



SCE	Legal, Regulatory, and Compliance	Transmission & Distribution Utility Vegetation Management Program	Reference	Doc. No.	UVM-09	 <div>SOUTHERN CALIFORNIA <b>EDISON</b><sup>®</sup> Energy for What's Ahead<sup>SM</sup></div>
				Version	3	
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<b>Pre-Inspection Manual</b>						

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

# UVM-09


## Utility Vegetation Management Pre-Inspection Manual

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## 1. Introduction

### 1.1 Purpose and Objectives

This manual was developed to provide supplemental training and SCE-specific information for contract Pre-Inspectors (PI) working on SCE's system. It is expected that the primary source of training for PIs will be provided through the hiring pre-inspection company and supplemented by ongoing and updated industry-available training and instruction. The job of a PI working on SCE's property is extremely important and SCE fully supports a program of continued education, and the acquisition of appropriate certifications to effectively and professionally perform the required work.

SCE encourages all PIs to achieve the following certifications:

International Society of Arboriculture (ISA)

- Certified Arborist
- Certified Utility Specialist
- Tree Risk Assessment Qualification (TRAQ)


SCE also expects that the following standards and guidelines will be utilized in training and in field practices. Please note, these standards and Best Management Practices (BMPs) are updated frequently and the latest versions should be referenced and utilized. This basic list will expand as new sources of information become available to the industry.

International Society of Arboriculture (ISA) Publications

- Arborists' Certification Study Guide, Third Edition - By S.J. Lilly
- Utility Arboriculture: The Utility Specialist Certification Study Guide - By Randall H. Miller and Geoffrey Kempter
- ANSI A300 Standards and the supplemental ISA BMPs for
- A300 Part 1 Pruning
- A300 Part 7 Integrated Vegetation Management
- A300 Part 9 Tree Risk Assessment

The applicable laws and regulations will be referenced in this manual, but generally include:

- California Public Utilities Commission (CPUC) General Order 95, Rule 35 and Rule 37
- California Public Resource Code Section 4292
- California Public Resource Code Section 4293
- California Public Resource Code Section 4295.5
- Title 14, California Code of Regulations Section 1254
- NERC Reliability Standard FAC-003-4

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The core function of a contract PI is to identify, document, and act upon, vegetation related conditions that could result in threats to public safety, cause electric outages or fires, or create a non-compliance with applicable laws and regulations. This manual, along with supplemental efforts, will assist in achieving those objectives.

## 1.2 Working with SCE

SCE is proud to foster an inclusive culture in which every employee is valued and respected; and encouraged to do the right thing for customers, fellow employees, investors, suppliers and our communities. SCE strives to be transparent and straightforward when discussing our business performance.

This attitude is part of the Utility Vegetation Management Department (UVM) culture and SCE encourages its employees and contractors to always act consistent with these values in our everyday work.

## 1.3 UVM Overview

SCE's UVM Program has clearly defined roles and responsibilities.

PIs will most often interact with the following key UVM roles:


Senior Specialist (SSP) - SSPs will provide oversight of pre-inspection activities. SSPs will provide support to pre-inspectors for assignments requiring SCE assistance. SSPs may adjust schedules or assign ad-hoc inspections as necessary to ensure field operations needs are met. Trouble orders and general vegetation inquiries may be dispatched to PIs and monitored by the SSP for completion and inspection findings.

UVM Work Scheduler (WS) - WSs will assign inspection assignments to the designated contactor. The WS may follow up with inspectors for the progress status or system data corrections as needed. Any inspection findings requiring planning or schedule coordination will be communicated to the WS for documentation (e.g. permitting requirements, environmental coordination, weather/seasonal hazards, access issues, etc.). WS may adjust schedules or assign ad-hoc inspections as necessary to ensure field operations needs are met. Trouble orders and general vegetation inquiries may be dispatched to inspectors and monitored by the WS for completion and inspection findings.

UVM Event Expeditor (EE) - Any inspection findings requiring planning or schedule coordination will be communicated to the EE for documentation (e.g. permitting requirements, environmental coordination, weather/seasonal hazards, access issues, etc.)

## 1.4 Introduction to UVM

Electricity provides the back-bone energy of our society. It lights, heats, and cools our homes, powers our large and small electronic devices, drives industry and commerce, and is a key component of society's critical infrastructure. There are few moments in our lives when the benefits of electricity are not present. We are so reliant on electricity that the loss of it, for even short periods of time, can create significant hardships.

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Trees and vegetation also provide society a myriad of necessary benefits. Healthy trees absorb carbon dioxide and produce oxygen, helping to mitigate the effects of climate change. Well-planned landscaping raises property values, prevents soil erosion, and filters out airborne pollutants. Trees can also directly benefit and offset the need for increased electricity usage. Well placed trees can reduce air conditioning needs by up to 50%, and also reduce ambient temperatures in urban areas, which also reduce energy demands.

The combination of trees and electricity can, however, be the source of significant problems for society. Trees growing too close, or falling into overhead electrical lines can be a significant cause of power outages, trigger fires, or lead to tragic accidents, should an unwary tree climber accidentally contact an energized line.

The UVM Program is focused on mitigating the threats posed by tree and power line contacts. UVM recognizes the values of trees and seeks to balance those values with the critical need to provide safe, reliable and cost-effective continuous energy to society. This is accomplished by performing comprehensive scheduled inspections, and then completing the identified pruning, removals, or Integrated Vegetation Management (IVM) procedures before a conflict can occur. In addition to dealing with existing potential conflicts, SCE encourages the planting of the right tree in the right place, to avoid future problems.


All of these issues will be discussed in further detail in the following sections.

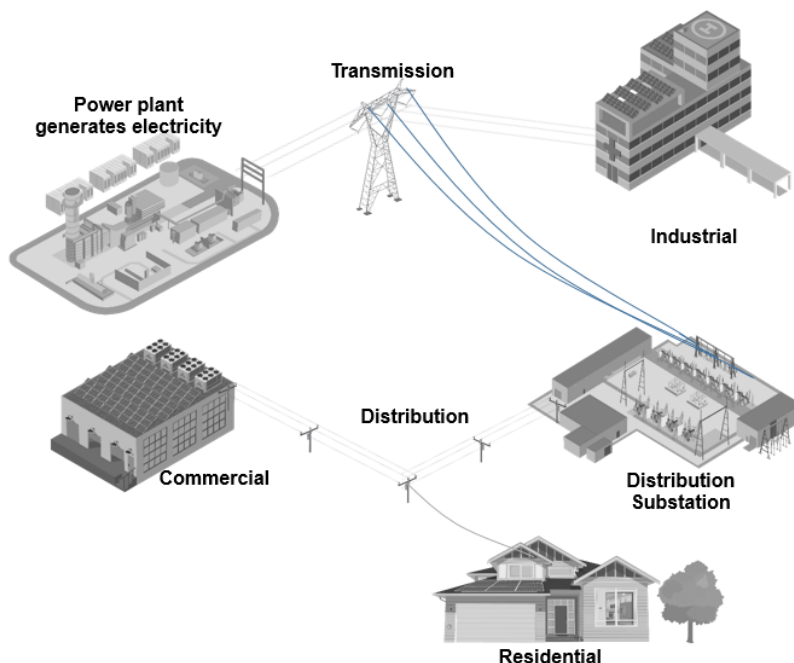
## 1.5 The Role of the Pre-Inspector

The role of the PI is critical to meeting the objectives of SCE's UVM Program. While diverse in both functions and duties, the role of the PI generally includes the pre-inspection and customer notification of required UVM work. Other work can include auditing of completed work or special projects as assigned by SCE.

## 1.6 Description of the Electric System

Electric systems are generally segmented into three distinct components, and each has varying types of UVM requirements.

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**Figure 1: Typical Electric System**

Generation: This part of the electric system is comprised of generating facilities' and power plants.

Transmission: This part of the electric system is comprised of the transmission voltage conductors, equipment, towers, poles, structures and sub-stations required to "transmit" electricity from the generating facilities to the distribution systems.


Distribution: This part of the electric systems is comprised of Distribution voltage conductors, equipment, towers, poles, structures, and sub-stations required to "distribute" electricity to energy consumers.

## 1.7 Tree and Power Line Conflicts

It is important to begin with a more detailed description of "Tree and Power Line Conflicts" along with a description of the contributing conditions that create them. If we understand the conditions that contribute to these events, we are better able to identify and correct these conditions during routine inspections.

### Public and Worker Safety Threats

State and federal safety laws (OSHA) require that only qualified tree and electric personnel can work within 10 feet of energized power lines. These regulations are in place to prevent unqualified workers from exposure to electrocution or injury associated with direct or indirect contact with electric lines or facilities. While much progress has been made in preventing these types of incidents, through both industry education and enforcement of worker safety rules, they still represent a significant cause of injuries and fatalities. Exposure

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to electric lines is currently one of the top three causes of worker related deaths in the Green Industry (e.g., private tree workers, landscapers, orchard and farm workers, etc.)

In addition to people who work around trees as a vocation, the same exposure exists for private individuals who climb trees for either recreation or other personal purposes (hanging holiday lights, building tree houses, or pruning private trees). If the unaware climber comes to close to an energized line, an incident can occur.

While the most effective way to prevent these incidents is through public education and enforcement of worker safety regulations, routine inspections can help in identifying conditions of concern. These are a few indicators of concerns that PIs should consider when performing routine patrols:

- A tree house is present, or being built, in tree adjacent to power lines
- Tree shows evidence of past climbers (lights, wooden steps, or other objects on tree)
- Tree is located in an area where it may be frequently climbed (playground, park or school)

When these situations are encountered, the PI should work toward mitigating the threat.

### Power Outages

It is generally accepted that trees represent the single greatest threat to keeping the power on. The majority of routine and non-routine outages are caused by trees, or portions of trees, breaking apart and conflicting with energized lines. These outages are typically caused by mechanical damage (a tree, or portion of a tree, falling through equipment or conductors) or through cross-phasing (a fallen limb laying across more than one energized phase).

PIs are expected to actively inspect for:


- Limbs overhanging lines
- Subject trees (hazard and reliability trees) and limbs capable of contact with lines

When these situations are encountered, mitigation as described in UVM-02, UVM-03, and UVM-04 shall be prescribed.

### Fires

While the frequency of tree and power line related fires is relatively low, when they occur, they are typically catastrophic. This is due to the conditions typically present at the time of these events. When temperatures are high and humidity low, all adjacent vegetation (trees, plants and grasses) are extremely combustible. When winds exceed 32 MPH (Moderate Gale) entire trees begin to sway and can come into contact with overhead energized lines. When winds exceed 39 MPH (Fresh Gale) small branches start to break from trees and can take down conductors. When winds exceed 47 MPH (Strong Gale) entire trees can fail and cause significant damage. When this happens, the combination of dry fuel and high winds can turn the resulting sparks into a massive conflagration.



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Note: Wind “direction” is equally important as wind “speed” in contributing to these tree failure events. The possibility of complete tree failure is increased when high winds come from non-routine directions. (A tree’s growth structure adapts to withstand prevailing winds from localized routine wind exposure – when winds come from unique directions trees can fail at lower encountered wind speeds)

UVM mitigation requirements are detailed in the Power Line Fire Prevention Guide and the Public Resource Code. Pls must be familiar with these requirements.

## 1.8 Oversight and the Laws

In addition to mitigating tree and power line conflicts, SCE UVM activities must comply with various local, state and federal laws and regulations. In the following we will describe the oversight authorities and list the most common UVM related regulations.

### State versus Federal Oversight

The State of California has direct oversight of Investor Owned Utilities (IOUs) in the state. This authority is wide reaching, affecting all activities of providing energy to California citizens, and also includes the development and enforcement of UVM regulations. This authority covers most aspects of UVM related Generation, Transmission, and Distribution activities – covering all voltages. The Federal government has similar powers to oversee UVM-related activities in California, but they are limited to the Bulk Electric System (BES). This generally includes Generation facilities and Transmission lines with voltages equal to, or greater than, 200kV (see FAC-003 for applicability). While the State has oversight of all voltages, the federal government is principally concerned with Generation and Transmission voltages that could create large cascading outages which might impact multiple states.

### State Oversight and Regulatory Requirements for UVM

The principal state oversight of UVM activities comes from the California Public Utility Commission (CPUC) and its promulgated General Order 95, Rule 35.


Rule 35 details numerous requirements that SCE must comply with. Failure to do so may result in fines or other enforcement actions.

Pls must be familiar with Rule 35 requirements – refer to CPUC website:

[http://www.cpuc.ca.gov/gos/GO95/go\\_95\\_rule\\_35.html](http://www.cpuc.ca.gov/gos/GO95/go_95_rule_35.html)

### Federal Oversight and Regulatory Requirements for UVM

The principal Federal oversight of UVM activities comes from the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC). Acting under the aegis of NERC, the Western Electric Coordinating Council (WECC) also has compliance monitoring and enforcement responsibilities of UVM related activities. The principal UVM related federal regulation dealing with UVM is found in NERC Reliability Standard FAC-003 (latest version).

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FAC-003 covers numerous requirements SCE must comply with. Failure to do so may result in fines of 1 million dollars per day, per violation, or regulatory investigations with additional potential sanctions for non-compliance.

PIs must be familiar with FAC-003 requirements – refer to NERC mandatory enforceable standards website: <https://www.nerc.com/pa/stand/Pages/ReliabilityStandards>

#### Other UVM Related Requirements

In addition to the safety and reliability related regulations found in Rule 35 and FAC-003, California utilities must comply with applicable local, state and federal fire prevention requirements. These regulations are generally enforced by the California Department of Forestry and Fire Protection (Cal Fire) but can also be enforced by other fire prevention agencies. The principal UVM related fire prevention regulations are found in various sections of the California Public Resource Code (PRC).

The most common UVM requirements are found in PRC 4293 and 4292 and failure to comply can result in criminal violations and sanctions.

PIs must be familiar with fire prevention regulations and requirements. SCE will provide a Power Line Fire Prevention Field Guide to the PI's.

#### State Requirements

Various other state promulgated requirements related to UVM must be complied with. These can include:

- Caltrans work requirements
- State promulgated pesticide and herbicide application requirements
- Environmental requirements (endangered species, sensitive areas, etc.)

#### Local Requirements


Local governments have ordinances or requirements that may influence UVM activities. These may include:

- Tree ordinances
- Permitting
- Local fire requirements

## **2. Pre-Inspection Practices**

### **2.1 General Practices Applicable to Both T&D Pre-Inspection Activities**

The role of the PI is critical to meeting the objectives of SCE's UVMD. While diverse in both functions and duties, the role of the PI generally includes the pre-inspection and customer notification of required UVM work on both Transmission and Distribution (T&D) systems. The following section will detail information applicable

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to both T&D, and that will be followed by separate sections unique to distribution and transmission operations and activities.

### 2.1.1 Scheduling Work

SCE maintains a robust inventory that catalogues and tracks both planned and completed work. All transmission and distribution lines are scheduled for routine pre-inspection, at least once a year, and this work is generally performed by PI's. Based on the Annual work plan and services schedule, SCE will provide pre-inspection contractors with required circuits and grids for inspection.

Work schedules and assignments will be provided to the contractor in the following form(s):

- Annual Work Plan
- Electronic inventory packages
- Clearion Active Inspection Tool

Beyond routine inspections, PIs may also be directed to perform inspections that are generated by customer call-ins, work associated with new construction, or work as otherwise requested by SCE personnel.


During all of these activities, the PI shall ensure that SCE's transmission and distribution systems, lines, poles and other facilities are inspected to be kept clear from vegetation, including, without limitation, trees, branches, palm fronds, overhangs, and vines, and in compliance with applicable regulatory requirements and SCE's UVM Program. SCE also expects that the pre-inspection work will be performed in accordance with industry accepted guidelines, best practices and standards.

### 2.1.2 Customer Notification / Permission

SCE has the right to perform required UVM work under and adjacent to its electric facilities. The extent of these rights can be dictated by various easement and rights-of-way documents, and they can differ in scope based on voltage and location of the electric facilities. In general however, SCE has rights suitable to adequately achieve and maintain required clearances.

It is SCE's intent that all affected customers (with vegetation on their property requiring mitigation) are pre-notified of pending work. This pre-notification of work should be completed 15-45 days prior to the scheduled work being performed. The pre-notification process generally follows these steps:

- 1) PI notifies customer if prescription generated
- 2) PI obtains permission from customer for removals and heavy prune work – signed Vegetation Work Agreement form, text message or email acknowledging property ownership and providing permission to commence with work
- 3) If customer refuses, report to UVM C&S Event Expeditor (refer to UVM-14 Refusal Process)

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### 2.1.3 Refusals

While the majority of customers recognize and support the timely completion of required UVM work, there can be a small percentage who will initially refuse access to the trees and vegetation for inspection and/or mitigation purposes. In the majority of these cases of customer “refusals” the issue(s) can typically be resolved by further discussions and assurances. It is expected that the PI will make every effort to fully explain the necessity of the work and respond to customer issues or concerns during the first interaction in order to avoid any escalation of the refusal. However, even with best efforts there will be situations where permission is not obtained and a refusal event is reported to the UVM C&S Event Expeditor. Refer to UVM-14 Refusal Process for details.

### 2.1.4 Complaints

Customer complaints can be generated for a number of reasons and should be addressed in a timely manner. There are two main types of complaints described below:

- Complaints related to Pre-inspectors work – make a reasonable effort to resolve the issue. Report the issue to your Lead if unable to resolve it. If necessary, the Lead can ask the local SSP for assistance.
- Complaints related to Tree crews work – report those issues to your Lead.


### 2.1.5 Customer Generated Trouble Orders

PIs will be required to inspect and respond to customer-initiated trouble orders. These occur when a customer contacts SCE about a UVM related concern ranging from vegetation near power lines and SCE equipment to concerns over past or proposed UVM work. The PI should respond to these trouble orders by the due date and ensure the inquiry is discussed/resolved with the requestor. If the requestor is unavailable, the PI shall leave an SCE issued door hanger and/or voicemail notifying the requestor of the inspection findings, along with contact information for the PI if any follow up questions are needed.

### 2.1.6 New Business or Construction Related Work Orders

A PI may be asked to assist in identifying required UVM work for new business or construction. These work orders generally require identifying UVM work necessary to build, expand or revise transmission and distribution facilities. For example, a new pole may need to be installed to extend service to a new customer. The PI may be asked to visit the site to identify, and make arrangements for UVM work necessary to complete the work.

Note that SCE’s objective in these cases would be to build new lines that are free of long term UVM threats or ongoing UVM mitigation. Right Tree Right Place principles should be considered during the planning of new lines and the PI should work towards a maintenance free end product.

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### 2.1.7 Hazard Tree Management Plan (HTMP)

In addition to ensuring appropriate clearances are maintained within easements and ROW's, PIs may be asked to perform Tree Risk Assessments. PIs are expected to identify and document trees located within the Utility Strike Zone (USZ) and expected to pose a risk to electric facilities based on the tree's observed structural condition and site considerations. Only PIs which are certified arborists can perform a Tree Risk Assessment. This approach is detailed in SCE's UVM-04 Hazard Tree Management Plan (HTMP) and the contained information should be understood by all PIs.

#### Distribution Circuit USZ

When easements are known the USZ boundaries for distribution circuits are the easement boundaries. When the easement is not known the USZ boundary is determined by measuring 12 feet from the outside conductor and extend to the tallest Subject Tree that can impact the line. The stump of the tree must be in the USZ for it to be managed under the HTMP. Trees in the USZ can be pruned for compliance. A PI can recommend a tree in the USZ be assessed under the HTMP Tree Risk Assessment if the tree cannot hold conformance to the CCD for 18 months or hold conformance to the TCD for 12 months. A qualified PI will be sent to perform the Tree Risk Assessment.

#### Transmission USZ


The USZ for transmission is determined on a span by span basis. The border of the USZ is determined by the ROW width and the tallest Subject tree in the span that can impact the line. The method used to determine ROW width is found in the (UVM-25 Row width Reference Table) and will be communicated to the PI in the scheduling work package. When the ROW width is known by contract the data will be provided as an overlay in the WMS. When the ROW is not known by contract then the sway will determine the ROW width. The Line Sway can be found on a span by span basis for all 500kV and 220kV line in the Transmission Guide.

### 2.1.8 Vegetation Threat Procedure

UVM-08, Vegetation Threat Procedure identifies the methods of prioritization for identified threats discovered through the UVM Program's Hazard Tree Management Plan, Distribution Vegetation Management Plan, and the Transmission Vegetation Management Plan. Identified vegetation threats to public safety and/or electric system reliability are mitigated in accordance with UVM-08.

### 2.1.9 Work Verification

After performing Pre-inspection activities on any geographic location or within any circuit, Contractor shall conduct a physical patrol of that location or circuit to assure absolute and complete compliance of the Pre-inspection activities. Contractor shall also perform internal quality control to ensure all data and documentation submitted to SCE is accurate. Quality control performance data for both areas shall be maintained and submitted monthly to SCE.

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SCE or a third-party SCE Contractor may conduct an inspection of portions of Contractor's completed work. This inspection may consist of a judgmental sampling of portions of a geographic location or circuit, or a physical patrol of any portion of SCE's T&D System, to assure the quality of Contractor's Services and Contractor's Compliance and conformance with all requirements under the Agreement.

SCE's inspection of any portions of Contractor's Routine Maintenance or other Services shall not relieve Contractor from its obligations under this contract. All non-conformances shall be corrected as soon as possible (immediately if hazards exist, but no later than 30 days after identification) at Contractor's expense. The corrections apply to both Pre-Inspection work and to pruning and removal work.

## 2.2 Distribution UVM

A detailed review of SCE's UVM distribution plan and activities can be found in UVM-03, Distribution Vegetation Management Plan (DVMP).

High voltage distribution lines and equipment are defined as those that are operated at 2.4 kV to 69 kV with the exception of those lines that are part of the defined Bulk Electric System or are an element of a Major Western Electricity Coordinating Council (WECC) Transfer Path or an element of an Interconnection Reliability Operating Limit (IROL), which are managed according to UVM-02, Transmission Vegetation Management Plan (TVMP). Low voltage lines are defined as those that are operated at 750 volts and below.


### 2.2.1 General Overview of Distribution UVM

SCE maintains a reliable electric distribution system by managing vegetation located under and adjacent to electric conductors in order to minimize the risk of encroachments into the specified clearance zones. SCE's program is designed to improve the reliability of SCE's distribution system and to ensure compliance with the most recently adopted versions of regulatory requirements established by the California Public Utilities Commission (CPUC) General Order (GO) 95, California Public Resource Codes (PRC), and Title 14 California Code of Regulations (CCR) by establishing maintenance and inspection procedures in order to:

- Manage vegetation to prevent vegetation encroachment into the clearance zones under normal conditions as stated in the following applicable regulations:
  - GO 95, Rule 35 (Case 13 and Case 14)
  - GO 95, Rule 37
  - PRC Section 4292
  - PRC Section 4293
  - CCR Sections 1250-1258
  - Note that during Force Majeure<sup>1</sup> events it may not be possible to ensure that an encroachment into the clearance zones will not occur.

<sup>1</sup> 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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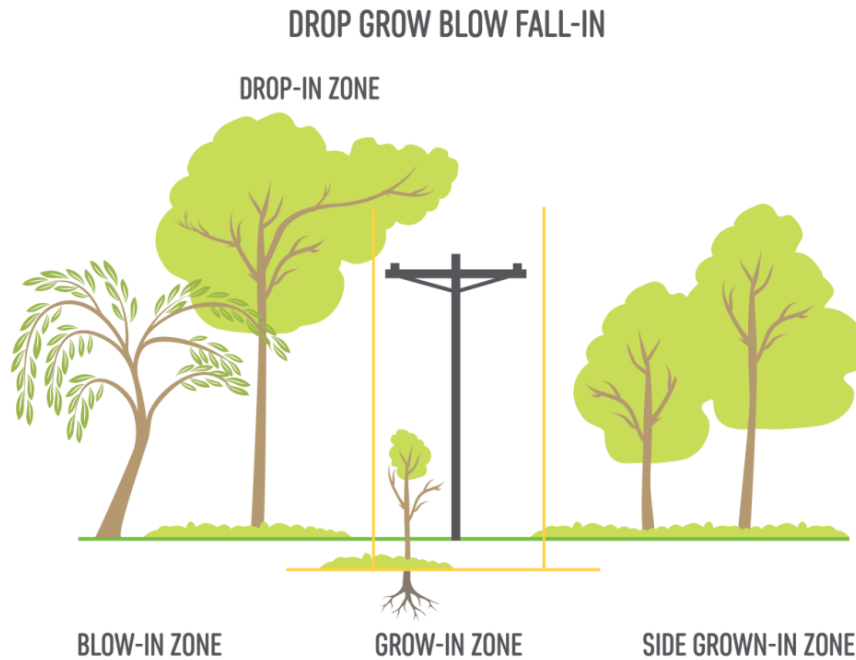
- Document the maintenance procedures and processes used to manage vegetation to prevent the encroachment into the clearances described in the regulations noted above.
- Include consideration of 1) conductor (line) dynamics 2) vegetation movement during high winds (tree dynamics), and 3) the interrelationships between vegetation growth rates, control methods and inspection frequency.
- Provide timely notification to the appropriate Vegetation Management Operations (VM) Senior Specialist (SSP) or Manager of vegetation conditions that could cause a flash-over or Fault.

### 2.2.2 Specific Roles of the PI for Distribution Activities

For all vegetation near or around SCE's distribution system, the PI shall:

1. Visually assess distribution encroachment zones. Validate existing inventory and add/delete as appropriate.
2. Identify all vegetation by appropriate attributes (conductor dynamics, vegetation movement, etc.) that will require pruning or removal in order to maintain the Compliance Clearance Distance (CCD) for a minimum of 18 months or the Trigger Clearance Distance (TCD) for a minimum of 12 months, starting from the month of scheduled work. The recommended clearance at time of maintenance is 12 feet. If 12 foot of clearance cannot be achieved, then the tree falls into the Exception Tree category. In those cases prune to maximum allowable clearance and document the valid reason 12 foot of clearance could not be achieved. See Attachment A for distribution compliance clearances.
3. Assign work prescriptions for any vegetation existing, or created, in SCE's database (e.g., pruning, removal, no work).
4. Identify the most appropriate pruning type (e.g., crown reduction, slope, roll top back, de-frond, etc.) in order to obtain the appropriate GRCD (while maintaining applicable ANSI A300 tree care standards). This may involve pruning beyond previously established cuts.
5. Work prescriptions will be based on encroachment zones (i.e., grow-in, side grow-in, fall-in, drop-in).

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**Figure 3: Encroachment Zones**

Prescriptions for vegetation in the Grow-in Zone and Blow-in Zone and Side Grow-in Zone must be as noted in the Clearance Distances described in the DVMP (UVM-03).

All capable tree species (trees at maturity that have the ability to grow into the line including Fast Growing trees described in Attachment B, Tree Species and Growth Rates. Fast Growing Tree Species that are located in the Grow-in Zone shall be prescribed to be removed as appropriate.

Where practical and achievable, all vegetation in the Drop-in Zone (overhangs with potential to strike conductor) shall be prescribed to be removed.

Vegetation identified as a Hazard Tree will be mitigated in accordance with UVM-04, Hazard Tree Management Plan.


When the stated clearances cannot be attained during the pre-inspection process due to easements, other legal agreements, or regulations that restrict vegetation management practices, the maximum allowable amount of vegetation will be prescribed to be removed or otherwise controlled as appropriate. These Exception Tree(s) will be documented and re-inspected as necessary throughout the year.

1. Identify vegetation that may be a candidate for removal, including, but not limited to, the following:
  - a. Subject trees that are identified as either a Hazard Tree or a Reliability Tree during a Level 1, Level 2, or Level 3 Assessment and are located within the Utility Strike Zone.

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- b. Small trees (trees with less than 8" DBH) or brush that generally grow as a result of bird or seed pollination and are typically not maintained generally by the property owner.
  - c. Trees that will not maintain applicable Compliance Clearance Distance (CCD) for 18 months
  - d. Trees that will not maintain applicable Trigger Clearance Distance (TCD) for 12 months
  - e. All capable tree species including fast growing tree species located in the Grow-in Zone
  - f. Trees that cannot be maintained in accordance with ANSI A300 Tree Pruning Standards
  - g. When obtaining a tree removal from a property/location that falls under the removal criteria, all additional inventoried trees from that property/location should be assessed for possible mitigation work
  - h. Any tree removed may impact site conditions (i.e., edge tree effect) which requires surrounding trees to be assessed
  - i. Palms with the potential to shed fronds that may strike or land across any part of the electric system
2. Identify and prescribe any work needed to correct any strain or abrasion present on primary aerial cable.
3. Identify and prescribe any work needed to correct any strain or abrasion present on low voltage conductors and service drops.
4. Data integrity of SCE's work management system is of utmost importance. Contractor shall update and maintain accurate and complete pre-inspection records daily in the work management system based on the following:
  - a. All existing and required information within the work management system must be entered completely and accurately. Examples of required pre-inspection information include, but are not limited to:
    - Location information: customer information, appointment requests, tree care requests, property restrictions, public landowners, etc.
    - Tree information: species, quantity, growth rate, environmental classification, etc.
    - Inspection information: clearance distance from conductor at the time of inspection, tree conditional factors, etc.
    - Prescription information: trim style, prescribed clearance, debris management, workability, environmental classification, etc.
    - Additional information as needed: stump grinding, access information, etc.
  - b. Any data correction request made by a SCE Representative.

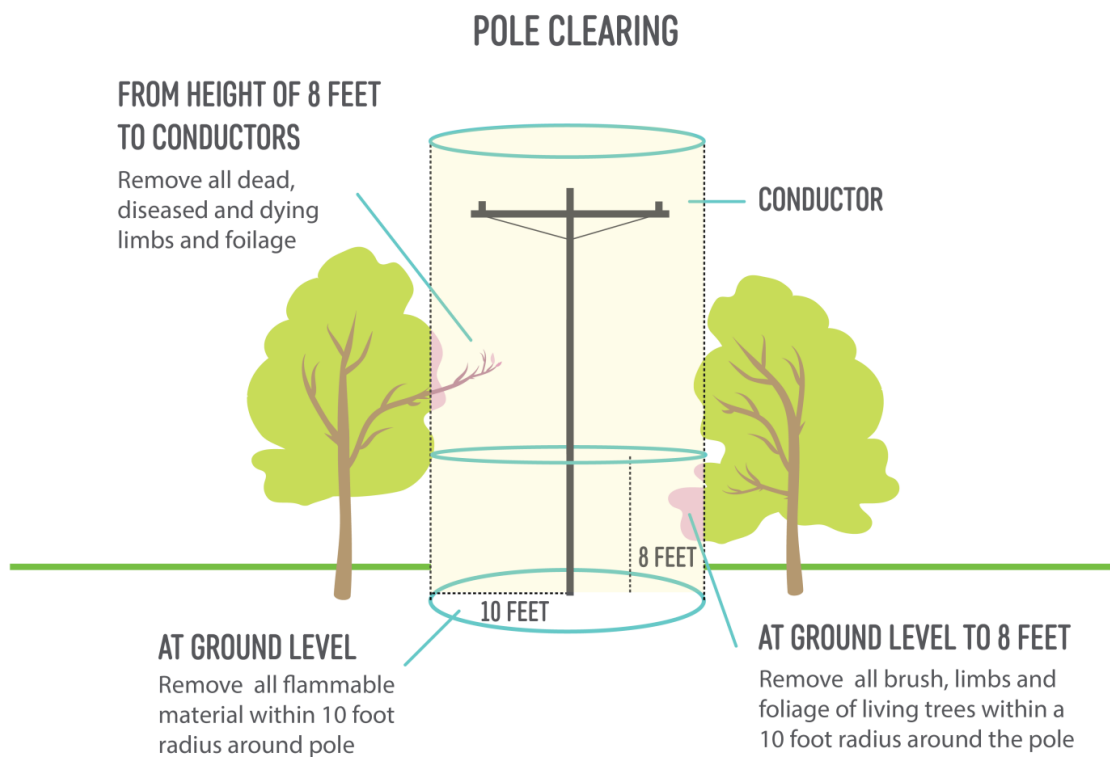
During the course of routine vegetation inspections, any identified Imminent Threats shall be reported to the SSP and the SCE Distribution Operations Center (DOC). For details on the UVM Threat process, refer to UVM-08. Other DOC reportable findings include broken equipment such as crossarms, fuses, insulators, connectors, conductors or covering, transformers, padmounts, handholes, BURD structures, etc. Should any foreign objects be observed on SCE equipment, such as Mylar balloons, shoes or other objects on the lines, the appropriate regional DOC must be notified.

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DOC (Distribution Operations Center)		
Supervisor Name	PAX	External
Eastern GMC (Mira Loma Sub)	17066	909-773-9066
Western GMC (Lighthipe)	37036	562-529-7336
Southern (Santa Ana)	52480	714-973-5480
Northern (Ventura)	79184	805-654-7184

### 2.2.3 Pole Clearing

All vegetation above 8 feet and within 10 feet of distribution poles in the SCE High Fire Risk Areas (HFRA) must be inspected. See UVM-03 DVMP for details.



**Figure 4: Pole Clearing Requirements**

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## 2.3 Transmission UVM

A detailed review of SCE's UVM transmission plan and activities can be found in UVM-02 Transmission Vegetation Management Plan (TVMP).


Transmission lines and equipment are defined as those that are operated at 115 kV to 500 kV and lower voltage lines that are part of the defined Bulk Electric System or are an element of a Major Western Electricity Coordinating Council (WECC) Transfer Path or an element of an Interconnection Reliability Operating Limit (IROL).

### 2.3.1 General Overview of Transmission UVM

SCE maintains a reliable electric transmission system by using a defense-in-depth strategy to manage vegetation located on and adjacent to transmission Rights-of-Way (ROW) in order to minimize the risk of encroachments into the specified clearance zones. The SCE program is designed to comply with regulatory Compliance Requirements, such as the most recently adopted versions of North American Electric Reliability Corp. (NERC) Reliability Standard FAC-003, California Public Utilities Commission (CPUC) General Order (GO) 95 requirements, Cal Fire Public Resource Codes (PRC), and Title 14, California Code of Regulations (CCR). Further, SCE's efforts are focused on improving the reliability of SCE's transmission system by establishing maintenance and inspection procedures in order to:

- Manage vegetation to prevent vegetation encroachment into Clearance Zones defined in the most current version of the following regulations:
  - FAC-003
  - GO 95, Rule 35 (Case 13 and Case 14)
  - GO 95, Rule 37
  - PRC 4293
  - PRC 4292
  - Title 14 CCR Sections 1250-1258
  - Note that during Force Majeure<sup>2</sup> events it may not be possible to ensure that an encroachment into the clearance zones will not occur.
- Document the maintenance strategies, procedures, processes and specifications used to manage vegetation to prevent the encroachment into the clearances described in the regulations noted above
- Include consideration of 1) conductor dynamics, 2) vegetation movement in high winds, and 3) the interrelationships between vegetation growth rates, control methods and inspection frequency

<sup>2</sup> 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.

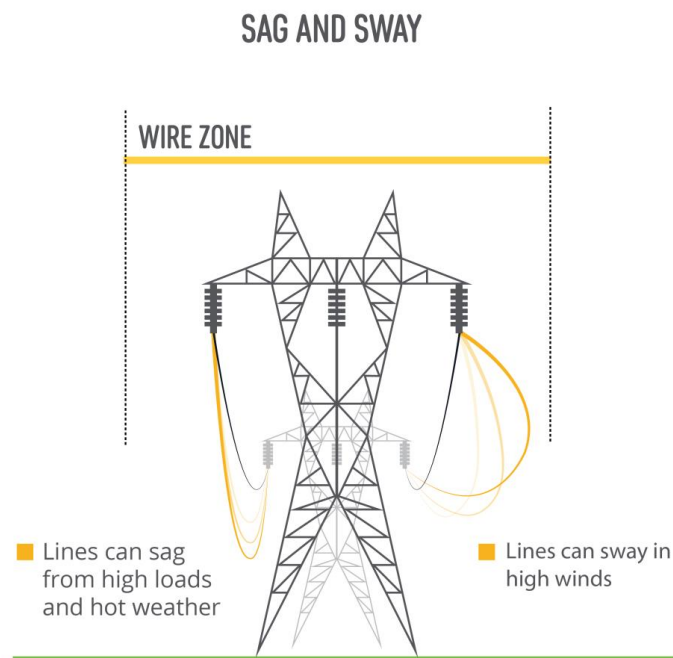
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- Provide timely notification to the appropriate control center of vegetation conditions that could cause a flash-over or Fault at any moment
- Implement corrective actions to prevent the encroachment into the clearances described in the regulations noted above
- Inspect vegetation conditions annually with no more than 18 calendar months between inspections


### 2.3.2 The Specific Roles of the PI for Transmission Activities

For all vegetation near or around SCE's transmission system, the PI shall:

1. Identify all vegetation by appropriate attributes (conductor dynamics, vegetation movement, etc.) that will require pruning or removal in order to maintain compliance (CCD) for a minimum of 18 months, starting from the month of scheduled work. Refer to UVM-02 TVMP.
2. Movement of line conductors (sag and sway) under their Rating and all Rated Electrical Operating Conditions (See UVM-02 TVMP) and inter-relationships between vegetation growth rates, vegetation control methods, and inspection frequency must be taken into consideration.

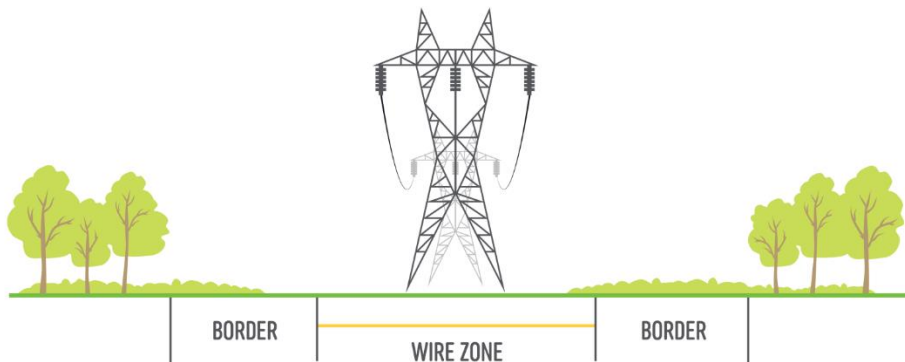


**Figure 5: Sag and Sway**

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3. If LiDAR is required for pre-inspection, the data/overlays will be available in the WMS.
4. Assign work prescriptions for any vegetation existing, or created, in SCE's database (e.g., pruning, removal, herbicide application, mowing, slashing, etc. or no work).
5. Identify the most appropriate pruning type (e.g., crown reduction, slope, roll top back, de-frond, etc.) in order to obtain the appropriate GRCD (while maintaining applicable ANSI A300 tree care standards). This may involve pruning beyond previously established cuts.
6. Where possible, the wire-zone border-zone model will be implemented as described below.

#### WIRE ZONE/BORDER ZONE



**Figure 6: Wire-Zone – Border-Zone**

1. Prescriptions for vegetation in the Wire Zone must be as noted in the Clearance Distances described in UVM-02, Transmission Vegetation Management Plan (TVMP).
2. All capable tree species (including fast growing tree species described in Attachment B) that are located in the Wire Zone shall be prescribed to be removed as appropriate or where applicable.
3. The Wire Zone in Extreme and Very High fire areas will contain only low-growing trees, shrubs, and grasses.
4. Prescriptions for vegetation to be pruned or removed in the Border Zone shall prevent encroachment into the clearance zone under all Rated Electrical Operating Conditions.
5. In the event that the clearance zone for any given span is located outside the defined ROW, the pruning prescription for vegetation will be to clear to the edge of the defined ROW.
6. Vegetation identified as a Hazard Tree will be mitigated in accordance with Procedure UVM-04, UVM Hazard Tree Management Plan.
7. When the stated clearances cannot be attained during the pre-inspection process due to easements, other legal agreements, or regulations that restrict vegetation management practices,


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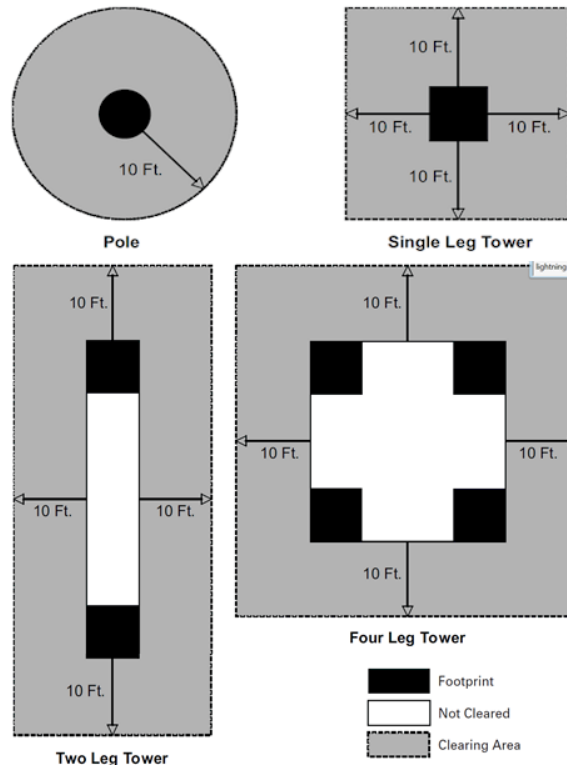
the maximum allowable amount of vegetation will be prescribed to be removed or otherwise controlled as appropriate. These Exception Tree(s) will be documented and re-inspected as necessary throughout the year.

8. Data integrity of SCE's work management system is of utmost importance. Contractor shall update and maintain accurate and complete pre-inspection records in the work management system based on the following:
  - a. Permanent attribute information within the work management system
  - b. Tree-to-conductor clearance (at the nearest radial distance) at time of pre-inspection.
  - c. Prescription of the work to be completed, including clearances to be attained.
  - d. Special customer information that is critical to the performance of prescribed work (i.e. appointment requests, contact information, tree care requests, property restrictions, public land owners, environmental restrictions, etc.)
  - e. Any data correction request made by a SCE Representative.

### 2.3.3 Pole / Tower Clearing

1. An Exclusion Zone is to be established under and around transmission towers. The Exclusion Zone is a clear area (bare ground) under the tower and measuring a minimum of 10' out from the outside perimeter of the tower footings and a 20' perimeter Exclusion Zone will be established where necessary for access and maintenance.
2. Identify all vegetation that will require treatment or removal in order to maintain compliance with PRC 4292 for 12 months, starting from the month of scheduled work. Refer to UVM-02 TVMP.
3. Assign work prescriptions for any vegetation existing, or created, in SCE's database (e.g., removal, herbicide application, mowing, slashing, etc. or no work).

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**Figure 7: Pole / Tower Clearing Requirements**

## 2.4 Exception Trees

When the stated clearances cannot be attained at the time of scheduled maintenance due to easement restrictions, other legal restrictions, or regulations that restrict vegetation management practices, the maximum allowable amount of vegetation will be mitigated or removed as appropriate. These Exception Tree(s) will be documented in the tree inventory and re-inspected as necessary.


## 2.5 Storms and Emergent Work

Inspectors may be called out for emergency response to storm and other possible emergent conditions. Inspectors shall be aware of their 24-hour duty assignments and update SCE's UVM designated duty roster manager as requested. Safety awareness shall be emphasized while working during after-hours and storm conditions.

Under direction of the responsible SSP, vegetation inspections during storm conditions can range from trouble order response to circuit specific patrol. Inspections during storm and emergent response must be performed, and findings reported, in an urgent manner.

Other non-routine or special project work can consist of District requests, SAP notifications, SSP/QC findings, and other SCE capital projects. All non-routine and special project work must be performed at the direction of



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the SSP. In most cases, inspections will require beyond Level 1 tree assessment. Level 2 utility-specific tree assessments for non-routine and special projects should be the standard.

## 2.6 Work Management Systems and Reporting

LiDAR – refer to UVM-06, LiDAR Reference Guide

Routine forms – Link to forms: [SCE VM Org. SP Site > VM Controlled Forms](#)

Link to Clearion training and job aids: [SCE VM External Site > Clearion Training](#)

Link to Fulcrum training and job aids: [SCE VM Org. SP Site > Training Materials > 2018 HTMP \(Pilot\) Training](#)

## 3. 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 including UVM Pre-Inspection Contractors

## 4. 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.



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## 5. Approvals

Program Manager	Signature	Date
Melanie Jocelyn, Principal Manager	<b>Melanie Jocelyn</b> / Approved by E-mail	6/5/19

## 6. Revision History


Revision Number	Date	Description of Revision	By	Next Review Date
1	4/19/19	Initial release for UVM Program	David Guzman	2020
2	5/17/19	General Document Refresh	Bill Kotteakos	5/17/20
3	6/7/19	Added Verbiage to Section 2.1.2 attribute 2	Bill Kotteakos	6/7/20

## 7. References

### External References

- Arborists' Certification Study Guide, Third Edition - By S.J. Lilly
- Utility Arboriculture: The Utility Specialist Certification Study Guide - By Randall H. Miller and Geoffrey Kempter
- ANSI A300 Standards and the supplemental ISA BMPs for
- A300 Part 1 Pruning
- A300 Part 7 Integrated Vegetation Management
- A300 Part 9 Tree Risk Assessment
- CPUC GO 95 Rule 35
- NERC Reliability Standard FAC-003-4

### Internal References

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- ECSS-01, E&C Shared Services Glossary of Terms
- UVM-02, Transmission Vegetation Management Plan
- UVM-03, Distribution Vegetation Management Plan
- UVM-04, Hazard Tree Management Plan
- UVM-06, LiDAR Reference Guide
- 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 UVM Managers
- E&C Program Management Office
- Impacted OU Touchpoints

## 9. Key Contacts

UVM Senior Manager, Operations: Jeff Copeland, [REDACTED]

UVM Senior Manager, Compliance and Support: Bill Kotteakos, [REDACTED]


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## Attachment A

### Encroachment Distances

Fire and PRC Areas		
PRC 4293, GO 95 Rule 35 (Case 14)		
Nominal Voltage	Clearance Distance to be Maintained for Compliance CCD	Regulation or Code Requirement Distance RCD
500kV	15'	10.0'
230kV	15'	10.0'
161kV	15'	10.0'
115kV	15'	10.0'
2.4 - 69kV	6'	4.0'


Non-Fire and Non-PRC Areas		
GO 95, Rule 35 (Case 13)		
Nominal Voltage	Clearance Distance to be Maintained for Compliance CCD	Regulation or Code Requirement Distance RCD
500kV	15'	9.6'
230kV	7'	4.7'
161kV	5'	3.2'
115kV	4'	2.2'
2.4 - 69kV	3'	1.5'

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## Attachment B

### Tree Species and Growth Rates

Species Name	Growth Rate	Species Name	Growth Rate
Acacia-Blow	Medium	Cherry	Medium
Ailanthus	Fast	Chinaberry	Medium
Albizzia	Medium	Citrus	Slow
Alder, White	Medium	Coral	Medium
Almond	Medium	Cottonwood	Fast
Ash	Fast	Cow Itch	Slow
Aspen	Slow	Crape Myrtle	Slow
Athel	Medium	Cypress	Slow
Avocado	Medium	Deodara	Slow
Bamboo	Fast	Dogwood	Slow
Banana	Slow	Elder, Box	Medium
Bay	Slow	Elderberry	Medium
Birch	Slow	Elm	Fast
Bird of Paradise	Medium	Eucalyptus	Fast
Bottle	Slow	Eugenia	Medium
Bottlebrush	Slow	Ficus	Medium
Brisbane Box	Medium	Fig	Medium
Buckeye	Slow	Fir	Slow
Camphor	Medium	Floss, Silk	Medium
Carob	Medium	Ginkgo	Slow
Carrotwood	Medium	Golden Rain	Slow
Casuarina	Medium	Grevillea	Fast
Catalpa	Medium	Hackberry	Medium
Cedar	Slow	Jacaranda	Fast
Century Plant	Slow	Joshua	Slow

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Species Name	Growth Rate	Species Name	Growth Rate
Juniper	Slow	Pecan	Fast
Lemon	Medium	Pepper	Fast
LiqAmber-Gum	Medium	Persimmon	Medium
Locust	Fast	Pine	Medium
Magnolia	Slow	Pistache	Medium
Maple	Medium	Pistachio	Medium
Melaleuca	Medium	Pittysporum	Medium
Mesquite	Medium	Plum	Medium
Mimosa	Slow	Podocarpus	Medium
Monkey Puzzle	Slow	Poplar	Fast
Mulberry	Fast	Privet	Medium
Myoporum	Slow	Redwood	Medium
Oak	Slow	Rubber	Medium
Oleander	Slow	Salt Cedar	Medium
Olive	Medium	Sequoia	Slow
Orange	Medium	Spruce	Medium
Orchid	Medium	Sumac	Medium
Other	Medium	Sycamore	Fast
Palm	Fast	Tallow	Medium
Palo Verde	Slow	Tulip	Fast
Pear	Medium	Unknown	Medium
		Vine	Fast
Approximate Growth Rate:		Walnut	Fast
(S) Slow: 0 to 3 feet Annually		Willow	Fast
(M) Medium: 3.1 to 6 feet Annually		Yucca	Slow
(F) Fast: More than 6 feet Annually		Zekl ova	Medium