

SCE	Legal, Regulatory, and Compliance	Transmission & Distribution Utility Vegetation Management Program	Methodology	Doc. No.	UVM-04	 SOUTHERN CALIFORNIA EDISON® Energy for What's Ahead™
				Version	2	
Effective Date		5/17/19				
Supersedes		Version 1				
Hazard Tree Management Plan (HTMP)						

**THIS DOCUMENT IS REQUIRED TO BE MAINTAINED IN ACCORDANCE
WITH ERCP COMPLIANCE DOCUMENT REQUIREMENTS**

UVM-04 Utility Vegetation Management Hazard Tree Management Plan (HTMP)

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1 Introduction

1.1 Purpose

To identify, document, and mitigate trees that are located within the Utility Strike Zone (USZ) and are expected to pose a risk to electric facilities based on the tree's observed structural condition and site considerations.

1.2 Objectives

To mitigate the potential risk to SCE's electric facilities from structurally unsound trees that can fail in total or in part, and palm trees that can dislodge palm fronds during high winds.

1.3 Additional Considerations

SCE manages hundreds of thousands of trees within and along easements and rights-of-ways (ROW). Given the magnitude, SCE cannot continuously assess every tree for possible defects. Even under the best circumstances and with the highest standard of care, tree failure cannot be predicted with 100% accuracy. SCE is unable to reasonably foresee all tree failures, all the time. However, by exercising good professional judgment and using a systematic approach such as the one described in this plan, it is possible to significantly reduce the risk of tree failures that can damage electric facilities.

It is not possible to accurately identify or predict all trees that will fail, particularly during Force Majeure Events¹. These events could include unforeseeable weather events, or failures related to conditions that cannot be observed such as those related to root systems or the inner structure of the tree.

Additionally, SCE may be hindered from reducing potential tree risks by property owner opposition and limited access to private property. Many trees that pose a potential risk to electric facilities are owned by others and SCE may not have rights to enter properties to conduct assessments and perform mitigation tasks

2 Applicability

This document is applicable to the operating units impacted by Energy Regulatory Compliance Program (ERCP) Compliance Requirements related to Vegetation Management, which include:

- Generation
- Transmission & Distribution
 - T&D Real Properties

¹ Circumstances that are beyond a utility's control, including natural disasters such as earthquakes, fires, tornados, hurricanes, landslides, wind shear, fresh gale, major storms, ice storms, and floods; human or animal activity such as logging, animal severing tree, vehicle contact with tree, or installation, removal, or digging of vegetation

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- Trans Telecom

3 Definitions

Refer to the NERC Glossary of Terms, the E&C Shared Services Glossary of Terms (ECSS-02), and UVM Program Glossary of Terms (UVM-16) for any capitalized terms used in this document.

4 Document Detail

4.1 Tree Risk

For the purposes of this HTMP, the concept of risk takes into account the potential likelihood of a tree failure, or portions thereof, occurring that can adversely affect SCE’s infrastructure, and the severity of the potential consequences.

4.2 Utility Vegetation Management Tree Risk Overview

During the inspection process, tree and site conditions will be assessed to determine tree risk and if work is required to mitigate the identified risk. Inspections to identify Hazard Trees and Reliability Trees are conducted during routine patrols for compliance and reliability or during a dedicated Subject Tree risk assessment inspection.

Trees located within the USZ will be assessed to determine the potential risk to electric facilities. The tree assessment will yield a risk ranking and a priority condition for tree risk mitigation. In addition, palm trees outside the USZ that could be subject to palm frond blow-in and/or where historical records exist of prior palm frond line contact will be assessed to determine risk.

A Level 1 Limited Visual Assessment will be performed as part of the inspection process. If Hazard Tree characteristics are identified during the Level 1 assessment, a Level 2 Basic Assessment of the tree will be conducted. The assessment results are captured in SCE’s Tree inventory. Subject Trees which only have Site Attributes will be recorded in the tree inventory database as a Reliability Tree. Appropriate mitigation will be performed when a Hazard or Reliability Tree is identified.

4.3 Inspections

Scheduled Inspections

SCE performs routine inspections to identify work that is needed to maintain regulatory compliance and to identify and assess Subject Trees which can be expected to pose a risk to SCE facilities. The frequency of these inspections is described in the annual work plan and can vary or be modified based on environmental conditions. All Subject Trees in extreme and high fire areas are inventoried. Subject Trees in non-high fire

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areas may be inventoried. Any tree that is determined to be a Hazard or Reliability Tree is added to the Tree Inventory Database.

Unscheduled Inspections

SCE Incident Management Teams may perform Hazard Tree inspections, as needed, after major storms, high wind events, and fires. The need for these inspections is determined based on the severity of the event and resulting possibility of damaged trees.

SCE may perform separate pre-fire season inspections in designated Public Resource Code (PRC) areas, Extreme (Tier 3) and Very High (Tier 2) fire areas as needed.

4.4 Circuit Risk Assessment

The work plan for Hazard Tree inspections is based on risk assessments of circuits. Higher risk circuits are prioritized and may receive more frequent inspections. Risk Assessments of each circuit in a High Fire area is performed on an annual basis.

4.5 ANSI A300 (Part 9) Assessment Levels

Level 1: Limited Visual Assessment

This is accomplished by conducting an assessment from one side of the tree (side nearest the electric facilities) and can be ground-based, vehicle-based, or aerial-based (e.g., fixed-wing, helicopter, drone, LiDAR), as appropriate for the site conditions, type of infrastructure, and tree population being considered. A Level 1 assessment focuses on identifying obvious tree defects (i.e. dead branches, leaning) that are observable from the side of the tree nearest the electric facilities. If a condition of concern is identified during the Level 1 assessment, recommendations are developed regarding possible mitigation. If the Level 1 assessment cannot sufficiently determine the severity of the condition, a Level 2 assessment is conducted.

Level 2: Basic Assessment

This is a detailed ground-based visual assessment of an individual tree and its surrounding site. A Level 2 assessment may include walking completely around the tree—looking at the site, buttress roots, trunk, and branches. Many trees that pose a potential risk to electric facilities are located on private property and beyond the edge of the utility ROW, which may restrict access. Severe terrain or other obstacles may also prevent access. As such, there may be a limited opportunity or ingress to do a 360° assessment of an individual tree.

Level 3: Advanced Assessment

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This is an assessment of a tree to provide detailed information about specific tree parts, defects, targets, and/or site considerations. Specialized equipment, data collection, and analysis, and expertise could be required.

4.6 Tree Risk Assessment

Hazard Tree Characteristics that consider hazard tree attributes and site attributes that indicate possible hazard conditions are listed below. These characteristics are used to risk rank a Subject Tree. Both hazard tree and site attributes may impact the stability of a tree and should be considered when performing a tree risk assessment. Information collected during a tree risk assessment will be captured on the Tree Risk Assessment Form (see UVM-09 Pre-Inspection) and be submitted to the Vegetation Management Compliance & Support (C&S). The assessment results are captured in the work management system in order to track and manage the prescribed work or other mitigation.

4.7 Hazard Tree Characteristics

The following hazard tree Attributes and site attributes will be considered, during the Tree Risk Assessment, to determine whether a tree is a Hazard Tree or Reliability Tree. If so, the required mitigation is documented.

Hazard Tree Attributes
Basal wound
Bleeding and/or resinous
Bulges and/or swellings
Cankers, including bleeding & gall rust
Cavities
Codominant or multiple stems from base or higher on trunk
Conks indicating heart rot, root rot, sap rot or canker rot
Cracks including shear
Dead branches and/or top
Dieback of twigs and/or branches
Embedded wires or cables
Excessive lean toward a power line or excessive bow
Fire damage
Foliage – off-color, flagging or loss
Hazard beam
History of limb failure(s) on tree
Included bark

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Hazard Tree Attributes
Insect activity such as frass from termites, bark beetles or carpenter ants
Lightning damage
Live crown ratio below 30%
Mistletoe – dwarf or broad-leaf
Nesting holes – birds, mammals, insects
Dead palm fronds that can dislodge during high winds
Past poor pruning practices
Roots injured, exposed, undermined or uplifted
Seam
Species failure patterns
Unnatural or structurally unsound canopy weight distribution
Weak, unsound branch attachments

Site Attributes
Areas known to be affected by introduced tree pathogens
Areas of recent clearing/new edge
Change in drainage
Change in grade
Construction – including trenching, paving or road construction
Cultural disturbance to landscape - natural or unnatural
Diseased center – dead tree in middle and dying trees around it
High stand density with single species composition
High Winds (fire watch)
History of failure(s) at site
History of repeated outages on circuit
Fire damage
Recent thinning or logging
Slope (by grade or percentage)
Soils prone to slides
Specific conditions like high winds
Storm damage

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4.8 Work Priority Levels

Identified Trees are mitigated based on risk. UVM-08, Vegetation Threat Procedure describes the criteria for work priority determination.

4.9 Mitigation Actions

Complete Tree Removal

Complete tree removals must meet one of the following criteria:

- The distance between the tree and SCE's lines or facilities is equal to or less than the height of the tree and the Make-Safe mitigation (see below) is not feasible.
- The tree is expected to pose a risk to electric facilities and shows characteristics that make the tree, or parts thereof, unstable, and the Make-Safe mitigation is not feasible.

Make-Safe

In some situations a complete tree removal may not be required to mitigate the risk the tree poses to electric facilities. If appropriate conditions exist, portions of a tree can be pruned or removed to mitigate the risk.

- The hazard condition is not caused by or exacerbated by site consideration.

Monitoring

Assessed trees may be monitored when they are considered stable and are not expected to pose a risk to electric facilities in the foreseeable future, but show signs of:

- An emerging Hazard Tree Characteristic
- Changing Site Considerations.

Property Owner Make-Safe

Only specially-trained and certified tree crews can work near high-voltage an electric facility, which is defined as within 10-feet. Property owners who hire their own tree workers to prune or remove trees near electric facilities should first notify SCE. SCE provides outreach to communicate Electrical Hazard Awareness. This includes work on any tree within 10-feet of electric facilities or trees that could come in contact with electric facilities if they fall.

As part of the UVM Program, SCE will assess and remove portions of trees to a level that would allow workers that are not qualified to work within 10-feet of high-voltage electric facilities to remove or prune the remainder of the tree.

4.10 Tree Replacement

The UVM Program includes a tree replacement offering for trees that qualify under specific criteria for tree removal. (Tree Replacement offering is under development.)

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SCE removes vegetation in accordance with local laws and/or regulations that govern the specific area. On private property, SCE will remove all debris from the property when requested. Where practical, SCE seeks to reuse vegetation material in communities and in renewable energy projects.

5 Approvals

Program Manager	Signature	Date
Melanie Jocelyn, Principal Manager	Melanie Jocelyn / Approved by E-mail	5/16/19

6 Revision History

Revision Number	Date	Description of Revision	By	Next Review Date
1	8/16/18	Initial release for UVM Program	Mark Myers	2019
2	5/17/19	General Document Refresh	Bill Kotteakos	5/17/20

7 References

External References

ANSI A300 (Part 9): Provides guidelines for the practice of tree risk assessment and standards for writing specifications

NERC Glossary of Terms: https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf

Internal References

ECSS-01, E&C Shared Services Glossary of Terms

UVM-08, Vegetation Threats

UVM-09, Pre-Inspection Manual

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UVM-14, Manage Refusal Events
UVM-16, UVM Program Glossary of Terms

8 Distribution and Data Retention

The official version of the document shall be stored in the T&D Vegetation Management UVM Program SharePoint Document Library while in effect and retained for at least seven (7) years thereafter.

Distribution list:

- T&D VM Managers
- E&C Program Management Office
- Impacted OU Touchpoints

9 Key Contacts

UVM Senior Manager, Operations: Jeff Copeland, (310) 995-6178

UVM Senior Manager, Compliance & Support: Bill Kotteakos, (949) 379-9470