

# Tree Pruning and Vegetation Management

“Had all of the trees which contributed to the August 14 outage been adequately pruned or removed prior to the event, the blackout would likely not have occurred.”

- Report to Federal Energy Regulatory Commission on the August 2003 blackout of Northeastern United States and Canada

Dominion Virginia Power customers and utility regulators expect us to provide safe, reliable electric service every day. To meet that expectation, we work hard to keep our electric transmission and distribution system wires, poles and rights-of-way in good condition.

Our rights-of-way maintenance program includes pruning and removing trees along our rights-of-way on a scheduled cycle. Trees and tree limbs that come in contact with electric lines are a leading cause of power outages, especially during storms. In most cases, these outages are preventable.

## Transmission & Distribution Power Line Systems

Dominion operates and maintains two distinct, interconnected power line systems. One system transmits large amounts of electricity over long distances. Transmission system voltages range from 69,000-500,000 volts. Transmission lines generally connect electricity-generating power stations to large electrical substations in population centers.

We maintain transmission rights-of-way by removing inappropriate species of trees – those that can grow tall enough to pose a hazard to the wires – removing weakened or dead trees that could topple onto wires, and by selective applications of herbicides approved by the U.S. Environmental Protection Agency.

The second system distributes smaller amounts of electricity over shorter distances. Distribution system voltages range from 34,500 volts on power lines along commercial thoroughfares to 120/240 volts on power lines at your home.

We prevent distribution system outages and maintain our power line rights-of-way by removing or pruning back dead trees and tree limbs that pose a risk of touching wires. We also use approved herbicides and brush clearing to help ensure trees and vegetation do not pose a risk of touching or falling on wires.

Pruning trees is a necessary practice that increases electric service reliability and prevents public safety hazards. Regulators closely monitor Dominion’s program.

We maintain rights-of-way on a scheduled cycle. We perform vegetation management on a pre-determined portion of

the overhead power lines on our system every year. Our program is in compliance with the guidelines of the: National Electric Safety Code; State Corporation Commission; Virginia Overhead High Voltage Safety Act, and American National Standards Institute A300 for Tree Care Operations.

We work with customers to choose trees and planting locations that will not endanger our system and are compatible for the space intended. Dominion offers the following guidelines for planting near power lines.

## Planting Guidelines for Electric Transmission Rights-of-Way

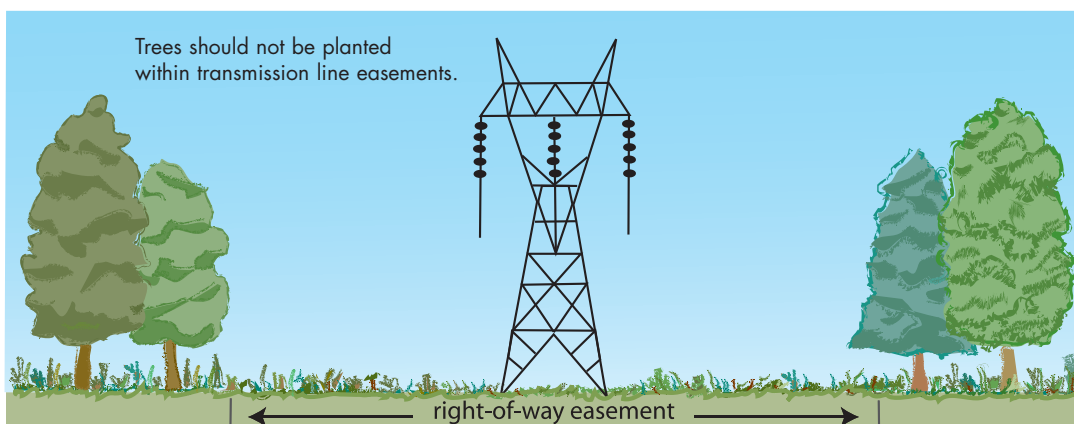
Dominion has about 4,500 miles of transmission rights-of-way. These rights-of-way have transmission lines that carry much higher voltages than the smaller overhead distribution lines, which cover about 35,000 miles.

Transmission lines are usually installed higher on larger structures located on wider rights-of-way. The higher voltages that these lines carry require greater clearances to ensure safe and reliable operations. Transmission easements allow us to cut any tree within or outside the rights-of-way that may endanger the lines.

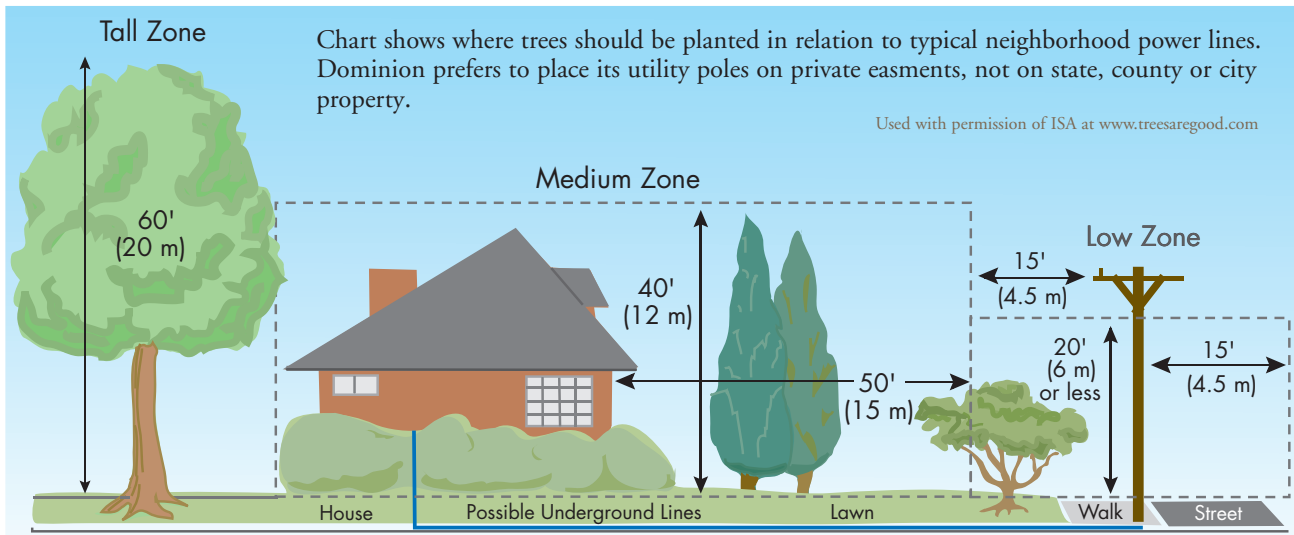
A Dominion Transmission right-of-way management representative should be contacted prior to any landscaping on or near a transmission right-of-way. Please contact the local representative or coordinator right-of-ways at 1-800-215-8032 and press 1. If you are not sure if a line is transmission or distribution, you should also contact the coordinator rights-of-way at the number above for assistance.

## Planting Guidelines for Electric Distribution Rights-Of-Way

You can help prevent power outages that are caused when trees and other plants come into contact with distribution power lines. The fundamental rule is to plant the right plant in the right location. Taller trees, such as maple, oak, spruce and pine, should be planted farther from power lines than short trees such as redbud and dogwood. Also, please keep shrubbery and other plants away from utility transformers in yards.



Trees should not be planted within an electric transmission right-of-way without obtaining a written agreement from Dominion. Any tree planted should be far enough outside the right-of-way easement to not pose a risk of coming close to wires or other equipment if the tree should fall into the right-of-way.



## Frequently Asked Questions

**Q:** What allows Dominion to come on my property and cut trees?

**A:** Our customers and regulators expect us to provide safe, reliable service, 365 days a year, 7 days a week, 24 hours a day. To meet that expectation, we must properly maintain our rights-of-way. Our easements on properties along the power line route give us specific rights to maintain those rights-of-way and keep them clear of trees and brush.

**Q:** Why are you taking down trees that you have topped on previous maintenance cycles?

**A:** Trees that have been topped or severely pruned present a different challenge to electric companies. New growth of limbs and branches in such trees can become so unpredictable as to threaten the safe and reliable operation of the power line.

Dominion follows the tree pruning guidelines established by the ANSI A300 Pruning Standards, which say that topping and severe trimming of trees is not an acceptable arboricultural practice. Since Hurricane Isabel, the Northeast Blackout of 2003 and other recent events, government agencies such as the State Corporation Commission (SCC) and the Federal Energy Regulatory Commission (FERC) are more closely monitoring our operations to ensure we are following accepted industry standards in maintaining our transmission rights-of-way.

**Q:** Why don't you mow the right-of-way to remove the dead stems and create a neater appearance after the brush has been treated with herbicides?

**A:** There are several reasons. First, even after brush appears dead it can still be transferring herbicide from the leaves down to the roots. This process may continue until the stem falls over on its own. Cutting the stems too early could allow the roots to survive and sprout.

Second, mowing the rights-of-way disturbs the low-growing vegetation that our vegetation management programs designed to encourage. Mowed rights-of-way are opportunities for undesirable brush species to seed back in, and it offers no value for wildlife food or cover.

**Q:** Why are you cutting trees that are still more than 10 feet from your wires when there are tree limbs almost touching the wires in front of my house and I still have electricity?

**A:** We maintain a wide clearance – sometimes up to 50 feet or more – along our transmission power lines because high-voltage transmission lines can affect larger areas and have greater consequences, as evidenced by the August 14, 2003, northeast blackout (50 million people without power, 1.5 million without water).

In the summer, when the air is hot and our customers demand lots of electricity, the flow of electricity heats the power line and it expands, sagging as much as 20 feet or more on the higher-voltage systems. We plan for this sag to occur, so our service is still safe and reliable. But we have to make sure that a sagging power line doesn't come into contact with any vegetation.

On such high-voltage lines, electricity can arc, or travel through the air, even going from power line to tree limb. This arcing affects the safe, reliable operation of our system. On low-voltage lines, such as those outside your home, limbs and branches would actually have to touch the power line to affect the electric service.

Also, because we maintain our transmission line rights-of-way on a scheduled cycle, we have to account for anticipated growth. We also have to estimate the effects of wind on the position of trees and lines.

**Q:** Why are you cutting some large trees off the edge of the right-of-way and leaving others?

**A:** We are cutting trees that are tall enough to hit the power lines if they topple or if they have a defect that makes the tree a heightened risk for failure. Physiological defects include root disease, stem decay or merely the fact that the tree is dead. Physical defects include leaning trees, weak crotches and cracked stems. We also evaluate the location of the tree. For example, trees in very wet locations or growing from a creek bank pose more of risk to our lines than other trees.

