TBC Facilities), the range of metrics applicable to TBC’s Wildfire Mitigation Plan are more limited in comparison to other utilities with substantially larger operating areas that do encompass wildlands. TBC also has no overhead lines, with the majority of all transmission elements of the system being either underground, underwater, or both. This precludes the necessity for a Vegetation Management Program as the opportunity for a bare conductor from TBC’s system to interact with vegetation is remote. In the alternative, TBC utilizes existent operational data, metrics, and practices to focus on general fire prevention and maintaining equipment integrity to preclude potential ignition events resulting from equipment derangement or misoperation. TBC also focuses on the risk of uncoordinated excavation that could damage underground cable infrastructure as a possible source of fire risk.

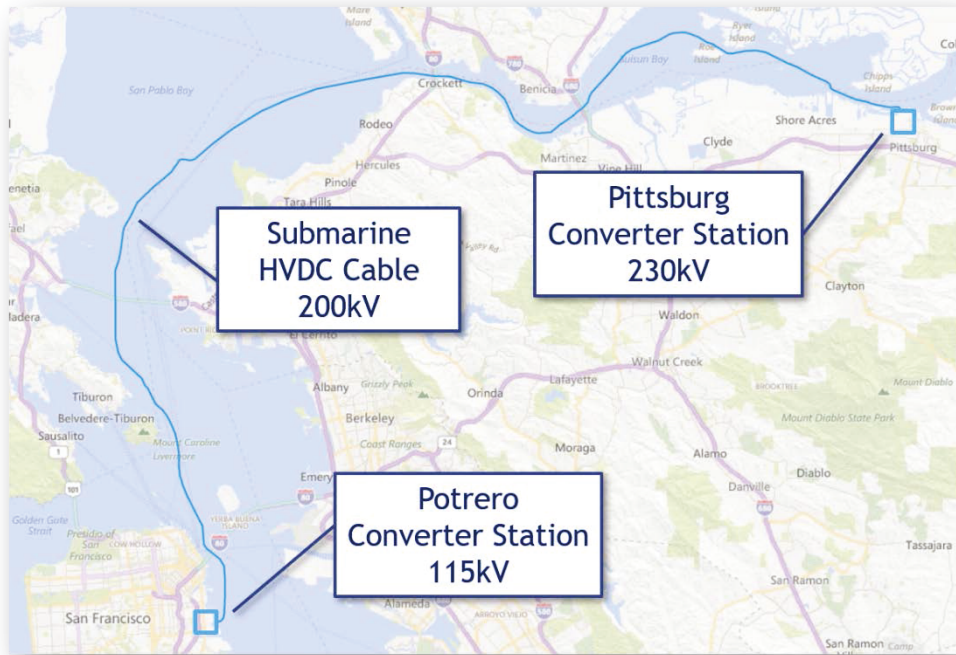


Figure 1 Overview of TBC Facilities

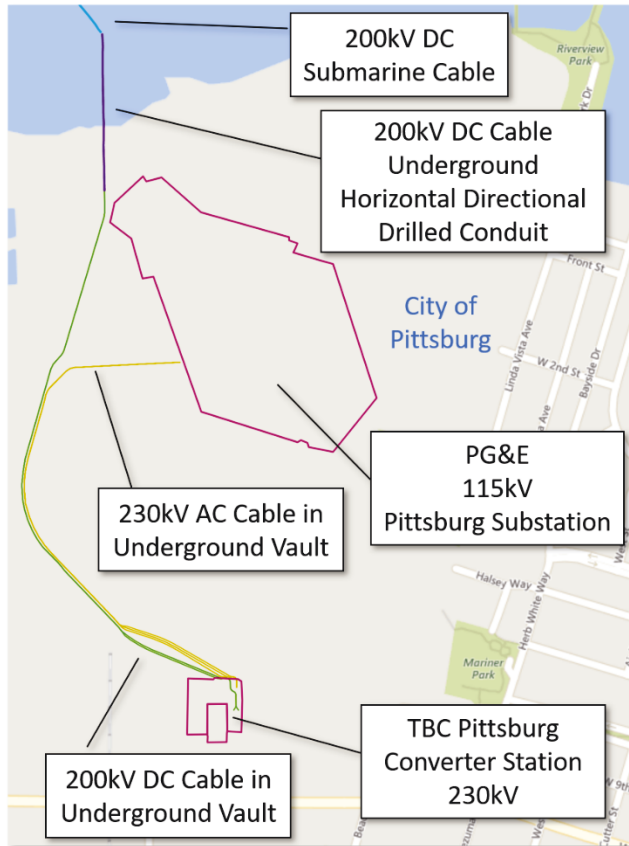


Figure 2 Overview of TBC Facilities in Pittsburg

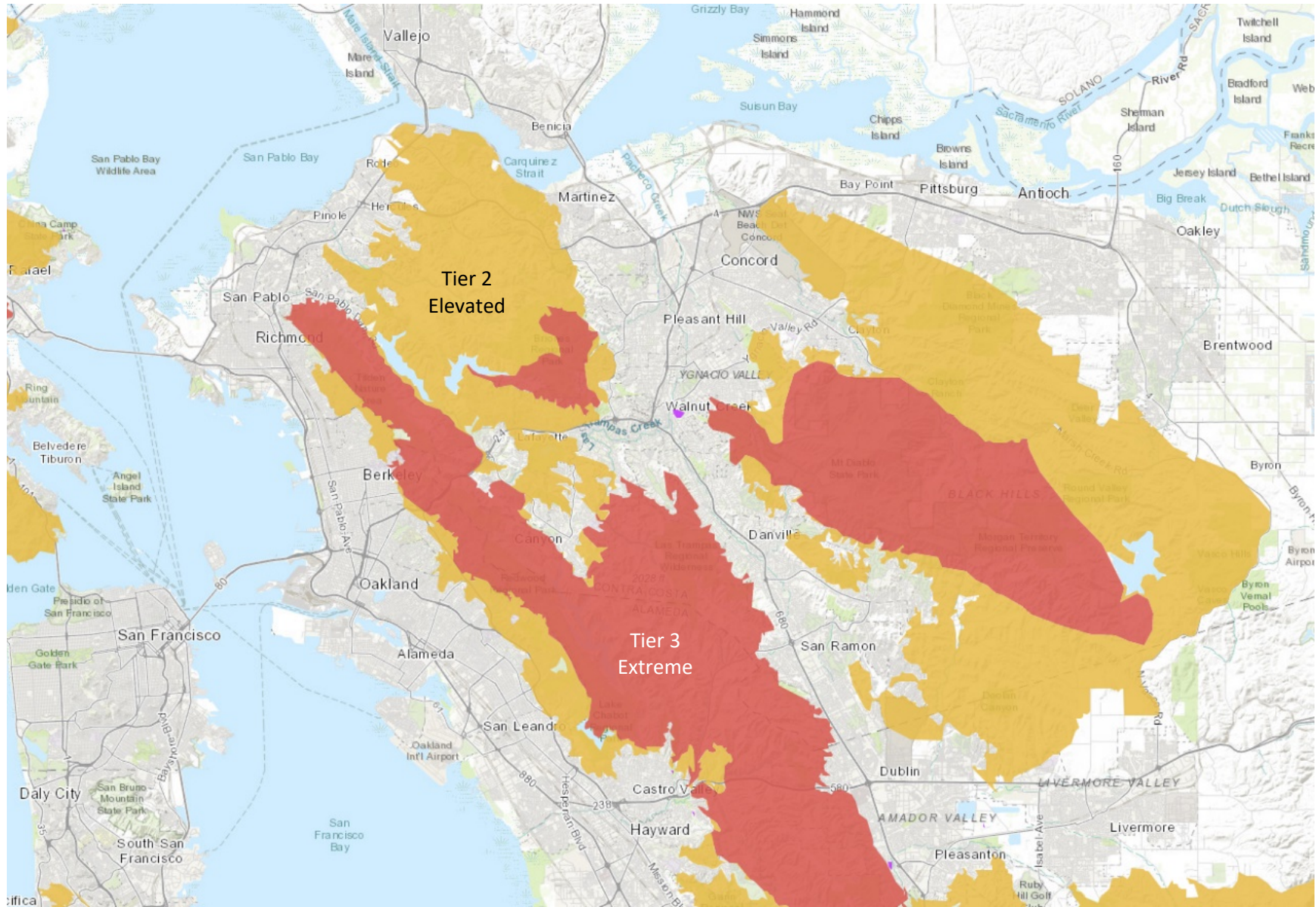


Figure 3 Map of Fire Risk Proximate to TBC Facilities

3. Definitions

All defined terms (capitalized) relevant to this report are defined below.

BES	Bulk Electric System
DAS	Distributed Acoustic System – An element of the real time cable monitoring system that provides position information along the cable that indicates increased vibrations that may be indicative of activity near the cable.
FHSZ	Fire Hazard Severity Zone
FRAP	Fire Resource and Assessment Program
HFTD	High Fire-Threat District
GIS	Geographic Information System
MODIS	Moderate Resolution Imaging Spectroradiometer – Imaging device aboard NASA satellites viewing the entire earth surface every 1 to 2 days. Acquiring data in 36 spectral bands. Provides near real-time imagery for environmental assessments.
PSPS	Public Safety Power Shutoff
USAN	Underground Service Alerts of Northern California
USDA	U.S. Department of Agriculture
VMP	Vegetation Management Program
WMP	Wildfire Mitigation Plan
WUI	Wildland Urban Interface

4. Data and Map Product Catalog

Table 1 below provides the listing, identification of, and description for all the data sets and map products that are relevant to TBC’s WMP.

Table 1 Data and Map Product Catalog

Assessment Area	Data Set / Map Item	Source	Update Periodicity	Description / URL
Fire Hazard	Fire Hazard Map	CalFire - FRAP	Annual	Provides FHSZ and Responsibility Area Data URL: egis.fire.ca.gov/FHSZ/
	Fire Threat Map	CPUC	Annual	Depicts areas where enhanced fire safety regulations will apply. URL: cpuc.ca.gov/firethreatmaps/
	MODIS Detected Fire Map	USDA Forest Service / NASA	Annual	Provides near real-time satellite based fire detection. URL: fsapps.nwcg.gov/afm/wms.php
	Historic Fire Perimeter Map	CalFire - FRAP	Annual	Provides historic locations of wildfires. frap.fire.ca.gov/mapping/gis-data/ Select Fire Perimeters.
Fire Response	Responsible Agency Map	CalFire - FRAP	Annual	Provides boundaries of areas of responsibilities for various agencies. URL: frap.fire.ca.gov/mapping/gis-data/ Select CAL FIRE State Responsibility Areas (SRA).
	Pittsburg, CA Fire Departments	FireDepartment.net	As Required	Provides information and mapping of fire department locations in the Contra Costa County Fire Protection District for the city of Pittsburg, CA. URL: firedepartment.net/directory/california/contra-costa-county/pittsburg
Facility Information	TBC Trac	TBC	As Required	Comprehensive proprietary geographic information system the has high precision position information for all TBC facilities and infrastructure. Includes features for identification and geo-plotting of excavation activities in operating area using live feed of USAN Service Alerts for awareness and de-confliction. See Table 2 Fire Mitigation Data Dictionary and Table 3 Geographic Shapefiles in the Data Dictionary section below.
Real-Time Monitoring	Site CCTV	TBC	Real-time	Array of cameras located throughout the site monitored 24/7 during operations by on-watch system operators and security staff.
	SCADA	TBC	Real-time	Provides situational awareness regarding outages and PSPS in the BES that may be indications of fire risks.

5. Data Dictionary

Table 2 below provides the data specification for data sets TBC maintains relevant to fire mitigation. Without a VMP TBC's data is primarily associated with underground excavation service alerts that if not properly de-conflicted could result in damage to underground cables which poses a potential fire risk.

Table 2 Fire Mitigation Data Dictionary

Table	Field	Data Type	Null Default	Description
Dig	requestTime	datetime	No	Date/time of dig request.
	ID	varchar(40)	No	Unique record identifier for service alert.
	TicketNumberToday	varchar(10)	No	USAN ticket number with update serial.
	MessageNumber	varchar(75)	No	USAN message number.
	Subject	varchar(100)	No	Brief description of the dig.
	Ticket	varchar(15)	No	USAN ticket number.
	Rev	varchar(3)	No	Revision of USAN message.
	Created	datetime	No	Date/time service alert generated.
	User	varchar(20)	No	User who generated the service alert.
	Channel	varchar(3)	No	USAN delimiter indicating
	WorkStart	datetime	No	Date excavation will commence.
	LegalStart	datetime	No	Legally defined date for excavation start.
	Expires	datetime	No	Date service alert expires.
	ResponseReqd	varchar(2)	No	Flag indicating if response is required.
	Priority	varchar(5)	No	Importance indicator.
	Remarks	varchar(200)	No	Free text for remarks with service alert.
	Company	varchar(45)	No	Company conducting excavation.
	Address	varchar(150)	No	Address of company.
	CreatedBy	varchar(31)	No	Company employee who input alert.
	Language	varchar(15)	No	Language of service alert.
	OfficePhone	varchar(20)	No	Company office phone point of contact.
	Cell	varchar(13)	No	Company cell phone point of contact.
	Email	varchar(80)	No	Company email point of contact.
	SiteContact	varchar(31)	No	Name of on-site contact for excavation.
	SitePhone	varchar(15)	No	Office phone of on-site contact.
	SiteCell	varchar(15)	No	Cell phone of on-site contact.
	SiteEmail	varchar(81)	No	Email of on-site contact.
	ExcavationState	varchar(3)	No	State in which excavation located.
	ExcavationCounty	varchar(16)	No	County in which excavation located.
	ExcavationPlace	varchar(50)	No	Brief location description of excavation.
	ExcavationZip	varchar(31)	No	Zip code of excavation location.
	ExcavationLocation	text	No	Verbose description of excavation.
	DelineatedMethod:	varchar(61)	No	Excavation marking method.
	WorkType	varchar(81)	No	Type of excavation (e.g. hand dig, etc.)
	WorkFor	varchar(45)	No	Entity for whom work is conducted.
	Permit	varchar(31)	No	Associated work permit.
WorkOrder	varchar(31)	No	Associated work order.	
NatureOfWork	varchar(100)	No	Type of work (e.g. trenching, sampling)	

Table	Field	Data Type	Null Default	Description
	StartLon	decimal(11,8)	No	Position specification of general area of location to identify proximate infrastructure.
	StartLat	decimal(11,8)	No	
	EndLon	decimal(11,8)	No	
	EndLat	decimal(11,8)	No	
	Coordinates	varchar(100)	No	Specific coordinates of excavation point.
	ExcavatorCoordinates	text	No	Free text for additional coordinates.
	MapLink	varchar(80)	No	Link to digital map.
	Comments	text	No	Free text for general comments.
	Approved	decimal(2,0)	No	Fields for documenting of TBC's operator and engineer review of service alert.
	Status	decimal(2,0)	No	
	ApprovedBy	varchar(45)	No	
	ApprovalUpdated	datetime	No	
	operatorComments	text	No	
engineerComments	text	No		

Table 3 below provides the GIS shapefiles TBC holds that provide position information regarding TBC and proximate infrastructure that provides situational awareness to aid in precluding uncoordinated excavation. The GIS files are limited to the area of the Pittsburg Converter Station as it is the only facility that has proximate vegetative fuels.

Table 3 Geographic Shapefiles

Shapefile Name	File Type	Description
TBC_CABLE_LANDING_SECTIONS	KMZ	Position data of sea to land cable transitions for high-voltage DC cable.
CABLE_CONDUIT_BURIAL_DEPTHS	KMZ	Burial depth data for sea to land cable transitions for high-voltage DC cable
TBC_HVDC_LAND_CABLE_PITTSBURG	KMZ	Position data for the underground high-voltage DC cable in Pittsburg.
TBC_HVDC_LAND_CABLE_PITTSBURG_BURIAL_DEPTHS	KMZ	Position data for the underground high-voltage DC cable in Pittsburg.
TBC_AC_LAND_CABLE_PITTSBURG	KMZ	Position data for the underground high-voltage AC cable in Pittsburg.
TBC_AC_LAND_CABLE_PITTSBURG_BURIAL_DEPTHS	KMZ	Position data for the underground high-voltage AC cable in Pittsburg.
CONVERTER_SUBSTATIONS	KMZ	Footprints of TBC Converter Stations and interconnected PG&E Substations
BUILDINGS_PITTSBURG	KMZ	Buildings associated with the Pittsburg Converter Station
UTILITIES_LAND	KMZ	Position data for underground utilities proximate to underground high-voltage AC and DC cables.

6. Fire Prevention Performance Metrics

Table 4 below provides the operational performance metrics for fire prevention for TBC.

Table 4 Fire Prevention Performance Metrics

Specification	Metric	Source	Frequency
No ignition incidents	0	Real-time monitoring	Real-time
Review of fire response with local responders	>=1	Fire Prevention Program	Biennial
Site inspection by EHS Manager	1	Velocity EHS Management System	Monthly
Site inspection to include fire hazards by Operator Staff	1	Weekly Inspection of the Watch	Weekly
High voltage arc events	0	Real-time monitoring	Real-time (controlled testing exempted)
Uncoordinated excavation incidents	0	TBC Trac / USAN	Real-time
Quarterly inspection of fire detection/suppression systems	1	Inspector Reports	Quarterly
Emergency Fire System Impairments	0	Fire System Impairment Documents	Real-time
Equipment Malfunction or Derangement Posing Fire Risk	0	Real-time monitoring	Real-time

7. Proposed Data Collection Initiatives

TBC has active projects to implement the following capabilities that provide improved awareness of operational conditions that aid in fire ignition monitoring and fire mitigation with associated data sets that will require future specification.

1. Installation of a real-time cable monitoring system that includes a Distributed Acoustic System (DAS) that would provide indication of excavation near underground cable runs allowing timely intervention to preclude damage and derangement that could pose a fire risk.
2. Installation of real-time transformer oil monitoring system that provides improved operational awareness of TBC's main transformers. A catastrophic fire in a main transformer is recognized as the event of greatest risk for initiating a conflagration that extends beyond TBC facilities.
3. Engagement of a third-party fire safety evaluator to provide "bottom up" review of fire protection and safety measures that will provide potential further areas of data collection.
4. TBC is undertaking seismic upgrades for the main transformers to mitigate derangement resulting from a seismic event. TBC is continuing to assess the viability of including seismic sensors as part of the upgrade.

8. Proposed Data Collection Areas / Schedule

TBC proposes that the following data areas be evaluated in the context of wildfire mitigation:

1. Identification and tracking of instances of uncoordinated excavation that resulted in a fault in underground transmission elements. Aggregation of data and assessment on an annual basis recommended.
2. Identification and tracking of instances of vehicle interactions with high voltage infrastructure with proximate vegetative fuels. Aggregation of data and assessment on an annual basis recommended.
3. Correlation of seismic events with misoperations, infrastructure derangement, or other impacts that increase fire risk. Aggregation of data and assessment on an annual basis recommended.
4. Routine comparative evaluation of fire risks posed by HVAC and HVDC systems. Aggregation of data and assessment on a biennial basis recommended.

9. Data Availability

TBC proposes to make our WMP supporting data and metrics available upon request to third-party researchers by establishing a request mechanism serviced through our public website,

www.transbaycable.com. This report and TBC's Data and Map Product Catalog shall be provided on the website to allow selection of data relevant to research effort. TBC shall make data available to third parties following receipt of a written request and execution of a Non-Disclosure Agreement. Requests may also be submitted in writing to the following contact address:

Trans Bay Cable LLC
Wildfire Mitigation Plan Data Request
One Letterman Drive, Suite C5-100
San Francisco, CA 94129

10. Consultations

Since TBC's submission of its Wildfire Mitigation Plan TBC has become an affiliate of Horizon West Transmission and Florida Power & Light Company ("FPL"). FPL presented at the Wildfire Technology Innovation Summit held on March 20-21, 2019. In the development of the metrics provided here, TBC had third-party consultation with its affiliates to ensure coherence and consistency of approach.

11. References

- Reference A – [Decision 19-05-036 CPUC Rulemaking 18-10-007 Guidance Decision on 2019 Wildfire Mitigation Plans Submitted Pursuant to Senate Bill 901 \(issued June 3, 2019\)](#)
- Reference B – [Decision 19-05-041 CPUC Rulemaking 18-10-007 Decision on Horizon West Transmission, LLC's and Trans Bay Cable LLC's 2019 Wildfire Mitigation Plans Pursuant to Senate Bill 901 \(issued June 3, 2019\)](#)
- Reference C – [CPUC Rulemaking 18-10-007 Assigned Commissioner and Administrative Law Judge's Ruling Launching Phase 2 of the Wildfire Mitigation Plan Proceeding \(issued June 14, 2019\)](#)