MERCED IRRIGATION DISTRICT

WILDFIRE MITIGATION PLAN

VERSION 1.0

November 5, 2019

MERCED IRRIGATION DISTRICT
WATER & POWER

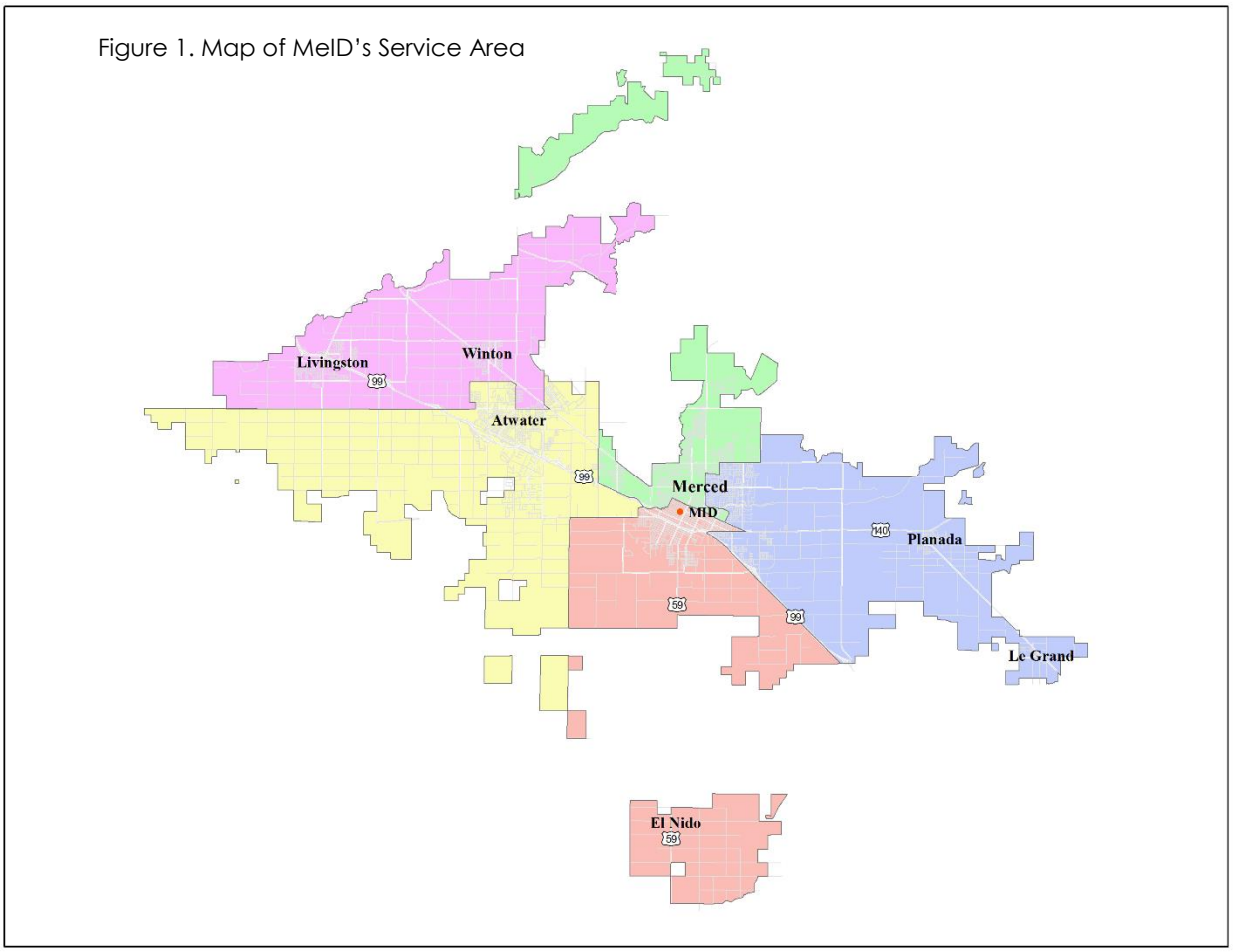
TABLE OF CONTENTS

I. OVERVIEW

A. POLICY STATEMENT

Merced Irrigation District's (MeID) overarching goal is to provide safe, reliable, and economic electric service to its local community. In order to meet this goal, MeID constructs, maintains and operates its electrical lines and equipment in a manner that minimizes the risk of catastrophic wildfire posed by electrical lines and equipment.

Figure 1. Map of MeID's Service Area



B. PURPOSE OF THE WILDFIRE MITIGATION PLAN

This Wildfire Mitigation Plan (WMP) describes the range of activities that MeID is implementing and has already taken to mitigate the threat of power-line ignited wildfires.

MeID operates in a region of California with a very low wildfire risk. No part of MeID's service territory is located in or near High Fire Threat Districts designated in the California Public Utilities Commission's (CPUC) Fire Threat Map[1]. All of MeID's service territory is designated as "non-fuel" or "moderate" in the California Department of Forestry and Fire Protection's (CALFIRE) Fire and Resource Assessment Program (FRAP) Fire Threat Map[2]. Based on a review of local conditions and historical fires**, MeID has determined that its electrical lines and equipment do not pose a significant risk of catastrophic wildfire[3].**

Despite this low risk, MeID takes appropriate actions to help its region prevent and respond to the increasing risk of wildfires. In its role as a public agency, MEID closely coordinates with other local safety and emergency officials to help protect against fires and respond to emergencies. In its role as a utility, MeID follows all applicable design, construction, operation, and maintenance requirements that reduce safety risks associated with its system. This Wildfire Mitigation Plan describes the safety-related measures that MeID follows to reduce its risk of causing wildfires.

C. ORGANIZATION OF THE WILDFIRE MITIGATION PLAN

This Wildfire Mitigation Plan includes the following elements:

- Objectives of the plan;
- Roles and responsibilities for carrying out the plan;
- Identification of key wildfire risks and risk drivers;
- Description of wildfire prevention, mitigation, and response strategies and programs;
- Metrics for evaluating the performance of the plan and identifying areas for improvement;
- Review and validation of the plan; and
  Timelines.

[1] CPUC Fire-Threat Map, Adopted by CPUC January 19, 2018
[2] FTHREAT_MAP, FRAP Fire Threat v05_1, October 20,2005
https://www.cpuc.ca.gov/FireThreatMaps/
https://frap.fire.ca.gov/mapping/maps/
[3]Adopted by MeID resolution 2018-28.

II. OBJECTIVES OF THE WILDFIRE MITIGATION PLAN

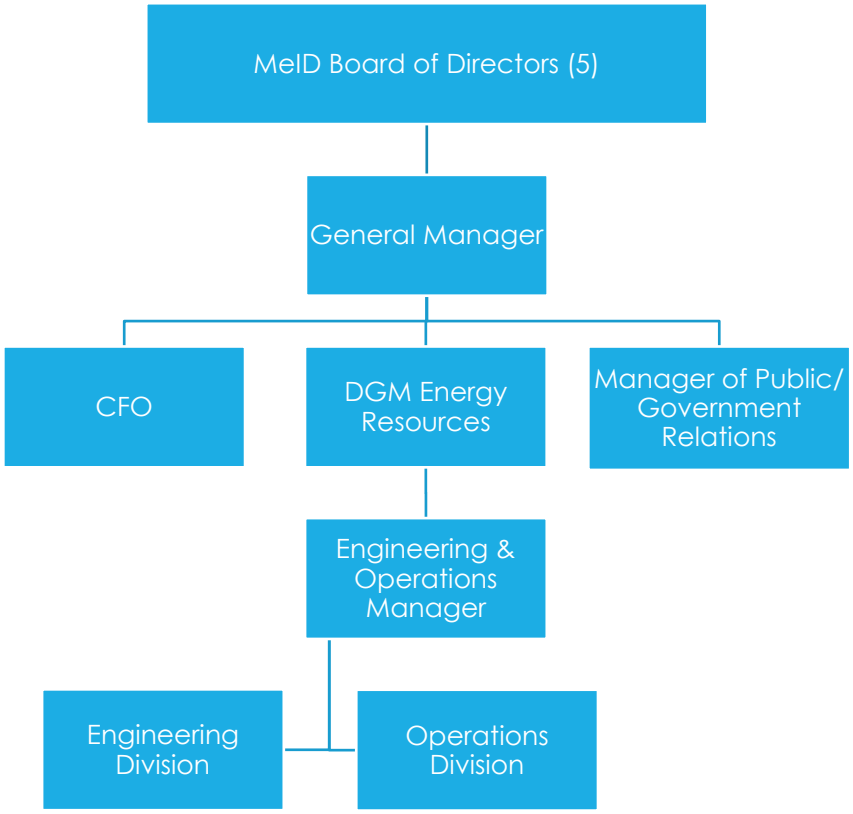
The primary goal of this Wildfire Mitigation Plan is to describe MEID's existing programs, practices, and measures that effectively reduce the probability that MEID's electric system could be the origin or contributing source for the ignition of a wildfire. To support this goal, MEID regularly evaluates the prudent and cost-effective improvements to its physical assets, operations, and training that can help reduce the risk of equipment-related fires.

The secondary goal of this Wildfire Mitigation Plan is to improve the resiliency of the electric grid. As part of the development of this plan, MEID is constantly assessing new industry practices and technologies that will reduce the likelihood of an interruption (frequency) in service and improve the restoration (duration) of service.

III. ROLES AND RESPONSIBILITIES

A. UTILITY GOVERNANCE STRUCTURE

Fig 2. Excerpt from MeID Organizational Chart, as relevant to the Wildfire Mitigation Plan



MeID is governed by a 5 member locally elected Board of Directors (The Board). The following is a summary of key personnel and their responsibilities with regard to the Wildfire Mitigation Plan.

The Board of Directors is responsible for:

- Review and approval of the Merced Irrigation District Wildfire Mitigation Plan.

The General Manager is responsible for:

- The General Manager directs the Deputy General Manager of Energy Resources, the Chief Financial Officer and the Manager of Public/ Government Relations in the development and implementation of the Wildfire Mitigation Plan.

The Deputy General Manager of Energy Resources directs:

- Development of the Wildfire Mitigation plan in compliance with SB 901
- Tree trimming to maintain clearances required by MeID Standards
- Vegetation removal with accordance to MeID Standards

- Installation of electrical infrastructure in accordance with MeID Standards
- Line Patrols and detailed inspections in accordance with MeID Standards

The Chief Financial Officer directs:

- Allocation of funds to effectively execute the Wildfire Mitigation Plan.

The Manager of Public/ Government Relations oversees:

- Public communication regarding the prevention of wildfires and preparations for wildfire events

B. WILDFIRE PREVENTION

In all activities related to electric facility design, maintenance, inspection and vegetation management, all MeID staff adhere to the following principles, goals, and objectives:

- Operate system in a manner that will minimize potential wildfire risks.
- Take all reasonable and practicable actions to minimize the risk of a catastrophic wildfire caused by MEID electric facilities.
- Coordinate with federal, state, county and local fire management personnel as necessary or appropriate to implement MEID Wildfire Mitigation Plan.
- Immediately report fires, pursuant to existing Publicly Owned Utility (POU) practices and the requirements of this Wildfire Mitigation Plan.
- Take corrective action when the staff witnesses or is notified that fire protection measures have not been properly installed or maintained.
- Comply with relevant federal, state, and industry standard requirements, including the industry standards established by the California Public Utilities Commission.

Approximately 15% of MeID's electrical distribution system is located overhead while the other 85% is underground. This ongoing practice in MeID electrical facility design to underground services continues to help MeID provide safe, reliable, economical power to our customers and reduce our wildfire ignition risk.

C. WILDFIRE RESPONSE AND RECOVERY

MeID is available for emergency response 24 hours per day, 7 days per week, and 365 days per year. After business hours, Turlock Irrigation District's (TID) system operations control room has the ability to contact MeID resources on-call to respond to outage incidents or emergencies. Merced County Emergency services also has open communication with MeID resources if a fire is located near the vicinity of MeID's electrical facilities.

Though MeID is in a low-risk wildfire region and makes every effort to mitigate wildfire ignition, in the event that there is a wildfire ignition from MeID equipment, MeID utility staff have the following obligations regarding wildfire emergency response and investigation:

- Take all reasonable and practical actions to suppress fires resulting from MeID electric facilities
- Mitigate electrical hazards for first-responders entering vicinity of MeID electric facilities
- Communicate and coordinate with local fire authorities
- Collect and maintain data in relation to wildfire ignition and origin

During wildfire emergency response, Merced County emergency services have direct access and open lines of communication with MeID personnel on site.

Table 1. Emergency Contacts for Wildfire Response

Wildfire Emergency Contacts	Phone Number
Merced County Emergency Services	911
Merced County Fire Department	209-385-7344
Atwater Fire Department	209-357-6352
Merced Fire Department	209-385-6891
Livingston Fire Department	209-394-7919

D. STANDARDIZED EMERGENCY MANAGEMENT SYSTEM

As a local governmental agency,[4] MEID has planning, communication, and coordination obligations pursuant to the California Office of Emergency Services' Standardized Emergency Management System ("SEMS") Regulations,[5] adopted in accordance with Government Code section 8607. The SEMS Regulations specify roles, responsibilities, and structures of communications at five different levels: field response, local government, operational area, regional, and state.[6] Pursuant to this structure, MEID annually coordinates and communicates with the relevant safety agencies as well as other relevant local and state agencies.

[4] As defined in Cal. Gov. Code § 8680.2.
[5] 19 CCR § 2407.
[6] Cal. Gov. Code § 2403(b):

> (1) "Field response level" commands emergency response personnel and resources to carry out tactical decisions and activities in direct response to an incident or threat.
>
> (2) "Local government level" manages and coordinates the overall emergency response and recovery activities within their jurisdiction.
>
> (3) "Operational area level" manages and/or coordinates information, resources, and priorities among local governments within the operational area and serves as the coordination and communication link between the local government level and the regional level.
>
> (4) "Regional level" manages and coordinates information and resources among operational areas within the mutual aid region designated pursuant to Government Code §8600 and between the operational areas and the state level. This level along with the state level coordinates overall state agency support for emergency response activities.
>
> (5) "State level" manages state resources in response to the emergency needs of the other levels, manages and coordinates mutual aid among the mutual aid regions and between the regional

Under the SEMS structure, a significant amount of preparation is done through advanced planning at the county level, including the coordination of effort of public, private, and nonprofit organizations. Merced County serves as the Operational Area and is guided by the Merced County Disaster Council that is made up of representatives of Merced County. The Operational Area includes local and regional organizations that bring relevant expertise to the wildfire prevention and recovery planning process.

Pursuant to the SEMS structure, MEID participates in regular meetings (typically monthly) and various monthly/quarterly/annual training exercises.

MEID is a member of the California Utility Emergency Association, which plays a key role in ensuring communications between utilities during emergencies. MEID also participate in the Western Energy Institute's Western Region Mutual Assistance Agreement, which is a mutual assistance agreement covering utilities across a number of western states.

IV. WILDFIRE RISKS AND DRIVERS ASSOCIATED WITH DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE

A. PARTICULAR RISKS AND RISK DRIVERS ASSOCIATED WITH TOPOGRAPHIC AND CLIMATOLOGICAL RISK FACTORS

Within MEID's service territory and the surrounding areas, the primary risk drivers for wildfire are the following:

- Extended drought;
- Vegetation type;
- Vegetation Density;
- Weather;
- High winds;
- Terrain;
- Changing Weather Patterns (Climate Change);
- Communities at Risk;
- Fire History.

B. ENTERPRISEWIDE SAFETY RISKS

Fire risks due to extended drought and high winds are very low within MeID's service territory. MeID has over 80% of its electrical system underground, further reducing the risk of an electrical related wildfire ignition. An overlay of MeID's service territory and the CPUC Fire Threat Map is

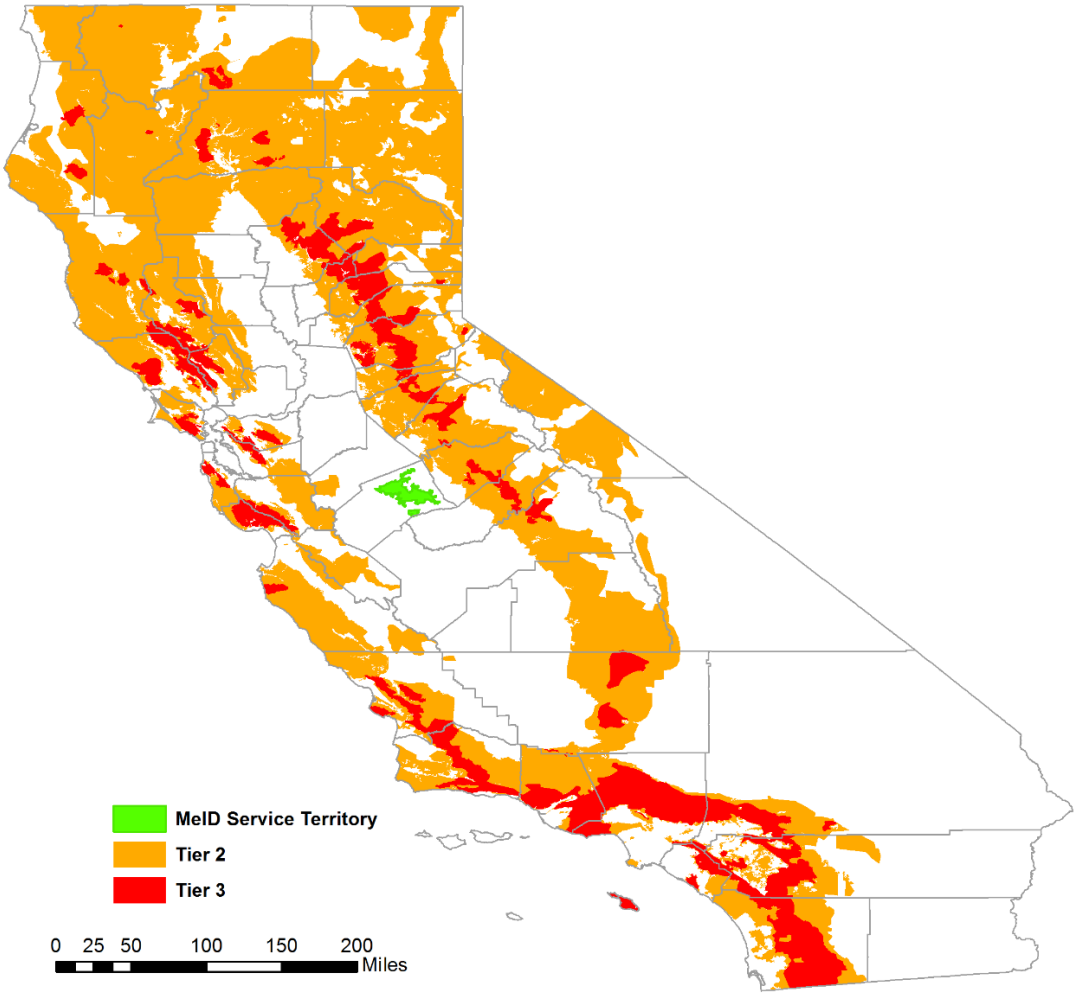
level and state level, and serves as the coordination and communication link with the federal disaster response system.

shown in Figure 3. MeID's entire service territory is located in Tier 1 (low risk) and does not have a history of causing electrical wildfires. Table 1 describes the tiers in the CPUC Fire Threat Map.

Table 2. Description of the CPUC tiered fire threat zones & MeID territory

Zone	Category	MeID Territory Description
Tier 1	Areas with zero to moderate wildfire risk	Well-developed area, 85% underground distribution facilities
Tier 2	Areas with elevated wildfire risk	Not in zone
Tier 3	Areas with extreme wildfire risk	Not in zone

Figure 3. CPUC Fire Threat Map with MeID Territory Overlay



C. CPUC FIRE THREAT MAP ADJUSTMENTS

MeID has not identified any additional geographic areas in our service territory that are a higher wildfire threat than what is identified in the CPUC's Fire Threat map.

V. WILDFIRE PREVENTATIVE STRATEGIES

A. HIGH FIRE THREAT DISTRICT

MEID directly participated in the development of the CPUC's Fire-Threat Map,[7] which designates a High-Fire Threat District.

In the map development process, MEID reviewed the proposed boundaries of the High Fire Threat District and confirmed that, based on local conditions and historical fire data, all of MEID's service territory was properly excluded. MEID has incorporated the High Fire Threat District into its construction, inspection, maintenance, repair, and clearance practices, where applicable.

B. DESIGN AND CONSTRUCTION STANDARDS

MEID's electric facilities are designed and constructed to meet or exceed the relevant federal, state, or industry standard. MEID treats CPUC General Orders (GO) 95 as a key industry standard for design and construction standards for overhead and underground electrical facilities. MEID meets or exceeds all standards in GO 95. Additionally, MEID monitors and follows, as appropriate, the National Electric Safety Code.

C. VEGETATION MANAGEMENT

MEID meets or exceeds the minimum industry standard vegetation management practices. For 115 kV transmission-level facilities, MEID complies with NERC FAC-003-4, where applicable. For both transmission and distribution level facilities, MEID meets: (1) Public Resources Code section 4292; (2) Public Resources Code section 4293; (3) GO 95 Rule 35; and (4) the GO 95 Appendix E Guidelines to Rule 35. These standards require significantly increased clearances in the High Fire Threat District. The recommended time-of-trim guidelines do not establish a mandatory standard, but instead provide useful guidance to utilities. MEID will use specific knowledge of growing conditions and tree species to determine the appropriate time of trim clearance in each circumstance.

GO 95, Rule 35, Table 1					
Case	Type of Clearance	Trolley Contact, Feeder and Span Wires, 0-5kv	Supply Conductors and Supply Cables, 750 - 22,500 Volts	Supply Conductors and Supply Cables, 22.5 - 300 kV	Supply Conductors and Supply Cables, 300 - 550 kV (mm)
13	Radial clearance of bare line conductors from tree branches or foliage	18 inches	18 inches	¼ Pin Spacing	½ Pin Spacing

[7] Adopted by CPUC Decision 17-12-024.

14	Radial clearance of bare line conductors from vegetation in the Fire-Threat District	18 inches	48 inches	48 inches	120 inches

Appendix E
Guidelines to Rule 35

The radial clearances shown below are recommended minimum clearances that should be established, at time of trimming, between the vegetation and the energized conductors and associated live parts where practicable. Reasonable vegetation management practices may make it advantageous for the purposes of public safety or service reliability to obtain greater clearances than those listed below to ensure compliance until the next scheduled maintenance. Each utility may determine and apply additional appropriate clearances beyond clearances listed below, which take into consideration various factors, including: line operating voltage, length of span, line sag, planned maintenance cycles, location of vegetation within the span, species type, experience with particular species, vegetation growth rate and characteristics, vegetation management standards and best practices, local climate, elevation, fire risk, and vegetation trimming requirements that are applicable to State Responsibility Area lands pursuant to Public Resource Code Sections 4102 and 4293.

Voltage of Lines	Case 13	Case 14
Radial clearances for any conductor of a line operating at 2,400 or more volts, but less than 72,000 volts	4 feet	12 feet
Radial clearances for any conductor of a line operating at 72,000 or more volts, but less than 110,000 volts	6 feet	20 feet
Radial clearances for any conductor of a line operating at 110,000 or more volts, but less than 300,000 volts	10 feet	30 feet
Radial clearances for any conductor of a line operating at 300,000 or more volts	15 feet	30 feet

D. INSPECTIONS

MEID meets or exceeds the minimum inspection requirements provided in CPUC GO 165 and CPUC GO 95, Rule 18. Pursuant to these rules, utilities inspect electric facilities in the High Fire Threat District more frequently than the other areas of its service territory. As described above, MEID currently does not have any overhead powerlines located within or near the High-Fire Threat District within the CPUC's Fire Threat Map. However, MEID staff uses their knowledge of the specific environmental and geographical conditions of MEID's service territory to determine if any particular areas require more frequent inspections.

If MEID staff discovers an electric facility in need of repair that is owned by an entity other than MEID, MEID will issue a notice to repair to the facility owner and work to ensure that necessary repairs are completed promptly.

E. RECLOSING POLICY

MeID substation breakers can be set in a non-reclosing mode when desired. MeID line reclosers can also be set in a non-reclosing mode when desired. This is typically done when needed for personnel safety. The settings and coordination of these electric protective devices were based on best practices and event reports from previous years. If deemed necessary, MeID has the capability to change the reclosing settings during adverse conditions.

F. DE-ENERGIZATION

MEID has the authority to preemptively shut off power due to fire-threat conditions, however, this option will only be used in extraordinary circumstances. Due to the minimal risk of MEID's electrical supply facilities causing a power-line ignited wildfire, MEID is not adopting a Power Safety Shut-Off Scheme or other specific protocols for de-energizing any portions of its electric distribution system. MEID will re-evaluate this determination in future updates to this Wildfire Mitigation Plan.

VI. RESTORATION OF SERVICE

The steps to restore service after a wildfire are similar to the process of restoring service anywhere in MeID's electric system where a non-reclosing outage occurs. These steps include circuit patrolling, repair, and restoration.

The circuit is patrolled starting at the electrical protective device to the end of line in order to determine if the condition that caused the circuit to go out of service is still in place. If this event had caused an unsafe condition, then the condition must be corrected before further work to restore power resumes. Once the condition has been resolved and the equipment repaired, the system may then be deemed safe and re-energized.

VII. EVALUATING OF THE PLAN

A. METRICS AND ASSUMPTIONS FOR MEASURING PLAN PERFORMANCE

MEID will track two metrics to measure the performance of this Wildfire Mitigation Plan: (1) number of fire ignitions; and (2) wires down within the service territory.

METRIC 1: FIRE IGNITIONS

For purposes of this metric, a fire ignition is defined as follows:

- MEID facility was associated with the fire;
- The fire was self-propagating and of a material other than electrical and/or communication facilities;
- The resulting fire traveled greater than one linear meter from the ignition point; and
- MEID has knowledge that the fire occurred.

In future Wildfire Mitigation Plans, MEID will provide the number of fires that occurred that were less than 10 acres in size. Any fires greater than 10 acres will be individually described.

METRIC 2: WIRES DOWN

The second metric is the number of distribution and transmission wires downed within MEID service territory. For purposes of this metric, a wires down event includes any instance where an electric transmission or primary distribution conductor falls to the ground or on to a foreign object. MEID will divide the wires down metric between wires down inside and outside of the High Fire Threat District.

MEID will not normalize this metric by excluding unusual events, such as severe storms. Instead, MEID will supplement this metric with a qualitative description of any such unusual events.

B. IMPACT OF METRICS ON PLAN

In the initial years, MEID anticipates that there will be relatively limited data gathered through these metrics. However, as the data collection history becomes more robust, MEID will be able to identify areas of its operations and service territory that are disproportionately impacted. MEID will then evaluate potential improvements to the plan.

C. MONITORING AND AUDITING THE PLAN

This Wildfire Mitigation Plan will be presented to the MEID Board of Directors and will present updates to this plan to the MEID Board of Directors on an annual basis. Additionally, a qualified independent evaluator will present a report on this plan to the MEID Board of Directors.

D. IDENTIFYING AND CORRECTING DEFICIENCIES IN THE PLAN

Based on the recommendations of its Board of Directors, MEID will correct any identified deficiencies.

E. MONITORING THE EFFECTIVENESS OF INSPECTIONS

Vegetation management is a key performance factor when monitoring the effectiveness of the inspections in relation to wildfire mitigation. MEID performs inspections and maintenance in accordance with GO 95, and 165. Within MeID's inspection and maintenance program, vegetation maintenance is performed per annual patrols which identify and correct potential problems. Vegetation trimming is done on an as-needed basis to establish minimum clearances as per GO 95. The results of these patrols and corrective actions are recorded and managed in MeID's Cityworks Asset Management System (AMS). The results of these patrols in conjunction with the metrics tracked in section VII.A will provide indicators of the effectiveness of the MeID Wildfire Mitigation Plan.

VIII. INDEPENDENT AUDITOR

Public Utilities Code section 8387(c) requires MEID to contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of this Wildfire Mitigation Plan. The independent evaluator must issue a report that will be posted to the MEID website. This report must also be presented to the Board of Directors at a public meeting.

IX. TIMELINE

The WMP will be presented to the Board in at least one noticed public meeting before January 1, 2020. The WMP will then be presented to the Board not less than annually thereafter. On or before July 1, 2020 MeID will submit the WMP to the California Wildfire Safety Advisory Board (CWSAB). The CWSAB will review and provide comments to MEID regarding the content and sufficiency of the WMP. MeID will consider all comments received in future revisions of the plan.