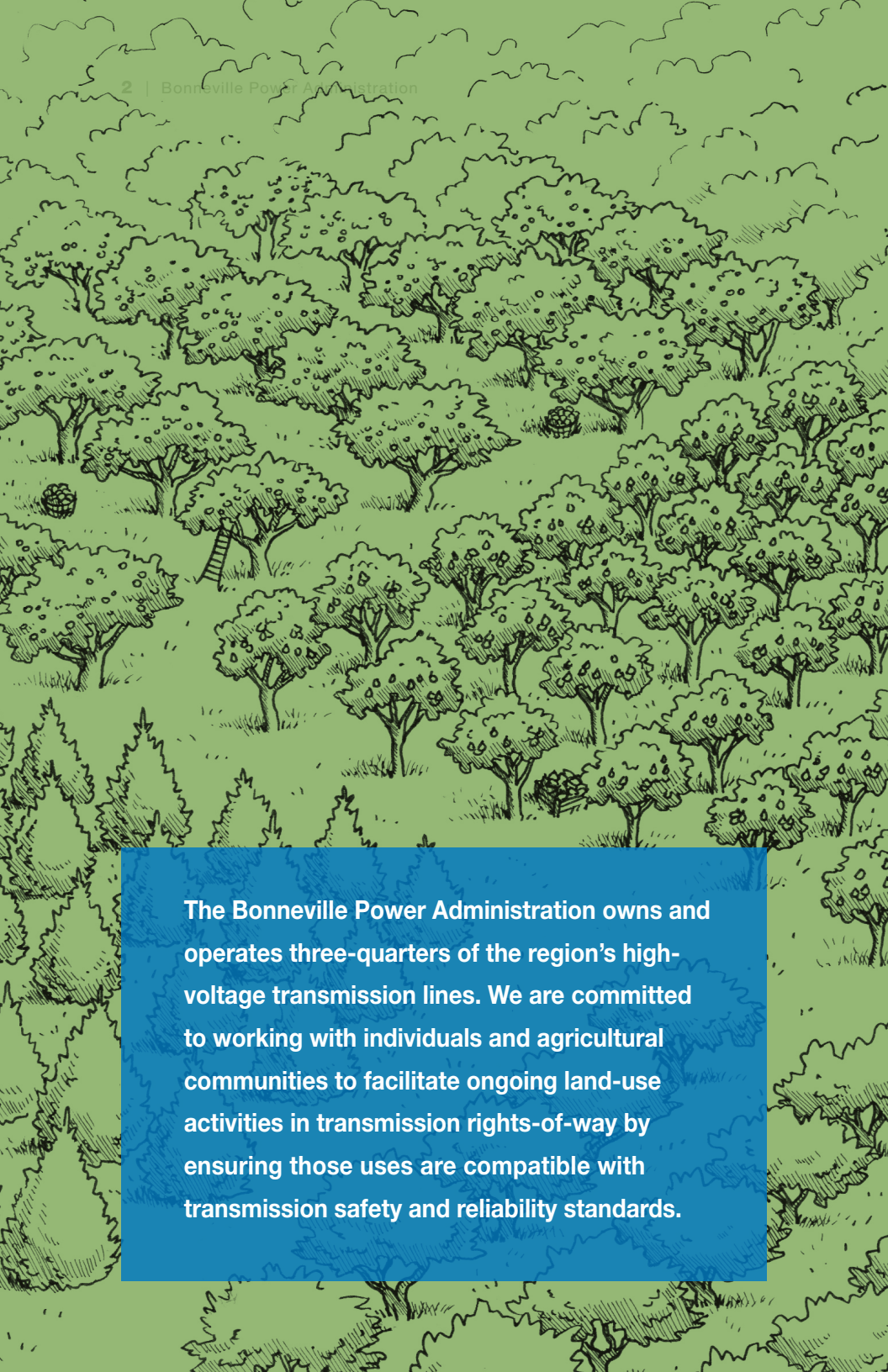


BONNEVILLE POWER ADMINISTRATION

# Farming and High Voltage Power Lines:

**What to Know**





The Bonneville Power Administration owns and operates three-quarters of the region's high-voltage transmission lines. We are committed to working with individuals and agricultural communities to facilitate ongoing land-use activities in transmission rights-of-way by ensuring those uses are compatible with transmission safety and reliability standards.

## The Pacific Northwest's greatest economic assets

Two of the Northwest's greatest economic assets are its wealth of agriculture and its clean and reliable electricity fueled largely by hydropower. Sometimes the two intersect. Transmission lines carrying electricity to the region's farms, businesses and homes span large areas where people grow crops and orchards. To ensure a safe and reliable flow of electricity across these expanses, orchard trees and other vegetation must be managed to certain standards.

## Why the concern about orchards

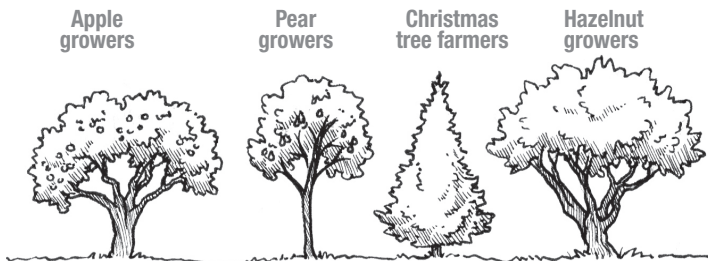
### Safety

Trees, crops and other vegetation growing near high-voltage lines can conduct electricity and pose a threat of fire or electrocution to people, pets, livestock, wildlife and property.

### Reliability and Minimum Vegetation Clearing Distance (MVCD)

Because a single line in BPA's system serves thousands of homes and businesses, and operates in a coordinated and interdependent way with other lines, just one tree incident can trigger outages affecting large areas including surrounding states. When trees or tall brush come into contact with high-voltage transmission lines or grow within a "flash-over" distance, electricity can jump or arc several feet across the space between wires and vegetation or between wires and other objects connected to the ground. This distance is called the Minimum Vegetation Clearing Distance (MVCD) and is based off of voltage and elevation. Arcing will disrupt the flow of electricity and cause unscheduled outages.

### Who Should be Aware

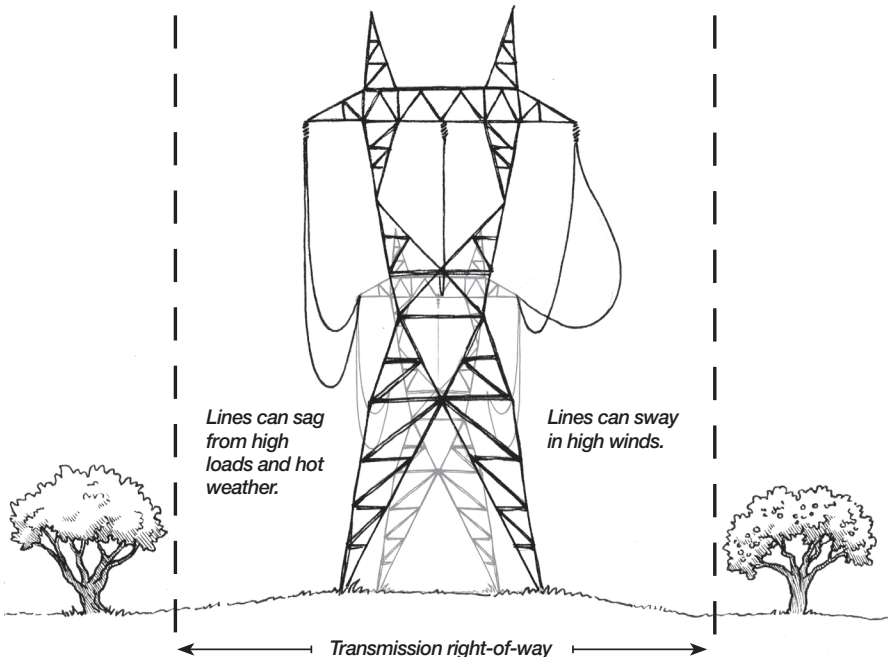


## Preventive maintenance: A national requirement

Investigators determined that the big 2003 Northeast blackout was caused by trees coming in contact with high-voltage lines. The blackout left more than 50 million people without power and cost billions of dollars in lost productivity. As a result, the North American Electric Reliability Corporation, or NERC — a national regulatory body that oversees reliability of the U.S. power grids — issued new, more stringent vegetation management standards for electric transmission lines.

### The Safety Zone

Under the new standards, BPA's crews will manage vegetation to keep a safety zone between high voltage transmission lines and the trees and brush beneath and around them. A key factor is the potential mature height of the tree, and another factor is the maximum distance the power line will sag during periods of high use. When power lines carry more electric load, they heat up, which causes the wire to expand and sag. In summer, for example, when the air is hot and customers demand lots of electricity, lines can sag up to 14 feet.





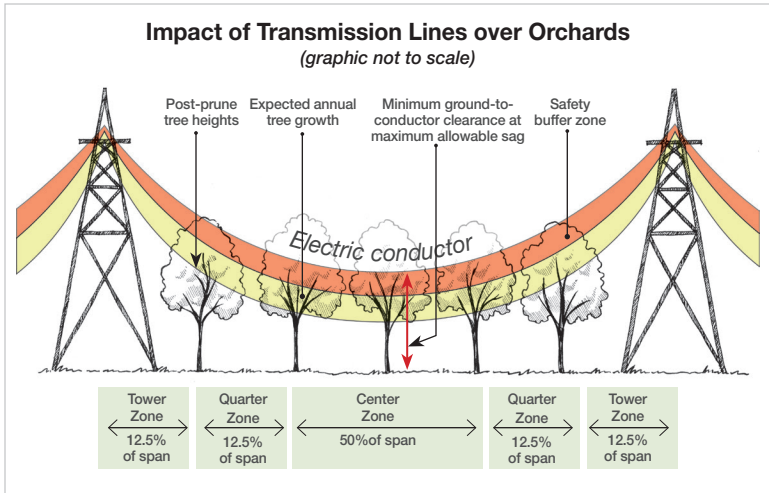
## Managing vegetation

BPA natural resource specialists have extensive education and training in utility vegetation management and electrical safety. They work with our experienced contract crews to determine which trees within or adjacent to rights-of-way pose a current or future hazard to the safety and reliability of transmission lines. The NRS will order the removal any tree deemed to be a threat. Orchardists, however, are often granted a brief period to trim their own trees back into compliance before removal.

## Possible Shock Hazards

Shocks are caused by a voltage induced from the power line into the nearby metallic objects. Typically shocks can be avoided when the nearby metallic objects are grounded or connected to earth. The severity of these shocks depends on the operating voltage of the power line, the distance from the conductor, the size or length of the object, its orientation to the line and how well the object is grounded. Normally, shocks do not occur when BPA's guidance is followed (see the following sections). However, under certain conditions, nonhazardous nuisance shocks can still occur and possibly cause discomfort. Objects to watch out for include ladders, sprinklers, trellises, fences that are near the line or parallel the line for some distance.





## BPA and your private property

BPA respects property rights, and we strive to keep landowners informed and minimize any impacts to property. When impacts cannot be avoided, we will work toward mutually-satisfactory solutions.

Before starting vegetation management activities, BPA makes every reasonable effort to contact landowners and residents near the project area to inform them about the work to be done and when we will be in the area. We also listen to citizen concerns and work hard to find reasonable solutions.

When it's necessary to remove vegetation near power lines, BPA notifies landowners prior to any scheduled clearing. The only exception is if vegetation poses an imminent threat. BPA must remove the vegetation but will try to contact the landowner before or shortly after such vegetation is cut.

## Access roads

We need to ensure reasonable access to our transmission facilities to perform necessary maintenance and repair and to make sure vegetation or structures do not pose a safety or electric outage threat.

During emergency maintenance, trees blocking access roads or impeding access to work zones or structures will be cut and removed.

## How you can help

Notify BPA if you see trees or vegetation that might be growing too close to the lines. Don't plant trees in transmission corridors. Instead, low-growing native plants or ornamental shrubs, ferns and grasses may be allowable options in a right-of-way.

Fill out a land use application before you plant any vegetation on BPA rights-of-way. This will enable BPA to maintain a safe distance between the vegetation and power lines and ensure that the vegetation will not block access to the lines, towers or poles.

## Before you dig

Parts of the transmission line grounding mechanism may lie underground near surrounding transmission structures. That's why it's important to call us at **800-836-6619** before planting or digging near power lines or electrical equipment.

For more details on BPA rights-of-way and how to stay safe around high-voltage power lines, or if you have any questions about BPA's vegetation management program, call us at **800-836-6619** or visit BPA online at ***[www.bpa.gov/corporate/pubs](http://www.bpa.gov/corporate/pubs)***.



[www.bpa.gov](http://www.bpa.gov)

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