



Vegetation Management Guidelines

Effective March 1, 2018

(subject to periodic DMEA revision)

ABOUT THE VEGETATION MANAGEMENT GUIDELINES

These guidelines apply whenever performing vegetation management services for Delta-Montrose Electric Association (DMEA). Vegetation management includes distribution and transmission line clearance (vegetation removal, cutting, and pruning), overhead safety inspection, and landscape maintenance. Regardless of the service performed, every work site has its own safety and work requirements.

The objective of these vegetation management guidelines is to provide safe, reliable, electric service through a cost-effective, integrated vegetation management program. These guidelines are designed to address both the minimum and optimum clearance requirements necessary to sustain safe, reliable electric service. This information addresses procedures for DMEA employees or contractors, and is not intended for use as personal safety guidelines. **Contractors are responsible for developing a program and following their own safety procedures.**

Contractors performing vegetation management services must have a copy of these guidelines with them in the field. Those performing line clearance activity are also required to have the book "[*Best Management Practices- Utility Pruning of Trees*](#)" by the International Society of Arboriculture on each truck or work location at all times. Contractors are required to supply their own copy of this publication.

1. SAFETY

All personnel performing vegetation management work on or near DMEA facilities or rights of way shall follow approved safety guidelines and procedures. Contractors performing work for DMEA must comply with all applicable governmental safety and health regulations, and the safety and health provisions of their companies. A partial list of applicable legal standards and regulations follows:

1.1 OSHA REQUIREMENTS (1910.269) AND OTHER FEDERAL REQUIREMENTS

[OSHA 1910.269](#) is the Occupational Safety and Health Administration's (OSHA) vertical standard pertaining to the generation, transmission and distribution of electricity. Among other things, OSHA 1910.269 requires that everyone performing tree work in proximity to electric hazards be qualified and their training be documented.

RUS bulletins and regulations regarding vegetation management practices, including but not limited to Electric System Operation & Maintenance Bulletin 1730-1

Federal agencies such the North American Electric Reliability Council require electric utilities to maintain their transmission systems in accordance with the mandatory vegetation management and maintenance standard set forth in the [Energy Policy Act of 2005](#). These industry standards are designed to ensure safe and reliable operation of a transmission line system.

1.2 ANSI REQUIREMENTS (Z-133.1)

[ANSI Z-133](#) is the American National Standard Institute's *Standard for Safety Requirements in Arboricultural Operations*, including pruning, repairing, maintaining and removing trees, and cutting brush. It has the force of law because it is the document an OSHA compliance officer would reference when identifying safety violations by employees engaged in vegetation management. Therefore, it is considered the definitive safety standard for arboricultural operations.

In short, ANSI Z-133 defines an electric hazard to exist anytime a tree worker, tool, tree or any other conductive object is closer than 10 feet from an energized conductor with a voltage of 50,000 volts or less. From this 10 foot baseline, 0.4 inches of required clearance is added for every 1,000 volts above the 50,000-volt baseline. ANSI Z-133 provides tables that outline minimum approach distances for both qualified and non-qualified tree workers based on voltage and elevation.

Contractor managers are required to provide ANSI Z-133 minimum approach distance tables to their employees.

1.3 STATE REQUIREMENTS

[Colorado Revised Statutes Title 9 Safety -Industrial and Commercial, Article 2.5-High Voltage Power lines - Safety Requirements also imposes obligations with respect to vegetation management activities](#). Under Colorado law, only qualified employees of an electric utility can perform any activity bringing an individual or equipment within 10 feet of high voltage overhead lines (lines in excess of 600 volts). Employees and contractors working directly for the utility are considered qualified. Non-qualified employees or individuals must contact the appropriate utility to make arrangements for safe activity.

1.4 NATIONAL ELECTRIC SAFETY CODE (NEC) REQUIREMENTS

State regulatory entities (Public Utilities Commission) and federal agencies (Rural Utilities Service) require electric utilities to maintain facilities in accordance with the NEC. The NEC generally requires the removal or trimming of interfering trees.

1.5 DMEA REQUIREMENTS

All employees and contractors must be aware of the nature and characteristics of the electric facilities before work begins. Contractors will understand that the electric facilities must remain energized during the performance of work unless special arrangements are made with an authorized DMEA representative in accordance with these guidelines.

The following additional procedures pertain to contractors performing vegetation management work for DMEA:

- The contractor shall obtain full information as to the voltage of its circuits and minimum approach distances before starting the work.
- The contractor shall at all times conduct work in a manner to safeguard the public from injury and property from damage.
- The contractor must use all necessary protection for its employees and the public, and guard against interference with normal operation of the circuits. If, in the judgment of the contractor's general foreman/supervisor, it is too hazardous to remove or prune trees with the circuits energized, the contractor must contact an authorized DMEA representative(s). If appropriate, DMEA will de-energize circuits to ensure the safe removal or pruning of the tree(s).
- When practical and when a significant time savings would occur by de-energizing a single-phase line serving less than 15 meters, the contractor shall contact the DMEA Operations Supervisor to request said line be de-energized and grounded to ensure the most efficient and economical removal or pruning of trees on that section of line.
- Should the contractor knock down or come into contact with DMEA conductors (power lines), the contractor must notify DMEA immediately and take the necessary protective measures. All contractor-caused electric service interruptions are subject to repair at the contractor's expense.
- If a contractor becomes aware of any dangerous when, broken, loose or faulty DMEA line facilities in the normal course of its line clearance performance, the contractor shall promptly advise DMEA as to the exact equipment location(s) and nature of the condition found in accordance with the Overhead Safety Inspection Program. (See section 6 below.)
- Any contractor personnel entering substation equipment yards must be qualified (OSHA 1910.269). Contractor personnel must notify DMEA dispatch prior to entering any substation, must lock the gate behind them while in the substation, must notify dispatch when leaving the substation, and must close and lock the gate behind them.

2. GENERAL LINE CLEARANCE: WHY ELECTRIC UTILITIES ARE REQUIRED TO CONDUCT VEGETATION MANAGEMENT ACTIVITIES

Trees are a major contributor to electric service interruptions nationwide. Trees cause outages in two ways: mechanical and electrical. Mechanical damage refers to entire trees or portions of trees falling and physically damaging facilities (knocking down wires, poles, etc.). Because trees can be conductive, electrical

outages can also occur. These interruptions are caused when a portion of a tree becomes a short circuit path for electricity to flow, causing a protective device to operate and stop the flow of electricity. Trees must therefore be maintained an adequate distance from the conductors in an attempt to prevent interruptions of electric service.

Factors to consider in determining the extent of vegetation management required include, but are not limited to: line voltage class, species growth rates and failure characteristics, right-of-way limitations, the vegetation's location in relation to the conductors, the potential combined movement of vegetation and conductors during routine winds, sagging of conductors due to elevated temperatures or icing, and the probability to reach energized lines within a five-year growth cycle.

3. VEGETATION MANAGEMENT

3.1 GENERAL PHILOSOPHY

Vegetation management is a data-driven, progressive system of information gathering utilized to best plan and complete work. It involves the use of various types of vegetation management treatments including removing, pruning and mowing of vegetation. **Emphasis shall be placed on removing trees, in or out of the right-of-way, whenever possible.**

3.1.1 Work within the Right-of-Way/Easement

Transmission and distribution lines may be constructed where legal easements exist. Special conditions may apply regarding vegetation management activities in those areas. If questions arise, contact the appropriate DMEA vegetation management representative at (970) 240-6838, or (970) 249-4572.

Before entering any easement or private property for right-of-way tree removal, clearing, or trimming, the contractor as a courtesy will place a DMEA door hanger on the premises at least three days before beginning work.

- The property owner will be informed of the work to be done.
- If the Contractor is unable to contact/locate the owner of any property where work is required, report the situation to DMEA's Utility Arborist (or other designated representative).
- If it is necessary to enter the property owner's land to gain access to the right-of-way, an agreement should be reached as to the best route. If an agreement cannot be reached or in the case of an absentee owner, the contractor shall notify DMEA's Utility Arborist (or other designated representative).
- If any damage to property or crops results, the contractor shall promptly contact the property owner and DMEA's Utility Arborist (or other designated representative).
- **NOTE: Exceptions may be made for certain operational and/or emergency safety issues.**

3.1.2 Work outside the Right-of-Way/Easement

The contractor shall obtain a signed acknowledgement for any tree removal work done beyond the bounds of DMEA's easement or rights-of-way. **NOTE: Exceptions may be made for certain operational and/or emergency safety issues.**

3.1.3 Refusal

If clearing is necessary and the landowner refuses either access or to allow removal and or appropriate trimming, the contractor will notify DMEA's Utility Arborist for resolution.

3.1.4 Non-DMEA Facilities

DMEA does not purposely clear non-cooperative conductors, including cable and phone wires.

3.2 TREE OF INTEREST MITIGATION

Any tree with the potential to contact an electric supply line within a five-year maintenance cycle is considered a "tree of interest." Trees of interest with an unacceptable risk of falling before the next maintenance cycle should be removed, topped or trimmed to a point they will not be a hazard to DMEA facilities.

Conditions that might indicate the presence of a tree of interest having an unacceptable risk of falling could include but are not limited to the following:

Biological Factors

- Decay/deadwood/dead trees
- Cracks
- Weak branch unions
- Cankers/fungal bodies

Environmental Factors

- Root damage, restrictions
- Changes in exposure
- Poor architecture (leaning, structural overloading, imbalance due to wounding, etc.)

3.3 WORK GUIDELINES

3.3.1 Removal

Tree removal is the selective clearing of entire trees and brush at ground level. In most cases, tree removal eliminates hazardous conditions, improves access to facilities, and reduces future work.

All trees of interest inside DMEA's easement or rights-of-way are candidates for removal, and emphasis shall be placed on removing these trees rather than pruning. Trees of interest outside DMEA's easement or rights-of-way are also candidates for removal and, where appropriate and where the landowner has agreed, removal may occur. (Without landowner agreement, trimming on a five-year cycle shall occur in areas outside DMEA's easement or rights-of-way.) In certain circumstances, DMEA may offer tree replacement certificates for removals according to the DMEA Tree Removal Agreement.

Tree Removal Criteria:

- “Cycle Busters”—*i.e.*, fast- or medium-growing trees that will interfere with DMEA facilities before the next five-year maintenance cycle.
- Trees of interest within DMEA’s right-of-way.
- Trees of interest outside of DMEA’s right-of-way that have an unacceptable risk of falling due to biological or environmental factors.
- Trees that can’t be trimmed to obtain the guideline clearance to the conductor plus the re-growth in the 5-year cycle, or which require extensive drop-crotch trimming to obtain a five-year cycle.
- Trees that, after pruning, would leave less than fifty (50) percent of the remaining tree.

Generally:

- Remove tall-growing trees that fit the removal criteria.
- Remove tall-growing brush that has the potential to grow into the conductor.
- Apply the "wire zone/border zone" concept to transmission and distribution electric facilities.
- All trees and brush should be cut as close to the ground as practical. Remove all second growth from stumps cut on previous pruning cycles. Also spray if applicable.
- Mitigate all trees of interest, whether inside or outside of the right-of-way, that present an unacceptable risk of falling.
- Keep all poles, guy wires and switch grates clear of vegetation (five-foot minimum).
- Trees are not removed from the vicinity of secondary, streetlight and service wires unless it is determined to be a cost-effective, long-term solution. Trees should be trimmed if limbs are distorting the path or rubbing against wires.

3.3.2 Trimming/Pruning

While keeping in mind that emphasis shall be placed on removing trees of interest inside or outside DMEA’s rights-of-way, trimming/pruning is another vegetation management practice.

Tree trimming/pruning is the selective removal of branches that are not an adequate distance from the primary line, or that will grow too close to the power line before the next maintenance cycle. Secondary, street light and service wires are not routinely trimmed for clearance unless overbuilt primary exists. In addition, secondary or streetlight wires may be trimmed if major interference, such as a broken limb, exists.

DMEA’s guideline clearance to energized distribution conductor(s) is the distance of the specific five-year regrowth rate for the species being pruned. The contractor, together with DMEA’s Utility Arborist, shall determine additional clearances required based on normal movement or sag of conductors, normal regrowth patterns and movement of vegetation, and regional fire risk factors. **When limbs are growing in the direction of energized line with a reasonable likelihood of reaching energized lines within a five-year**

growth cycle, the limbs should be trimmed to the DMEA average re-growth guidelines shown below in Section 4.3.

Lesser dimensions may be acceptable when individual tree characteristics are such that growth patterns are not a threat to the conductor until the next scheduled trimming cycle. The re-growth chart is a guideline that will vary with the species of the tree and position in relation to the easement.

Along with the five-year re-growth rate of trees, trimming should also account for a sufficient buffer between the conductor and tree parts. The sufficient buffer will be dependent on factors such as tree species, age, location to conductor, sag factor, and estimated wind movements from the line and tree.

If practical, trimming methods will be based on procedures and examples set forth by ANSI A-300. As a general rule, trees should be pruned to improve or re-establish the clearance provided from previously performed right-of-way maintenance.

Trimming/pruning should be done to remove or shorten dangerous limbs, such as those overhanging wires that have a high potential for breaking or bending into DMEA conductors due to ice, snow or wind loading.

Factors to consider when trimming/pruning include:

- Tree species
- Growth rates (how fast the branches grow back)
- Wood strength (the chance of the branch breaking under the load of strong wind, snow or ice)
- Branch size (larger-diameter branches coming in contact with conductors by failure or deflection create the greatest risk for tree-related interruptions)
- Voltage conducted by the line and the line's construction (the higher the voltage, the greater the clearance required)
- Framing and spacing between phases of multi-phase lines (compact design and multi-phase lines pose higher risk to tree-related interruptions)
- Location of a tree in relationship to protective devices and critical customers on the circuit (hospitals, etc.)
- Location of a tree with respect to general public safety (existence of tree houses, public places, climb ability of tree, etc.)
- Risk of wildfire ignition

3.3.3 Use of Chemicals and Sprays

- All right-of-way spraying shall be performed or supervised by a certified and licensed applicator. Contractor shall be responsible for purchasing, storing, record keeping, and furnishing chemicals to its crews. DMEA shall be consulted prior to any use of chemicals and sprays by Contractor.
- Right-of-way may be done at various locations using suitable herbicides to control vegetation particular to that location. Accurate, completed, detailed records of the applicator's name, property owner permission, date, location, amount and type of herbicide used shall be kept and copies furnished to DMEA either on a routine weekly basis or upon completion of that particular electrical circuit. Prior to commencement of any Services involving the application of chemicals, Contractor shall thoroughly familiarize and inform itself of all local conditions and other factors which could or might affect chemical spraying. Any growth regulator chemicals shall follow the same application policies listed herein.
- Unless otherwise specified by DMEA, the Contractor shall mix and apply the chemicals on stumps following manufacturer recommendations. In addition, on all new stumps at any season of the year, stumps shall be sprayed as soon as possible, but within thirty (30) minutes of when cutting is performed. A chemical mixture shall be applied in sufficient volume to completely wet the sapwood, bark area, root crown and any exposed roots. No spraying shall be done within thirty (30) minutes after fog, dew, or rain sufficiently heavy to cause runoff.
- Contractor shall not be obligated to spray any area where damages to crops, orchards, or ornamental plants may result from chemical drift.
- DMEA may issue additional policies regarding when and where chemical application and/or chemical spraying will be used in rural areas or otherwise.
- Contractor's use of chemicals in connection with the Services shall strictly comply with all federal and state laws, rules and regulations which from time to time govern the use of those chemicals. By undertaking to perform any part of the Services in which chemicals are used, the Contractor certifies that Contractor is familiar with, has complied with, and at all times will comply with all requirements (including but not limited to those relating to training and the giving and posting of all required notices) under all of the foregoing laws, rules and regulations and further, the Contractor shall indemnify and hold harmless DMEA and its directors, officers, employees and agents from and against any liability, claim, demand, cause of action of every kind and description, damage, loss and expenses, including attorney's fees through appeals, arising or resulting from the Contractor's noncompliance with or violation of any of the foregoing laws, rules or regulations.
- Contractor shall be solely responsible for accurately recording and submitting all forms required by the applicable regulatory agencies and other governing authorities in connection with the use of chemicals.

- Chemical spills shall be immediately cleaned up in a manner consistent with label restrictions, federal and state regulations, and acceptable environmental procedures mandated by law. All notifications to proper authorities in connection with such spills shall be made by the Contractor. Each crew responsible for chemical applications shall be supplied with a suitable spill response kit for cleaning up and neutralizing spills of chemicals, all at the sole expense of the Contractor. Contractor shall insure that its employees are trained in the proper techniques for spill response, and are supplied with the necessary personal protective equipment required to perform spill mitigation duties.
- Contractor shall at all times be solely responsible for the continuous safeguarding of its workforce, including compliance with all applicable Federal, State, and local laws, together with its responsibilities for training its employees in the proper methods and use of personal protective equipment required for handling chemicals used in connection with these Services.

3.3.4 ANSI A-300 (Pruning standard)

[The American National Standard Institute's A-300](#) standard presents performance standards for the care and maintenance of trees, shrubs, and other woody plants. The standard is intended as a guide for federal, state, municipal, and private authorities including property owners, property managers, and utilities. Whenever possible and practical, contractor tree workers are expected to adhere to this standard when trimming/pruning trees near electric facilities.

The International Society of Arboriculture booklet titled *Best Management Practices for Utility Pruning of Trees* provides a good working summary of the principles included in ANSI A-300. Contract tree workers are expected to have a copy of this booklet in the field for reference purposes. Generally speaking, the appropriate method to prune trees for electrical utility line clearing is by directional pruning. This pruning method removes branches growing towards conductors in favor of those growing away. Reduction cuts are used for branches that are pruned.

4. TRANSMISSION AND DISTRIBUTION (T & D) LINE CLEARANCE

4.1 GENERAL T & D LINE CLEARANCE GUIDELINES

DMEA's clearance guidelines are based on local tree growth rates on a five-year maintenance cycle, specific to individual trees on specific circuits. Specific clearances are determined based on species growth rates, as well as line voltage, construction of facilities, electric reliability performance and other factors listed below.

The primary objective of the T& D line clearance program is to keep the facilities clear of all tall-growing trees, brush and other vegetation that could grow too close to conductor on a five-year maintenance cycle.

This is accomplished by routine maintenance on each circuit including tree removal, pruning and mowing. Again, emphasis shall be placed on removing trees rather than trimming/pruning.

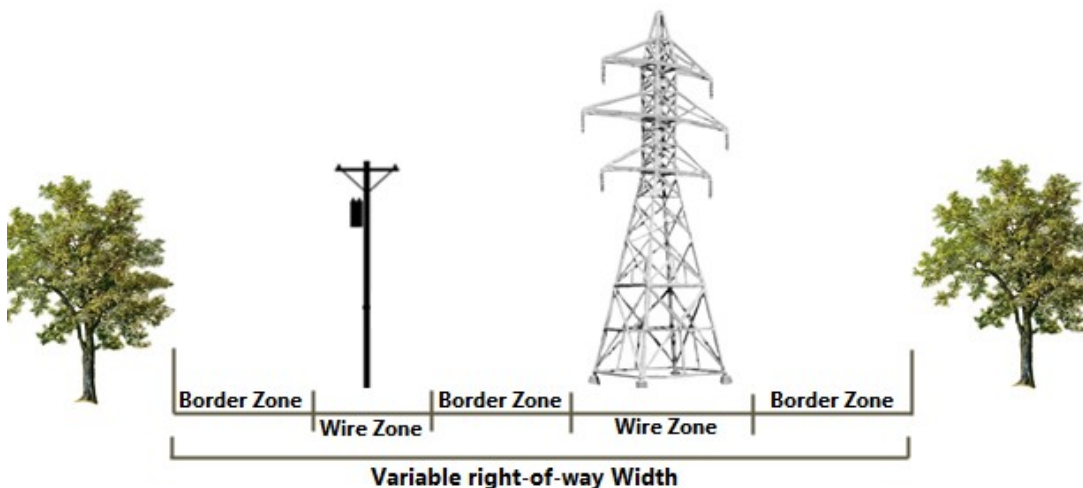
Contractors are responsible for obtaining the appropriate clearances on all facilities existing in the field.

4.2 –WIRE ZONE/BORDER ZONE

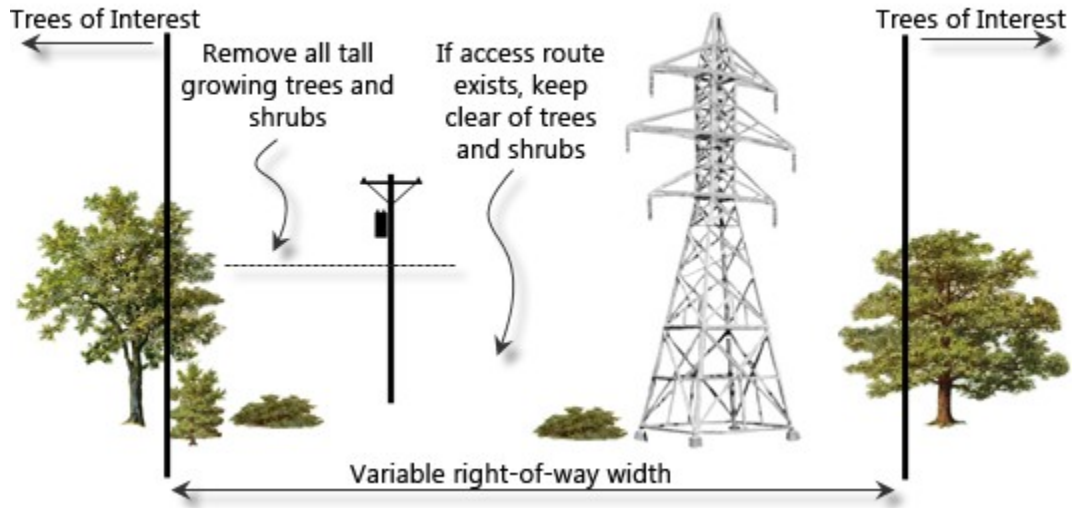
Wherever feasible, the wire zone/border zone concept (Bramble and Byrnes, 2000) shall be integrated into the vegetation management program to allow for different types and heights of vegetation in the rights-of-way. This concept differentiates between the wire zone directly under the conductors and the remaining border zone.

Generally, this concept allows for different, yet compatible, vegetation types in these separate zones.

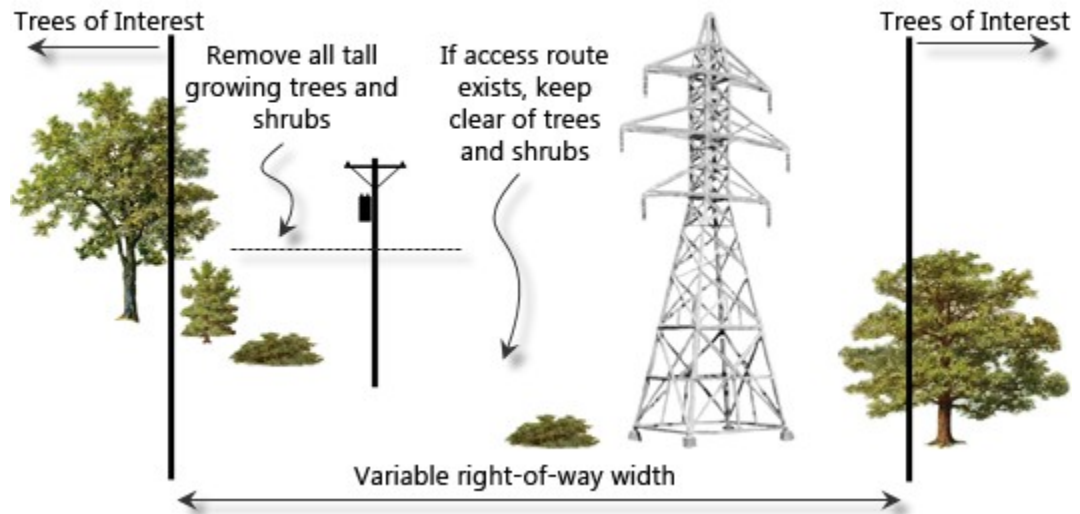
- Wire Zone: Area directly underneath the conductor(s). Vegetation in the wire zone may consist of low-growing forbs and grasses.
- Border Zone: Area that begins at the outside edge of the wire zone and extends to the edge of the easement/right-of-way. The border zone may contain additional low-growing woody plants and trees.
- The wire zone/border zone concept, as applied by DMEA, does not require removal of tall-growing trees if, at maximum mature height, the tree would not come within 15 feet of vertical clearance nor have the potential to fall into or overhang a conductor horizontally.
- Areas outside the border zone must be patrolled for trees of interest.



Cross-Section of Typical Transmission and Distribution Right of Way



Special Considerations for Clearing Trees of Interest on Slopes of Right of Way



4.3 MINIMUM CLEARANCE GUIDELINES

If for any reason, the Wire Zone/Border Zone concept cannot be achieved, the following minimum clearance guidelines are to be maintained at all times.

Maintained Clearances for Trees

In order to maintain these minimum clearances at all times, crews performing tree work must consider the tree species, growing environment, re-growth rate, maintenance cycle length (DMEA adheres to a five-year cycle), etc., in order to determine the amount of clearance required at the time of trimming/pruning. The following tables are provided as a guideline only. Each tree requires the evaluation of various relevant factors in order to determine specific re-growth rates.

Table 1		Average re-growth after trimming (Ft.)	
Common Tree Species	5-Year Cycle		
Elm	25		
Ash	15		
Aspen	10		
Locust	20		
Spruce	5		
Box-Elder	15		
Cottonwood	20		
Douglas Fir	5		
Ponderosa Pine	5		
Poplar	25		
Red Oak	10		
Maple	15		
Russian Olive	15		
Willow	25		

Table A - HORIZONTAL CLEARANCE @ LOWEST SAG POINT			
Voltage (kV)	Up to 400 FT Span	Up to 800 FT Span	Up to 1200 FT Span

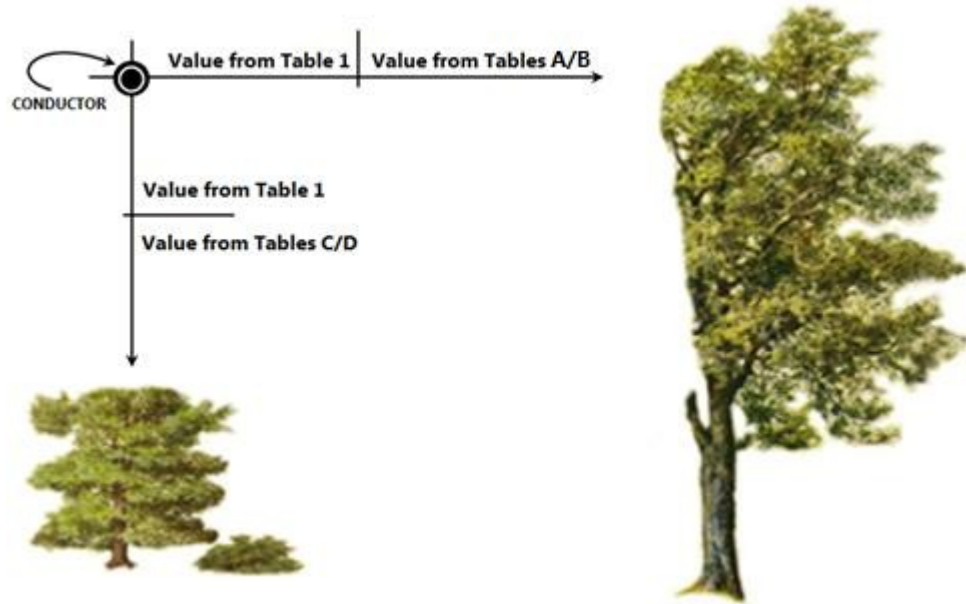
15	5	10	N/A
46	7	14	26

Table B - HORIZONTAL CLEARANCE @ STRUCTURE			
Voltage (kV)	Up to 400 FT Span	Up to 800 FT Span	Up to 1200 FT Span
15	5	5	5
46	7	7	7

Table C - VERTICAL CLEARANCE @ LOWEST SAG POINT			
Voltage (kV)	Up to 400 FT Span	Up to 800 FT Span	Up to 1200 FT Span
15	7	9	N/A
46	9	11	15

Table D - VERTICAL CLEARANCE @ STRUCTURE			
Voltage (kV)	Up to 400 FT Span	Up to 800 FT Span	Up to 1200 FT Span
15	5	5	N/A
46	5	7	7

Calculating Horizontal and Vertical Minimum Clearances



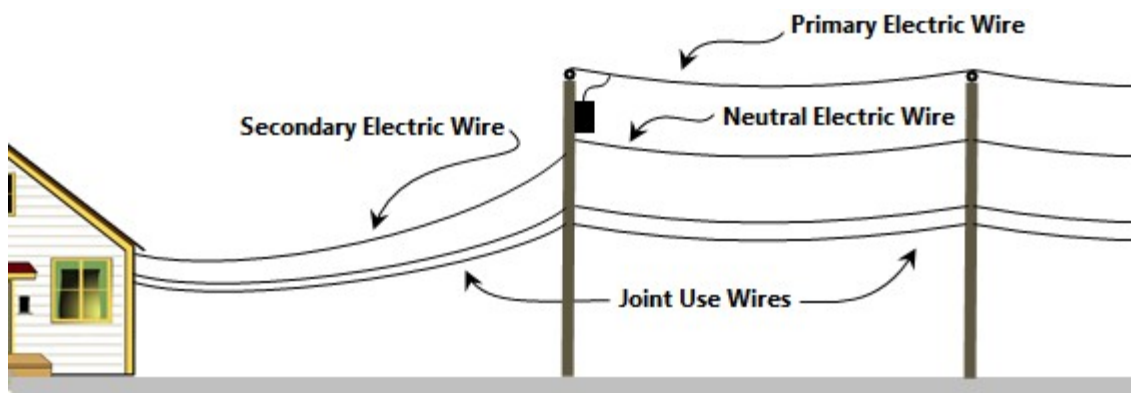
The following calculations must be performed to determine clearances necessary at time of pruning:

Horizontal Clearance at time of pruning = (Value from Tables 1) + (Value from Tables A/B)

Vertical Clearance at time of pruning = (Value from Tables 1) + (Value from Tables C/D)

4.4. DEFINITION OF DISTRIBUTION CONDUCTOR TYPES

Contractor is responsible for understanding of the basic distribution system in order to determine clearances. By way of example:



4.5 WORK DESCRIPTIONS

4.5.1 Routine Maintenance /Scheduled Work

Routine Maintenance is proactive, scheduled work performed on a circuit/maintenance map basis. In general, all debris is removed, while logs are cut into manageable-sized pieces and left in neat stacks on the property for the member unless otherwise agreed upon.

4.5.2 Safety Zone Requests

Only qualified tree workers can work on trees that have grown closer than non-qualified tree worker minimum approach distances. DMEA therefore provides adequate clearance so that work by non-qualified workers (for example, a member or a member's contractor) can be performed safely. These clearance requests are known as "safety zone" requests.

DMEA crews and contractor personnel should respond to these requests in a timely manner and in accordance with any laws and regulations. Work personnel must also determine the most effective, efficient course of action to provide adequate clearance. Examples include:

- Pruning a portion of a tree back an adequate distance
- Dropping a tree on the ground
- Requesting that a conductor be de-energized
- If the request pertains to a service line, street light wire or other secondary line, advise the requesting party to call DMEA vegetation management personnel at (970) 249-4572 and request a "line drop" to temporarily remove the wire from the work zone.

DMEA does not currently charge a fee for the trimming or dropping of trees related to safety zone requests, but it is important that DMEA and contractor personnel clearly communicate to the requesting party that all debris related to safety zone requests will be left on site.

A service fee may apply to the de-energizing of primary and secondary conductors. The requesting party should consult DMEA vegetation management personnel for more information by calling (970) 249-4572.

If contractor determines that the tree for which the safety zone request has been submitted has adequate clearance, the requesting party has the option to have any necessary work performed on its own or, if applicable, to wait until routine maintenance is performed.

4.5.3 Other Requests

Individual members or entities within DMEA's service area may request assistance from vegetation management crews to mitigate tree issues. Valid requests for assistance may be due to potential safety or service reliability problems, or to clear trees for the installation of new facilities and the upgrade of existing facilities. DMEA or contractor personnel will respond to these requests in a timely manner and in accordance with any instructions provided with the request. DMEA expects tree personnel to follow these guidelines in determining the appropriate course of action.

4.5.4 Emergency/Storm Response

DMEA and contractor personnel are required to respond to storm situations. Only actions necessary for the restoration of power will be performed. A reasonable attempt should be made in the circumstances to notify customers in advance of such activities. Generally speaking, no debris disposal will be attempted in emergency/storm response situations.

5 DEBRIS DISPOSAL

5.1 Ordinary Debris Disposal

Except as provided elsewhere in these guidelines (e.g., those situations described in Section 4.5), DMEA or its designated contractor shall attempt to establish mutually agreeable methods of tree, limb and brush disposal. It is acceptable for debris to remain on site, provided that the disposal method is communicated with the property owner and complies with federal, state, and local regulations.

Debris shall be stacked along the edge of the right-of-way so as to provide maximum access to the right-of-way by DMEA personnel. In addition:

- All tree, limb, and brush disposal that remains along the right-of-way with property owner approval shall be neatly piled along the edge of the right-of-way so as to ensure future accessibility by DMEA or contractor personnel.
- When limbs, wood, and debris must be removed from the site, contractor shall endeavor to remove such debris in a timely manner. When such removal is impractical, the contractor shall inform the customer of when clean-up will be completed.
- Broadcasting of chips into the right-of-way is acceptable, unless the available area to do so is obviously landscaped or within public view.

6 OVERHEAD INSPECTION PROGRAM

DMEA and its contractors shall report hazards found as part of the overhead inspection program, which is performed in concert with transmission and distribution line clearance operations.

6.1 SCOPE

DMEA and contractors perform this inspection as part of their normal duties. During the course of routine line clearance operations, all spans of overhead primary conductor will be inspected, regardless of the presence of vegetation. While on each job site, contractors should also inspect secondary and service conductors.

Contractor's personnel are to identify obvious safety hazards on DMEA's distribution and transmission overhead facilities that could pose a threat to the general public as well as employees and contracted workers. Hazards that present an imminent threat to personal or public safety must be resolved

immediately. Depending upon the urgency of the situation, it may be necessary for the inspector to stay on site until a utility representative arrives at the scene.

When a hazard is found, identify the appropriate structure on a corresponding map with a brief description of the problem. The completed map shall be given to a DMEA vegetation management representative for documentation and repairs.

6.2 SAMPLE LIST OF HAZARDS

The following is a sample list of overhead facility safety hazards that tree personnel should be able to recognize. Please note that all situations cannot be listed, and good judgment must be used when inspecting.

- Cracked or broken cross arms
- Missing cross arm braces
- Guy wires-missing, loose or damaged
- Oil-filled equipment leaks or equipment that might fall down
- Insufficient clearances of conductors (from buildings, tree houses, ladders, transmission, etc.
- Transmission and distribution right-of-way encroachment
- Leaning pole, tower or footing
- Rotted or eroding pole, tower or footing
- Bird nest on a structure
- Significant woodpecker damage to a pole or tower
- Wires down, broken or severely frayed
- Wire off of insulator or pin
- Minimum ground clearances issues
- Damage to insulator
- Damage to pole top pin
- Accessible objects hanging from lines
- Joint use violations
- Meter housing, mast or riser loose or pulling from structure
- Exposed wires
- Doors to underground equipment and vaults unlocked or open

7 MISCELLANEOUS VEGETATION MANAGEMENT

7.1 AVIAN PROTECTION

DMEA's long-term Avian Protection Plan details the cooperative's efforts to improve its primarily distribution lines, and to reduce risks to birds from contact with cooperative facilities. The following are items listed in the Avian Protection Plan as it relates to tree removal/pruning:

- An "inactive bird nest" is defined as not having eggs or young. If birds are building nests that don't have eggs or young, it is inactive. If tree crews encounter an inactive nest in part of a tree

to be removed/trimmed/pruned, the nest may be removed. NOTE: notwithstanding the foregoing, an inactive eagle nest **cannot** be removed.

- If tree crews encounter an active nest (eggs or young present) in part of a tree to be trimmed, the nest cannot be removed until it becomes inactive. The tree crew may still prune the tree to clear the wire as long as the nest and birds are not disturbed. Contractor may need to return after the nest becomes inactive to finish pruning the tree. These situations must be reported to DMEA vegetation management personnel, who will contact the appropriate government agency representative.
- If tree crews find a dead or injured bird that has contacted a line, they must call DMEA's Dispatch Center at (970) 240-1230. The Operations Supervisor will then contact the appropriate government agency representative.

7.2 METER CLEARANCE

Outdoor meters or multiple meters shall be located so that a clear line of sight is established and maintained from an accessible location for meter reading. All trees and foliage shall be kept clear to allow access for a safe work zone around the meter cabinet and disconnect.

7.3 PAD-MOUNTED TRANSFORMER CLEARANCE (Illustrated Notes):

- A. Top pad of pre-cast concrete transformer vault. Not all pads are the same dimensions.
- B. Transformers. Not all transformers are the same dimensions.
- C. Transformer door. Transformer doors hinge at various positions on the transformers.
- D. Clear areas are required around pad mounted transformers to allow the following:
 1. Access to the primary and secondary compartments of the transformer.
 2. Hot stick operation of the elbows, switch and bay-o-net fuse associated with the primary compartment of the transformer.
 3. Air circulation for cooling the transformer during peak load conditions.
 4. Boom truck access for replacing the transformer.
 5. Routine inspection and maintenance.
- E. The clear area shall have no obstructions that would impede Delta Montrose Electric Association personnel in the operation, maintenance, installation, removal, or repair of the transformer or any other Delta Montrose Electric Association facilities at this location.

