# Horizon West Transmission, LLC
# WILDFIRE MITIGATION PLAN 2022

*for Submittal to:*

**OFFICE OF ENERGY INFRASTRUCTURE SAFETY**
**WILDFIRE SAFETY DIVISION**
**CALIFORNIA NATURAL RESOURCES AGENCY**
715 P Street, 20th Floor
Sacramento, CA 95814


One California Street, Suite 1600
San Francisco, California 94111

MAY 2022

**TABLE OF CONTENTS**


**0 GLOSSARY OF DEFINED TERMS ..... 5**

**1 PERSONS RESPONSIBLE FOR EXECUTING THE WMP ..... 16**

1.1 Verification ..... 18

**2 ADHERENCE TO STATUTORY REQUIREMENTS ..... 19**

**3 ACTUALS AND PLANNED SPENDING FOR MITIGATION PLAN ..... 23**

**3.1** Summary of WMP initiative expenditures ..... 23

**3.2** Summary of ratepayer impact ..... 25

**4 LESSONS LEARNED AND RISK TRENDS ..... 27**

**4.1** Lessons Learned: how tracking metrics on the 2020 and 2021 plan has informed the 2022 plan update ..... 27

**4.2** Understanding major trends impacting ignition probability and wildfire consequence ..... 33

4.2.1 Service territory fire-threat evaluation and ignition risk trends ..... 35

**4.3** Change in ignition probability drivers ..... 38

**4.4** Research proposals and findings ..... 39

4.4.1 Research proposals ..... 39

4.4.2 Research findings ..... 40

**4.5** Model and metric calculation methodologies ..... 40

4.5.1 Additional models for ignition probability, wildfire and PSPS risk ..... 40

4.5.2 Calculation of key metrics ..... 42

**4.6** Progress reporting key areas of improvement ..... 44

**5 INPUTS TO THE PLAN AND DIRECTIONAL VISION FOR WMP ..... 47**

**5.1** Goal of Wildfire Mitigation Plan ..... 47

**5.2** The Objectives of the plan ..... 47

**5.3** Plan program targets ..... 49

**5.4** Planning for Workforce and Other Limited Resources ..... 51

5.4.1 Target role: Vegetation inspections ..... 53

5.4.2 Target role: Vegetation management projects ..... 53

5.4.3 Target role: Asset Inspections ..... 53

5.4.4 Target role: Grid hardening ..... 53

5.4.5 Target role: Risk event inspections ..... 54

**6 PERFORMANCE METRICS AND UNDERLYING DATA ..... 55**

**6.1** Recent performance on progress metrics, last 5 years ..... 55

**6.2** Recent performance on outcome metrics, annual, last 7 years ..... 55

**6.3** Description of additional metrics ..... 56

**6.4** Detailed information supporting outcome metrics ..... 56
**6.5** Mapping recent, modelled, and baseline conditions ..... 57
**6.6** Recent weather patterns, last 7 years ..... 57
**6.7** Recent and projected drivers of ignition probability ..... 57
**6.8** Baseline state of equipment and wildfire and PSPS event risk reduction plans ..... 58
6.8.1 Current baseline state of service territory and utility equipment ..... 58
6.8.2 Additions, removal, and upgrade of utility equipment by end of 3-year plan term ..... 58

**7 MITIGATION INITIATIVES ..... 60**
**7.1** Wildfire mitigation strategy ..... 60
**7.2** Wildfire Mitigation Plan implementation ..... 64
**7.3** Detailed wildfire mitigation programs ..... 65
7.3.1 Financial data on mitigation initiatives, by category ..... 68
7.3.2 Detailed information on mitigation initiatives by category and activity ..... 68

**8 PUBLIC SAFETY POWER SHUTOFF (PSPS) ..... 84**
**8.1** Directional Vision for Necessity of PSPS ..... 84
**8.2** Protocols on Public Safety Power Shut-off ..... 86
**8.3** Projected changes to PSPS impact ..... 88
**8.4** Engaging vulnerable communities ..... 88
**8.5** PSPS-specific metrics ..... 89
**8.6** Identification of frequently de-energized circuits ..... 89

**9 APPENDIX ..... 91**
**9.1** Definitions of initiative activities by category ..... 91
**9.2** Citations for relevant statutes, Commission directives, proceedings and orders ..... 104
**9.3** Covered Conductor Installation Reporting ..... 104
**9.4** Undergrounding Implementation Reporting ..... 105

**FIGURES AND TABLES**

Figure 1. Suncrest Project Vicinity Map ..... 14
Figure 2. Tier 3 HFTD near Alpine, CA ..... 15
Figure 3. CPUC Fire Threat Map ..... 27
Figure 4. Project Overview Map ..... 28
Figure 5. Smoke from Valley Fire Seen from Suncrest Facility On-site Camera ..... 29
Figure 6. Smoke from Valley Fire Seen from Suncrest Facility On-site Camera ..... 29
Figure 7. HWT's Suncrest Facility in Relation to the Valley Fire ..... 30
Figure 8. View of Road Fire © SDG&E Cameras ..... 30
Figure 9. Proximity of Road Fire to Suncrest Facility ©WIFIRE ..... 31
Figure 10. Wind Direction during Road Fire July 10, 2021 © WIFIRE ..... 31
Figure 11. FMEA Risk Assessment Process Cycle ..... 34
Figure 12. Suncrest Facility location on HFTD Map ..... 37

Table 2-1: Illustrative checklist ..... 19
Table 2- 2: Statutory Compliance Matrix ..... 19
Table 3.1-1: Summary of WMP Expenditures - Total ..... 24
Table 3.1-2: Summary of WMP Expenditures by Category (Spend in thousand $) ..... 25
Table 3.2-1: WMP Electricity cost increase to ratepayers ..... 26
Table 4.6- 1:Progress on Key Areas of Improvement and Remedies ..... 45
Table 5.3- 1: List and description of program targets, last 5 years ..... 51
Table 8.1-1: Anticipated characteristics of PSPS use over next 10 years ..... 85
Table 8.6-1: Frequently de-energized circuits ..... 90
Table 9-1: Definitions of initiative activities by category ..... 91

## ATTACHMENTS

**Attachment A (Confidential):** Persons Responsible for Executing the WMP

**Attachment B (Confidential):** HWT Wildfire Mitigation Condition Assessment Procedure

# 0 GLOSSARY OF DEFINED TERMS

| Term | Definition |
|---|---|
| **10-hour dead fuel moisture content** | Moisture content of small dead vegetation (e.g. grass, leaves, which burn quickly but not intensely), which can respond to changes in atmospheric moisture content within 10 hours. |
| **Access and functional needs populations** | Per Government Code § 8593.3 and D.19-05-042, individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency or who are non-English speaking, older adults, children, people living in institutionalized settings, or those who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or those who are pregnant. |
| **Authority Having Jurisdiction** | AHJ, party with assigned responsibility, depending on location and circumstance. |
| **Asset (utility)** | Electric lines, equipment, or supporting hardware. |
| **At-risk species** | Species of vegetation that have an elevated risk of (1) coming into contact with powerlines, (2) causing an outage or ignition, or (3) igniting easily whether due to inherent flammability characteristics or being in close proximity to potential arcing, sparks and/or other utility equipment thermal failures. |
| **Baseline (ignition probability, maturity)** | A measure, typically of the current state, to establish a starting point for comparison. |
| **Carbon dioxide equivalent** | Tons of greenhouse gases (GHG) emitted, multiplied by the global warming potential relative to carbon dioxide. |
| **Circuit mile** | The total length in miles of separate circuits regardless of the number of conductors used per circuit |
| **Contractor** | Any individual in the temporary and/or indirect employ of the utility whose limited hours and/or time-bound term of employment are not considered as “full-time” for tax and/or any other purposes. |
| **Critical facilities and infrastructure** | For brevity in the 2021 WMP, “critical facilitates and infrastructure” may be shortened to “critical infrastructure” and/or “critical facilities” throughout the WMP. Critical facilities and infrastructure is defined in accordance with the definition adopted in D.19-05-042 and modified in D.20-05-051: those facilities and infrastructure that are essential to the public safety and that require additional assistance and advance planning to ensure resiliency during de energization events. Namely:<br>• Emergency Services Sector<br>  ○ Police Stations<br>  ○ Fire Station<br>  ○ Emergency Operations Centers<br>  ○ Public safety answering points |

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

| Term | Definition |
|---|---|
| **Detailed inspection** | In accordance with GO 165, an inspection where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded. |
| **Enhanced inspection** | Inspection whose frequency and thoroughness exceeds the requirements of the detailed inspection, particularly if driven by risk calculations. |
| **Evacuation impact** | Number of people evacuated, with the duration for which they are evacuated, from homes and businesses, due to wildfires. |
| **Evacuation zone** | Areas designated by CAL FIRE and local fire agency evacuation orders, to include both "voluntary" and "mandatory" in addition to other orders such as "precautionary" and "immediate threat". |
| **Fire Season** | The time of year that wildfires are most likely to take place for a given geographic region due to historical weather conditions, vegetative characteristics, and impacts of climate change. Goals and targets which have milestones related to the onset, duration, or end of "fire season" or "height of fire season" must be accompanied with calendar dates. |
| **Frequently de-energized circuit** | A circuit which has been de-energized pursuant to a de-energization event to mitigate the risk of wildfire three or more times in a calendar year. |
| **Fuel density** | Mass of fuel (vegetation) per area which could combust in a wildfire. |
| **Fuel management** | Removing or thinning vegetation to reduce the potential rate of propagation or intensity of wildfires. |
| **Fuel moisture content** | Amount of moisture in a given mass of fuel (vegetation), measured as a percentage of its dry weight. |
| **Full-time employee** | Any individual in the ongoing and/or direct employ of the utility whose hours and/or term of employment are considered as "full-time" for tax and/or any other purposes. |
| **GO 95 nonconformance** | Condition of a utility asset that does not meet standards established by General Order 95. |
| **Greenhouse gas (GHG) emissions** | Health and Safety Code 38505 identifies seven greenhouse gases that ARB is responsible to monitor and regulate in order to reduce emissions: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF3). |
| **Grid hardening** | Actions (such as equipment upgrades, maintenance, and planning for more resilient infrastructure) taken in response to the risk of undesirable events (such as outages) or undesirable conditions of the electrical system in order to reduce or mitigate those events and conditions, informed by an assessment of the relevant risk drivers or factors. |

| Term | Definition |
|---|---|
| **Grid topology** | General design of an electric grid, whether looped or radial, with consequences for reliability and ability to support de-energization (e.g., being able to deliver electricity from an additional source). |
| **High Fire Threat District (HFTD)** | Per D.17-01-009, areas of the State designated by the CPUC and CAL FIRE to have elevated wildfire risk, indicating where utilities must take additional action (per GO 95, GO 165, and GO 166) to mitigate wildfire risk. |
| **Highly rural region** | In accordance with 38 CFR 17.701, "highly rural" shall be defined as those areas with a population of less than 7 persons per square mile. For the purposes of the WMP, "area" shall be defined as census tracts. |
| **High Wind Warning (HWW)** | Level of wind risk from weather conditions, as declared by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[1] |
| **HWW overhead (OH) Circuit Mile Day** | Sum of overhead circuit miles of utility grid subject to High Wind Warnings (HWW, as defined by the National Weather Service) each day within a given time period, calculated as the number of overhead circuit miles that were under an HWW multiplied by the number of days those miles were under said HWW. For example, if 100 overhead circuit miles were under an HWW for 1 day, and 10 of those miles were under HWW for an additional day, then the total HWW OH circuit mile days would be 110. |
| **Ignition probability** | The relative possibility that an ignition will occur, probability is quantified as a number between 0% and 100% (where 0% indicates impossibility and 100% indicates certainty). The higher the probability of an event, the more certainty there is that the event will occur. (Often informally referred to as likelihood or chance). |
| **Ignition-related deficiency** | Any condition which may result in ignition or has previously resulted in ignition, even if not during the past five years. |
| **Impact/consequence of ignitions** | The effect or outcome of a wildfire ignition, affecting objectives, which may be expressed by terms including, although not limited to health, safety, reliability, economic and/or environmental damage. |
| **Initiative** | Measure or activity proposed or in process designed to reduce the consequences and/or probability of wildfire or PSPS. |
| **Inspection protocol** | Documented procedures to be followed in order to validate that a piece of equipment is in good condition and expected to operate safely and effectively. |

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

| Term | Definition |
|---|---|
| **Invasive species** | Species that is: (1) non-native (or alien) to the ecosystem under consideration and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. |
| **Level 1 finding** | In accordance with GO 95, an immediate safety and/or reliability risk with high probability for significant impact. |
| **Level 2 finding** | In accordance with GO 95, a variable (non-immediate high to low) safety and/or reliability risk. |
| **Level 3 finding** | In accordance with GO 95, an acceptable safety and/or reliability risk. |
| **Life expectancy** | Anticipated years that a piece of equipment can be expected to meet safety and performance requirements. |
| **Limited English Proficiency (LEP)** | Populations with limited English working proficiency based on the International Language Roundtable scale. |
| **Line miles** | The number of miles of transmission and/or distribution line. Differs from circuit miles because individual circuits, such as the two circuits of a double-circuit line, are not counted separately in circuit miles but are counted as separate total miles of line. |
| **Live fuel moisture content** | Moisture content within living vegetation, which can retain water longer than dead fuel. |
| **Lost energy** | Energy that would have been delivered were it not for an outage. |
| **Major roads** | Interstate highways, U.S. highways, state and county routes. |
| **Match drop simulation** | Wildfire simulation method that takes an arbitrary ignition and forecasts propagation and consequence/impact. |
| **Member of the public** | Any individual not employed by the utility. |
| **Multi-attribute value function** | Risk calculation methodology introduced during CPUC's S-MAP and RAMP proceedings. |
| **Near miss** | Previously used to define an event with probability of ignition. Redefined under “Risk event.” |
| **Need for PSPS** | When utilities' criteria for utilizing PSPS are met. |
| **Noncompliant clearance** | Rights-of-way whose vegetation is not trimmed in accordance with the requirements of GO 95. |
| **Outages of the type that could ignite a wildfire** | Outages that, in the judgement of the utility, could have ignited a wildfire. |
| **Outcome metrics** | Measurements of the performance of the utility and its service territory in terms of both leading and lagging indicators of wildfire, PSPS, and other consequences of wildfire risk, including the potential unintended consequences of wildfire mitigation work, such as acreage burned by utility-ignited wildfire. |

| Term | Definition |
|---|---|
| **Overcapacity** | When the energy transmitted by utility equipment exceeds that of its nameplate capacity. |
| **Patrol inspection** | In accordance with GO 165, a simple visual inspection of applicable utility equipment and structures that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business. |
| **Percentile conditions** | Top X% of a particular set (e.g. wind speed), based on a historical data set with sufficient detail. For example, "Top 95 percentile wind speeds in the last 5 years" would refer to the 5% of avg daily wind speeds recorded by each weather station. If 1,000 weather stations recorded average daily wind speeds over 10 days, then the 95$^{th}$ percentile wind speed would be the top 5% of weather station-days. In this example, there will be 10 days each with 1,000 weather station reports and a total of 10,000 weather station-days, so 50 observations will be in the top 5%. The lowest wind speed in this top 5% would be the "95$^{th}$ percentile wind speed". |
| **Planned outage** | Electric outage announced ahead of time by the utility. |
| **Preventive maintenance (PM)** | The practice of maintaining equipment on a regular schedule, based on risk, elapsed time, run-time meter readings, or number of operations. The intent of PM is to "prevent" maintenance problems or failures before they take place by following routine and comprehensive maintenance procedures. The goal is to achieve fewer, shorter, and more predictable outages. |
| **Priority essential services** | Critical first responders, public safety partners, critical facilities and infrastructure, operators of telecommunications infrastructure, and water utilities/agencies. |
| **Program targets** | Quantifiable measurements of activity identified in WMPs and subsequent updates used to show progress towards reaching the objectives, such as number of trees trimmed or miles of power lines hardened. |
| **Progress metrics** | Measurements that track how much utility wildfire mitigation activity has changed the conditions of utility wildfire risk exposure or utility ability to manage wildfire risk exposure, in terms of leading indicators of ignition probability and wildfire consequences. |
| **Property** | Private and public property, buildings and structures, infrastructure, and other items of value that were destroyed by wildfire, including both third-party property and utility assets. |
| **Public Safety Power Shutoff (PSPS) event** | Defined as the time period from the first public safety partner notified of a planned public safety de-energization to the final customer re-energized. |

| Term | Definition |
|---|---|
| **PSPS risk** | The potential for the occurrence of a PSPS event expressed in terms of a combination of various outcomes of the event and their associated probabilities. |
| **PSPS weather** | Weather that exceeds a utility's risk threshold for initiating a PSPS. |
| **Red Flag Warning (RFW)** | Level of wildfire risk from weather conditions, as declared by the National Weather Service. For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[2] |
| **RFW Overhead (OH) Circuit Mile Day** | Sum of overhead circuit miles of utility grid subject to Red Flag Warning each day within a given time period, calculated as the number of overhead circuit miles that were under an RFW multiplied by the number of days those miles were under said RFW. For example, if 100 overhead circuit miles were under an RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW OH circuit mile days would be 110. |
| **Risk event** | An event with probability of ignition, including wires down, contacts with objects, line slap, events with evidence of heat generation, and other events that cause sparking or have the potential to cause ignition. The following risk events all qualify as risk event:<br>• Ignitions<br>• Outages not caused by vegetation<br>• Vegetation-caused outages<br>• Wire-down events<br>• Faults<br>• Other risk events with potential to cause ignitions |
| **Risk event simulation** | Simulation of what the consequence would have been of an ignition had it occurred. |
| **Risk-spend efficiency (RSE)** | An estimate of the cost-effectiveness of initiatives, calculated by dividing the mitigation risk reduction benefit by the mitigation cost estimate based on the full set of risk reduction benefits estimated from the incurred costs. For ongoing initiatives, the RSE can be calculated by determining the "marginal benefit" of additional spending in the ongoing initiative. For example, the RSE of an ongoing initiative could be calculated by dividing the mitigation risk reduction benefit from a 5% increase in spend by the cost associated with a 5% increase in spend. |
| **Rule** | Section of public utility code requiring a particular activity or establishing a particular threshold. |
| **Run-to-failure** | A maintenance approach that replaces equipment only when it fails. |

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

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

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

## EXECUTIVE SUMMARY

Horizon West Transmission (HWT) is a transmission-only utility with no end-use customers. HWT's transmission project, the Suncrest Facility, was placed into operation on February 29, 2020. The Suncrest Facility is located approximately 40 miles east of San Diego near the town of Alpine in San Diego County, California. The Suncrest Facility is a +300/-100 megavolt-ampere reactive (MVar) static var compensator (SVC) facility with a rated real power output of 0 MW, and nominal terminal voltage of 230 kV, and approximately one mile undergrounded 230 kV single-circuit transmission line, that collectively provide dynamic reactive power support at the existing San Diego Gas & Electric Company (SDG&E) Suncrest Substation, a 500/230 kV substation near Alpine, San Diego County, California.

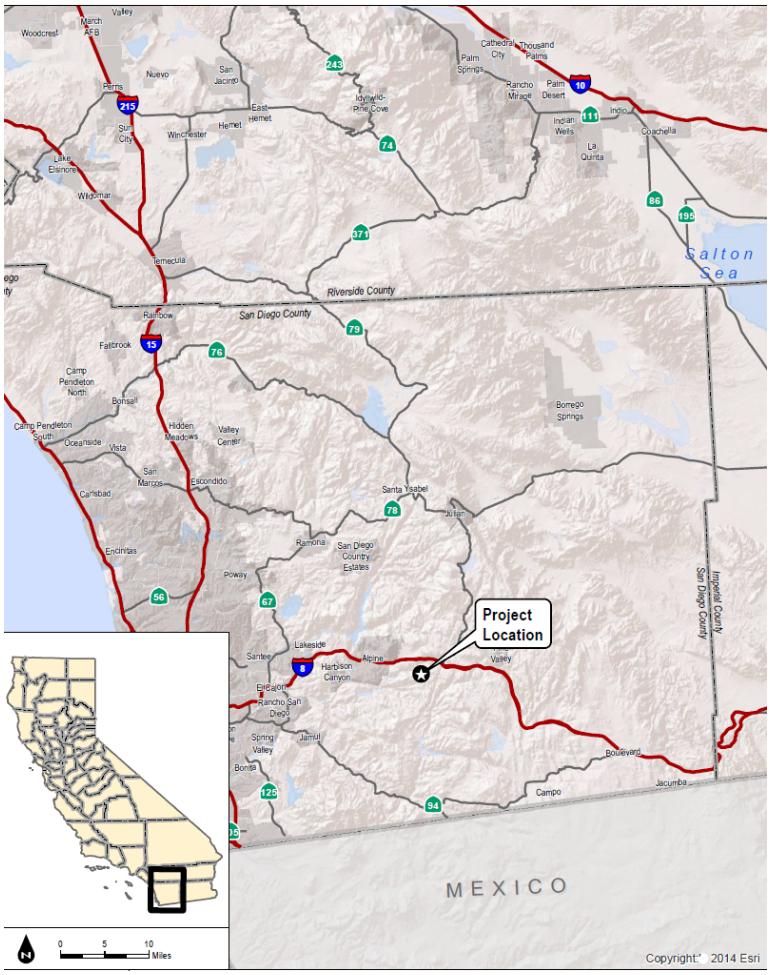


Figure 1. Suncrest Project Vicinity Map

The Suncrest Facility is in a completely rural area that is designated as a Tier 3 (Extreme) HFTD based on the California Public Utilities Commission's (CPUC or Commission) High Fire-Threat

District (HFTD") Map[3].

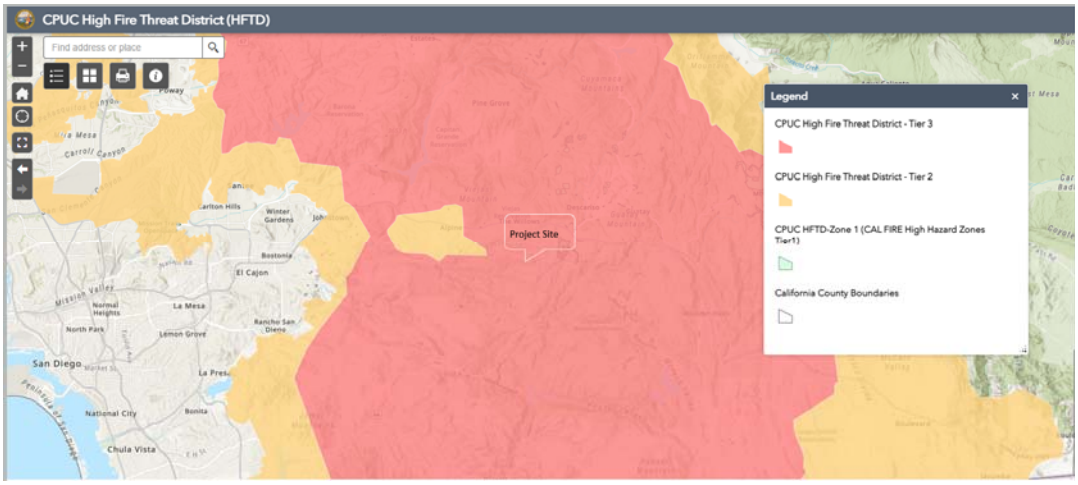


Figure 2. Tier 3 HFTD near Alpine, CA

In recent years, catastrophic wildfires in California have escalated in frequency and scope. Per California Department of Forestry and Fire Protection (CAL FIRE) an estimated 2.6 million acres and 3,629 structures were damaged or destroyed as a result of fire in 2021[4].

In 2021, there was only one fire within 5 miles from the Suncrest Facility. This was the Road Fire, which was contained within a week and burned 86 acres of wildlands[5]. In September of 2020, during Red Flag Warning conditions, the Valley Fire started a few miles away from the Suncrest Facility and rapidly spread to over 17,000 acres in under three days. The Valley Fire was within approximately four miles of the Suncrest Facility and, under different wind conditions, could have directly threatened the asset. While the cause of the Road Fire and Valley Fire was not linked to utility equipment, the magnitude and consistency of wildfire activity in California necessitate continued focus on wildfire mitigation to minimize risk of utility-caused wildfires.

Although HWT currently has a limited scope in California with one operational asset, the company is very focused on wildfire safety and is determined to have industry-leading wildfire mitigation capabilities. In 2021, HWT has made significant progress on its wildfire mitigation initiatives, implementing commitments in its 2021 CPUC-approved WMP to further harden the Suncrest Facility and minimize risk of utility-instigated ignitions.

HWT continues to learn and implement best practices in wildfire mitigation, as it accumulates operational experience with Suncrest and grows its footprint in California. HWT is committed to continuous improvement of its wildfire-related plans, systems, and processes and will include new wildfire-related initiatives in its future WMP submissions.

---

[3] CPUC FireMap – https://ia.cpuc.ca.gov/firemap/
[4] https://www.fire.ca.gov/incidents/2021/
[5] https://www.fire.ca.gov/incidents/2021/7/10/road-fire/

# 1 PERSONS RESPONSIBLE FOR EXECUTING THE WMP

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

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

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

**Executive-level owner with overall responsibility**

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A

**Program owners specific to each section of the plan**

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

**Section 1: Persons responsible for executing the plan**

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

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put "entire section"): Entire Section

**Section 2: Adherence to statutory requirements**

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

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put "entire section"): Entire Section

**Section 3: Actuals and planned spending**

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

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put "entire section"): Entire Section

**Section 4: Lessons learned and risk trends**

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

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A

[6] Text in blue italics are instructions, prompts, and clarifications from Final Attachment 2: 2022 Wildfire Mitigation Plan Update Guidelines Template from the Office of Energy Infrastructure Safety on December 15, 2021.

- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put “entire section”): Entire Section

**Section 5: Inputs to the plan and directional vision**

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

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put “entire section”): Entire Section

**Section 6: Metrics and underlying data**

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

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put “entire section”): Entire Section

**Section 7: Mitigation initiatives**

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

- Name and title: Jennifer Chaney, Director – NextEra Energy Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put “entire section”): Entire Section

**Section 8: Public Safety Power Shutoff**

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

- Name and title: Jennifer Chaney, Director – NextEra Energy Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put “entire section”): Entire Section

**Section 9: Appendix**

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

- Name and title: Alona Sias, President – Horizon West Transmission
- Email: Redacted, provided separately in Attachment A
- Phone number: Redacted, provided separately in Attachment A
- Component (if entire section, put “entire section”): Entire Section

## 1.1 Verification

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

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

Executed on May 6th, 2022.

At One California Street, Suite 1600, San Francisco 94111, California.

Alona Sias, President – Horizon West Transmission, LLC
(Signature and Title of Corporate Officer)

# 2 ADHERENCE TO STATUTORY REQUIREMENTS

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

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

**Table 2-1: Illustrative checklist**

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

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

**Table 2- 2: Statutory Compliance Matrix**

| Requirement | Description | WMP Section/Page |
|---|---|---|
| 1 | An accounting of the responsibilities of persons responsible for executing the plan | Section 1, pg.16-18 |
| 2 | The objectives of the plan | Section 5.2, pg. 47-49 |
| 3 | A description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks | Section 7, pgs. 60-65 |

| Requirement | Description | WMP Section/Page |
|---|---|---|
| 4 | A description of the metrics the electrical corporation plans to use to evaluate the plan's performance and the assumptions that underlie the use of those metrics | Section 6, pg. 55 |
| 5 | A discussion of how the application of previously identified metrics to previous plan performances has informed the plan | Section 4.1, pgs. 27-33 |
| 6 | Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety. As part of these protocols, each electrical corporation shall include protocols related to mitigating the public safety impacts of disabling reclosers and deenergizing portions of the electrical distribution system that consider the impacts on all of the aspects listed in PU Code 8386c | Section 8.2, pgs. 86-88 |
| 7 | Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines, including procedures for those customers receiving a medical baseline allowance as described in paragraph (6). The procedures shall direct notification to all public safety offices, critical first responders, health care facilities, and operators of telecommunications infrastructure with premises within the footprint of potential deenergization for a given event | Section 8, pg. 84-89 |
| 8 | Identification of circuits that have frequently been de-energized pursuant to a de-energization event to mitigate the risk of wildfire and the measures taken, or planned to be taken, by the electrical corporation to reduce the need for, and impact of, future de-energization of those circuits, including, but not limited to, the estimated annual decline in circuit de-energization and de-energization impact on customers, and replacing, hardening, or undergrounding any portion of the circuit or of upstream transmission or distribution lines | Section 8.6, pg. 89 |
| 9 | Plans for vegetation management | Section 5.4, pg. 51 |
| 10 | Plans for inspections of the electrical corporation's electrical infrastructure | Section 7.3, pg. 65-68 |

| Requirement | Description | WMP Section/Page |
|---|---|---|
| 11 | Protocols for the deenergization of the electrical corporation's transmission infrastructure, for instances when the deenergization may impact customers who, or entities that, are dependent upon the infrastructure | Section 8, pg. 84-88 |
| 12 | A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the electrical corporation's service territory, including all relevant wildfire risk and risk mitigation information that is part of the Safety Model Assessment Proceeding and the Risk Assessment Mitigation Phase filings | Section 4, pgs. 27-39 |
| 13 | A description of how the plan accounts for the wildfire risk identified in the electrical corporation's Risk Assessment Mitigation Phase filing | Section 4.2, pg. 33 |
| 14 | A description of the actions the electrical corporation will take to ensure its system will achieve the highest level of safety, reliability, and resiliency, and to ensure that its system is prepared for a major event, including hardening and modernizing its infrastructure with improved engineering, system design, standards, equipment, and facilities, such as undergrounding, insulation of distribution wires, and pole replacement | Section 4, pgs. 27-39; Section 5, pgs. 47-51; Section 7, pgs. 60-65 |
| 15 | A description of where and how the electrical corporation considered undergrounding electrical distribution lines within those areas of its service territory identified to have the highest wildfire risk in a commission fire threat map | Section 9.4, pgs. 105-106 |
| 16 | A showing that the electrical corporation has an adequately sized and trained workforce to promptly restore service after a major event, taking into account employees of other utilities pursuant to mutual aid agreements and employees of entities that have entered into contracts with the electrical corporation | Section 5.4, pgs. 51-54 |
| 17 | Identification of any geographic area in the electrical corporation's service territory that is a higher wildfire threat than is currently identified in a commission fire threat map, and where the commission should consider expanding the high fire threat district based on new information or changes in the environment | Section 4.2, pgs. 33-38 |

| Requirement | Description | WMP Section/Page |
|---|---|---|
| 18 | A methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk that is consistent with the methodology used by other electrical corporations unless the commission determines otherwise | Section 4.2, pgs. 33-38 |
| 19 | A description of how the plan is consistent with the electrical corporation's disaster and emergency preparedness plan prepared pursuant to Section 768.6, including plans to restore service and community outreach | Section 8, pg. 84-88 |
| 20 | A statement of how the electrical corporation will restore service after a wildfire | Section 8, pg. 84-88 |
| 21 | Protocols for compliance with requirements adopted by the commission regarding activities to support customers during and after a wildfire, outage reporting, support for low-income customers, billing adjustments, deposit waivers, extended payment plans, suspension of disconnection and nonpayment fees, repair processing and timing, access to electrical corporation representatives, and emergency communications | Section 8, pg. 84-88 |
| 22 | A description of the processes and procedures the electrical corporation will use to do the following:<br>(A) Monitor and audit the implementation of the plan.<br>(B) Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies.<br>(C) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules. | Section 7.2, pg. 64-68 |

# 3 ACTUALS AND PLANNED SPENDING FOR MITIGATION PLAN

## 3.1 Summary of WMP initiative expenditures

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

HWT is a transmission-only utility with no end-use customers. HWT's transmission project, the Suncrest Facility, was placed into operation on February 29, 2020. The Suncrest Facility is located near the town of Alpine in San Diego County, California, in an area that is designated as a Tier 3 (Extreme) HFTD based on the CPUC's Fire-Threat Map (See Figure 2). The Suncrest Facility is a +300/-100 Megavar (MVar) SVC facility with a rated real power output of 0 MW, and nominal terminal voltage of 230 kV, and an approximately one mile undergrounded 230 kV single-circuit transmission line, that collectively provide dynamic reactive power support at the existing SDG&E Suncrest Substation, a 500/230 kV substation near Alpine, San Diego County, California. HWT believes that Tier 3 (Extreme) Fire-Threat is an accurate designation for the location of the Suncrest Facility. Although, the Suncrest Facility has limited footprint, no overhead transmission lines, lack of surrounding vegetation, and fire prevention mitigation measures, HWT intends to meet all applicable requirements for the Suncrest Facility's Tier 3-related Fire Threat location, per D.17-12-024, and harden the asset to further reduce wildfire risk.

Since the start of commercial operations in 2020, at least four fires have occurred within just a few miles of the Suncrest Facility. As described in detail in Section 4.1, Lessons Learned and Risk Trends, one of these wildfires, the Valley Fire, started on September 5, 2020 during Red Flag Warning conditions and rapidly spread to over 17,000 acres by September 7, 2020. The Valley Fire approached the Suncrest Facility within approximately four miles and could have directly threatened the facility if the wind direction was towards the asset. As recently as July 2021, the Road Fire, occurred within 4 miles of the Suncrest Facility and burned approximately 86 acres.

Given the extreme wildfire risk conditions of the area where the Suncrest Facility is located and recent history of fast-spreading wildfires in San Diego County, HWT has pursued several wildfire mitigation initiatives detailed in Section 7 of this WMP to further harden the asset and reduce wildfire risk.

To inform appropriate wildfire hardening initiatives, HWT conducts an annual comprehensive assessment of equipment using a Failure Modes and Effects Analysis (FMEA). The FMEA considers

the potential failures from each HWT Facility component and assesses and prioritizes the potential risk, along with providing potential mitigations. In 2020, HWT commissioned a third-party wildfire assessment that (i) evaluated wildfire risk at the facility, (ii) modelled a hypothetical ignition event and associated wildfire propagation, and (iii) identified appropriate wildfire hardening improvements. The methodology and results of the FMEA and third-party wildfire mitigation assessment are further detailed in Sections 4 and 7 of this WMP.

The Table 3.1-1 below summarizes HWT's planned total spend on wildfire mitigation initiatives detailed in Section 7 of this WMP.

**Table 3.1-1: Summary of WMP Expenditures - Total**

| Year | Spend in thousands of $USD |
|---|---|
| **2020 WMP Planned** | 4,085 |
| **2020 Actual** | 4,632 |
| **2020 Difference** | 547 |
| **2021 Planned** | 9,575 |
| **2021 Actual** | 20,536 |
| **2021 Difference** | 10,691 |
| **2022 Planned** | 1,890 |
| **2020-22 Planned (w/ 2020 and 2021 Actual)** | 27,058 |

**Table 3.1-2: Summary of WMP Expenditures by Category (Spend in thousand $)**

| | 2020 | | | 2021 | | | 2022 | 2020-2022 Planned (w/ 2020 and 2021 Actuals) |
|---|---|---|---|---|---|---|---|---|
| **WMP Category** | **Planned** | **Actual** | **Δ** | **Planned** | **Actual** | **Δ** | **Planned** | |
| **Risk and Mapping** | 0 | 200 | 200 | 0 | 0 | 0 | 0 | 200 |
| **Situational Awareness** | 150 | 347 | 197 | 3,070 | 973 | (2,097) | 200 | 1,520 |
| **Grid Design and System Hardening** | 3,900 | 3,935 | 35 | 6,300 | 19,486 | 13,186 | 1,600 | 25,021 |
| **Asset Management and Inspections** | 35 | 80 | 45 | 100 | 43 | (57) | 50 | 173 |
| **Vegetation Management** | 0 | 0 | 0 | 35 | 0 | (35) | 0 | 0 |
| **Grid Operations** | 0 | 70 | 70 | 70 | 34 | (36) | 40 | 144 |
| **Data Governance** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Resource Allocation** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Emergency Planning** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Stakeholder Cooperation and Community Engagement** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **4,085** | **4,632** | **547** | **9,575** | **20,536** | **10,961** | **1,890** | **27,058** |

## 3.2 Summary of ratepayer impact

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

HWT is a transmission-only electrical corporation and public utility, that does not have retail customers and whose rates and cost recovery are regulated by the Federal Energy Regulatory Commission (FERC) and recovered exclusively through the California Independent System Operator Corporation's (CAISO) Transmission Access Charge (TAC). HWT has not had any utility-ignited wildfires. Moreover, the 2022 annual CAISO-wide revenue requirement that is collected through the TAC is $2.71 billion and thus the annual customer impact of HWT's wildfire mitigation activities given planned spend summarized in Table 3.1-1 would be de minimis. Therefore, Table 3.1-2 is not applicable and is intentionally provided with no ratepayer impact calculations.

**Table 3.2-1: WMP Electricity cost increase to ratepayers**

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

# 4 LESSONS LEARNED AND RISK TRENDS

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

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

As stated above, HWT currently has one operational asset, the Suncrest Facility, located near the town of Alpine in San Diego County, which became operational on February 29, 2020. Per its CPUC-approved 2020 and 2021 WMP, HWT implemented additional wildfire hardening measures at the Suncrest Facility in 2020 and 2021 to enhance situational awareness and reduce wildfire risk at the asset, including installation of a high-definition camera, a weather station, transformer oil gas monitoring, and a perimeter wall around the site. Figures 3 and 4 show the location of Suncrest project and components of the Suncrest Facility.

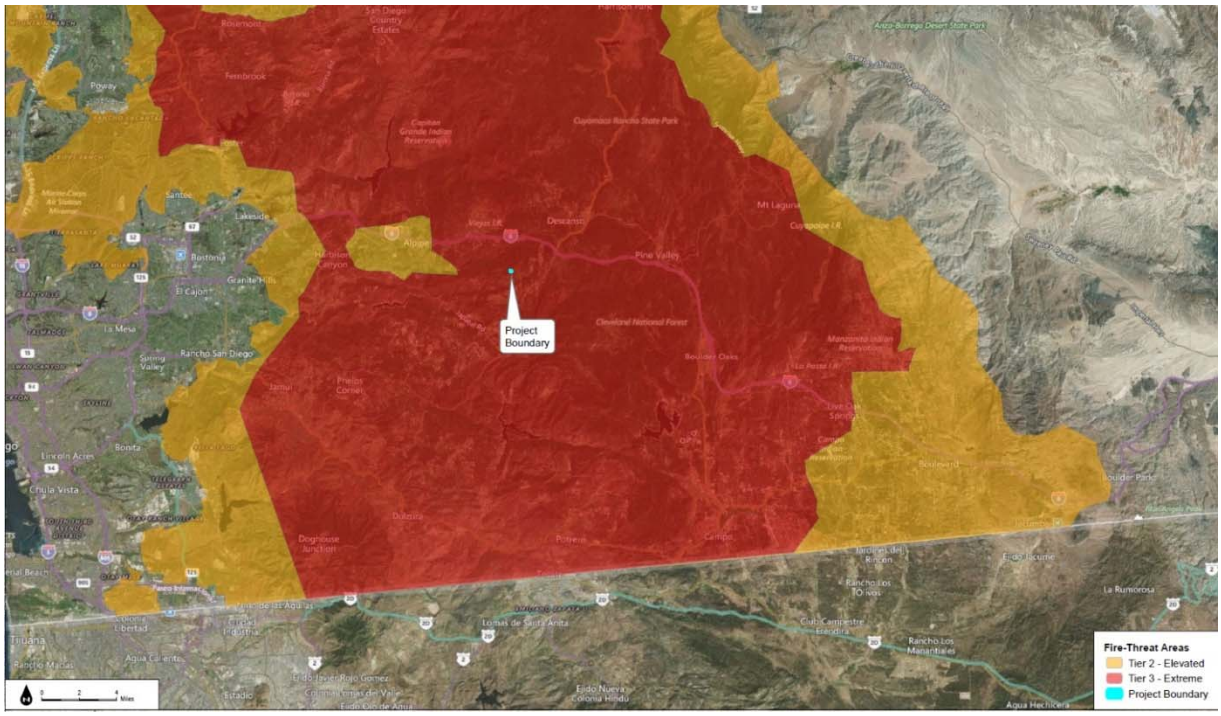


Figure 3. CPUC Fire Threat Map

Figure 4. Project Overview Map

As further detailed in Sections 5 and 6 of this WMP, HWT's fire prevention performance metrics are focused on reducing the potential for on-site ignitions that may spread to off-site vegetation. This approach has proven to be successful to date, as it focuses on leading indicators and prevention of ignition events by identifying, documenting, tracking, and monitoring the anticipated ignition sources with the highest potential for resulting in flame, sparks, arcs, heated material, or similar ignition conduits. This approach also offers the ability to track compliance trends over time, correct issues as they occur, and adapt metrics as conditions mandate. During 2021, there were no reportable on-site ignition events or near misses at the Suncrest Facility.

As stated above, during the first year of Suncrest's operation in 2020, at least three wildfires occurred in close proximity to the asset. The most significant was the Valley Fire which occurred on September 5, 2020 during a National Weather Service (NWS) Red Flag Warning (RFW). The Valley Fire was mostly contained by September 14, but not before consuming over 17,000 acres and coming within for miles of the Suncrest Facility. The facility could have been threatened if prevailing winds had change as the fire spread. During the event, HWT's Operations Team reviewed all relevant procedures and completed an onsite Wildfire Mitigation Assessment Figures 5-7 show smoke from Valley Fire seen from Suncrest's on-site camera and the Suncrest Substation in relation to the Valley Fire.

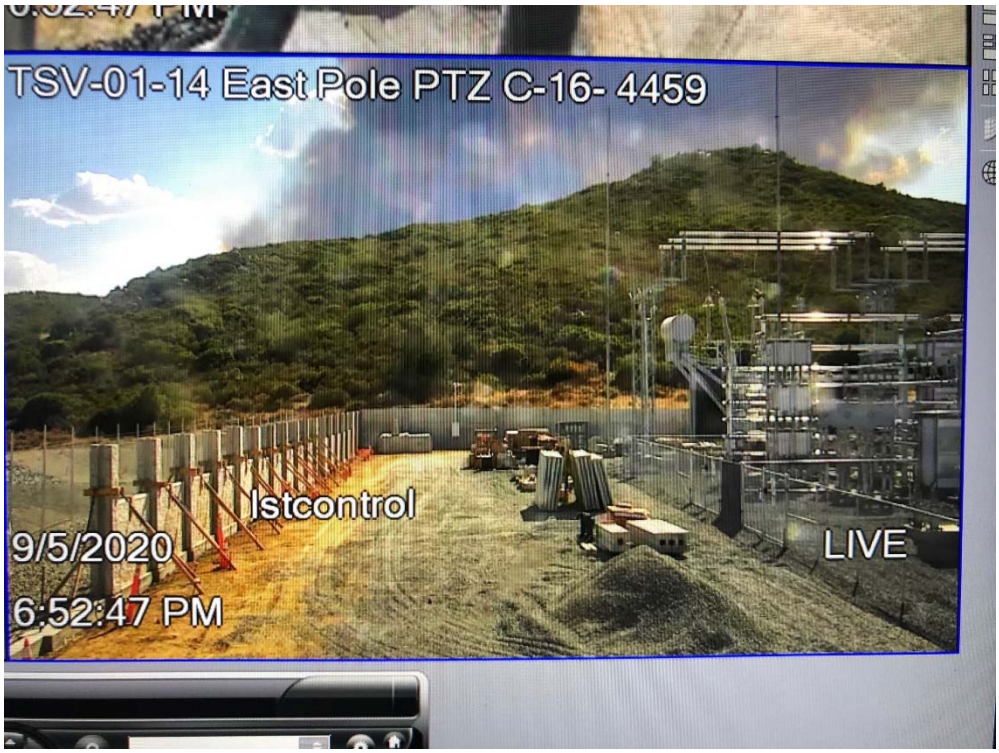


Figure 5. Smoke from Valley Fire Seen from Suncrest Facility On-site Camera


Figure 6. Smoke from Valley Fire Seen from Suncrest Facility On-site Camera

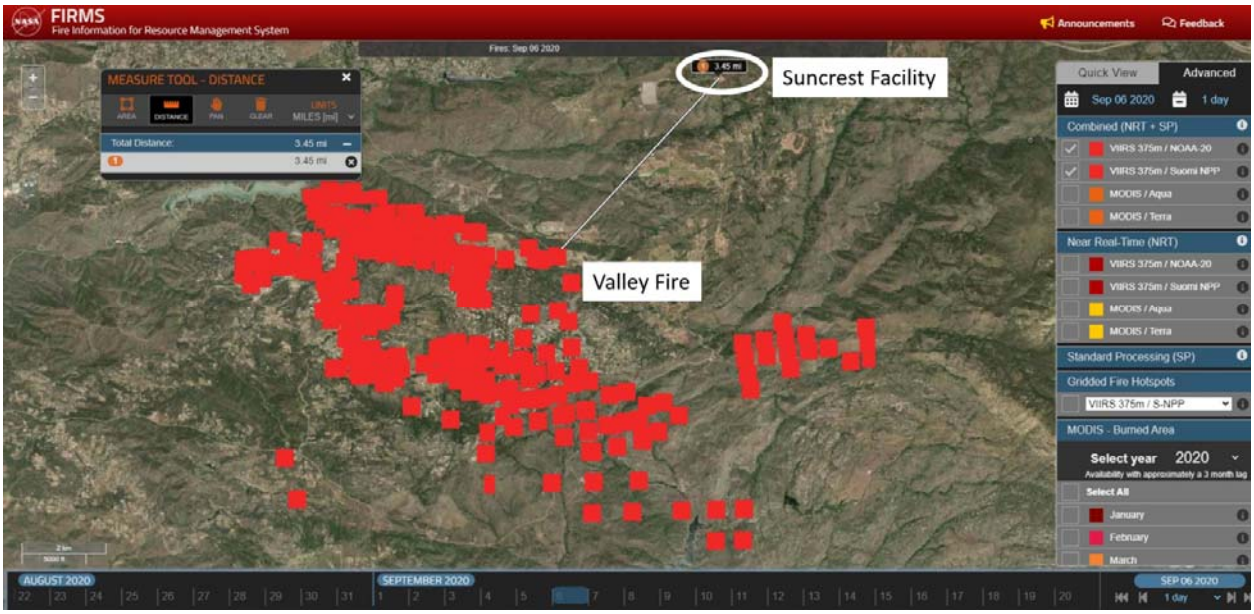


Figure 7**.** HWT's Suncrest Facility in Relation to the Valley Fire

HWT drew on this experience during the 2021 fire season to remain prepared and vigilant of fires within its service territory. In 2021, there was only one fire within 4 miles from the Suncrest Facility. This was the Road Fire which was contained within a week and burned 86 acres of wildlands[7]. Figures 8-10 show images of the Road Fire and its proximity to the Suncrest Facility.

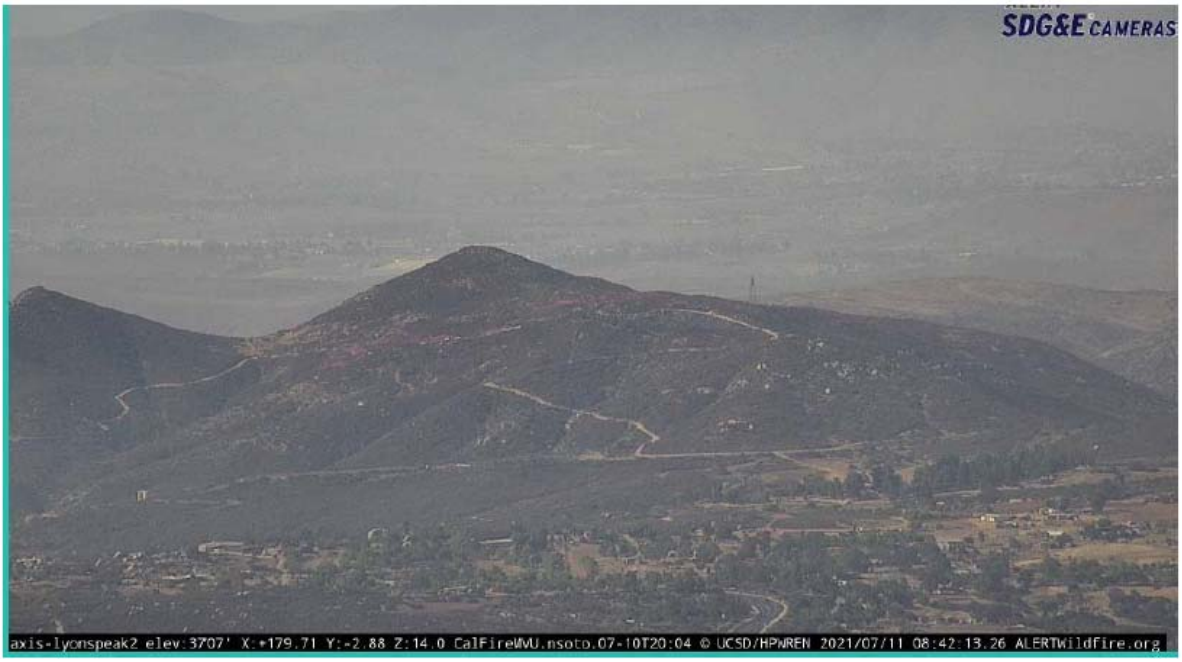


Figure 8. View of Road Fire © SDG&E Cameras

[7] https://www.fire.ca.gov/incidents/2021/7/10/road-fire/

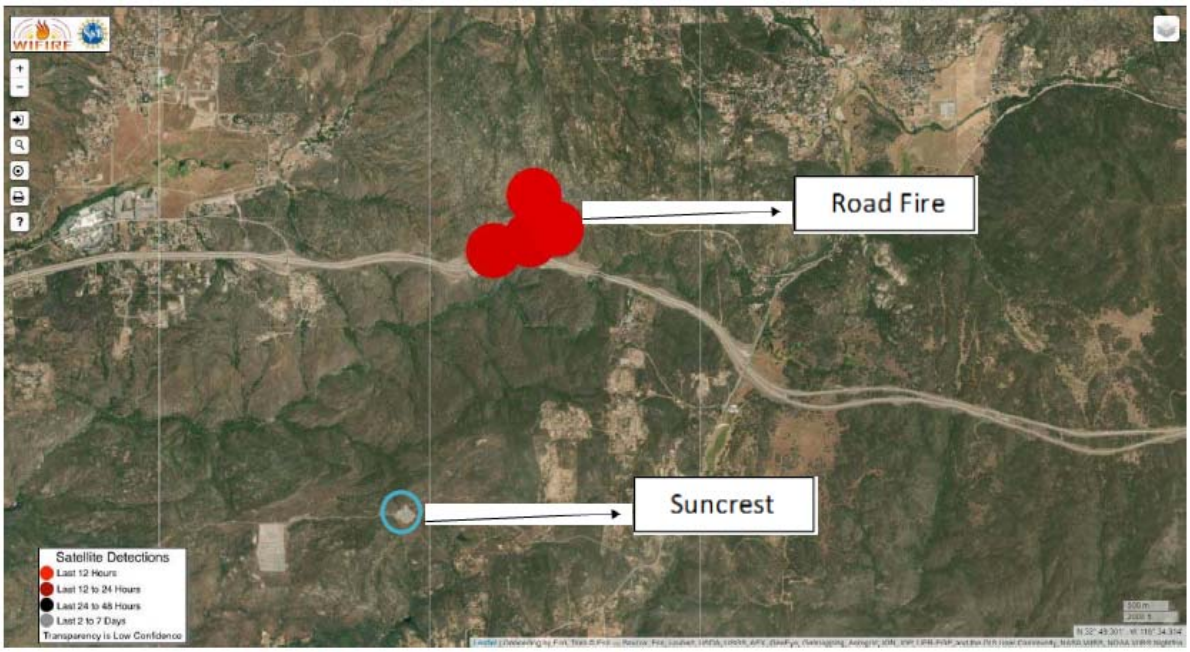


Figure 9. Proximity of Road Fire to Suncrest Facility ©WIFIRE

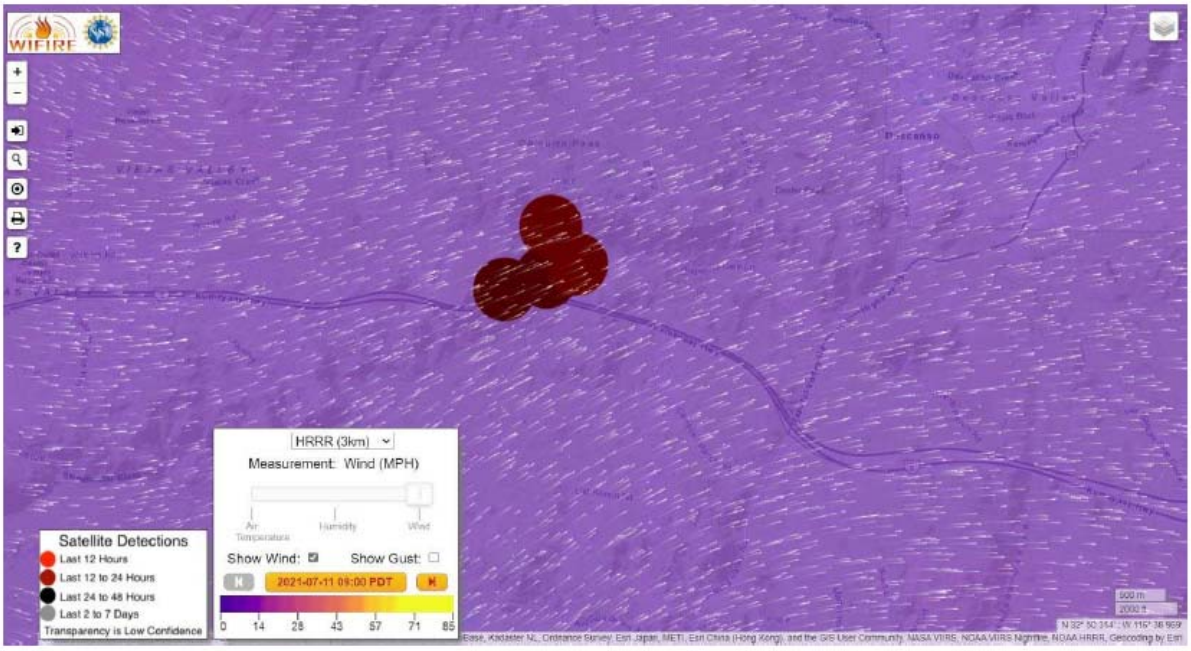


Figure 10. Wind Direction during Road Fire July 10, 2021 © WIFIRE

HWT is committed to continuous improvement of its wildfire-related systems, plans and procedures. After the Valley Fire was substantially contained and was no longer threatening the Suncrest Facility, HWT promptly reviewed the response to the wildfire to record lessons learned and further enhance its systems and processes. These lessons learned provide operations personnel with improved methods for monitoring and assessing subsequent wildfire related events, such as the 2021 Road Fire.

HWT identified the following lessons learned from the execution of its 2020 and 2021 WMP submissions and the Valley Fire and Road Fire experiences:

1. **Proactive asset inspections when RFW conditions are issued** – in addition to monthly inspections of the Suncrest Facility by designated Operations personnel, HWT conducts facility inspections ahead of extreme fire weather periods when NWS issues RFW for the area of the facility. Inspections are conducted by experienced and trained individuals, who document their findings and submit them to the NextEra Energy Transmission, LLC (NEET) Director of Operations and other appropriate personnel. Since CAL FIRE estimates that 90% of the acreage burned occurs from the 10% of the fires that coincide with RFW conditions, HWT will continue conducting proactive asset inspections ahead of RFW conditions to minimize the risk of ignitions at the Suncrest Facility. The inspections include general checks and measurements, visual inspections, general housekeeping, and vegetation control. As HWT completed undergrounding of its only span of overhead transmission line in Q3 2021, HWT foresees RFW conditions have a reduced impact on operations but those conditions will still be monitored for enhanced situational awareness.
2. **Wildfire modeling capabilities and real-time wildfire tracking** –During the Valley Fire, which rapidly grew in size during RFW conditions, approached within approximately four miles of the Suncrest Facility and could have directly threatened the asset under different wind conditions, the HWT Operations team monitored the asset 24/7 through the facility's remote sensors and monitors, on-site cameras, and third-party wildfire tracking tools. To enhance HWT's situational awareness and better inform operational decision-making during extreme fire weather events, HWT developed a proprietary fire risk index to determine real-time fire risk. Additionally, HWT is working to access third-party granular real-time wildfire tracking tools that utilize satellite data to monitor and track propagation of wildfires to help evaluate proximity of fires to HWT's assets and inform appropriate operational response if a wildfire was to approach and directly threaten HWT facilities.
3. **Additional cameras at the Suncrest Facility** – In 2021, HWT added an additional camera to enhance situational awareness at the Suncrest Facility and to observe any off-site ignitions and the propagation of surrounding wildfires to better inform real-time operational decision-making. As described above, during the Valley Fire, the HWT Operations team remotely monitored the site 24/7 and observed the propagation of the fire through its on-site camera, including propagation of smoke from the fire as seen in Figures 5 and 6. Such real-time situational awareness at the site is invaluable to the HWT Operations team to help inform real-time operational decision making depending on the progress of a fire. As a result, HWT elected to add another camera at the Suncrest SVC location to expand coverage of the surrounding area through remote cameras.
4. **Annual wildfire simulation** – HWT added an annual wildfire simulation to its wildfire mitigation procedures to be conducted in the spring/early summer ahead of increased frequency of RFW days in late summer and fall. During the Valley Fire, HWT has responded according to HWT's emergency operations plan as described above. To ensure that emergency operations procedures, protocols, and roles and responsibilities are top of mind for HWT's Operations and other key personnel, HWT now conducts an annual wildfire simulation at the Suncrest Facility in response to an on-site ignition event or an off-site wildfire event like the Valley Fire.

## 4.2 Understanding major trends impacting ignition probability and wildfire consequence

***Instructions:*** *Describe how the utility assesses wildfire risk in terms of ignition probability and estimated wildfire consequence, including use of Multi-Attribute Risk Score (MARS) and Multi-Attribute Value Function (MAVF) as in the Safety Model and Assessment Proceeding (S-MAP)[8] and Risk Assessment Mitigation Phase (RAMP), highlighting changes since the 2020 WMP report. Include description of how the utility distinguishes between these risks and the risks to safety and reliability. List and describe each "known local condition" that the utility monitors per GO 95, Rule 31.1, including how the condition is monitored and evaluated. In addition:*

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

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

With respect to the CPUC's Risk Assessment Mitigation Phase (RAMP) and Safety Model and Assessment Proceedings (S-MAP), HWT is a transmission-only electrical corporation and public utility whose rates and cost recovery are regulated exclusively by FERC. As such, HWT does not utilize RAMP or S-MAP. HWT uses an FMEA methodology to assess wildfire risk, which was used to inform wildfire mitigation measures identified and approved in HWT's 2021 WMP.

The FMEA conducted by HWT specifically focuses on identifying and mitigating wildfire risks by considering potential failure modes at the asset. Each component of the Suncrest Facility is evaluated for its potential for failure, the effects from a failure, what typically causes a failure, what controls are in place to detect and prevent failure, what actions are taken to reduce the

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

likelihood of failure and improve early detection, and who is responsible for implementing the improvement actions. The FMEA is a risk assessment method developed by NASA to identify potential failure modes, assess and prioritize the overall risk presented by each failure mode. Risks are identified and ranked along three dimensions:

- Occurrence (likelihood of an event taking place);
- Severity (degree of impact of an event once it occurs); and
- Detection (ability to know when an event has occurred).

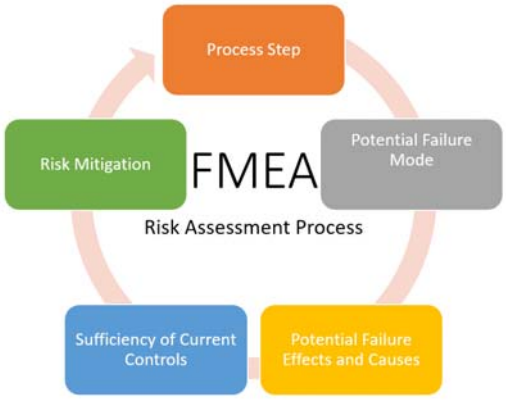


Figure 11. FMEA Risk Assessment Process Cycle

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

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

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

As mentioned above, HWT's operational asset, the Suncrest Facility, is located in Tier 3 (Extreme) HFTD. Besides that, there are no other "known local conditions" that HWT monitors per GO 95, Rule 31.1.

HWT regularly monitors for the contribution of weather to ignition probability and estimated wildfire consequence by leveraging SDG&E's Fire Potential Index (FPI) for its Suncrest Facility. SDG&E's FPI is uses a combination of weather parameters (wind speed, humidity, temperature), vegetation and fuel conditions, and other factors to judge current fire risk and to create a forecast indicative of fire risk. SDG&E's FPI and RFW alerts from NWS inform HWT's near-term operational decision-making. HWT's Operations Personnel and management get daily FPI notifications and are notified when NWS declares RFW conditions for the area of the Suncrest Facility. HWT is also utilizing its own proprietary FPI to further increase awareness of fire threat, monitor propagation of wildfires in real-time, and to help inform operations decision-making. When HWT is notified of forecasted RFW conditions, HWT's on-site personnel conduct a Wildfire Mitigation Condition Assessment of the facility ahead of RFW conditions, which includes general checks, visual inspections, general housekeeping, vegetation control, and a review of maintenance equipment. All non-critical construction and maintenance activities cease during RFW conditions and the asset is more closely monitored remotely by HWT's 24/7 Operations Center.

With respect to HWT's monitoring of contribution of fuel conditions to ignition probability and estimated wildfire consequences, there is very limited vegetation immediately around the Suncrest Facility, and the asset has hardscaped defensible space by design to reduce the need for vegetation management and potential contribution of surrounding vegetation as fuel for wildfire. Additionally, as further detailed in Section 7 of this WMP, HWT employs vegetation management strategies to remove all vegetation from within the perimeter wall area and maintain modified fuel zone outside the wall, resulting in a layered approach. Vegetation management included vegetation removal during grading and initial site construction within the fenced area and placement of rock and treatments with herbicide. Herbicide treatment and general weed and vegetation abatement occur as part of landscaping as necessary.

### 4.2.1 Service territory fire-threat evaluation and ignition risk trends

***Instructions:*** *Present a map of the highest risk areas identified within the current High Fire Threat District (HFTD) tiers of the utility's service territory as a figure in the WMP. Discuss fire threat evaluation of the service territory to determine whether a modification to the HFTD is warranted (i.e., expansion beyond existing Tier 2 and Tier 3 areas). If the utility believes there are areas in its service territory that are not currently included in the HFTD but require prioritization for mitigation efforts, then the utility is required to provide a process outlining the formal steps*

*necessary to have those areas considered for recognition in the CPUC-defined HFTD.[9] Include a discussion of any fire threat assessment of its service territory performed by the electrical corporation, highlighting any changes since prior WMP submissions. In the event that the utility's assessment determines the fire threat rating for any part of its service territory is insufficient (i.e., the actual fire threat is greater than what is indicated by the CPUC's Fire Threat Map and High Fire Threat District designations), the utility is required to identify those areas for potential HFTD modification, based on the new information or environmental changes, showing the differences on a map in the WMP. To the extent this identification relies upon a meteorological or climatological study, a thorough explanation and copy of the study must be included as an Appendix to the WMP.*

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

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

As mentioned above, HWT currently has one operational asset, the Suncrest Facility, which became operational on February 29, 2020. The Facility is located near the town of Alpine in San Diego County in an area that is designated as a Tier 3 (Extreme) HFTD based on the CPUC's Fire-Threat Map. Given the recent history of fast-spreading wildfires in the immediate proximity of the Suncrest Facility as described in Section 4.1, HWT believes that the current Tier 3 (extreme) Fire-Threat designation is appropriate for the area.

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

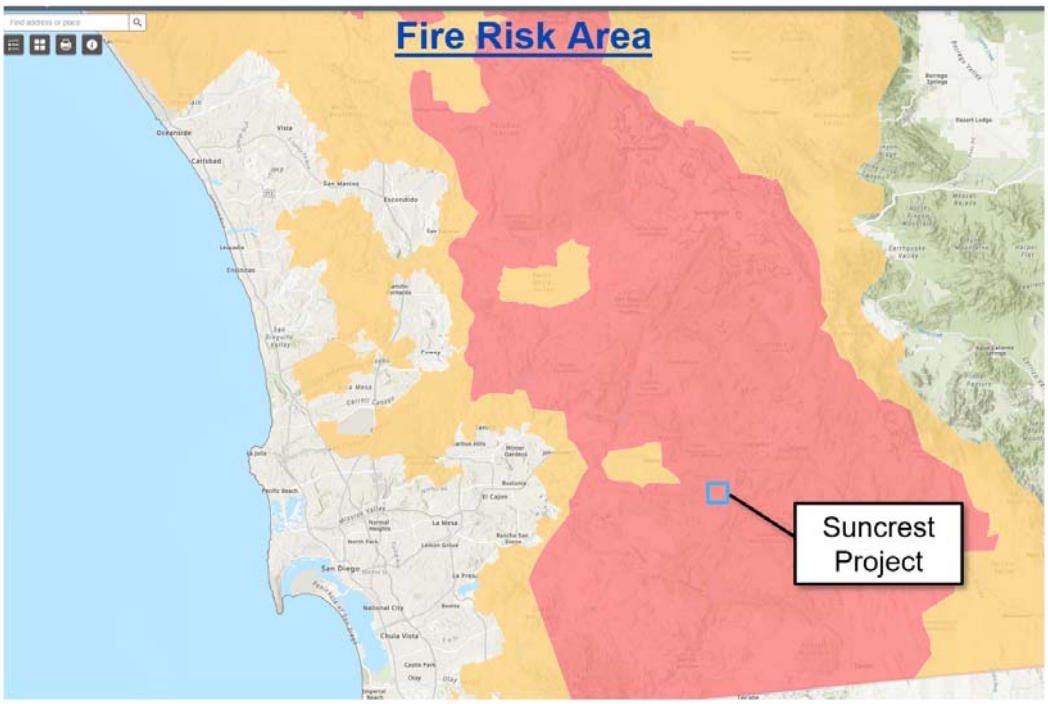

Figure 12. Suncrest Facility location on HFTD Map

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

In 2020, HWT has engaged a third party to conduct a fire threat assessment of the Suncrest Facility and the surrounding area to evaluate wildfire risk, model a hypothetical ignition event and associated wildfire propagation, and identify appropriate mitigation measures to be implemented at the Suncrest Facility. A brief discussion of fire threat assessment of Suncrest's territory is provided below.

The Suncrest Facility is in a rural part of eastern San Diego County (approximately 40 miles east of San Diego), in the foothills of the Cuyamaca and Laguna mountain ranges, just off Interstate 8. The site is situated among large open areas of vegetation with several rural communities nearby (*e.g.*, Descanso, Alpine, Viejas Indian Reservation, Pine Valley). The surrounding area of the Facility has a history of wildfires, with more than 30 wildland fires of 300 acres or more having been recorded in the past 80 years according to CAL FIRE. The last wildland fires of historic significance in the vicinity were the 2020 Valley Fire that burned ~17,700 acres; 2018 West Fire that burned 505 acres; the 2003 Cedar Fire, ~280,000 acres; the 2001 Viejas Fire, ~10,438 acres; and the 1970 Laguna Fire, ~174,000 acres. In the greater area surrounding the substation (~39 sq. mi.), there are approximately 23,976 acres of natural vegetation (~95% of the area). This primarily consists of mixed chaparral (~55.6%) and chemise-redshank chaparral (~21.6%), with relatively smaller amounts of grasslands, coastal oakwood, coastal scrub, valley foothill riparian and mixed hardwood. The remaining area (approximately 5%) is developed and/or urban lands.

Based on the local environmental setting at the Suncrest Facility, a wildland fire risk assessment was conducted for the facility site and area surrounding the substation. The assessment was based on the latest in wildland fire behavior modelling and took into consideration the interaction of key influencing factors: fuel, topography and weather. The assessment was tailored to the environmental factors at the Facility and modeled a hypothetical ignition event under 97th percentile weather conditions to understand potential outcomes under extreme conditions, and produced typical flame lengths, speed of wildfire propagation, fire intensity, wildfire spotting behavior, and fire spread probability distribution.

The fire threat assessment of service territory around the Suncrest Facility concluded that the facility is situated in a fire environment that poses a high risk, driven by the following factors:

- **Fire environment** – Steep terrain, continuous fuels, and hot, dry weather are common features of the fire environment. These elements all contribute to rapid fire spread.
- **Continuous fuels** – Fuels are continuous near the substation and even with a significant recent fire history, fuels remain continuous enough to support large fire growth.
- **Fuels can support high fire intensity** – The fuels surrounding the substation are predominately grass, grass-shrub and shrub dominated. When burning under 97th percentile weather conditions, these fuels produce flame lengths that limit firefighters' ability to attack the flaming front of a fire successfully.

The Valley Fire, which started a few miles south of the Suncrest Facility on September 5, 2020 during RFW conditions, behaved in line with the findings of the fire threat assessment described above, rapidly spreading to over 17,000 acres in just two days.

Regarding change in ignition probability and estimated wildfire consequence due to climate change, 2020 was a record-breaking wildfire year in California, with one of the hottest summers on record, well below normal rainfall, and seven RFW alerts lasting 18 days in total for the area of the Suncrest Facility. While 2021 saw less extreme weather, the site experienced 170 days of elevated fire potential index, and the occurrence of one fire with a 3 mile proximity of the Suncrest Facility. Unprecedented weather conditions and resulting wildfire consequences continue to occur and are most likely at least in part due to climate change.

In terms of other macro trends impacting ignition probability, given HWT's limited scale and operational experience at Suncrest so far, HWT has not yet observed any additional macro trends impacting ignition probability at the Suncrest Facility. HWT will continue to evaluate changes in ignition probability drivers as it accumulates operational experience with its facilities.

## 4.3 Change in ignition probability drivers

***Instructions:*** *Based on the implementation of the above wildfire mitigation initiatives, explain how the utility sees its ignition probability drivers evolving over the 3-year term of the WMP, highlighting any changes since the 2021 WMP report. Focus on ignition probability and estimated wildfire consequence reduction by ignition probability driver, detailed risk driver, and include a description of how the utility expects to see incidents evolve over the same period,*

*both in total number (of occurrence of a given incident type, whether resulting in an ignition or not) and in likelihood of causing an ignition by type. Outline methodology for determining ignition probability from events, including data used to determine likelihood of ignition probability, such as past ignition events, number of risk events, and description of events (including vegetation and equipment condition).*

HWT conducts risk analysis and identification of risk drivers regarding wildfires in the context of proximity to high fire-risk areas, existence of vegetative fuels, nature and location of its transmission assets, and the effectiveness of implemented mitigants. As stated in Section 4.2, HWT's Suncrest Facility is located in a Tier 3 (Extreme) HFTD and HWT determines ignition probability drivers through use of annual FMEA and third-party wildfire mitigation assessment. HWT wildfire mitigation strategy focuses on minimizing the likelihood of utility-caused ignitions and reducing negative impact from an ignition should one occur.

HWT has integrated significant hardening into the design and construction of the Suncrest Facility and further hardened the site in 2021, given its results of FMEA, third-party wildfire assessment, and its recent experience with fast-spreading wildfires in the proximity of the asset's location. HWT has no historical ignition probability driver, risk driver, near miss, or ignition data upon which to evaluate or project the likelihood of ignition probability evolution. Since Suncrest Facility went into service on February 29, 2020, there have been no reportable on-site ignitions or near misses / risk events. HWT will continue to evaluate changes in ignition probability drivers as it accumulates operational experience with its facilities.

## 4.4 Research proposals and findings

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

### 4.4.1 Research proposals

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

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

Due to the limited scale and scope of HWT's operations, HWT does not engage in utility-sponsored research relevant to wildfires. However, HWT does attend CPUC-sponsored workshops that highlight ongoing research and studies to learn and integrate best practices relevant to wildfire mitigation. For example, HWT learned about the latest wildfire modeling capabilities and vendors through one of the CPUC workshops and utilized that information in the advancing the subsequent development of its proprietary fire index supports enhanced situational awareness for HWT's current and future assets.

HWT will continue to monitor industry developments and emerging wildfire-related technologies and will evaluate their addition to HWT's wildfire mitigation plan.

### 4.4.2 Research findings

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

1. ***Purpose of research*** *– Brief summary of context and goals of research*
2. ***Relevant terms*** *- Definitions of relevant terms (e.g., defining "enhanced vegetation management" for research on enhanced vegetation management)*
3. ***Data elements*** *- Details of data elements used for analysis, including scope and granularity of data in time and location (i.e., date range, reporting frequency and spatial granularity for each data element, see example table above)*
4. ***Methodology*** *- Methodology for analysis, including list of analyses to perform; section must include statistical models, equations, etc. behind analyses*
5. ***Timeline*** *- Project timeline and reporting frequency to the Office of Energy Infrastructure Safety. Include any changes to timeline since last update*
6. ***Results and discussion*** *– Findings and discussion based on findings, highlighting new results and changes to conclusions since last update*
7. ***Follow-up planned*** *– Follow up research or action planned as a result of the research*

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

## 4.5 Model and metric calculation methodologies

### 4.5.1 Additional models for ignition probability, wildfire and PSPS risk

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

*accuracy, output (e.g., windspeed model) and applications of model in WMP (e.g., in selection of mitigations, decision-making).*

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

1. ***Purpose of model** – Brief summary of context and goals of model*
2. ***Relevant terms** - Definitions of relevant terms (e.g., defining "enhanced vegetation management" for a model on vegetation-related ignitions)*
3. ***Data elements** - Details of data elements used for analysis. Including at the minimum the following:*
    a. *Scope and granularity (or, resolution) of data in time and location (i.e., date range, spatial granularity for each data element, see example table above)*
    b. *Explain the frequency of data updates*
    c. *Sources of data. Explain in detail measurement approaches.*
    d. *Explain in detail approaches used to verify data quality.*
    e. *Characteristics of the data (field definitions / schema, uncertainties, acquisition frequency).*
    f. *Describe any process used to modify the data (such as adjusting vegetative fuel models for wildfire spread based on prior history and vegetation growth*
4. ***Modeling assumptions and limitations** – Details of each modeling assumption, its technical basis, and the resulting limitations of the model*
5. ***Modeling methodology** – Details of the modeling methodology. Including at minimum the following:*
    a. *Model equations and functions*
    b. *Any additional input from Subject Matter Experts (SME) input*
    c. *Any statistical analysis or additional algorithms used to obtain output*
    d. *Details on the automation process for automated models.*
6. ***Model uncertainty** – Details of the uncertainty associated with the model. This must include uncertainty related to the fundamental formulation of the model as well as due to uncertainty in model input parameters.*
7. ***Model verification and validation –** Details of the efforts undertaken to verify and validate the model performance. Including at minimum the following:*
    a. *Documentation describing the verification basis of the model, demonstrating that the software is correctly solving the equations described in the technical approach.*
    b. *Documentation describing the validation basis of the model, demonstrating the extent to which model predictions agree with real-world observations.*
8. ***Modeling frequency** – Details on how often the model is run (for example, quarterly to support risk planning versus daily to support on-going risk assessments).*
9. ***Timeline for model development –** Model initiation and development progress over time. If updated in last WMP, provide update to changes since prior report.*

10. ***Application and results*** *– Explain where the model has been applied, how it has informed decisions, and any metrics or information on model accuracy and effectiveness collected in the prior year.*
11. ***Key improvements from working group*** *– For each model, describe changes which have been implemented as a result of wildfire risk modeling working group discussions. Provide a high-level summary of recommendations from the wildfire risk modeling working group.*

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

### 4.5.2 Calculation of key metrics

***Instructions:*** *Report details on the calculation of the metrics below. For each metric, a standard definition is provided with statute cited where relevant. The utility must follow the definition provided and detail the procedure they used to calculate the metric values aligned with these definitions. Utilities must cite all data sources used in calculating the metrics below.*

1. ***Red Flag Warning overhead circuit mile days*** *– Detail the steps to calculate the annual number of red flag warning (RFW) overhead (OH) circuit mile days. Calculated as the number of circuit miles that were under an RFW multiplied by the number of days those miles were under said RFW. Refer to Red Flag Warnings as issued by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[10] Detail the steps used to determine if an overhead circuit mile was under a Red Flag Warning, providing an example of how the RFW OH circuit mile days were calculated for a Red Flag Warning that occurred within utility territory over the last five years.*
2. ***High Wind Warning overhead circuit mile days*** *– Detail the steps used to calculate the annual number of High Wind Warning (HWW) overhead circuit mile days. Calculated as the number of overhead circuit miles that were under an HWW multiplied by the number of days those miles were under said HWW. Refer to High Wind Warnings as issued by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[11] Detail the steps used to determine if an overhead circuit mile was under a High Wind Warning, providing an example of how the OH HWW circuit mile days were calculated for a High Wind Warning that occurred within utility territory over the last five years.*
3. ***Access and Functional Needs population*** *– Detail the steps to calculate the annual number of customers that are considered part of the Access and Functional Needs (AFN) population. Defined in Government Code § 8593.3 and D.19-05-042 as individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency or who are non-English speaking,[12] older adults, children, people living in institutionalized settings, or those who are low income, homeless, or transportation*

[10] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml
[11] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml
[12] Guidance on calculating number of households with limited or no English proficiency can be found in D.20-04-003

*disadvantaged, including, but not limited to, those who are dependent on public transit or those who are pregnant.*

4. ***Wildlife Urban Interface*** *– Detail the steps to calculate the annual number of circuit miles and customers in Wildlife Urban Interface (WUI) territory. WUI is defined as the area where houses exist at more than 1 housing unit per 40 acres and (1) wildland vegetation covers more than 50% of the land area (intermix WUI) or (2) wildland vegetation covers less than 50% of the land area, but a large area (over 1,235 acres) covered with more than 75% wildland vegetation is within 1.5 mi (interface WUI) (Radeloff et al, 2005).*[13]
5. ***Urban, rural and highly rural*** *– Detail the steps for calculating the number of customers and circuit miles in utility territory that are in highly rural, rural, and urban regions for each year. Use the following definitions for classifying an area highly rural/rural/urban (also referenced in glossary):*
    a. *Highly rural – In accordance with 38 CFR 17.701, "highly rural" shall be defined as those areas with a population of less than 7 persons per square mile as determined by the United States Bureau of the Census. For the purposes of the WMP, "area" shall be defined as census tracts.*
    b. *Rural – In accordance with GO 165, "rural" shall be defined as those areas with a population of less than 1,000 persons per square mile as determined by the United States Bureau of the Census. For the purposes of the WMP, "area" shall be defined as census tracts.*
    c. *Urban – In accordance with GO 165, "urban" shall be defined as those areas with a population of more than 1,000 persons per square mile as determined by the United States Bureau of the Census. For the purposes of the WMP, "area" shall be defined as census tracts.*

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

As stated above, HWT currently has one operational asset, the Suncrest Facility, located near the town of Alpine in San Diego County. The asset comprises of a static var compensator (SVC) 230 kV facility enclosed by 10 feet tall concrete perimeter wall, approximately 1 mile of underground 230 kV line. In 2021, HWT undergrounded an overhead 115 ft (~0.02 miles) span of transmission line, thus removing its only overhead transmission line. As a transmission-only utility, HWT does not have any retail customers. The following section describes calculation of key metrics given HWT's current footprint. All the metrics detailed below are reported in HWT's quarterly non-spatial data submissions to the WSD in Table 6 and Table 8.

1. **Red Flag Warning overhead circuit mile days –** As described above, HWT gets daily FPI alerts leveraging SDG&E current FPI modeling capabilities. Additionally, HWT gets notified when NWS issues a Red Flag Warning (RFW) for the area of the Suncrest Facility. The Suncrest Facility was deenergized for a capital outage and the undergrounding of 0.02

[13] Paper can be found here - https://www.fs.fed.us/pnw/pubs/journals/pnw_2005_radeloff001.pdf with the latest WUI map (form 2010) found here - http://silvis.forest.wisc.edu/data/wui-change/

miles (115 feet) of overhead transmission, which was completed in Q3 2021. As a result the facility did not experience any appliable RFW days in 2021. HWT does not reasonably foresee Red Flag Warning materially impacting operations at the Suncrest Facility going forward as all overhead circuit lines have been undergrounded.

2. **High Wind Warning overhead circuit mile days –** Similar to the Red Flag Warning overhead circuit mile days metric described above, HWT gets notified when NWS issues a High Wind Warning for the area of the Suncrest Facility. To calculate High Wind Warning overhead circuit mile days, HWT multiplies the number of calendar days with High Wind Warning for each quarter by the 0.02 miles of overhead transmission circuit miles that were under High Wind Warning. For 2021, there was 6 calendar days where NWS issued a High Wind Warning for the area of the Suncrest Facility. To calculate High Wind Warning overhead circuit mile days, HWT multiplied 0.02 overhead circuit miles by 6 calendar days of effective High Wind Warning to arrive to 0.12 High Wind Warning overhead circuit mile days. The days occurred during Q1 2021, after which time the Suncrest Facility was deenergized for a capital outage and the undergrounding of 0.02 miles of overhead transmission, which was completed in Q3 2021. HWT does not reasonably foresee High Wind Warnings materially impacting operations at the Suncrest Facility going forward as all overhead circuit lines have been undergrounded.
3. **Access and Functional Needs population –** HWT is a transmission-only utility and does not have a traditional service territory or retail customers, therefore this metric is not relevant and is not calculated by HWT.
4. **Wildlife Urban Interface –** Both of HWT's transmission assets (Suncrest Facility and Estrella Substation) are located in Wildlife Urban Interface territory.
5. **Urban, rural, and highly rural –** HWT's operational asset, the Suncrest Facility, is located in highly rural area near the town of Alpine in San Diego County, approximately 40 miles east of San Diego. HWT's second transmission project, the Estrella Substation, is currently in development and is located in rural area within the northern portion of unincorporated San Luis Obispo County.

## 4.6 Progress reporting key areas of improvement

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

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

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

| Utility-# | Issue title | Summary of Progress |
|---|---|---|
| HWT | Issue: HWT's current inspection frequency is much higher than General Order 165requirements, and while being thorough, it is not clear that such frequent inspections are necessary<br>Remedy: HWT must demonstrate the need for monthly inspections on its transmission line, including conducting a cost-benefit analysis. | Given HWT's limited existing scope and footprint in California, it has a small dedicated staff on site that supported ongoing wildfire hardening work. As such, the staff conducts regular inspections of the equipment on a monthly basis at no incremental cost. Going forward, HWT will consider re-evaluating frequency of inspections. |
| HWT | Issue: While HWT states that additional inspections are performed ahead of extreme weather events, HWT does not provide details on the scope of inspection performed.<br>Remedy: HWT must provide HWT's scope and procedures for additional inspections performed as a result RFW conditions. | The additional inspections HWT performs ahead of extreme weather events include the same scope and procedures as regular monthly inspections, as detailed in Wildfire Mitigation Condition Assessment procedure included with the 2021 WMP update filing. |
| HWT | Issue: HWT is undergrounding 115 ft of OH line that was constructed last year without providing a clear justification using a cost-benefit analysis. It is not clear why the newly constructed OH has been deemed at high enough wildfire risk that it needs to be undergrounded.<br>Remedy: HWT must provide analysis, including both risk reduction and cost-benefit, for the need to underground HWT's overhead transmission | HWT won the Suncrest SVC project through competitive CAISO solicitation in 2015, prior to the passing of SB-901, which required that each electrical corporation shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment. The design and permitting of the line was largely complete at that time SB-901 was passed, and HWT had a commitment to the CAISO to energize the SVC by February 2020. Thus HWT was not able to underground the last span of the line. HWT performed an FMEA assessment |

| | | |
|---|---|---|
| | facilities in order to demonstrate reasonableness. | after the passing of SB-901 to identify measures to minimize the risk of catastrophic wildfire posed by the Suncrest SVC, and determined that undergrounding the transmission line had the highest risk priority number of 280. Additionally, HWT engaged a third party to conduct a wildfire mitigation assessment, which confirmed that undergrounding the transmission line would greatly reduce wildfire risk. HWT provided this assessment as a confidential attachment along with its 2021 WMP update. As such, HWT committed to underground the last 115 ft span of the line in its 2019 WMP, which was approved without conditions by the CPUC. |

# 5 INPUTS TO THE PLAN AND DIRECTIONAL VISION FOR WMP

## 5.1 Goal of Wildfire Mitigation Plan

***Instructions:***

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

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

## 5.2 The Objectives of the plan

***Instructions:*** *Objectives are unique to each utility and reflect the 1, 3, and 10-Year projections of progress towards the WMP goal. Objectives are determined by the portfolio of mitigation strategies proposed in the WMP. The objectives of the plan shall, at a minimum, be consistent with the requirements of California Public Utilities Code §8386(a) –*

*Each electrical corporation shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment.*

*Describe utility WMP objectives, categorized by each of the following timeframes, highlighting changes since the prior WMP report:*

1. *Before the next Annual WMP Update*
2. *Within the next 3 years*
3. *Within the next 10 years – long-term planning beyond the 3-year cycle*

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

Certain provisions in PU Code Section 8386 and the WMP Guidelines, such as those addressing communications with customers and protocols for disconnecting service to customers, do not apply to a transmission-only utility such as HWT. This WMP addresses provisions in PU Code Section 8386 and the WMP Template as they relate to the HWT Facilities.

This WMP provides direction for complying with the applicable provisions of PU Code Section 8386 and for guiding fire safety awareness and prevention at the HWT Facilities. While the Suncrest Facility is the only facility owned and operated by HWT at the time of filing the 2022 WMP, HWT anticipates

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

that the processes, programs, and practices established in this WMP will apply to all HWT Facilities in the future. Because this WMP will be actively reviewed and adaptively managed, future WMPs may include variations in content, format, covered assets, and/or approach.

HWT has a vision of having industry-leading fire-protected infrastructure and facilities that appropriately mitigate operational risks including but not limited to system faults, equipment failure, seismic events, flooding, wildfires, urban fires, civil unrest, and insurgent action.

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

- HWT only owns and operates transmission infrastructure with no distribution facilities.
- HWT does not serve distribution or retail customers or any residential, commercial, or industrial interconnections.
- HWT transmission facilities are monitored 24 hours a day, 7 days a week while in operation by a certified and qualified System Operator with full authority, responsibility, and requisite emergency response training to take appropriate action to mitigate any fire risk posed, including Emergency Shut-Off as a measure of last resort.
- The HWT Facilities are under the operational control of the CAISO.

HWT has the following WMP objectives, categorized by different timeframes:

**Before the next Annual WMP Update:**

HWT's primary objective is to complete construction of remaining capital improvements designed to further harden the Suncrest Facility according to prioritized wildfire mitigation measures, which will minimize the potential for on-site ignition. HWT will work towards achieving this objective through the fire prevention strategies and specific measures detailed in Section 7.

A secondary HWT objective is to periodically evaluate new technologies, materials, and methods for further reducing fire risk at HWT Facilities. This objective will be achieved through HWT's internal programs described in Section 4 and a team that will be empowered and encouraged to evaluate and improve protocols and procedures.

This WMP focuses its objectives on fire risk reduction and prevention for the period between WMP filings with the CPUC, resulting in year-round coverage. Fires and fire weather can occur during any season, and fire safety precautions will be implemented year-round, with heightened restrictions and precautions during declared RFW periods.

**Within the next 3 years:**

As a newly designed and constructed facility, HWT considers the Suncrest Facility to be significantly fire hardened and technologically advanced. However, following placing the Suncrest Facility into service and over the next three-year period, HWT's objective is to identify, evaluate, and implement additional facility hardening measures. The additional wildfire mitigation measures that HWT has identified for evaluation and consideration at the time of filing are provided in Section 7.

**Within the next 10 years:**

HWT's longer-term objectives are consistent with its short-term objectives of minimizing the likelihood of an ignition event from its facilities. As indicated previously, HWT expects to increase the number of facilities owned in California. When HWT constructs additional facilities, it will do so according to the latest technologies and processes available at the time. If HWT acquires existing facilities, HWT will implement wildfire mitigation strategies and design criteria as soon as practical.

Additionally, over the next ten years, HWT's objective is to achieve the highest level of Wildfire Mitigation Maturity consistent with the scale and scope of its operations, as well as to implement an industry-leading standard for fire-protected transmission facilities and infrastructure.

## 5.3 Plan program targets

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

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

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

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

*required, standardized VM targets below. It is expected that the utilities provide additional VM targets beyond those required. The identification of other VM targets and units for those targets (e.g., for inspections, customer outreach, enhanced vegetation management, etc.) are at the discretion of the utility.*

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

The Suncrest Facility is HWT's first facility that became operational on February 29th, 2020. Given HWT's current limited scope and conditions around the Suncrest Facility, HWT's program targets are focused on successful implementation of prioritized wildfire mitigation measures described in Section 7 of this report and ensuring no on-site ignition events or near misses. HWT does not have any additional program targets to report and thus Table 5.3-1 is purposefully left blank.

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

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

## 5.4 Planning for Workforce and Other Limited Resources

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

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

*For each of the target roles listed above:*

1. *List all worker titles relevant to target role (target roles listed above)*
2. *For each worker title, list and explain minimum qualifications with an emphasis on qualifications relevant to wildfire and PSPS mitigation. Note if the job requirements include the following:*

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

In view of HWT's current limited footprint with one operational transmission asset, HWT has a small staff overseeing HWT operations, including dedicated on-site staff performing asset inspection and maintenance work, as well as remote system operators that remotely control the asset 24/7 from a North American Electric Reliability Corporation (NERC)-certified control center. All HWT maintenance work, including asset inspections, is carried out by dedicated HWT Operations personnel and qualified contractors that, by reason of training, experience, and instruction, are qualified to perform the task. Operations personnel maintain and operate the HWT Facilities in accordance with good utility practice, sound engineering judgment, the guidelines as outlined in applicable NERC reliability standards, laws, and regulations. The HWT operations personnel take proper care to ensure the safety of personnel and the public in performing maintenance duties.

Regarding HWT's plans to improve qualifications of workers relevant to wildfire and PSPS mitigation, HWT Operations personnel are trained on all relevant HWT procedures, including regular monthly asset inspections (Wildfire Mitigation Condition Assessment Procedure), vegetation inspections (Wildlife and Vegetation Procedure), and emergency response (Emergency Operations Plan). During site construction, HWT contracted a private fire brigade to be on site during construction activities and facilitate daily safety briefings, including discussion of weather conditions and fire safety. Additionally, as described above in Section 4 of this WMP, HWT is committed to continuous improvement of its wildfire-related plans, systems, and processes. As such, HWT Operations personnel actively engage in the annual update of the FMEA for the Suncrest Facility, which involves comprehensive review of all potential failure modes at the facility and relevant mitigation measures based on the underlying risk. Additionally, HWT added a new procedure as a lesson learned since 2020 WMP and now conducts an annual wildfire simulation at the Suncrest Facility, including participation of relevant HWT Operations Personnel, to ensure that all relevant procedures and processes are top of mind for HWT Personnel. As HWT

gains operational experience and learns additional best practices relevant to wildfire mitigation, it will update its personnel training, processes and procedures accordingly.

Given HWT's limited scope, HWT currently is not planning to hire and onboard new electric workers in the near-term. As HWT gains operational experience and grows its presence in California through addition of new transmission facilities, HWT will continue to evaluate the size of its workforce in California and expand that workforce as needed. Further, HWT engages qualified contractors for vegetation management projects and grid hardening.

### 5.4.1 Target role: Vegetation inspections

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

### 5.4.2 Target role: Vegetation management projects

1. **Worker titles in target role:** Biologist, Arborists, Ecologist, Fire Planning Specialist, Fire Operations Specialist
2. **Minimum qualifications:** Qualifications vary by discipline; most workers in target role have a Bachelor's Degree and experience in wildfire-related initiatives in California
3. **FTE percentages by title in target role:** N/A – HWT engages a qualified contractor to perform vegetation management projects
4. **Percent of FTEs by high-interest qualification:** N/A – HWT engages a qualified contractor to perform vegetation management projects
5. **Plans to improve worker qualifications:** See response under Section 5.4

### 5.4.3 Target role: Asset Inspections

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

### 5.4.4 Target role: Grid hardening

1. **Worker titles in target role:** Operations Engineer, Operations Senior Engineer, Construction Manager
2. **Minimum qualifications:** Qualifications vary by discipline; Operations Engineers have a Bachelor's Degree in Engineering

3. **FTE percentages by title in target role:** <50%
4. **Percent of FTEs by high-interest qualification:** <50%
5. **Plans to improve worker qualifications:** See response under Section 5.4

#### 5.4.5 Target role: Risk event inspections

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

# 6 PERFORMANCE METRICS AND UNDERLYING DATA

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

*NOTE: Report updates to projected metrics that are now actuals (e.g., projected 2020 spend will be replaced with actual unless otherwise noted). If an actual is substantially different from the projected (>10% difference), highlight the corresponding metric in light green.*

## 6.1 Recent performance on progress metrics, last 5 years

***Instructions for Table 1 of Attachment 3:***

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

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

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

***Instructions for Table 2:***

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

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

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

## 6.3 Description of additional metrics

***Instructions for Table 3 of Attachment 3:***

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

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

## 6.4 Detailed information supporting outcome metrics

***Instructions for Table 4 of Attachment 3:***

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

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

***Instructions for Table 5 of Attachment 3:***

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

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

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

## 6.5 Mapping recent, modelled, and baseline conditions

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

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

## 6.6 Recent weather patterns, last 7 years

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

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

## 6.7 Recent and projected drivers of ignition probability

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

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

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

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

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

### 6.8.1 Current baseline state of service territory and utility equipment

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

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

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

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

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

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

***Instructions for Table 10 of Attachment 3:***

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

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

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

# 7 MITIGATION INITIATIVES

## 7.1 Wildfire mitigation strategy

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

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

*The description of utility wildfire mitigation strategy shall:*

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

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

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

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

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

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

F. *Provide a GIS layer[18] showing wildfire risk (e.g., MAVF); data should be as granular as possible.*
G. *Provide GIS layers[19] for the following grid hardening initiatives: covered conductor installation;[20] undergrounding of electrical lines and/or equipment; and removal of electrical lines. Features must have the following attributes: state of hardening, type of hardening where known (i.e., undergrounding, covered conductors, or removal), and expected completion date. Provide as much detail as possible (circuit segment, circuit-level, etc.). The layers must include the following:*
    a. *Hardening planned for 2022*
    b. *Hardening planned for 2023*
    c. *Hardening planned for 2024*
H. *Provide static (either in text or in an appendix), high-level maps of the areas where the utility will be prioritizing Grid Design and System Harding initiatives for 2022, 2023, and by 2032.*
I. *Provide a GIS layer for planned Asset Management and Inspections in 2022. Features must include the following attributes: type, timing, and prioritization of asset inspection. Inspection types must follow the same types described in Section 7.3.4, Asset Management and Inspections, and as applicable, should not be limited to patrols and detailed inspections.*
J. *Provide a GIS layer illustrating where enhanced clearances (12 feet or more) were achieved in 2020 and 2021, and where the utility plans to achieve enhanced clearances in 2022. Feature attributes must include clearance distance greater than or equal to 12 feet, if such data is available, either in ranges or as discrete integers (e.g., 12-15 feet, 15-20 feet, etc. OR 12, 13, 14, 15, etc.).*

HWT's asset footprint has not changed since the commencement of operations in 2020. As a result, HWT's wildfire mitigation strategy has not materially changed since the submittal of its 2020 WMP. As HWT only began commercial operations in 2020, its pre-operational wildfire mitigation strategy can be summarized as: during the facility design phase, engaging with experienced vendors and contractors to design transmission facilities to minimize wildfire risk; and during the construction phase, developing and implementing measures to prevent or minimize the probability of occurrence of site-specific risks and risk drivers. Since commencing operations, HWT's strategy in summary is to include mitigating measures into standard operating

[18] GIS data that has corresponding feature classes in the most current version of Energy Safety GIS Data Reporting Standard will utilize the format for submission. GIS data that does not have corresponding feature classes shall be submitted in an ESRI compliant GDB and include a data dictionary as part of the metadata.
[19] Energy Safety acknowledges potential security concerns regarding aggregating and presenting critical electrical infrastructure in map form. Utilities may provide maps or GIS layers required by these Guidelines as confidential attachments when necessary.
[20] For a definition of "covered conductor installation" see Section 9 of Attachment 2.

procedures to ensure that day-to-day operations are performed in a manner that prevents or minimizes the probability of occurrence of site-specific risks and risk drivers.

HWT's approach to determining how to manage wildfire risk is informed by industry best practices, collaboration with experienced internal and external SMEs as detailed in Section 4 of this WMP, and lessons learned through the CPUC's WMP proceeding. Many of HWT's strategies to manage wildfire risk are similar or related to strategies it undertakes to manage overall risks related to safety and reliability. In addition, as a transmission-only utility with one operational facility that was recently energized, HWT is continually developing its strategies, particularly as it gains operational experience. As described in detail in Section 4 of this WMP, HWT uses the FMEA process to identify and mitigate wildfire-related risks at the Suncrest Facility. Given that the Suncrest Facility is located in Tier 3 (Extreme) HFTD, HWT's wildfire-related initiatives are primarily focused on infrastructure hardening, undergrounding, increased inspections, increased situational awareness, and operational measures such as detailed facility inspections prior to RFW conditions in the area of the Facility.

In 2021, HWT implemented several wildfire mitigation initiatives at the Suncrest Facility that were approved in HWT's 2021 WMP, including:

- **Grid Design and System Hardening:** HWT made significant progress in hardening its transformers in 2021. The project included installing transformer seismic pads, blast walls and flame-suppressing stone in the transformer containment pits. One transformer was completed in 2021 and the other is scheduled for completion in 2022. HWT completed undergrounding of 115 feet of overhead span of transmission line in August 2021.
- **Situational Awareness and Forecasting:** HWT completed development of a proprietary fire risk index for its territory to increase awareness of fire threat and to help inform operational decisions. HWT also installed a cable monitoring system for its underground cable and added additional cameras to the station site.
- **Asset Management and Inspections:** HWT continued its cadence of monthly asset inspections and monitoring, in addition to extra inspections in advance of adverse weather conditions.
- **Grid Operations and Protocols:** In addition to regular asset and vegetation inspections and monitoring, HWT maintained on-site fire brigade support on a daily basis during on-going hardening construction activities in 2021 to minimize the risk of any on-site ignitions.

HWT's lessons learned with respect to wildfire risk management from its first two years of operation are summarized in Section 4.1 of this WMP and HWT's priority remains to further reduce wildfire risk at the Suncrest Facility given Tier 3 (Extreme) wildfire threat designation and recent history of fast-spreading wildfires in the area.

As far as challenges associated with limited resources, HWT has dedicated operations personnel in the field who oversee day-to-day operations, maintenance, and regular inspections of the Suncrest Facility. HWT also has contracted a qualified third party to perform vegetation management work for the next several years to ensure guaranteed access to critical vegetation management resources given the current high demand for qualified utility vegetation management personnel.

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

**By June 1, 2022:**

HWT is currently implementing additional wildfire mitigation measures at its only operational asset, the Suncrest Facility. HWT's goal by June 1, 2022 is to complete the 2022 projects with no ignition incidents or near misses.

**By September 1, 2021:**

Similar to above, HWT's goal by September 1, 2022 is to continue safe operations of the Suncrest Facility with the same cadence of monthly asset inspections and monitoring, in addition to extra inspections in advance of adverse weather conditions; and have no ignition incidents or near misses.

**Before the next annual WMP update:**

HWT's primary goal prior to the next annual WMP update in 2023 is to complete remaining work on the wildfire mitigation measures identified for the Suncrest Facility as further detailed in Section 7.3 of this WMP, including the following improvements:

- Completion of underground cable monitoring system functionality
- Improvements to fire risk index
- Complete any punch list items from construction

**Within the next 3 years:**

During the next three years, HWT may construct and/or acquire additional transmission facilities in California. HWT will apply the same robust wildfire mitigation strategies that are being developed and implemented for the Suncrest Facility to new facilities, with any modifications as appropriate to take into account the specific characteristics of new facilities.

**Within the next 10 years:**

During the next ten years, HWT's wildfire mitigation strategies are expected to mature and evolve with the industry and the wildfire threat, including through HWT's operational experience and lessons learned through the CPUC's wildfire mitigation process. HWT also expects to leverage new technologies in the realm of wildfire safety as they become available and as determined applicable to its facilities. HWT is committed to the ongoing achievement and continuous improvement of its fire prevention goals and will invest appropriate resources at each of its facilities as part of its overall commitment.

## 7.2 Wildfire Mitigation Plan implementation

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

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

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

**A. Monitoring and auditing the implementation of the plan.** Per the established roles and responsibilities (see Section 1), the HWT President is responsible for WMP Compliance Assurance to ensure that the WMP obligations are met, including implementing predictive, detective, and corrective controls to mitigate the compliance risk. These controls are used to identify any deficiencies in WMP implementation.

**B. Identifying and correcting deficiencies in the plan.** HWT Operations Leads are responsible for implementing WMP in the field and reporting to the Director of Operations and HWT President, who address any WMP deficiencies identified. The Director of Operations shall review any changes in the WMP, and annual WMP updates are approved by the HWT President. HWT WMP's filed to date have been approved by

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

the CPUC without conditions, and the CPUC has not identified any deficiencies in HWT's wildfire-related compliance.

C. **Monitoring and auditing the effectiveness of inspections.** The HWT Operations Lead documents scheduled and completed inspections of facilities and equipment along with line inspections. The Director of Operations monitors and reviews inspections conducted by operational staff to ensure sustainment of efforts to identify any potential sources of ignition and near misses. Facility inspections are limited to the Suncrest Facility, HWT's only operational asset at the time of this report. Inspection reports would be submitted to HWT's Operations Lead for inclusion in the overall facility documentation.

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

## 7.3 Detailed wildfire mitigation programs

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

1. **Risk assessment and mapping**
   As previously indicated, HWT utilizes the FMEA methodology for assessing risk, evaluating controls, and determining the effectiveness of initiatives. HWT updates the FMEA annually to ensure continuous improvement of HWT's wildfire mitigation strategy as new technologies and best practices emerge. In 2020, HWT commissioned a third-party wildfire mitigation assessment to assess ignition risk and wildfire propagation in the area of HWT's Suncrest Facility.

2. **Situational awareness and forecasting**
   HWT's facilities are remotely operated and monitored 24/7 from its affiliate Lone Star Transmission, LLC's NERC-certified control center located in Austin, Texas. Graphic displays and alarm processing ensure HWT transmission system operators have real-time situational awareness. Support personnel perform checks of the applications and hardware to ensure they are in proper working order. Any site anomalies are

communicated to local personnel and Director of Operations, who will manage and undertake site corrective actions. In 2020, HWT enhanced its situational awareness and forecasting capabilities by installing a weather station, a camera, and transformer oil gas monitoring equipment at the Suncrest Facility. In 2021, HWT completed development of a proprietary fire risk index for its territory to increase awareness of fire threat and to help inform operational decisions. HWT also installed a cable monitoring system for its underground cable which provides thermal and partial discharge monitoring for the 230 kV underground cable at the Suncrest Facility. Additional cameras were also installed at the facility during 2021.

3. **Grid design and system hardening**

   The HWT Facilities have been designed to incorporate robust wildfire hardening measures to prevent ignitions, including inspected and maintained fuel management setbacks, non-combustible and ignition resistant equipment materials, both of which work to minimize fire effects on the facility and the likelihood that a facility fire would burn off-site into vegetation.

   In 2020 WMP, HWT erected a 10 feet tall concrete perimeter wall around the Suncrest Facility to provide an additional layer of defense against a fire originating inside the station propagating beyond the Facility. HWT made significant progress in hardening its transformers in 2021. The project included installing transformer seismic pads, blast walls and flame-suppressing stone in the transformer containment pits. One transformer was completed in 2021 and the remaining transformer is scheduled for completion in 2022. HWT also completed undergrounding of 115 feet of overhead span of transmission line in August 2021.

4. **Asset management and inspections**

   HWT conducts monthly detailed inspections of the Suncrest Facility, including inspection of the short, 115-foot span of overhead transmission line prior to its undergrounding. HWT now utilizes a real-time cable monitoring system to monitor the full approximately 1 mile of transmission line, all of which is underground. HWT also conducts additional asset inspections ahead of extreme weather events, such as RFW alerts. Since its 2021 WMP, there have been no changes to HWT's asset management and inspections approach.

5. **Vegetation management and inspections**

   HWT incorporates a vegetation management program at HWT facilities as an important component of its fire prevention strategy. The objective of the vegetation management program is to minimize the likelihood that an ignition on-site facilitates an off-site vegetation ignition. A secondary objective of the vegetation management program is the protection of equipment from wildfire encroachment. The vegetation management strategies are based on removal of all vegetation from within the perimeter fenced area and provision of a modified fuel zone outside the fence, resulting in a layered approach. The tactics for vegetation management include vegetation removal during grading within

the fenced area and maintained throughout operations by placement of rock and treatments with herbicide, as necessary. Inspections at the station for vegetation encroachment are part of operations monthly assessments. Perimeter fuel modification areas will be treated by removal of the highest flammability plants and maintenance in a thinned, low fuel condition. Since its 2021 WMP, there have been no changes to HWT's vegetation management and inspections approach.

6. **Grid operations and protocols**

   As described previously, HWT's Suncrest Facility is remotely controlled and monitored 24/7. HWT does not own any distribution infrastructure and hence does not have recloser protocols in place. In addition to the protocols mentioned above, HWT has an Emergency Operations Plan to enable appropriate emergency response. HWT Operations staff are trained on the Emergency Operations Plan. Since its 2021 WMP, there have been no changes to HWT's grid operations and protocols.

7. **Data governance**

   HWT maintains a centralized secure repository for all wildfire-related data for its one operational transmission asset, the Suncrest Facility, including all procedures and relevant documents. Since its 2021 WMP, there have been no changes to HWT's data governance practices.

8. **Resource allocation methodology**

   HWT's resource allocation is focused on prevention and detection and to enable prompt emergency response. Given HWT's current limited footprint, HWT has a small, dedicated Operations team in the field overseeing the asset. Since its 2021 WMP, there have been no changes to HWT's resource allocation methodology.

9. **Emergency planning and preparedness**

   This WMP's disaster and emergency preparedness plan is consistent with HWT's overall emergency response approach at the HWT Facilities. HWT has an emergency management plan, including HWT's response to wildfire threats and hazards. While HWT does not own distribution facilities and therefore does not serve end-use customers, HWT recognizes its role in working with Interconnecting Transmission Owners, the CAISO, local fire agencies, and first responders in restoring normalcy after an incident. Since its 2021 WMP, there have been no changes to HWT's emergency planning and preparedness practices.

10. **Stakeholder cooperation and community engagement**

    As explained above, as a transmission-only utility, HWT does not serve end-use customers or have a traditional service territory. Therefore, HWT does not anticipate providing customer support or engage with communities during an emergency. However, HWT has developed a protocol for communication and coordination with its primary stakeholders, including the CAISO and Interconnecting Transmission Owner. HWT's President or designee would be the lead in implementing this communications protocol during an

emergency. Since its 2020 WMP, there have been no changes to HWT's stakeholder cooperation and community engagement practices.

### 7.3.1 Financial data on mitigation initiatives, by category

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

HWT has provided actual and projected WMP expenditure information for each initiative by HFTD tier (territory-wide, non-HFTD, HFTD zone 1, HFTD tier 2, HFTD tier 3) in Table 12 of HWT's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

### 7.3.2 Detailed information on mitigation initiatives by category and activity

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

1. ***Risk to be mitigated*** */ problem to be addressed*
2. ***Initiative selection*** *("why" engage in activity) – include reference to and description of a risk informed analysis and/or risk model on empirical (or projected) impact of initiative in comparison to alternatives and demonstrate that outcomes of risk are being prioritized*
3. ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk") and demonstrate that outcomes of risk are being prioritized*
4. ***Progress on initiative*** *since the last WMP submission and plans, targets, and/or goals for the current year*
5. ***Future improvements to initiative****– include known future plans (beyond the current year) and new/novel strategies the utility may implement in the next 5 years (e.g., references to and strategies from pilot projects and researched detailed in Section 4.4.).*

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

Given HWT's limited scope of operations and nature as a transmission-only utility with no end-use customers, several of the below initiatives are not applicable to HWT.

## Risk assessment and mapping

1. **A summarized risk map showing the overall ignition probability and estimated wildfire consequence along electric lines and equipment**
   Not applicable
2. **Climate-driven risk map and modelling based on various relevant weather scenarios**
   Not applicable

3. **Ignition probability mapping showing the probability of ignition along the electric lines and equipment**

   Not applicable

4. **Initiative mapping and estimation of wildfire and PSPS risk-reduction impact**

   Not applicable

5. **Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment**

   a) ***Risk to be mitigated / problem to be addressed:*** Lack of awareness of risk of wildfire propagation in case of a utility-caused ignition in the area.

   b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* HWT engaged in this initiative to enhance HWT's awareness of wildfire propagation risk in the area of the Suncrest Facility and identify appropriate wildfire mitigation initiatives. There were no other viable alternatives to this initiative.

   c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

   d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT completed this initiative in 2020 by commissioning a third-party wildfire assessment that identified key wildfire-related risks, simulated a propagation of wildfire in the area of the Suncrest Facility in case of an ignition during extreme weather events, and identified relevant wildfire hardening measures that HWT is working on implementing at the asset. The characterization of wildfire risk in the Suncrest area per this assessment is further detailed in section 4.2.1 of this WMP. HWT completed this initiative in the first half of 2020 prior to the fast-spreading Valley Fire that occurred in September 2020. This initiative greatly increased HWT's awareness of environmental conditions in the Suncrest Area, aided HWT in preparation for wildfire events, and enabled HWT to further reduce wildfire risk at the Suncrest Facility. The amount spent on this initiative is provided in Table 12 of Attachment 3.

   e) ***Future improvements to initiative****:* As HWT grows its footprint in California, it will evaluate conducting similar simulations in other areas of HWT's assets to assess wildfire propagation consequences around HWT facilities.

## Situational awareness and forecasting

6. **Advanced weather monitoring and weather stations**

   a) ***Risk to be mitigated / problem to be addressed:*** Lack of specific 24/7 real-time weather information and situational awareness to inform operational decisions.

   b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Weather monitoring is a critical data component to enable HWT to develop its proprietary fire prediction index and inform operational decision-making based on real-

time weather conditions at the site. HWT installed a weather station at the Suncrest Facility to have sufficient granularity of weather data at the asset location.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT installed the weather station at its only operational asset, the Suncrest Facility, in 2020 per its 2020 CPUC-approved WMP. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT grows its footprint in California, it will evaluate installing additional weather stations at HWT's new assets.

**7. Continuous monitoring sensors**

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

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

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT installed transformer oil gas monitors at its only operational asset, the Suncrest Facility, in 2020. The cable monitoring system was installed in 2021. The amount spent on these initiatives is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** In 2022, HWT will finalize the implementation and functionality of the cable monitoring system. As HWT grows its footprint in California, it will evaluate installing additional continuous monitoring sensors at HWT's new assets.

**8. Fault indicators for detecting faults on electric lines and equipment**

Not applicable

**9. Forecast of a fire risk index, fire potential index, or similar**

a) ***Risk to be mitigated / problem to be addressed:*** Lack of awareness of fire threat and propagation based on environmental conditions (temperature, humidity and fuel moisture level, wind speed, etc.).

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* As described in detail in Section 4, HWT developed a proprietary fire risk index for its territory to increase awareness of fire threat and potential for wildfire propagation based on environmental conditions to inform operational decisions and reduce risk of utility-caused ignitions during extreme weather events.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT started development of fire risk index late in 2020 and achieved operational functionality by Q4 2021. The fire index is currently utilized to increase awareness of fire threat to help inform operational decisions as they relate to impact to the facility by potential or actual fire/ignition events. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** HWT intends to add improved functionality to its fire index in 2022. As HWT grows its footprint in California and gains more operational experience, it will evaluate implementing additional new features into its proprietary fire risk index and expanding the fire index to HWT's future assets.

**10. Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions**

a) ***Risk to be mitigated / problem to be addressed:*** Lack of awareness of fire threat.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* As described in detail in Section 4, HWT monitors the Suncrest Facility 24/7. Additionally, System Operators are alerted to high fire threat conditions in the area of the Suncrest Facility to ensure increased monitoring during extreme weather conditions.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT monitors the Suncrest Facility 24/7 since the start of operation in 2020.

e) ***Future improvements to initiative:*** As HWT grows its footprint in California and gains more operational experience, it will evaluate implementing additional protocols for monitoring areas of electric lines and equipment.

**11. Weather forecasting and estimating impacts on electric lines and equipment**

Not applicable

## Grid design and system hardening

**12. Capacitor maintenance and replacement program**

Not applicable

**13. Circuit breaker maintenance and installation to de-energize lines upon detecting a fault**

Not applicable

**14. Covered conductor installation**

Not applicable

**15. Covered conductor maintenance**

Not applicable

**16. Crossarm maintenance, repair, and replacement**

Not applicable

**17. Distribution pole replacement and reinforcement, including with composite poles**

Not applicable

**18. Expulsion fuse replacement**

Not applicable

**19. Grid topology improvements to mitigate or reduce PSPS events**

Not applicable

**20. Installation of system automation equipment**

Not applicable

**21. Maintenance, repair, and replacement of connectors, including hotline clamps**

Not applicable

**22. Mitigation of impact on customers and other residents affected during PSPS event**

Not applicable

**23. Other corrective action**

a) ***Risk to be mitigated / problem to be addressed:*** Insufficient wildfire hardening given asset's location in Tier 3 (Extreme) HFTD and increasing wildfire activity in the area of the Suncrest Facility.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* As described in Section 4, HWT commissioned a third-party study to identify wildfire-related risks at HWT's Suncrest Facility and determine appropriate wildfire hardening measures. To further harden the Suncrest Facility and reduce wildfire risk at the asset, HWT installed transformer seismic pads, transformer blast walls, and flame-suppressing stone in transformer containment pits during 2021 and 2022.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-*

*risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* In 2020 HWT erected a 10 feet tall concrete perimeter wall around the Suncrest SVC to minimize the risk of utility-caused ignition propagating outside of the SVC site and igniting vegetation offsite. In 2021, HWT began transformer upgrades including the installation of seismic pads, blast walls and flame suppressing stone in the containment pits. These upgrades will be completed in 2022. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT grows its footprint in California and gains more operational experience, it will evaluate additional prudent wildfire hardening measures to implement at its assets.

**24. Pole loading infrastructure hardening and replacement program based on pole loading assessment program**

Not applicable

**25. Transformers maintenance and replacement**

Not applicable

**26. Transmission tower maintenance and replacement**

Not applicable

**27. Undergrounding of electric lines and/or equipment**

a) ***Risk to be mitigated / problem to be addressed:*** Overhead transmission lines in Tier 3 (Extreme) HFTD are susceptible to failure and can be a source of ignition leading to fast-spreading wildfires during extreme weather conditions.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Given the Suncrest Facility's location in a Tier 3 (Extreme) HFTD, HWT decided to underground the short span of approximately 115 feet of overhead transmission line at the Suncrest Facility, which was included in HWT's 2020 and 2021 WMP submissions. Given the high voltage of the line (230 kV), insulating the line to reduce wildfire risk is not a viable alternative, and there were no other alternatives to undergrounding that would provide an equivalent fire risk reduction.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* While HWT originally planned to underground the 115 feet of overhead span of transmission line at the Suncrest Facility in 2020, HWT was unable to do so due to regulatory delays needed to conduct the work, as documented in HWT's December 11, 2020 Change Order report, which was approved by the WSD on February 8, 2021. HWT did complete undergrounding of the transmission line in Q3 2021. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT grows its footprint in California, it will evaluate undergrounding of electric lines and / or equipment at HWT's new assets.

**28. Updates to grid topology to minimize risk of ignition in HFTDs**

Not applicable

## Asset management and inspections

**29. Detailed inspections of distribution electric lines and equipment**

Not applicable

**30. Detailed inspections of transmission electric lines and equipment**

a) ***Risk to be mitigated / problem to be addressed:*** Timely identification of equipment deterioration and failure.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Regular asset inspections enable HWT to closely monitor the health of its infrastructure and proactively identify potential issues and problems, allowing HWT to correct these issues and avoid potential equipment failure, which can contribute to a utility-caused ignition.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMP, HWT has been conducting regular monthly inspections of the Suncrest Facility in addition to extra inspections ahead of RFW conditions in the area of the Facility. HWT plans to continue its cadence of asset inspections. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT gains more operational experience, it will evaluate making appropriate changes to its asset management and inspections procedures.

**31. Improvement of inspections**

Not applicable.

**32. Infrared inspections of distribution electric lines and equipment**

Not applicable.

**33. Infrared inspections of transmission electric lines and equipment**

Not applicable.

**34. Intrusive pole inspections**

Not applicable.

**35. LiDAR inspections of distribution electric lines and equipment**

Not applicable.

**36. LiDAR inspections of transmission electric lines and equipment**

Not applicable.

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

Not applicable.

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

Not applicable.

**39. Patrol inspections of distribution electric lines and equipment**

Not applicable.

**40. Patrol inspections of transmission electric lines and equipment**

Not applicable.

**41. Pole loading assessment program to determine safety factor**

Not applicable.

**42. Quality assurance / quality control of inspections**

a) ***Risk to be mitigated / problem to be addressed:*** Ensuring high quality of inspections and mitigating potential to miss an equipment issue that could become a fire hazard.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* HWT Director of Operations works with HWT's field operations personnel to review results of monthly equipment inspections and identify any gaps or issues that need to be addressed to mitigate problems and reduce risk of utility-caused ignitions.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMPs, HWT has been conducting regular monthly inspections of the Suncrest Facility in addition to extra inspections ahead of RFW conditions in the area of the Facility. HWT plans to continue its cadence of asset inspections. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT gains more operational experience, it will evaluate making appropriate changes to its asset management and inspections procedures, including QA / QC processes.

**43. Substation inspections**

a) ***Risk to be mitigated / problem to be addressed:*** Timely identification of equipment deterioration and failure.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Regular asset inspections enable HWT to closely monitor the health of its infrastructure and proactively identify potential issues and problems, allowing HWT to correct these

issues and avoid potential equipment failure, which can contribute to a utility-caused ignition.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMP, HWT has been conducting regular monthly inspections of the Suncrest Facility in addition to extra inspections ahead of RFW conditions in the area of the Facility. HWT plans to continue its cadence of asset inspections. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT gains more operational experience, it will evaluate making appropriate changes to its asset management and inspections procedures.

## Vegetation management and inspections

**44. Additional efforts to manage community and environmental impacts**

Not applicable.

**45. Detailed inspections of vegetation around distribution electric lines and equipment**

Not applicable.

**46. Detailed inspections of vegetation around transmission electric lines and equipment**

a) ***Risk to be mitigated / problem to be addressed:*** Timely identification of vegetation encroachment around electric lines and equipment.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Regular inspections of vegetation around transmission lines and equipment enable HWT to vegetation encroachment or contact with electric equipment, which can contribute to a utility-caused ignition.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMP, HWT has been conducting regular monthly inspections of the Suncrest Facility in addition to extra inspections ahead of RFW conditions in the area of the Facility. HWT plans to continue its cadence of asset inspections. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT gains more operational experience, it will evaluate making appropriate changes to its vegetation management and inspections procedures.

**47. Emergency response vegetation management due to red flag warning or other urgent conditions**

Not applicable.

**48. Fuel management and reduction of "slash" from vegetation management activities**

Not applicable.

**49. Improvement of inspections**

Not applicable.

**50. LiDAR inspections of vegetation around distribution electric lines and equipment**

Not applicable.

**51. LiDAR inspections of vegetation around transmission electric lines and equipment**

Not applicable.

**52. Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations**

Not applicable.

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

Not applicable.

**54. Patrol inspections of vegetation around distribution electric lines and equipment**

Not applicable.

**55. Patrol inspections of vegetation around transmission electric lines and equipment**

Not applicable.

**56. Quality assurance / quality control of inspections**

a) ***Risk to be mitigated / problem to be addressed:*** Ensuring high quality of inspections and mitigating potential to miss an equipment issue that could become a fire hazard.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* HWT Director of Operations works with HWT's field operations personnel to review results of monthly equipment inspections and identify any gaps or issues that need to be addressed to mitigate problems and reduce risk of utility-caused ignitions.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMP, HWT has been conducting regular monthly inspections of the Suncrest Facility in addition to extra inspections ahead of RFW conditions in the area of the Facility. HWT plans to continue its cadence of asset inspections. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT gains more operational experience, it will evaluate making appropriate changes to its asset management and inspections procedures, including QA / QC processes.

**57. Recruiting and training of vegetation management personnel**

Not applicable.

**58. Remediation of at-risk species**

Not applicable.

**59. Removal and remediation of trees with strike potential to electric lines and equipment**

Not applicable.

**60. Substation inspections**

a) ***Risk to be mitigated / problem to be addressed:*** Timely identification of equipment deterioration and failure.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Regular asset inspections enable HWT to closely monitor the health of its infrastructure and proactively identify potential issues and problems, allowing HWT to correct these issues and avoid potential equipment failure, which can contribute to a utility-caused ignition.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMP, HWT has been conducting regular monthly inspections of the Suncrest Facility in addition to extra inspections ahead of RFW conditions in the area of the Facility. HWT plans to continue its cadence of asset inspections. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT gains more operational experience, it will evaluate making appropriate changes to its asset management and inspections procedures.

**61. Substation vegetation management**

a) ***Risk to be mitigated / problem to be addressed:*** Potential for vegetation contact with electric equipment that could result in a fire hazard.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* While HWT's Suncrest Facility has hardscaped design that minimizes on-site vegetation, HWT performs vegetation management as needed per its 2020 WMP to remove any vegetation around the Suncrest SVC, including inside the concrete perimeter wall and within a defensible space outside the facility to minimize any potential for contact of vegetation with electric equipment, which could contribute to a fire hazard.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-*

*risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMP, HWT has engaged a third party to perform vegetation management and remove any vegetation that could come in contact with electric equipment. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** As HWT gains more operational experience, it will evaluate making appropriate changes to its vegetation management and inspections procedures.

**62. Vegetation inventory system**

Not applicable.

**63. Vegetation management to achieve clearances around electric lines and equipment**

a) ***Risk to be mitigated / problem to be addressed:*** Potential for vegetation contact with electric equipment that could result in a fire hazard.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* The Suncrest Facility has hardscaped design, HWT performs vegetation management as needed per its 2020 WMP to remove any vegetation around the Suncrest SVC to minimize any potential for contact of vegetation with electric equipment, which would contribute to a fire hazard.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* Per HWT's 2020 and 2021 CPUC-approved WMP, HWT has engaged a third party to perform vegetation management and remove any vegetation that could come in contact with electric equipment. The amount spent on this initiative is provided in Table 12 of Attachment 3.

e) ***Future improvements to initiative:*** Since HWT, undergrounded the span of 115 feet of overhead transmission line in Q3 2021, specific vegetation management in connection with overhead lines will no longer occur. However, as HWT will continue to evaluate making appropriate changes to its vegetation management and inspections procedures to meet risk reduction needs.

**64. Vegetation management activities post-fire**

Not applicable.

## Grid operations and protocols

**65. Automatic recloser operations**

Not applicable.

**66. Protective equipment and device settings**

Not applicable.

**67. Crew-accompanying ignition prevention and suppression resources and services**

Not applicable.

**68. Personnel work procedures and training in conditions of elevated fire risk**

Not applicable.

**69. Protocols for PSPS re-energization**

a) ***Risk to be mitigated / problem to be addressed:*** As described in Section 8 of this WMP below, HWT has established PSPS protocols, including a re-energization procedure, as a measure of last resort to mitigate wildfire risk.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* HWT proactively developed the PSPS procedure as part of its emergency operations plan as a measure of last resort to reduce wildfire risk. HWT's PSPS strategy is described in detail in Section 8. Given HWT's current footprint and scope, HWT believes that it will seldom, if ever, be necessary to issue a PSPS.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT has developed its emergency operations plan, including PSPS protocol, prior to the Suncrest Facility going in service on February 29, 2020. HWT provided its emergency operations plan to the CPUC as part of 2020 WMP and has not made any changes to its procedures. HWT has never deployed PSPS at the Suncrest Facility.

e) ***Future improvements to initiative:*** As HWT gains more operational experience and grows its footprint in California, HWT will evaluate making appropriate changes to its PSPS protocols.

**70. PSPS events and mitigation of PSPS impacts**

Not applicable.

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

a) ***Risk to be mitigated / problem to be addressed:*** Under extreme weather conditions, an ignition and a small fire that is not timely suppressed can grow rapidly and uncontrollably.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Given the Suncrest Facility's location in Tier 3 (Extreme) HFTD with a recent history of fast-spreading wildfires like the Valley Fire in September 2020, HWT has engaged a private fire brigade trained on electrical fires to be on-call for fire suppression service in case of an on-site ignition. This arrangement ensures that HWT has dedicated access to qualified fire suppression services that enable timely response in the field to avoid uncontrollable propagation of wildfire.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-*

*risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT has had on-call suppression service agreement with a private fire brigade since the Suncrest Facility became operational on February 29, 2020 and plans to maintain this agreement in the future given Tier 3 (Extreme) wildfire risk designation of the Suncrest Facility and recent fast-spreading wildfires in the area of the asset. Additionally, HWT has contracted the private fire brigade to be on-site every day during original facility construction and ongoing wildfire hardening construction activities at the Suncrest Facility to minimize the risk of any on-site ignitions, given that the risk for utility-caused ignitions is the highest during construction activities. HWT procured a Class B foam trailer to provide ready suppression resources in the event of fire instigated by a failed transformer.

e) ***Future improvements to initiative:*** As HWT gains more operational experience and grows its footprint in California, HWT will evaluate making appropriate changes to its on-call ignition prevention and suppression services.

## Data governance

### 72. Centralized repository for data

a) ***Risk to be mitigated / problem to be addressed:*** Central repository of wildfire-related data does not reduce the risk of ignitions on its own, but it aids in understanding wildfire risk and informing wildfire-related decisions and submission of compliance filings.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* Given HWT's current limited scope of assets and associated wildfire-related data, HWT maintains a central repository of all wildfire-related data but does not use asset management platforms or solutions for this initiative.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT has maintained a single repository of all wildfire-related data for its only operational asset, the Suncrest Facility.

e) ***Future improvements to initiative:*** As HWT grows its footprint in California, HWT will evaluate making appropriate changes to its data governance procedures.

### 73. Collaborative research on utility ignition and/or wildfire

Not applicable.

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

Not applicable.

### 75. Tracking and analysis of risk event data

Not applicable.

## Resource allocation methodology

**76. Allocation methodology development and application**

Not applicable.

**77. Risk reduction scenario development and analysis**

Not applicable.

**78. Risk spend efficiency analysis – not to include PSPS**

Not applicable.

## Emergency planning and preparedness

**79. Adequate and trained workforce for service restoration**

Covered under initiative 80. Disaster and emergency preparedness plan.

**80. Community outreach, public awareness, and communications efforts**

Not applicable.

**81. Customer support in emergencies**

Not applicable.

**82. Disaster and emergency preparedness plan**

a) ***Risk to be mitigated / problem to be addressed:*** Ensuring adequate proactive preparedness in case of emergencies.

b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* According with good utility practice, HWT has developed an emergency operations plan for its only operating asset, the Suncrest Facility. All relevant HWT personnel, including the system operations team that remotely monitors the Suncrest Facility 24/7, are trained on HWT's emergency operations plan.

c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.

d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* HWT has developed its emergency operations plan, including its PSPS protocol, prior to the Suncrest Facility going in service on February 29, 2020. HWT provided its emergency operations plan to the CPUC as part of 2020 WMP and has not made any changes to its procedures. HWT has never deployed PSPS at the Suncrest Facility.

e) ***Future improvements to initiative:*** As HWT grows its footprint in California, HWT will evaluate making appropriate changes to its disaster and emergency preparedness plan

**83. Preparedness and planning for service restoration**

Covered under Initiative 80. Disaster and emergency preparedness plan.

**84. Protocols in place to learn from wildfire events**

a) ***Risk to be mitigated / problem to be addressed:*** Ensuring that lessons learned from wildfire events are appropriately captured to further improve HWT's wildfire-related processes and systems.
b) ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives:* HWT is committed to continuous improvement of its wildfire mitigation strategy. Hence, HWT employs After Action Review (AAR) process to analyze HWT's response to wildfire events and learn from them, improving HWT's systems and processes.
c) ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk"):* N/A. As mentioned above, HWT currently has one operational asset in California, the Suncrest Facility, and thus HWT does not currently operate in more than one region.
d) ***Progress on initiative*** *(amount spent, regions covered) and plans for next year:* As described in detail in Section 4, HWT promptly conducted an AAR after the fast-spreading Valley Fire that occurred several miles away from the Suncrest Facility in 2020. HWT implemented lessons learned identified in AAR and described in Section 4 of this WMP in 2021 as it monitored the Road Fire in particular and the wildfire season in general. HWT will continue conducting AARs as needed in the future to identify further improvements to HWT's wildfire strategy.
e) ***Future improvements to initiative:*** As HWT grows its footprint in California, HWT will evaluate making appropriate changes to its protocols to learn from wildfire events.

## Stakeholder cooperation and community engagement

**85. Community engagement**

Not applicable to HWT

**86. Cooperation and best practice sharing with agencies outside CA**

Not applicable to HWT

**87. Cooperation with suppression agencies**

Covered under initiative 80. Disaster and emergency preparedness plan.

**88. Forest service and fuel reduction cooperation and joint roadmap**

Not applicable.

# 8 PUBLIC SAFETY POWER SHUTOFF (PSPS)

## 8.1 Directional Vision for Necessity of PSPS

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

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

HWT is a transmission-only utility and does not own, operate, or maintain electric distribution facilities. The Suncrest Facility is HWT's first facility that became operational on February 29, 2020. Accordingly, none of HWT's Facilities include distribution reclosers. Additionally, HWT has never deployed a PSPS since it commenced operations of the Suncrest Facility and thus does not have any PSPS-related lessons learned to report. Based on the limited scale and scope of the HWT Facilities, at this time, HWT believes that it will seldom, if ever, be necessary to issue a PSPS. Nonetheless, HWT has developed the PSPS protocol described in Section 8.2 of this WMP to be prepared in the event a PSPS of HWT's facilities becomes necessary to protect the public. HWT will continue to evaluate its directional vision for necessity of PSPS as new transmission facilities are added. HWT will coordinate closely with Interconnecting Transmission Owners to monitor any PSPS events on interconnected or nearby facilities. HWT is subject to operating instructions from the CAISO and Interconnecting Transmission Owners, and HWT will also communicate directly with these entities before, during, and after any PSPS event.

***Instructions for Table 8.1-1:*** *Rank order, from highest (1 – greatest anticipated change in reliability or impact on ignition probability or estimated wildfire consequence over the next 10 years) to lowest (9 - minimal change or impact, next 10 years), the characteristics of PSPS events (e.g., numbers of customers affected, frequency, scope, and duration), regardless of if the change is an increase or a decrease. To the right of the ranked magnitude of impact, indicate whether the impact would be a significant increase in reliability, a moderate increase in reliability, limited or no impact, a moderate decrease in reliability, or a significant decrease in reliability. For each characteristic, include comments describing the expected change and expected impact, using quantitative estimates wherever possible.*

Given that HWT has no distribution system, no distribution or retail customers, and is already substantially hardened against wildfires, HWT reasonably anticipates it will seldom, if ever, need to issue a PSPS. Therefore, and considering that the Interconnecting Transmission Owner would

be the main driver of PSPS impact, HWT is not in a position to provide meaningful input to an analysis of anticipated characteristics of PSPS use. As such, Table 8.1-1 is not applicable and is intentionally provided with no rank order or PSPS characteristic assessment; only comments are provided.

**Table 8.1-2: Anticipated characteristics of PSPS use over next 10 years**

| Rank order 1-9 | PSPS characteristic | Significantly increase; increase; no change; decrease; significantly decrease | Comments |
|---|---|---|---|
| N/A | Number of customers affected by PSPS events (total) | N/A | HWT has no distribution or retail customers. |
| N/A | Number of customers affected by PSPS events (normalized by fire weather, e.g., Red Flag Warning line mile days) | N/A | HWT has no distribution or retail customers. |
| N/A | Frequency of PSPS events in number of instances where utility operating protocol requires de-energization of a circuit or portion thereof to reduce ignition probability (total) | N/A | HWT has no reasonably foreseeable need to issue a PSPS |
| N/A | Frequency of PSPS events in number of instances where utility operating protocol requires de-energization of a circuit or portion thereof to reduce ignition probability (normalized by fire weather, e.g., Red Flag Warning line mile days) | N/A | HWT has no reasonably foreseeable need to issue a PSPS |
| N/A | Scope of PSPS events in circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization (total) | N/A | HWT has no reasonably foreseeable need to issue a PSPS. |
| N/A | Scope of PSPS events in circuit-events, measured in number of events | N/A | HWT has no reasonably foreseeable need to issue a PSPS. |

| | | | |
|---|---|---|---|
| | multiplied by number of circuits targeted for de-energization (normalized by fire weather, e.g., Red Flag Warning line mile days) | | |
| N/A | Duration of PSPS events in customer hours (total) | N/A | HWT has no distribution or retail customers. |
| N/A | Duration of PSPS events in customer hours (normalized by fire weather, e.g., Red Flag Warning line mile days) | N/A | HWT has no distribution or retail customers. |
| 9 | Other (Describe) – Rank as 9 and leave other columns blank if no other characteristics associated with PSPS | | |

## 8.2 Protocols on Public Safety Power Shut-off

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

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

6. *Protocols for mitigating the public safety impacts of these protocols, including impacts on first responders, health care facilities, operators of telecommunications infrastructure, and water utilities/agencies.*

**HWT – Initiated Power Shut-off**

HWT may employ the use of PSPS as a last resort, if essential to minimize the possibility of the Suncrest Facility becoming the source of an ignition that may endanger local residents and communities. HWT has the responsibility to shut off power if it becomes necessary as a last resort to protect the public. Determining factors for consideration might include, but not limited to:

- If the CAISO instructs HWT to de-energize its facilities, HWT will comply with those instructions.
- If an Interconnecting Transmission Owner determines it is necessary for a PSPS of its interconnected or nearby facilities, HWT will use that decision as input to inform the consideration for a PSPS of the HWT Facilities.
- The HWT System Operator will communicate any current and predicted fire weather conditions, fire safety concerns, required mitigations for planned work operations to HWT Senior Director of Operations and make the determination if a PSPS is necessary.
- Based on the conditions collected in the bullet above, the HWT Operations Lead will perform an on-site inspection for fire ignition conditions.
- In the event that a non-HWT-related fire in the surrounding area has the potential to cut off access and/or directly impact operations of the HWT Facilities, the HWT Field Operations Lead will notify the HWT System Operator for a determination of whether a PSPS is necessary.

**HWT Safety Power Shutoff Protocol**

PSPS is a last resort measure to ensure public safety. Every reasonable attempt will be made to prevent the implementation of Power Shutoff to the HWT Facilities. Actions could include, but not be limited to Operational adjustments, including evaluation of the HWT Facilities and modifications made, such as, reducing or cancelling at-risk field work and increasing monitoring.

But should additional action be required, HWT system operations staff will undertake the following process:

- Assess
    - HWT system operator will take appropriate actions to protect public safety and mitigate threats
- De-Energize

- As a last resort, HWT Facility will be de-energized remotely by opening circuit breakers until conditions are safe.

- Patrols & Restoration
  - The restoration process requires that the risk for fire ignition and wind speeds for a sustained period are reduced to allow HWT crews to inspect station and transmission elements to be free and clear for re-energization. Once equipment and conditions are confirmed safe by the field operations team, the HWT Facility system operator will initiate the systematic restoration of power.

HWT has a detailed protocol for communication and coordination with its primary stakeholders in an emergency situation (e.g., CAISO, Interconnecting Transmission Owners, local fire agencies and first responders, and HWT's emergency response support team) and power restoration procedures as detailed in HWT's Emergency Operations Plan for its Suncrest SVC facility, which is being provided as a confidential attachment (Attachment C) to the WMP. HWT requests that its Emergency Operations Plan document be kept confidential.

## 8.3 Projected changes to PSPS impact

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

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

As mentioned above, HWT has not deployed PSPS to date. Given that HWT is a transmission-only utility that has no distribution system, no distribution or retail customers, and is already substantially hardened against wildfires, HWT reasonably anticipates it will seldom, if ever, need to issue a PSPS. Therefore, HWT does not have key program targets related to PSPS that it intends to track over time.

## 8.4 Engaging vulnerable communities

***Instructions:*** *Report on the following:*

1. *Describe protocols for PSPS that are intended to mitigate the public safety impacts of PSPS on vulnerable, marginalized and/or at-risk communities. Describe how the utility is identifying these communities.*
2. *List all languages which are "prevalent" in utility's territory. A language is prevalent if it is spoken by 1,000 or more persons in the utility's territory or if it is spoken by 5% or more of*

*the population within a "public safety answering point" in the utility territory[22] (D.20-03-004).*

3. *List all languages for which public outreach material is available, in written or oral form.*
4. *Detail the community outreach efforts for PSPS and wildfire-related outreach. Include efforts to reach all languages prevalent in utility territory.*

As explained above, as a transmission-only utility, HWT does not serve end-use customers or have a traditional service territory. Therefore, HWT does not anticipate engaging with vulnerable communities regarding PSPS. HWT does have a protocol for engaging with other critical stakeholders (e.g., CAISO, Interconnecting Transmission Owners, local fire agencies, etc.) regarding a potential PSPS event, as detailed in HWT's Emergency Operations Plan.

## 8.5 PSPS-specific metrics

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

Table 11 of Attachment 3: Recent use of PSPS and other PSPS metrics is provided in HWT's Attachment 3 filed in the OEIS Docket #2022-QDR on April 15, 2022.

## 8.6 Identification of frequently de-energized circuits

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

HWT had no circuits which were de-energized pursuant to a de-energization event to mitigate the risk of wildfire in 2021. As a result, Table 8.6-*1* is marked below as not applicable (N/A).

[22] See Cal. Government Code § 53112

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

Table 8.6-1: Frequently de-energized circuits

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

# 9 APPENDIX

## 9.1 Definitions of initiative activities by category

**Table 9-1: Definitions of initiative activities by category**

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

| | | |
|---|---|---|
| | | monitor the condition of electric lines and equipment. |
| | Fault indicators for detecting faults on electric lines and equipment | Installation and maintenance of fault indicators. |
| | Forecast of a fire risk index, fire potential index, or similar | Index that uses a combination of weather parameters (such as wind speed, humidity, and temperature), vegetation and/or fuel conditions, and other factors to judge current fire risk and to create a forecast indicative of fire risk. A sufficiently granular index shall inform operational decision-making. |
| | Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions | Personnel position within utility service territory to monitor system conditions and weather on site. Field observations shall inform operational decisions. |
| | Weather forecasting and estimating impacts on electric lines and equipment | Development methodology for forecast of weather conditions relevant to utility operations, forecasting weather conditions and conducting analysis to incorporate into utility decision-making, learning and updates to reduce false positives and false negatives of forecast PSPS conditions. |
| **C. Grid design and system hardening** | Capacitor maintenance and replacement program | Remediation, adjustments, or installations of new equipment to improve or replace existing capacitor equipment. |
| | Circuit breaker maintenance and installation to de-energize lines upon detecting a fault | Remediation, adjustments, or installations of new equipment to improve or replace existing fast switching circuit breaker equipment to improve the ability to protect electrical circuits from damage caused by overload of electricity or short circuit. |
| | Covered conductor installation | Installation of covered or insulated conductors to replace standard bare or unprotected conductors (defined in accordance with GO 95 as supply conductors, including but not limited to lead wires, not enclosed in a grounded metal pole or not covered by: a “suitable protective covering” (in accordance with Rule 22.8 ), grounded metal conduit, or grounded metal sheath or shield). In accordance with GO 95, conductor is defined as a material suitable |

| | | |
|---|---|---|
| | | for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D. |
| | Covered conductor maintenance | Remediation and adjustments to installed covered or insulated conductors. In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D. |
| | Crossarm maintenance, repair, and replacement | Remediation, adjustments, or installations of new equipment to improve or replace existing crossarms, defined as horizontal support attached to poles or structures generally at right angles to the conductor supported in accordance with GO 95. |

| | | |
|---|---|---|
| | Distribution pole replacement and reinforcement, including with composite poles | Remediation, adjustments, or installations of new equipment to improve or replace existing distribution poles (i.e., those supporting lines under 65kV), including with equipment such as composite poles manufactured with materials reduce ignition probability by increasing pole lifespan and resilience against failure from object contact and other events. |
| | Expulsion fuse replacement | Installations of new and CAL FIRE-approved power fuses to replace existing expulsion fuse equipment. |
| | Grid topology improvements to mitigate or reduce PSPS events | Plan to support and actions taken to mitigate or reduce PSPS events in terms of geographic scope and number of customers affected, such as installation and operation of electrical equipment to sectionalize or island portions of the grid, microgrids, or local generation. |
| | Installation of system automation equipment | Installation of electric equipment that increases the ability of the utility to automate system operation and monitoring, including equipment that can be adjusted remotely such as automatic reclosers (switching devices designed to detect and interrupt momentary faults that can reclose automatically and detect if a fault remains, remaining open if so). |
| | Maintenance, repair, and replacement of connectors, including hotline clamps | Remediation, adjustments, or installations of new equipment to improve or replace existing connector equipment, such as hotline clamps. |
| | Mitigation of impact on customers and other residents affected during PSPS event | Actions taken to improve access to electricity for customers and other residents during PSPS events, such as installation and operation of local generation equipment (at the community, household, or other level). |
| | Other corrective action | Other maintenance, repair, or replacement of utility equipment and structures so that they function properly and safely, including remediation activities (such as insulator washing) of other electric equipment deficiencies that may increase ignition probability due to potential equipment failure or other drivers. |

| | | |
|---|---|---|
| | Pole loading infrastructure hardening and replacement program based on pole loading assessment program | Actions taken to remediate, adjust, or install replacement equipment for poles that the utility has identified as failing to meet safety factor requirements in accordance with GO 95 or additional utility standards in the utility's pole loading assessment program. |
| | Transformers maintenance and replacement | Remediation, adjustments, or installations of new equipment to improve or replace existing transformer equipment. |
| | Transmission tower maintenance and replacement | Remediation, adjustments, or installations of new equipment to improve or replace existing transmission towers (e.g., structures such as lattice steel towers or tubular steel poles that support lines at or above 65kV). |
| | Undergrounding of electric lines and/or equipment | Actions taken to convert overhead electric lines and/or equipment to underground electric lines and/or equipment (i.e., located underground and in accordance with GO 128). |
| | Updates to grid topology to minimize risk of ignition in HFTDs | Changes in the plan, installation, construction, removal, and/or undergrounding to minimize the risk of ignition due to the design, location, or configuration of utility electric equipment in HFTDs. |
| **D. Asset management and inspections** | Detailed inspections of distribution electric lines and equipment | In accordance with GO 165, careful visual inspections of overhead electric distribution lines and equipment where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded. |
| | Detailed inspections of transmission electric lines and equipment | Careful visual inspections of overhead electric transmission lines and equipment where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded. |
| | Improvement of inspections | Identifying and addressing deficiencies in inspections protocols and implementation by |

| | | |
|---|---|---|
| | | improving training and the evaluation of inspectors. |
| | Infrared inspections of distribution electric lines and equipment | Inspections of overhead electric distribution lines, equipment, and right-of-way using infrared (heat-sensing) technology and cameras that can identify "hot spots", or conditions that indicate deterioration or potential equipment failures, of electrical equipment. |
| | Infrared inspections of transmission electric lines and equipment | Inspections of overhead electric transmission lines, equipment, and right-of-way using infrared (heat-sensing) technology and cameras that can identify "hot spots", or conditions that indicate deterioration or potential equipment failures, of electrical equipment. |
| | Intrusive pole inspections | In accordance with GO 165, intrusive inspections involve movement of soil, taking samples for analysis, and/or using more sophisticated diagnostic tools beyond visual inspections or instrument reading. |
| | LiDAR inspections of distribution electric lines and equipment | Inspections of overhead electric transmission lines, equipment, and right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). |
| | LiDAR inspections of transmission electric lines and equipment | Inspections of overhead electric distribution lines, equipment, and right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). |
| | Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations | Inspections of overhead electric transmission lines, equipment, and right-of-way that exceed or otherwise go beyond those mandated by rules and regulations, including GO 165, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept. |
| | Other discretionary inspection of transmission electric lines and equipment, beyond | Inspections of overhead electric distribution lines, equipment, and right-of-way that exceed or otherwise go beyond those mandated by rules and regulations, including GO 165, in |

| | | |
|---|---|---|
| | inspections mandated by rules and regulations | terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept. |
| | Patrol inspections of distribution electric lines and equipment | In accordance with GO 165, simple visual inspections of overhead electric distribution lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business. |
| | Patrol inspections of transmission electric lines and equipment | Simple visual inspections of overhead electric transmission lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business. |
| | Pole loading assessment program to determine safety factor | Calculations to determine whether a pole meets pole loading safety factor requirements of GO 95, including planning and information collection needed to support said calculations. Calculations shall consider many factors including the size, location, and type of pole; types of attachments; length of conductors attached; and number and design of supporting guys, per D.15-11-021. |
| | Quality assurance / quality control of inspections | Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes. |
| | Substation inspections | In accordance with GO 175, inspection of substations performed by qualified persons and according to the frequency established by the utility, including record-keeping. |
| **E. Vegetation management and inspection** | Additional efforts to manage community and environmental impacts | Plan and execution of strategy to mitigate negative impacts from utility vegetation management to local communities and the environment, such as coordination with communities, local governments, and agencies to plan and execute vegetation management work. |

| | | |
|---|---|---|
| | Detailed inspections of vegetation around distribution electric lines and equipment | Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded. Describe the frequency of inspection and maintenance programs. |
| | Detailed inspections of vegetation around transmission electric lines and equipment | Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded. Describe the frequency of inspection and maintenance programs. |
| | Emergency response vegetation management due to red flag warning or other urgent conditions | Plan and execution of vegetation management activities, such as trimming or removal, executed based upon and in advance of forecast weather conditions that indicate high fire threat in terms of ignition probability and wildfire consequence. |
| | Fuel management and, management of all wood and “slash” from vegetation management activities | Plan and execution of fuel management activities in proximity to potential sources of ignition. This includes pole clearing per PRC 4292 and reduction or adjustment of live fuel (based on species or otherwise) and of dead fuel, including all downed wood and “slash” generated from vegetation management activities. |
| | Improvement of inspections | Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors. |
| | LiDAR inspections of vegetation around distribution electric lines and equipment | Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). |
| | LiDAR inspections of vegetation around transmission electric lines and equipment | Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). |
| | Other discretionary inspections of vegetation around distribution electric lines and equipment | Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements |

| | | |
|---|---|---|
| | | or detail, analysis of and response to problems identified, or other aspects of inspection or records kept. |
| | Other discretionary inspections of vegetation around transmission electric lines and equipment | Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept. |
| | Patrol inspections of vegetation around distribution electric lines and equipment | Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business. |
| | Patrol inspections of vegetation around transmission electric lines and equipment | Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business. |
| | Quality assurance / quality control of vegetation inspections | Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes. This includes identification of the percentage of vegetation inspections that are audited annually, as a program target in Table 5.3-1. |
| | Recruiting and training of vegetation management personnel | Programs to ensure that the utility is able to identify and hire qualified vegetation management personnel and to ensure that both full-time employees and contractors tasked with vegetation management responsibilities are adequately trained to perform vegetation management work, according to the utility's wildfire mitigation plan, in addition to rules and regulations for safety. Include discussion of continuous improvement of training programs and personnel qualifications. |
| | Remediation of at-risk species | Actions taken to reduce the ignition probability and wildfire consequence |

| | | |
|---|---|---|
| | | attributable to at-risk vegetation species, such as trimming, removal, and replacement. |
| | Removal and remediation of trees with strike potential to electric lines and equipment | Actions taken to remove or otherwise remediate trees that could potentially strike electrical equipment, if adverse events such as failure at the ground-level of the tree or branch breakout within the canopy of the tree, occur. |
| | Substation inspection | Inspection of vegetation surrounding substations, performed by qualified persons and according to the frequency established by the utility, including record-keeping. |
| | Substation vegetation management | Based on location and risk to substation equipment only, actions taken to reduce the ignition probability and wildfire consequence attributable to contact from vegetation to substation equipment. |
| | Vegetation management enterprise system | Inputs, operation, and support for a centralized vegetation management enterprise system updated based upon inspection results and management activities such as trimming and removal of vegetation. |
| | Vegetation management to achieve clearances around electric lines and equipment | Actions taken to ensure that vegetation does not encroach upon the minimum clearances set forth in Table 1 of GO 95, measured between line conductors and vegetation, such as trimming adjacent or overhanging tree limbs. |
| | Vegetation management activities post-fire | Vegetation management (VM) activities during post-fire service restoration including, but not limited to: activities or protocols that differentiate post-fire VM from programs described in other WMP initiatives; supporting documentation for the tool and/or standard the utility uses to assesses the risk presented by vegetation post-fire; and how the utility includes fire-specific damage attributes into its assessment tool/standard. |
| **F. Grid operations and protocols** | Automatic recloser operations | Designing and executing protocols to deactivate automatic reclosers based on local conditions for ignition probability and wildfire consequence. |

| | | |
|---|---|---|
| | Crew-accompanying ignition prevention and suppression resources and services | Those firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, and water) that are deployed with construction crews and other electric workers to provide site-specific fire prevention and ignition mitigation during on-site work |
| | Personnel work procedures and training in conditions of elevated fire risk | Work activity guidelines that designate what type of work can be performed during operating conditions of different levels of wildfire risk. Training for personnel on these guidelines and the procedures they prescribe, from normal operating procedures to increased mitigation measures to constraints on work performed. |
| | Protocols for PSPS re-energization | Designing and executing procedures that accelerate the restoration of electric service in areas that were de-energized, while maintaining safety and reliability standards. |
| | PSPS events and mitigation of PSPS impacts | Designing, executing, and improving upon protocols to conduct PSPS events, including development of advanced methodologies to determine when to use PSPS, and to mitigate the impact of PSPS events on affected customers and local residents. |
| | Stationed and on-call ignition prevention and suppression resources and services | Firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, firefighting foam, chemical extinguishing agent, and water) stationed at utility facilities and/or standing by to respond to calls for fire suppression assistance. |
| **G. Data governance** | Centralized repository for data | Designing, maintaining, hosting, and upgrading a platform that supports storage, processing, and utilization of all utility proprietary data and data compiled by the utility from other sources. |
| | Collaborative research on utility ignition and/or wildfire | Developing and executing research work on utility ignition and/or wildfire topics in collaboration with other non-utility partners, such as academic institutions and research groups, to include data-sharing and funding as applicable. |

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

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

| | | |
|---|---|---|
| | | efforts for forest management and fuel reduction activities). |

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

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

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

## 9.3 Covered Conductor Installation Reporting

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

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

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

This section is not applicable to as HWT is a transmission-only utility without and distribution assets. The undergrounding of HWT's transmission elements were part of the original system design when HWT was constructed in 2020 with 0.02mi of overhead transmission line being undergrounded in Q3 2021. The HWT system does not utilize covered conductors.

## 9.4 Undergrounding Implementation Reporting

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

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

*This information must be derived from utility-specific programs.*

HWT does not have a specific on-going program for implementing undergrounding of transmissions lines as undergrounding the Suncrest Facility's approximately one mile long transmission line was part of the original system design. When the facility commenced operations in February 2020, there remained a short 115 foot span of overhead transmission line which HWT intended to underground as stated in previous WMP submissions. In 2021, HWT did undertake undergrounding of this span of 115 feet of overheard transmission line, completing the effort in Q3 of 2021. HWT's response below is based on the undergrounding of 115 feet of overhead transmission line that occurred in 2021.

- **Methodology for installation and implementation**
  The methodology of the undergrounding was accomplished with the cut and cover method to extend the concrete-encased duct bank. A new riser pole was erected at the terminus of the new underground section. The cable was then pulled through the new duct bank and terminated on the new riser pole.
- **Design and design considerations (such as permitting requirements, additional hardware needed for installation, etc.)**
  The design required a detailed engineering analysis due to the steep slope where the undergrounding was to occur. This necessitated the installation of an access road along the slope of the hill. Additionally, the high voltage cable was not able to be spliced at the end, nearest the proposed undergrounding, which required replacement of approximately 0.5 miles of existing cable. The design complied with all applicable permitting requirements.
- **Implementation (including timeframes, prioritization, contractor and labor needs, etc.)**

The undergrounding effort commenced in April 2021 and concluded in September 2021. HWT only owns one operational asset in California, the Suncrest Facility, and the project took sole priority. HWT utilized contractors to complete the undergrounding effort.

- **Long-term operations and considerations (including maintenance, long-term effectiveness and feasibility, effectiveness monitoring, etc.)**
  As HWT already operated approximately one mile of underground cable, its Transmission Line Maintenance procedure is already in place and includes guidelines on effective inspection and maintenance tasks of the existing underground cable. The guidelines now include the new 0.5 mile underground installation. Additionally, the underground cable monitoring system, which was installed in 2021, provides effective real-time situational awareness for the entire approximately one mile underground cable route.

- **Key assumptions**
  HWT has completed the undergrounding effort of its only overhead transmission line, therefore no assumptions are required in the analysis.

- **Cost effectiveness evaluations** (including cost breakdown per circuit mile, comparison with alternatives, etc.)
  As noted above, although HWT operates approximately one mile of transmission line with 115 feet of overhead span, the asset is located in a Tier 3 HFTD in San Diego County. Wildfires are unfortunately a repeat occurrence in the area, as there were at least 10 wildfires in the county in 2021. In 2020, the Valley Fire came within 4 miles of Suncrest and consumed over 17,000 acres in under 3 days. Given the history of the area, undergrounding of the only overhead transmission span owned by HWT was a key aspect of company's wildfire mitigation plan and fire risk reduction efforts. No other effective alternatives were considered. The cost for undergrounding the 0.5 mile section of transmission line was $4,427,550.

- **Any other activities relevant to the undergrounding implementation**
  The underground cable monitoring system was installed at the same time as the undergrounding to maximize construction resource utilization.