

Electric Utility Pruning Q & A

Why do electric utilities prune trees?

Safety - Utility vegetation maintenance reduces electric safety risk to the public by:

- providing a minimum separation between the lines and vegetation,
- reducing potential wildfire hazards from tree/wire conflicts and downed power lines, potential electrical shock
- maintaining services to vital infrastructure such as traffic signals, airports, water and sewer pumping stations as well as hospitals, nursing homes, fire and police stations.

Reliability - Trees are among the most common cause of utility service interruptions. Trees that are too close to power lines can interfere with electric service, especially when weather brings lightning, high winds, ice or wet snow.

Utilities have a preventative maintenance program that removes branches, vines, trees and brush from electrical equipment and energized conductors to help the overall quality of your electrical service.

The utility only removes vegetation that can potentially cause a safety hazard or an electrical outage when it grows into or contacts power lines or falls into lines due to weather or poor tree health.

How much will they cut from my tree?

Typically, a qualified utility forester or vegetation manager prescribes the amount and type of pruning that is necessary based on:

- Tree growth rate and structure
- Wind sway
- Line sag
- Tree species (this determines strong vs. weak wood, fast vs. slow growth)
- Health or vigor of the tree
- Environmental factors
- Irrigation
- Proximity of the tree to the power lines and the line configuration
- Voltage (the higher the voltage-the greater the clearance required)

Which pruning guidelines do the utilities follow?

The utilities follow the American National Standard Institute (ANSI) A-300Part1: Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices, Pruning. These guidelines, endorsed by the International Society of Arboriculture (ISA), promote natural target pruning and directional pruning methods which minimize pruning stress to focus on tree health while obtaining needed clearance from conductors.

How often is line-clearing completed?

The clearance cycle or the time between maintenance activities varies from utility to utility and between different regions of the country. Sometimes the cycle is mandated by the state agency.

The interval is based on:

- Expected re-growth rates of the tree species present
- Amount of clearance that can realistically be obtained at the time of pruning
- Available program funding

Maintenance cycles are generally shorter where there is a long growing season or where there is a high percentage of fast growing tree species. In areas with a short growing season or fewer fast-growing tree species, the cycle can be longer. Some utilities conduct "mid-cycle" pruning and/or inspection process to mitigate the fastest growing tree species mid-way through a cycle.

My trees are not even touching any electrical wires. Why do they want to prune them?

Electric utilities are pro-active and prune trees BEFORE they pose a risk to the power lines. Trees and branches sway, vegetation and the environment are dynamic. Factors such as trees swaying in the wind, sagging with ice or snow, and uprooting in storms are examples of problems that can occur without warning. Tall growing vegetation under power lines can also pose a threat as the conductors can sag during high temperatures.

Addressing vegetation before it causes a problem is ideal to direct growth away from electrical conductors and facilities. Depending on tree species and location, it may take years before a tree presents a potential safety or reliability risk. However, fast growing trees planted near the power lines will need to be pruned or removed completely as they mature.

What is a line-clearance tree contractor?

As defined by Occupational Safety and Health Administration (OSHA), it is a company that is qualified to maintain trees near power lines. These companies employ qualified line-clearance arborists who receive ongoing electrical safety training as well as equipment maintenance and inspection programs to ensure tools are non-conductive for arborists who routinely work near energized power lines.

How are qualified utility line-clearance arborists trained?

Utility line-clearance professionals are qualified through OSHA. Only line-clearance professionals that meet OSHA qualifications can legally work within 10 feet of power lines. Line-clearance arborists are trained to prune trees according to American National Standards Institute (ANSI) A-300 standards and follow industry best practices, which helps preserve the health of your tree(s).

NOTE: Homeowner's should never hire a private tree contractor to work within 10 feet of energized conductors or attempt to do this work themselves.

What is directional pruning?

Directional pruning removes branches growing toward the conductors while leaving those growing away. Directional pruning is the most appropriate way to prune trees for electric utility line clearance. Branches are pruned properly (using the natural target method) to a lateral branch that is at least one-third the diameter of the branch being removed. This allows for good wound closure (reducing potential for internal decay) and reduces unwanted sprouting.

What is natural target pruning?

This is the proper method by which branches or limbs are removed from a tree. The cut is made close to the parent branch or limb, but without leaving a stub or damaging the branch bark collar.

How will a tree look after it is directionally pruned?

Trees growing directly under conductors may appear U or V shaped. Trees growing alongside a conductor may appear L shaped or one side may be removed from side pruning. The tree may appear misshapen, especially if you are looking down the street. In general, trees growing close to electric utility lines or facilities will never have the potential to grow with a completely "natural" looking shape.

Why not just top the trees?

"Topping" or stubbing is a detrimental practice that can result in poor tree health and form and is not recommended by arboricultural organizations.

Directionally pruned trees stay healthier than topped trees, have a better form, and require less pruning in the future because of the use of reduction cuts used in the directional pruning method. Certain species of trees, such as conifers, may appear to be "topped" after the main leader has been pruned, however, this does not necessarily have a negative effect on the tree's health.



DO NOT TOP TREES

this is an unacceptable practice of cutting the branch to subs or laterals that are not large enough to assume the terminal role. This can severely weaken the tree and even kill some species. The net loss of foliage can lead to dieback of the remaining parts, which can lead to extensive decay problems.

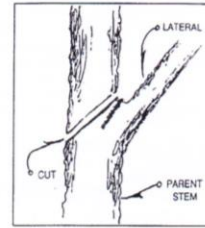
Pruning vs. Tree Removal

Situations where tree removal may be preferable to line-clearance pruning:

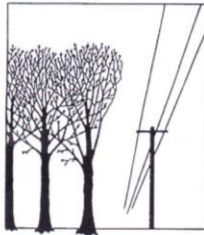
- Small, tall and fast-growing species directly under the lines that require frequent pruning and will never have a natural form and are a high risk to cause outages
- Sapling (brush) with the potential to grow into the lines
- Larger, previously topped trees under the lines
- Hazard trees (examples: leaning, in decline, severe die-back, hollow, split, etc.)



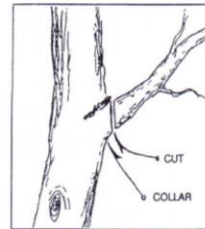
Natural Top Pruning



NATURAL PRUNING--This is a method by which branches are cut back at a suitable parent limb or lateral at the branch collar (see detail drawings on the right). This technique promotes growth of existing branches, rather than the rapid growth of many new suckers. Natural pruning can be used for both top and side pruning (as shown by the overviews on the left). Proper location of the cut will guide the tree growth away from the wires.



Natural Side Pruning



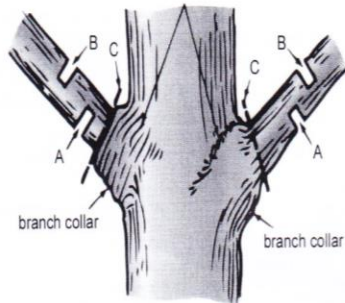
Benefits of Natural Target Pruning

- Biologically better for the tree's health
- Sprouting is minimized
- Growth is directed away from the lines
- Less material may be removed in future pruning events
- Pruning costs will go down over time
- Creates a safer environment for the community

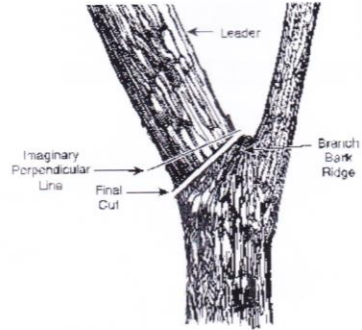
Why won't the utility put the line underground?

Undergrounding of lines comes with a very high price tag, coupled with more difficult (and longer) repairs in the event of a power failure. Also, converting an overhead system to underground may do more damage to the root systems of existing trees. Converting to an underground system would require abutting home owners to pay to have their service line (from house to the main line) put underground.

Pruning Cuts-Natural Target Pruning



Large limbs should be pre-cut to avoid tearing the bark on parent tree. The first cut (A) undercuts the limb. The second cut (B) removes the limb. The final cut (C) should be outside the branch collar to remove the resultant stub. Pruning cuts should not damage the branch collar.

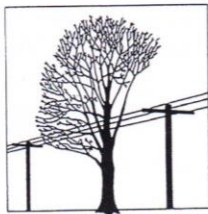


Leader removal on a co-dominant stem: the cut should bisect the angle between the branch bark ridge and an imaginary line perpendicular to the leader on the stem.

Examples of how directional pruning by utilities alter tree canopies

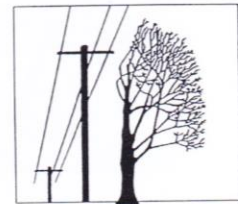
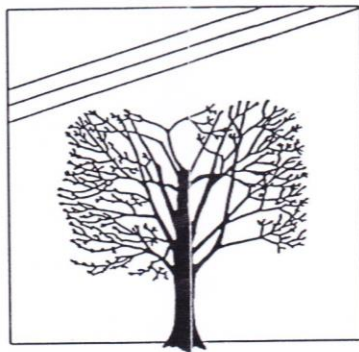


Through pruning



Under pruning

Top pruning



Side pruning: (top) examples of side pruning areas