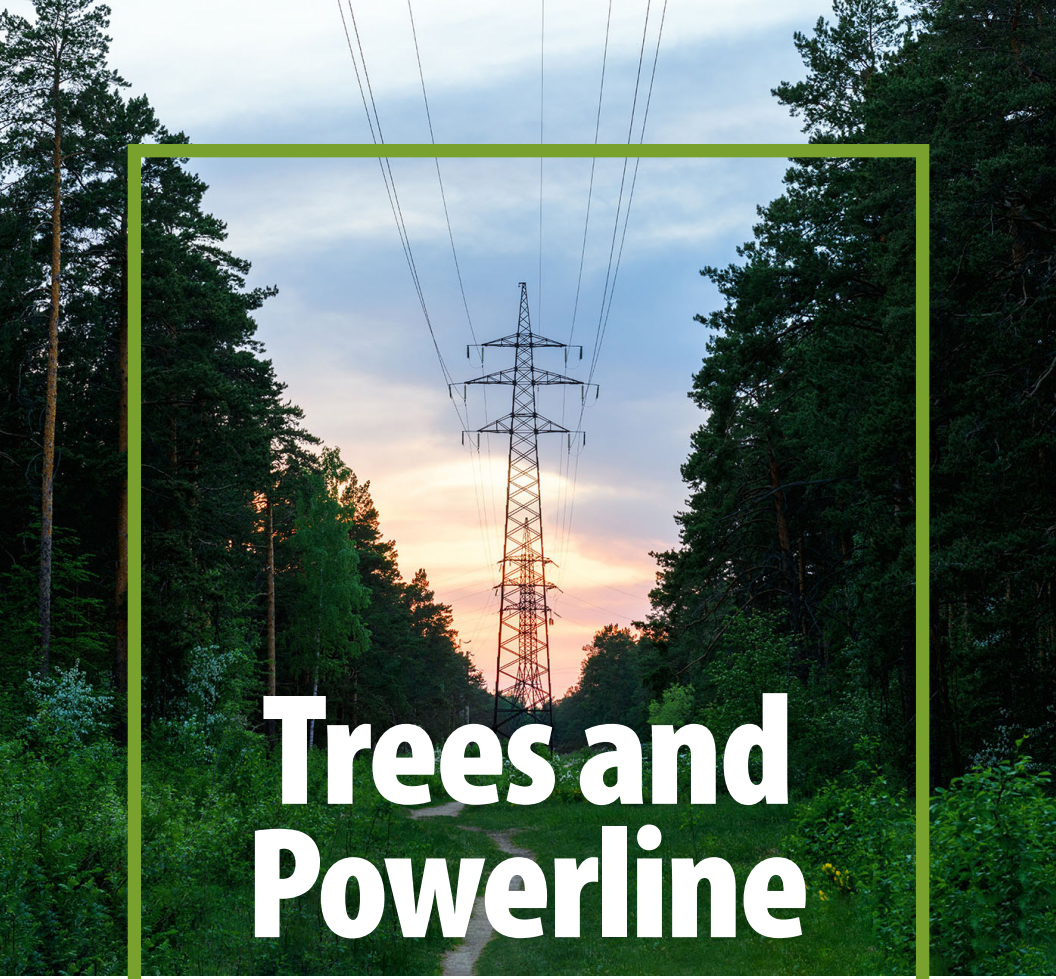




Trees and Powerline

Right-of-way Safety



**Western Area
Power Administration**

Trees and powerline right-of-way safety

Why doesn't WAPA trim trees as other power companies do and instead cuts them down?

WAPA treats each situation on its rights-of-way (or powerline corridors) individually, working to maintain a balance between our requirements for safety and reliability with our commitment to being a good neighbor. Trees and transmission lines often make lousy neighbors, especially when tall, fast-growing trees

are planted under or near powerlines. Trees can carry electricity from nearby lines down through their trunks, and this voltage can electrocute people, pets or other objects that get near enough to the "electrified" tree.

Trees taller than powerlines that are too close to the line can be blown over in high winds, pulling the line down from supporting towers or poles even while the line remains energized. This can create a very dangerous, life-threatening situation for people, livestock and wildfire.

Continually trimming trees that are close to a high-voltage transmission line is not as safe as removing them. Trimming trees near high-voltage, energized powerlines is dangerous work that can be deadly. Because of this danger, WAPA urges you to contact us before trimming or removing trees on our transmission line right-of-way.

Maintaining public safety

WAPA's top priority, when dealing with our rights-of-way, is safety for the public and our employees. We constantly work to maintain proper flow of electricity across our transmission lines. To reduce wildfire and electrocution hazards and provide reliable power, we have an aggressive vegetation management program that minimizes the risk of fires and keeps vegetation at safe distances.

Our bulk transmission system delivers electricity to our customers: the

cities, towns, rural electric cooperatives, public utility districts, state and federal agencies and Native American tribes in 15 central and western states. To deliver this power, WAPA owns and maintains more than 17,000 miles of transmission lines strung from Northwestern Minnesota and Hinton, Iowa, to Redding, California, and Yuma, Arizona. To keep these lines humming with electricity, WAPA line crews regularly patrol all their lines to make sure all equipment is in good operating condition. We also ensure our rights-of-way are safe and our crews can safely access the transmission lines in all kinds of weather. We identify and repair broken insulators and damaged sections of powerline. We repair or replace towers and power poles as needed to keep your power flowing.

WAPA crews also look for potentially dangerous situations in the rights-of-way. Swimming pools, buildings, irrigation equipment, wire fences and tall trees can all be dangerous when positioned too close to our powerlines.

WAPA transmission lines carry electricity at voltage levels much higher than the electricity flowing through neighborhood distribution lines. In fact, our transmission lines carry 50 to more than 100 times the electricity flowing in neighborhood powerlines.

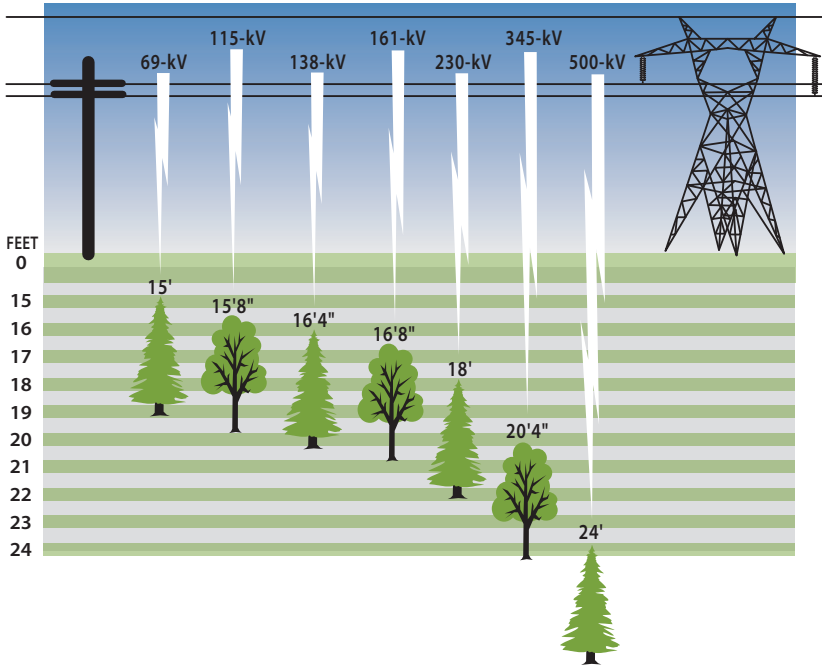
Fire, electrical hazards

Trees growing near powerlines can catch fire or electrocute anyone in contact with the tree at ground level. Trees don't have to physically touch an energized powerline to be dangerous. Electricity can arc from the powerline to nearby trees given the right conditions, such as a voltage surge on the line from a lightning strike. This electric current can kill anyone caught near the tree and can cause a fire.

Arcing can also cause power outages. Tree-related power outages are more than just an inconvenience. They disrupt service to your home or business, and they also disrupt power to hospitals, emergency response centers and patients on life-support equipment. As the August 2003 Northeast blackout reminded all of us, less-than-vigorous tree trimming can disturb electrical service for millions of customers.

The National Electric Safety Code specifies that powerlines be kept specific distances from nearby objects, including trees. The code requires

Minimum clearances between power lines and danger trees



greater clearances for higher voltage lines. For the same safety reasons, transmission line rights-of-way must be wider than those for local distribution lines.

Clearance: How danger is controlled

Electricity travels on high-voltage powerlines high above the ground. However, electricity, like water, seeks the most direct path to the ground through nearby objects. Just like lightning, electric current in a high-voltage powerline may reach the ground by jumping, or arcing, to a tall-growing tree. To avoid this, WAPA maintains a safe distance between our powerlines and nearby vegetation. The higher the voltage of the powerline, the more clearance is required.

Clearances between powerlines and other objects, including trees, must also allow for line sag. During warm weather or when the line is carrying heavy electrical loads, it heats up and stretches. This makes the line longer and it sags closer to the ground or objects underneath it.

Because the amount of sag varies with electrical load, weather and line composition, a safe clearance distance in winter may not provide the same safety on the warmest summer days. To maintain a safe distance between the line and anything that can conduct electricity, WAPA maintains a clear zone on all sides and below its powerlines.

Heavy winds can blow branches into powerlines and additional weight from snow and ice can bend or break branches, bringing them close enough to cause a flashover. Tall trees or other tall objects that could fall into a powerline or create an arcing hazard must be removed.

Neighborhood right-of-way uses

WAPA has long worked with landowners and communities to allow compatible uses within its transmission line rights-of-way. Farming, grazing, open space, parks, golf courses, parking lots, bike paths and hiking trails are just some of these compatible uses.

Nevertheless, there are situations when WAPA must responsibly trim or remove trees to maintain safety and reliability. WAPA is committed to working with landowners to minimize the impacts when we must remove trees. WAPA's policy is to continue to work with landowners to minimize the need to remove trees, while always emphasizing our most important "good neighbor" activity, which is maintaining a safe right-of-way and providing reliable electricity.

WAPA's commitment to landowners

If we must cut trees on your land, we promise to:

- Make a good faith effort to contact you before we routinely cut down trees on your property.
- Contact you as soon as reasonably possible in the event of an emergency requiring our immediate action.
- Follow the rules as outlined in our easement across your land.
- Make every effort to protect your property from damage.
- Compensate you for damage to your property or repair any damage we may have caused.

- Either leave the logs for your use or haul them away, as you request.
- Remove or chip all branches and haul debris off site unless you want to keep the chips for mulch.
- Cut trees in an environmentally responsible way.

What can you do to help?

Property owners should review their powerline easement document and become familiar with its provisions. You can call WAPA if you have questions or need additional information about safe uses of your property under or near our transmission lines.

Even though our crews regularly inspect our transmission lines, you can help us if you notice anything such as trees or limbs that might interfere with our powerlines. You can also help stop potential powerline problems before they start. If you're planning to plant trees on your property, don't plant them under the powerlines. Shrubs, hedges and other plants must also be kept away from transmission towers and poles and off powerline access roads.

Dense stands of trees, shrubs or hedges make it difficult to get to powerlines or electrical equipment to repair or maintain them. They may also make the difficult job of maintaining the transmission system even more hazardous to the line crews. Call WAPA to find out what kinds of plantings are safe and allowed within the right-of-way.

Powerful facts

- The current needed to light a 10-watt light bulb is more than enough to kill you.
- Trees don't need to touch powerlines to be dangerous.
- Electricity from high-voltage lines can also arc or flashover from wires to nearby trees without the two ever physically touching.
- Lines can sag as much as 15 or 20 feet when the weather is hot or the lines are carrying heavy electrical loads.

Tree-cutting and powerline safety

Always look for nearby powerlines before beginning to cut any tree. Call the local utility before cutting down any tree that might fall into a powerline.

Treat all powerlines as energized. Never climb or attempt to fell a tree that has a limb caught in a powerline. You may not see any visible evidence that this tree is electrified or dangerous. Beware of this hidden hazard.

Trees that could reach a powerline should never be felled by a landowner. If a tree falls into a powerline, stop at once! Stay clear and call the local utility.

Maintain the required clearances between any equipment and powerlines. If equipment comes into contact with a powerline, stop at once! Instruct the operator to stay on the equipment until help arrives. Keep others away.

If a fire starts from an electrical contact or a downed powerline, keep all firefighting equipment and people away from the downed powerline. Do not use water near the downed powerline. Notify the local fire department and local utility immediately. Stay clear of the line and treat it as energized.

For more information about right-of-way uses and limitations, contact your nearest WAPA office or visit our website at **<https://www.wapa.gov>**.

In an emergency, call 911 or your local utility.



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