

Community Trees Program Newsletter
Trees and Power lines: Why Do Utilities Have to Do That?
By Emily Kramer

Generally speaking, trees are among the most common causes of utility service interruption. Customers expect and deserve consistent electric supply to their homes and businesses. So what is an electric utility to do when trees have the ability to impact the electric supply?

ComEd's staff of International Society of Arboriculture (ISA) Certified Arborists manage programs to reduce the occurrences of tree-caused interruptions to our customers. ComEd understands that trees are important to our communities. Our challenge is to manage the tree population in order to best reduce impact to our electric grid while balancing the benefits trees provide to our communities.

At ComEd, we know that trees cause about 20% of customer power interruptions. ComEd sends arborists to review causes of power interruptions, to gather details about the trees and how they impact the power lines. We have learned that about 90% of tree-caused interruptions are due to broken tree trunks, broken limbs, or uprooted trees. Most of these broken limbs are from live trees. We also know that certain species of trees are more likely to break and cause interruptions. Silver maples and Siberian Elms, along with Cottonwoods, are some of the trees that most commonly break and cause interruptions.

Preventive maintenance is the primary way utilities prevent trees from interfering with power lines. ComEd has a four-year maintenance cycle. Every four years, the trees along the overhead primary distribution grid are pruned or removed. ComEd uses specially trained tree trimmers to work near power lines. Trees are pruned based on position near the wires, species, and growth rates. The preventive maintenance cycle focuses on preventing tree growth from causing interruptions through the four year period.

Corrective maintenance programs use analysis to determine if areas are experiencing a high number of interruptions due to trees. Additional inspections are usually required to determine what type of maintenance would reduce future interruptions. In those areas, some trees may be "cycle busters" and may be pruned between cycle maintenance.

ComEd has also recently started a Storm Hardening program in areas where trees have repeatedly caused long or frequent power interruptions. In this program, a tree by tree assessment is performed and mitigation plans are made that will greatly reduce the likelihood that the trees will cause interruptions. We know that most power outages are caused by living branches, and even specific species that have higher risk factors, so the focus is on removing overhanging tree branches as well as entire trees that threaten facilities.

ComEd's tree pruning practices are aligned with Best Management Practices: Utility Pruning of Trees. Utility arborists use similar tools and methods that are used by other professionals. Properly placed pruning cuts, such as those defined within the ANSI A300-Part 1 standards, help to keep trees healthy and away from power lines.

What can you do? Regular Tree Maintenance

Everyone can help keep our communities green and healthy and the power on. When trees are small, structural pruning will help improve their form as they grow, making them more resilient to storm force winds. Mature trees should also be inspected regularly by an ISA Certified Arborist. They can identify

branch, trunk, and root defects in your trees, and recommend ways to manage the trees. They can also remove dead or defective branches before they cause damage to homes, buildings, cars or power lines.

What can you do? Tree Selection and Planting

When deciding to plant a tree, please consider the mature size and shape of the tree, and the space the tree has to grow. And look up! ComEd recommends that any trees planted within 20 feet on either side of pole-to-pole power lines have a mature height of less than 25 feet. This will ensure that as the tree grows, it will not require major trimming in the future.

Medium sized trees can be planted more than 20 feet from power lines, and tall-growing trees should be planted 35 or more feet from power lines, depending on the size and shape of the tree at maturity. If tall-growing trees are planted under or directly adjacent to power lines, they may pose a risk to the reliable delivery of electricity as they mature and grow, and can require significant pruning.

In some cases, when a customer wishes to screen a view or provide a buffer between properties, shrubs are a better solution than trees. A “layered” planting of small to medium trees with medium to large shrubs is a great way to screen unwanted views. The medium trees planted a minimum of 20 feet from the power poles can be flanked by shrubs on all sides to add interest and depth. The layers help conceal less than desirable views from your home.

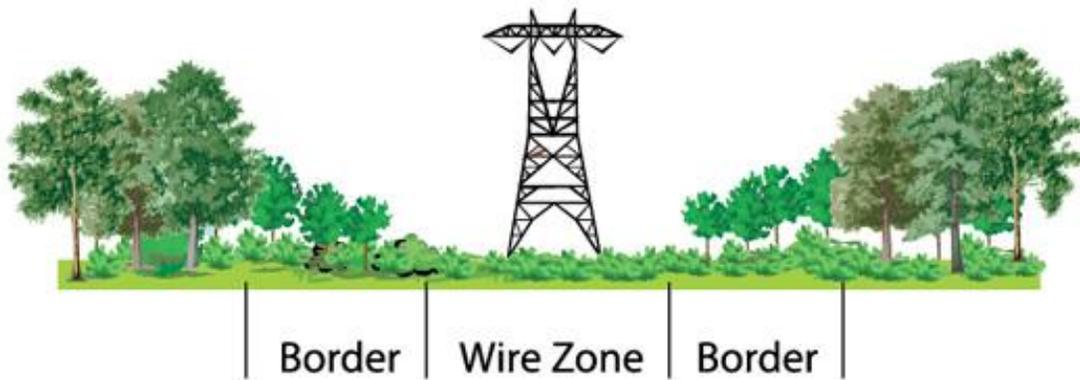
There are a variety of trees and shrubs with heights of less than 25 feet which are compatible for planting under electric distribution lines. Note that specific conditions at each site should be considered, including the height of the power lines at the site. Trees should be placed so that as they mature, they will not grow into contact with the power lines.



Disclaimer:

This information relates to Distribution Voltage Facilities, which are typically found on wooden poles running along streets, alleys, and rear-lot easements.

Transmission voltage facilities (69kV and above), which are typically on steel structures, have different maintenance practices. There is a high risk associated with trees coming into contact with transmission voltage facilities due to the large number of customers affected and regulatory requirements. ISA Best Management Practices recommend that no trees are planted under Transmission facilities (see below for diagram).



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