City of Colton/Colton Electric Utility

2021 WMP

City of Colton Public Works & Utility Services Department
Director

8-11-2021

Contents

Introduction to the Colton Electric Utility

California has recently experienced a series of highly destructive wildfire seasons that have taken lives, destroyed homes, and devastated communities. The likelihood of California continuing to experience these destructive fires appears to be high since the state continues endure prolonged periods of high fire danger due to an extended drought, a near year-round fire season, a significant buildup of hazardous vegetation, and expanding development in the high fire threat areas. It is therefore of utmost importance that the Colton Electric Utility (CEU) look for ways to improve our operations to reduce the probability and consequences of wildfires.

The City of Colton, located on the Southern border of the San Bernardino metropolitan area, contains a mix of wildfire risk classes. The flat and urbanized areas in the north half of the City are not located in a High or Very High Fire Hazard Severity Zone. Only the southern half of the City contains terrain and vegetation that would support a large wildfire and is classified as a Very High Fire Hazard Severity Zone. The California Public Utilities Commission (CPUC) Fire Threat Map designates the portions of the south half of the City as Tier 2-Elevated Risk and Tier 3-Extreme; specifically, the La Loma Hills are designated Tier 2, and the San Jacinto Mountains contain Tier 2 areas on the lower slopes and Tier 3 areas on the upper slopes, ridgelines, and in canyons. Only the portions of the City in the CPUC Tier 2 or Tier 3 areas are subject to General Order, Rule 18a.

The CEU has approximately 78 miles of overhead power lines throughout the City. Approximately 10 miles are located within an area designated as a Tier 2 or Tier 3 Fire Threat area. These wires are mainly transmission wires that supply electricity to a developed area and are located along major roadways. Distribution wires that serve the businesses and homes in the high fire threat areas are largely located underground.

The CEU is aware of the areas within in its territory that are at a higher risk for a destructive wildfire and the role that electrical system failures have in igniting new wildfires. The CEU has created this WMP and is dedicated to taking actions to help reduce the risk of devastating wildfires being ignited by electrical equipment in our territory, by making improvements to our operations and maintenance practices that will reduce the wildfire risks associated with our electric system.

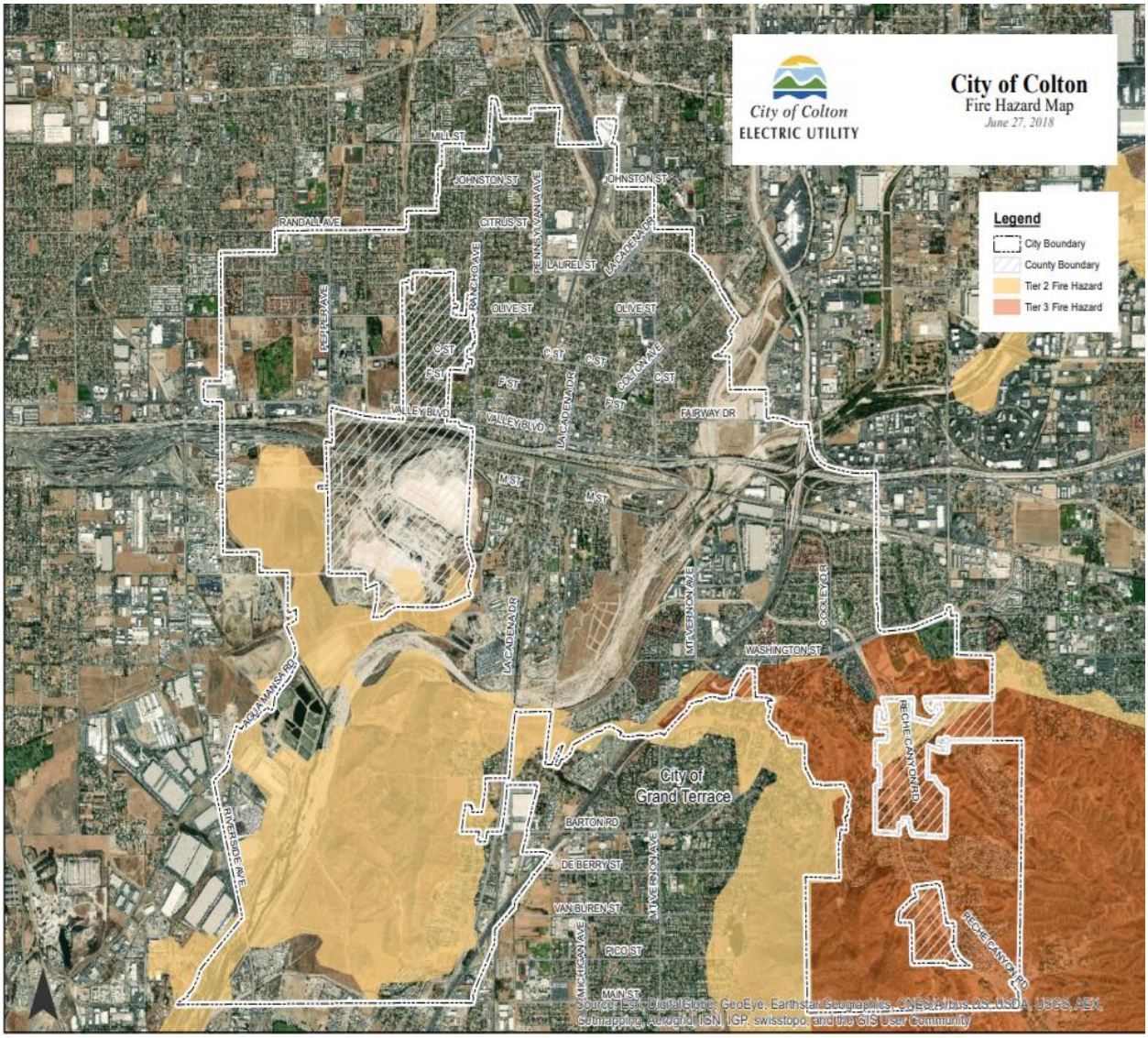

Image 1 City of Colton boundaries with CPUC Fire Hazard Tiers overlay

Section 1: Individuals Responsible for Executing WMP

Program Owner
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Adherence to Statutory Requirements
Program owner (add additional program owners if separated by component in section)
• Name and title: Robert A. DeLoach, Interim Assistant Director of Utility Services
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Lessons Learned and Risk Trends
Program owner (add additional program owners if separated by component in section)
• Name and title: Utility Planning Manager
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Risk, Metrics, and Underlying Data
Program owner (add additional program owners if separated by component in section)
• Name and title: Ed Ficara, Field Operations Foreman (Transmission & Distribution)
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Mitigation Initiatives
• Name and title: Jason Penunuri, Substation Superintendent
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Public Safety Power Shutoff
Program owner (add additional program owners if separated by component in section)
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Section 2: Statutory Requirements

Section 2 contains a checklist of the CPUC Section 8387 requirements for a Wildfire Mitigation Plan that must be submitted by a Public Owned Utility (POU). Included in the table below is the CPUC Code reference, a brief description of the Code requirements, and where within this WMP the CEU describes the process for meeting the requirement.

PUC 8387	Requirement	Location in WMP
(A)	An accounting of the responsibilities of persons responsible for executing the plan.	Section 1; Page 5
(B)	The objectives of the wildfire mitigation plan.	Section 3; Page 8
(C)	A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.	Section 4; Page 10
(D)	A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan's performance and the assumptions that underlie the use of those metrics.	Section 5; Page 12
(E)	A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.	Section 5; Page 12
(F)	Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.	Section 6; Page 13
(G)	Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. 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 de-energization for a given event.	Section 6; Page 13
(H)	Plans for vegetation management.	Section 7; Page 14
(I)	Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.	Section 8; Page 14
(J)(i,ii)	A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following: (i) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.	Section 9; Page 15

	(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.	
(K)	Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment.	Section 10; Page 16
(L)	A methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk.	Section 11; Page 17
(M)	A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.	Section 12; Page 17
(N) (i,ii,iii)	A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following: (i) Monitor and audit the implementation of the wildfire mitigation plan. (ii) Identify any deficiencies in the wildfire mitigation plan or its implementation and correct those deficiencies. (iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.	Section 13; Page 17

Section 3: The Objectives of the WMP

To meet the requirements of PUC 8387 to "construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment," the objectives of this WMP are:

1. Hardening Equipment and Facilities in the high-risk areas to reduce the risk of equipment failure igniting a fire: Upgrading or making replacements to equipment within Tier 2 and Tier 3 areas.

2. Equipment failure through early fault and condition detection: Equipment and Vegetation Inspection Programs: routine above ground equipment inspections and repair programs combined with enhanced inspections in the high threat areas during extreme weather conditions

3. Preventing tree and vegetation contact with energized wires and equipment: Tree trimming and vegetation management programs

4. Enhanced Situational Awareness: Monitoring area weather conditions and working with Southern California Edison (SCE) to give advanced warning of extreme weather events, elevated fire danger conditions, and planned Public Safety Power Shutoff (PSPS) events.

Table 1. WMP Objective Timelines

WMP Objective	Before next Annual Update	Within Next 3 Years	Within Next 10 Years
Hardening Equipment	• Installation of Dielectric Line Protection devices in Reche Canyon • Conversion of wood pole structures to fiber glass in Reche Canyon.	• Installation of Dielectric Line Protection devices in Tier 2 and Tier 3 areas • Conversion of wood pole structures to fiber in Tier 2 and Tier 3 areas.	• Installation of Re-closer at Water Booster Station in Reche Canyon • Acquisition of emergency generators for critical infrastructure in Tier 2 & Tier 3 areas.

Early Detection	• Pole and equipment inspection in the Tier 2 and Tier 3 areas. • Repair and replacement of faulty or damaged equipment. • Inspection of all adjacent and overhanging vegetation near overhead wires in Tier 2 & 3 areas	• Complete system wide pole inspection. • Repair and replacement of damaged and faulty equipment prioritized based on location. • Enhanced pole testing for all poles in the Tier 2 and Tier 3 areas. • Improved tracking of equipment failures.	• Annual aerial inspections by drone of Aqua Mensa corridor and Reche canyon overhead wires.
Vegetation Management	• Completion of annual vegetation management around poles in Tier 2 and Tier 3 areas. • Completion of tree trimming in Tier 2 and Tier 3 areas. • Increased inspection and trimming programs in Reche Canyon	• Completion on annual vegetation management around poles in Tier 2 and Tier 3 areas. • Completion of tree trimming in Tier 2 and Tier 3 areas.	• Completion on annual vegetation management around poles in Tier 2 and Tier 3 areas. • Completion of tree trimming in Tier 2 and Tier 3 areas.
Situational Awareness	• Monitoring for extreme weather events and activations of operations performance level based on fire danger. • Increased inspections in Tier 2 and Tier 3 areas during high fire danger.	• Continue weather monitoring and coordination with local fire authority for operations performance levels. • Implement customer notification system for SCE PSPS and local disruptions.	• Develop programs in coordination with SCE for PSPS events.

Section 4: Preventive Strategies and Programs

The CEU has implemented several system-wide programs and programs specifically in the high fire threat areas to address the risk of wildfire in their territory. These strategies are intended to reduce the risks of their equipment igniting a wildfire by addressing the wildfire risks identified in section 9 "Risks and Risk Drivers. Within the Tier 2 and Tier 3 areas CEU relies on implementation of situational awareness protocols and elevated operational procedures including coordination with the Colton Fire Department (CFD), the regional emergency communication agency (ConFire), and the National Weather Service to determine when extreme weather conditions are anticipated. When extreme weather conditions have been declared, CEU upgrades its operational performance to one of the levels below:

Table 2. CEU Operational Readiness Levels

Level	Performance
Normal	No changes to operations or work policy are required
Elevated	Initiation of physical inspection patrols in the Reche Canyon area
Red Flag	An additional crew is assigned to patrol the Reche Canyon area twice daily

Enhanced inspections of overhead equipment during extreme weather events: During periods of high fire danger CEU staff perform daily physical inspections for all their above ground infrastructure in the high fire threat areas.

Enhanced vegetation management around poles: The CEU has expanded its vegetation management program to include the clearance of flammable vegetation from around the base of its poles and equipment. Vegetation inspections are performed more frequently within the Tier 2 and Tier 3 areas.

Enhanced tree trimming near overhead wires: The CEU has implemented a more frequent tree inspection program in the Tier 2 and Tier 3 areas. Trees trimming for utility line clearance exceeds the requirements of the Public Utilities Code (PUC) based on the assessment of the tree's likelihood of interfering with the adjacent wires.

Hardening of equipment: The CEU has an ongoing upgrade and replacement program of its equipment within the Tier 2 and Tier 3 areas.

- Where overhead vegetation risks exist, dielectric line protection measures are being installed (insulated blanket and wire covers). Currently installations are occurring in the Reche Canyon area.
- Conversion of wood cross-arms to fiber glass with instigation wrappers.
- The installation of re-closers within the Tier 2 and Tier 3 with a goal to install a re-closer at the water booster stations.

Section 5: Metrics Used to Evaluate WMP Performance

5.1 Current Metrics Used by the WMP

The CEU uses three metrics to evaluate the effectiveness of the WMP; 1) number of incidents of wires down, 2) number of vegetation contacts with equipment, and 3) the number of new ignitions caused by electrical equipment.

These metrics assume that downed wires and vegetation contacts with equipment are indicators of the need for increased inspections and maintenance leading to increased risk exposure within the transmission and distribution system.

These metrics allow the CEU to evaluate the potential fire ignition risks in their electrical system by tracking the overall number of incidents that have the potential to ignite a fire as well as the number of actual ignitions that occurred. This data is then used to determine if the existing mitigation strategies are working to reduce the overall risk. Tracking the specific cause of a wire down or vegetation contact where the information is available will be used to update current mitigation strategies or create a new strategy if appropriate.

5.2 Effectiveness of Previously Identified Metrics

The previous WMP identified that tree or vegetation contact with wires is a risk factor for causing equipment failure but did not identify this as a metric with the Plan. Similarly, the metric related to ignitions resulting from equipment was not useful since the CEU has no recorded incidents of fire. Developing an additional metric that identifies the potential fire ignition risks that may occur in the system was determined to be necessary for an additional level of risk prevention.

Section 6: De-Energizing Protocols

6.1 Protocols for Disabling Reclosers

The CEU has the authority to de-energize portions of its electrical grid and will do so at the request of a public safety official in response to a declared local emergency such as an active wildfire. However, there is no protocol for preventative or planned de-energizing portions of the electrical grid because public safety impacts outweigh the risk reduction gained by de-energizing the system. Located in the Tier 2 and Tier 3 areas of CEU's service area are several water storage reservoirs or tanks and booster stations that supply water to the community and public services in the hills and canyons on the south side of the City. These water facilities also provide the water supply to the areas fire hydrants and thus the water supply for any fire suppression efforts. These water facilities currently do not have integrated back-up generators on-site and while they can be powered by mobile generator brought to the site, no such generators exist in the CEU's or City's inventory. Because preventative de-energizing would severely limit fire suppression efforts in the Tier 2 and Tier 3 areas, CEU does not consider pre-emptive de-energizing a valid strategy for reducing the risk of ignition during extreme weather events.

The CEU has implemented preventative strategies that are activated during extreme weather events and periods of high fire danger that do not necessitate the need for preventative de-energizing.

6.2 Consideration of Impacts to Public Safety

The CEU imports all its power from SCE over their 66kV transmission line from the Vista and Colton substations. SCE has developed their own WMP which includes protocols for a preventative de-energizing of a portion of their electrical system which will impact the City of Colton's electrical system. When SCE has determined that a planned a de-energizing event is necessary, CEU and SCE work cooperatively to reduce the impacts to customers within CEU's territory. Depending on the number of circuits interrupted, customers within the CEU's territory could see a major disruption in electrical service to critical facilities such as hospitals and police stations, as well as the water facilities in the Tier 2 and Tier 3 areas described previously. The CEU does have internal generation capacity from its Agua Mansa Power Plant which can make up for a portion of the lost load.

6.3 Protocols for Mitigating Public Safety Impacts

In the event of a planned de-energizing event by SCE the following protocols have been established:

- Coordination with SCE trigger events and which circuits will be de-energized and the CEU territory affected.
- Notification of public safety officials, including first responders, health care facilities, and operators of telecommunications infrastructure by phone, email, or text.
- Initiates start up and activation of the Agua Mensa Power Plant.
- Targeted notification of impacted customers through mass distribution, email, text, and phone.
- General notification through City website and message boards.

The CEU has reviewed and is familiar with SCE's WMP and the events leading to the decision of when to initiate de-energization their system.

6.4 Procedures for Customer Notification

The CEU's communication strategy is designed to provide advanced notification to customers including public safety and critical infrastructure who may be affected by a de-energization event. Advanced notice to customers will be provided only when a de-energization event has been planned by CEU. When the de-energization event has been planned by SCE, the CEU will supplement SCE's notification process with by posting the information on their website and updating field and office support staff on the pending event. CEU has developed the following notification guidelines for planned de-energization events:

- The City will post information about the de-energization event on its Facebook, Twitter, and Instagram accounts.
- The City will publish information about the de-energization in the news feed and alerts section of its homepage.
- The Environmental Conservation Division will coordinate notification with public safety agencies, critical infrastructure, and customers receiving a medical baseline allowance.

Section 7: Vegetation Management

The CEU annually inspects all its above ground over-head infrastructure for conflicts with vegetation as well as vegetation growth surrounding CEU equipment on undeveloped properties. Within the Tier 2 and Tier 3 areas, the CEU performs additional vegetation inspections to identify risks to its equipment.

Where inspections have identified threats to the overhead wires, or where there is an accumulation of flammable vegetation near equipment, the CEU's vegetation management personnel or its contracted tree trimming service will remove it. Within the Tier 2 and Tier 3 areas the CEU's objective to maintain 10 feet of clearance between its wires and equipment and any adjacent vegetation.

Section 8: Inspections of the Electrical Infrastructure.

The CEU conducts physical inspections of its electrical infrastructure on a routine basis ensuring that every pole and the attached equipment is inspected on a three-year schedule. Equipment within the Tier 2 and Tier 3 areas is inspected more frequently during extreme weather events and during periods of high fire danger including daily inspections during red flag conditions.

Routine inspections are performed by a contractor while the inspections performed during periods of high fire danger are completed by CEU staff. These include a visual inspection of each pole to identify any infringement by other utilities on CEU owned poles or right-of-way, physical defects, potential safety hazards and deterioration of poles, cross-arms, or insulators. Visual inspections of cross-arms, insulators, and conductors to identify obvious damage or non-conforming poles. Finally, all the wooden utility poles within the CEU territory are further tested for structural strength and external shell thickness.

To assist staff with inspection of overhead lines and equipment, and to enhance the inspection capabilities, the CEU utilizes an aerial drone with the capacity for imaging in the visual and infrared spectrum.

All CEU's equipment inspections meet or exceed GO 85 and GO 165 requirements.

Section 9: Wildfire Risks and Risk-Drivers

The majority of CEU's territory covers relatively flat terrain and fully developed urban areas of the City of Colton which is not within a CPUC defined Tier 2 or Tier 3 zone nor a CALFIRE Very High Fire Hazard Severity Zone. Only the southern half of the CEU's service territory with its hilly terrain and large undeveloped areas is located within a CALFIRE Very High Fire Hazard Severity Zone and CPUC Tier 2 and Tier 3 zones. CEU maintains above ground electrical equipment in these high fire threat areas where the potential exists for equipment failure igniting or contributing to the spread of a wildfire. The CEU has evaluated its infrastructure as well as the site conditions in these high fire threat areas and has identified the potential wildfire risks and risk drivers described below:

9.1 Design, Construction, Operation and Maintenance Related

Table. 3. Risks and Risk Drivers associated with design, construction, operation, and maintenance of the CEU's electrical equipment and facilities:

Risk	Specific Risk	Risk-Driver
CEU electrical system design, construction, operation, and maintenance	Foreign Contact with wire (birds, mylar balloons)	Uninsulated wires
	Equipment/Facility Failure	Three-year Inspection cycle
		Portions of the system traverse undeveloped areas with annual grass and herbaceous cover
	Vegetation contact with wires or equipment	Power line circuit pass nearby large palm trees within fall zone of dead palm fronds
		Power lines circuit passes near large trees or within the fall zone.
	De-energizing portions of the system is not a viable option	Critical facilities exist in Tier 2 and Tier 3 areas without backup generators.
	Damage to overhead wires and equipment from vehicle collisions with poles	Overhead wire circuits are located along major collector roads

9.2 Topographic and Climatological Related

Table 4. Risks and Risk Drivers associated with topographic and climatological factors

Risk	Specific Risk	Risk-Driver
CEU territory topographic and climatological factors	Predominant vegetation within high fire threat areas is annual grass and herbaceous ground cover.	Portions of the system traverse undeveloped areas with annual grasses and herbaceous groundcover
	Local area is subject to seasonal high winds.	Portions of the system are in terrain that are susceptible to dangerous winds.
	Local area is subject to strong thunderstorms during periods of high fire danger.	Portions of the system are located on elevated terrain or are the tallest objects in their area
	Local area is annually subject to long periods of elevated fire danger with several red flag events throughout the year.	Portions of the system are located within the Tier 2 and Tier 3 areas.
	Terrain in Reche canyon would intensify and increase rates of spread of a wildfire that began in or progressed into the canyon.	Portions of the above ground system traverse the length of the canyon.

Section 10: Identification of Geographic Areas in CEU's Service Territory with a Higher Wildfire Threat Than identified in a Commission Fire Threat Map.

The CEU has no areas within its territory that it would recommend being declared a higher fire threat level than is currently indicated by CPUC or CALFIRE maps.

Section 11: Identifying CEU Operational Safety Risks and Wildfire Related Risks.

CEU routinely evaluates the safety risks associated with operation of the utility operations, which include severe operating conditions and contingencies that may affect system reliability. Specific events include large area-wide power outages, loss of generation capacity and contingency reserves, transmission outages, and voltage collapse.

In addition, CEU staff meet regularly to review and investigate the causation of unscheduled outages. Risk drivers such as conductors contacting foreign objects (for example, balloons or tree limbs), and equipment failure are reviewed. Potential consequences should these risks occur may include injuries to employees or the public, damage to property, impact to the reliability and operation of the electric system, and environmental damage. Outage data is assessed to identify specific causes of failures or related problems and recommendations made to engineering and operations staff should this data reveal trends (such as transformer or fuse failures).

Section 12: Restoration of Service After a Wildfire.

While the CEU does not plan to initiate the de-energization of its electrical system as a preventive measure it is recognized that because of an SCE initiated event or damage from a wildfire this may be occur. SCE and CEU are developing protocols for inspecting and re-energizing SCE lines that have been de-energized during extreme weather and red-flag events as a preventative measure and after a portion of the system has been damaged after a wildfire. After a de-energization event, service will be restored in coordination with SCE's restoration protocols. The CEU will initiate procedures to restore such as inspecting, repairing, testing, and finally restoring.

Section 13: Monitoring and Auditing Processes

13.1 Monitoring and auditing the implementation of the WMP

The Director of Public Works & Utility Services Department is responsible for ensuring that this WMP meets all the State of California guidelines to mitigate risk of its assets becoming the source of or a contributing factor of a wildfire. Staff responsible for assigned mitigation areas have the role of assessing current procedures and recommending changes or enhancements to supplement or enhance the strategies in the WMP. Deficiencies identified within the WMP will be reported to the Director of Public Works & Utility Services Department and the Plan updated on an annual basis. The Public Works & Utility Services Department Director, or their designee, will be responsible for spearheading discussions on addressing deficiencies, and collaborating on solutions when updating the WMP for its annual filing.

13.2 Identification of WMP deficiencies

This WMP will also be evaluated on an annual basis for its effectiveness and adherence to statutory code requirements by a qualified Independent evaluator. Revisions recommended by the independent evaluator will be incorporated into the annual update of this WMP.

13.3 Monitor and audit the effectiveness of electrical line and equipment inspections,

The CEU uses General Orders 95 (GO95), 128 (GO128) and 165 (GO165), respectively as it's guide to inspect its electric supply system. Field staff routinely inspect assets within its electric service territory and identifies and performs corrective action as required. All work performed by contractors are evaluated by field staff as well. Lastly, the CEU performs an independent review of similar facilities which are compared and reviewed with inspection personnel.

Section 14: Summary

Preventing wildfires is one of CEU's highest priorities. The risk of catastrophic injury and death as well as property loss justify taking extensive measures to prevent a wildfire. CEU's WMP was developed in conjunction with local emergency response agencies and surrounding utilities. CEU believes that this WMP identifies the major issues facing CEU, identifies a means to mitigate those issues, reduces the risk of wildfire in and around the City of Colton, and identifies how any wildfire would be managed should one begin.