

CPS Energy Vegetation Management for Transmission Lines

Transmission Power Lines and CPS Energy's Safety and Reliability Efforts

CPS Energy faces many challenges in order to provide reliable power to our customers. A downed line is dangerous and can disrupt power to thousands of customers.

The great 2003 Northeast blackout occurred after trees contacted transmission lines. The electric industry has since become even more diligent about keeping transmission right-of-way clear. It's a full-time job. Prior to removal or clearing efforts, our ROW maintenance team, including certified arborists, carefully assesses the area to determine the best course of action.

Tree clearing is an essential part of maintaining a safe and reliable supply of electricity for your convenience however, such removal is expensive and dangerous. That is why CPS Energy, as your power company, undertakes a vigorous Vegetation Management Program to ensure safe reliable power. Attempting to prune or climb a tree near power lines is dangerous. As a power company, CPS Energy's responsibility is your safety and reliable power to you. With the Northeast blackout as a painful reminder, we want to make sure such outage events never happen in the CPS Energy service area.

Why Trees Need To Be Removed

Unfortunately, when tree branches grow too close to the electric lines they can cause a power outage. Arcing or direct tree/wire contact is a major cause of power outages. In fact, a single tree/wire contact may deprive thousands of people of the electricity they need. If power is lost to medical facilities, water systems, traffic lights or emergency services, the results can seriously impact the affected communities. Because a dependable supply of electricity is so important, CPS Energy is required by law to remove trees and keep them away from electric transmission power lines. This keeps our electrical equipment operating safely and helps us provide our customers with reliable electric service.

Vegetation Management Guidelines for Customers Doing Tree Trimming

Prior to trimming your own trees make sure that the tree does not have any power lines in or near it. If it does, contact CPS Energy at 1-210-353-2222. Never climb or prune trees near power lines. Cutting tree limbs near power lines is dangerous without the proper equipment and training; And don't let your kids play in such trees either.

When you are doing landscaping, never plant trees or shrubs under power lines (see vegetation lists below). Not only will it be safer, it will reduce the outages that can occur if trees or tree limbs are blown onto power lines.

CPS Energy's Vegetation Management Program is intended to help protect the public, protect property and maintain electric reliability. Trees can cause power outages. Outages from branches rubbing against power lines, branch breakage and trees blown over during storms are just a few of the hazardous situations that can occur.

Please remember that any trees interfering with utility power lines can lead to, or are, a dangerous situation.

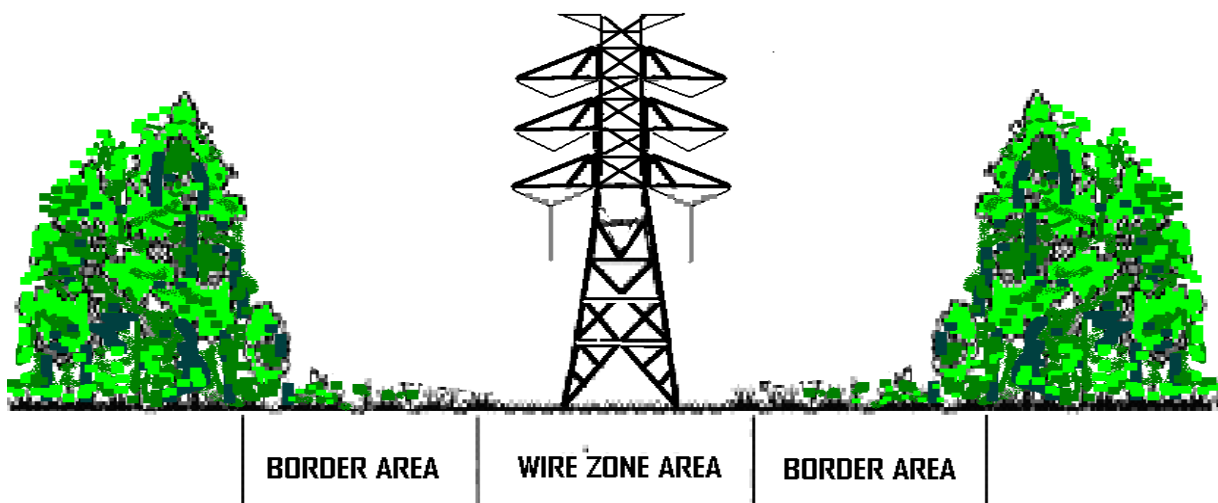
Legislation

Because Vegetation Management is so important, legislation exists which requires both CPS Energy and the property owner to ensure that a minimum clearance space between vegetation and power lines is maintained.

Shrubs/Trees on Transmission Rights-of-Way

Prior written approval must be obtained on all encroachments (i.e. trees, shrubs, vegetable gardens, roads, drain fields, etc.) on transmission rights-of-way. Without written approval shrubs, trees, etc. are subject to removal by CPS Energy. Without approval and depending on the encroachment, the property owner may be required to remove the encroachment at property owner's expense. For information on the transmission encroachment request process, contact the CPS Energy Right-of-Way at 353-2972.

Open right-of-way areas beneath large transmission lines can be made interesting and attractive through landscaping with grass, flowers, shrubs and small trees located at the edge of the ROW. However, there are restrictions on placement and height. Grass and wildflowers are acceptable within the center of the ROW. Within this document are some suggested species to assist in the landscaping planning process. Remember to include a sketch or drawing with as many specific details as possible about the proposed landscaping and other proposed encroachments in the encroachment request packet submitted.



Inside the Wire Zone area – Only minimal vegetation is allowed. Native and improved turf grass species and wild flowers are acceptable. CPS Energy requires a clear path for vehicles to access the ROW with trucks and heavy equipment.

Outside the conductor area (Border Area) - Shrubs should be maintained at or below 2 feet in height and must be species which cause no tire or equipment damage if driven over. This area is defined as the portion of the right-of-way typically along the edge on both sides. At the edge of the ROW shrubs and small trees must be maintained at or below 10 feet in height.

CPS Energy Vegetation Management along bulk transmission lines - To ensure code-regulated reliability and safety levels, CPS Energy has a Vegetation Management Plan for more than 1400 circuit miles of high-voltage, bulk transmission lines. (Generally, bulk transmission lines are the thicker power lines strung between tall towers; they deliver bulk power to a section of the city.) This vegetation management is essential. Remember, in August, 2003, damage to bulk transmission lines from a single tree left 50 million people in the dark in the North Eastern United States and Canada.

CPS Energy Vegetation Management along neighborhood distribution lines - There is an additional 8,000 circuit miles of distribution power lines running through neighborhoods.

We consider oak wilt and bird habitat - CPS Energy tries to avoid oak tree cutting in neighborhoods with red oaks and live oak between March and June, when oak wilt is more likely to spread. We do not schedule routine maintenance in Golden-Cheeked Warbler and Black-Capped Vireo habitat preserves between March and September. During these periods, we clear to prevent imminent outages, restore power, and ensure public safety.

How often will you manage vegetation in my area?

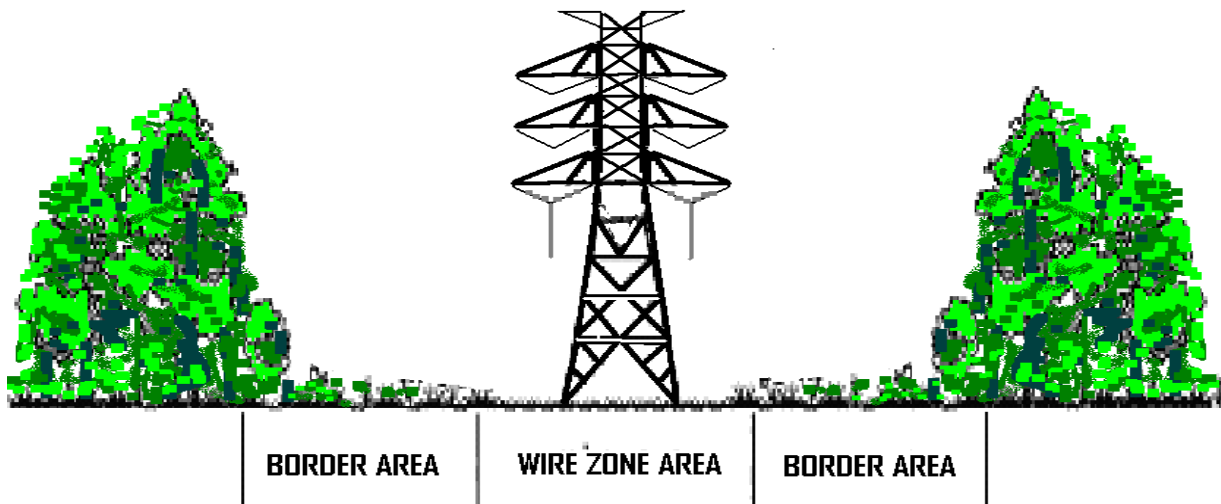
Our maintenance cycle protects the reliability of the system; keeps expenses manageable and protects power loss to the community. Each year, we schedule vegetation maintenance along 700 to 900 miles of our power lines at a cost of several million dollars. This means vegetation maintenance on 30,000 to 40,000 properties a year. CPS Energy will plan maintenance of vegetation every one to five years unless excessive growth mandates otherwise.

Who cleans up my property after vegetation management?

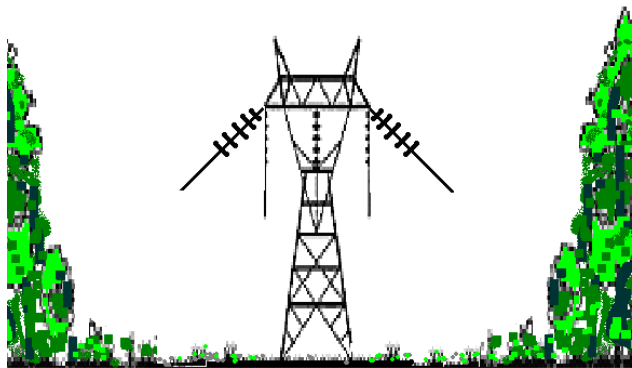
During routine vegetation maintenance our contractors mulch the wood and other vegetation as much as possible.

During storms, CPS Energy's major concern is to restore service. When our tree crews work on damaged trees during storms that have caused power interruptions, they only do the work needed to get the power lines fixed and power restored. Due to our commitment to restoring power quickly, our crews will not clean up or remove branches during storm restoration. Falling limbs and trees often hit and damage property such as houses, garages, fences and cars, including CPS Energy's electric power lines. Frequently, the tree that causes property damage does not belong to the

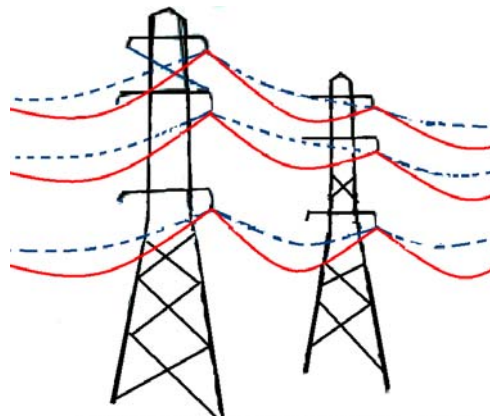
individual whose property is damaged. CPS Energy does not own any of the trees that hit our power lines and is not responsible for their clean-up.



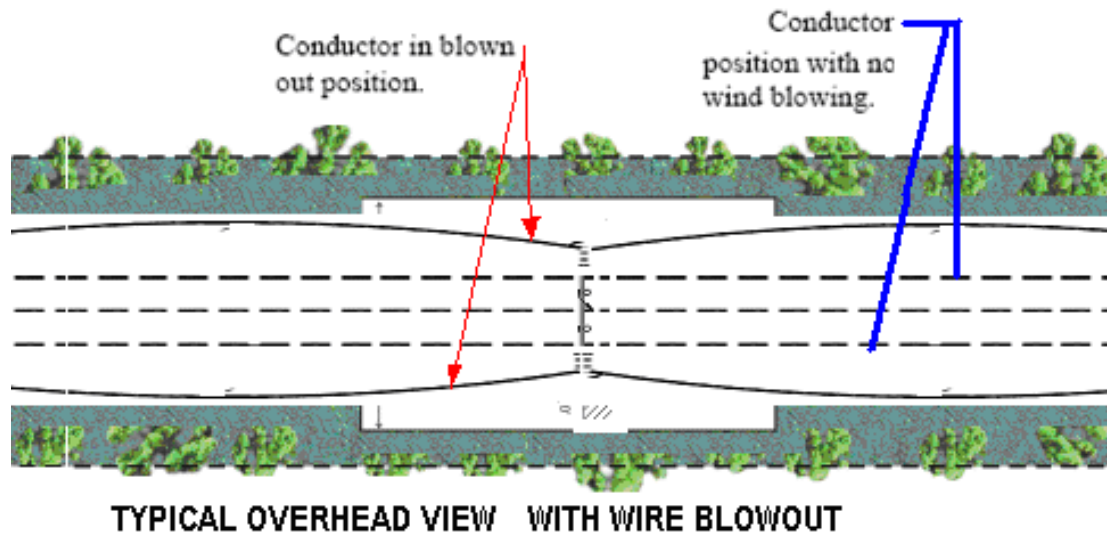
Near **Transmission Lines** - CPS Energy will trim to the full extent of easement rights and work towards a "Wire Zone – Border Zone" practice as encouraged through Best Management Practices. In situations where an easement does not exist, CPS Energy will take into account Federal and State rules and regulations. The minimum clearance distance to the wire is twenty feet at standard CPS Energy Transmission voltages of 138,000 and 345,000 volts. Additional important considerations in regards to clearance distances are line sag which increases with load and temperature, conductor blow out, tree sway and line sway.



**WIND DIRECTION CHANGES BLOW OUT
ALLOW FOR EXTREME CONDITION**



CONDUCTOR SAG CHANGES WITH LOAD AND TEMPERATURE



Who does the work?

CPS Energy uses skilled and specially trained staff and selected contractors who have received training to meet the requirements given by OSHA and ANSI Z133.1-2000.

How often does CPS Energy trim trees?

CPS Energy typically trims on a circuit basis taking into account a variety of factors such as tree growth rates, last patrol date, line history and others. Typically this is a one to five year cycle.

Who has responsibility for trees and power lines?

A minimum clearance space is required between power lines and equipment and any foliage. Inside the bulk transmission power corridors, tree removal is CPS Energy's responsibility. CPS Energy will remove trees outside the power corridor when these danger trees could interfere with or fall into the line and create a hazard. It is the property owner's responsibility to keep trees clear of their electric service line. This is the line that runs from the transformer pole to the house. CPS Energy recommends the use of a trained tree trimmer to clear electric service lines.

It is CPS Energy's responsibility to keep trees clear of its power lines. The clearance space required increases as the voltage increases. Trees need to be trimmed long before they can contact power lines. Trees will be trimmed on a cycle if they are growing into the clearance space and achieving the required clearance may mean trimming trees on your property.

CPS Energy will trim tree limbs near overhead power lines for your protection and to prevent power outages. We also remove vines that grow on utility poles and power lines. To request tree trimming please contact customer service at **(210) 353-2222** or use our [online tree-trimming form](#).

(https://www.cpsenergy.com/Residential/Service_Requests/tree_trimming_form.asp)

These are the 'low-growing' species on the CPS tree poster and are allowed at edge of transmission ROW easement, but will be removed if encroaching into easement

Low Growing Utility Friendly

Buckeye, Mexican

Crape Myrtle

Desert Willow

Holly, Possumhaw

Holly, Yaupon

Redbud, Mexican or Texas

Sophora, Eve's Necklace

Sophora, Texas Mt. Laurel

Vitex

These are the 'utility-friendly' species on the CPS tree poster but should not be planted within ROW.

Plant more than 20' away from edge of easement

Anacacho Orchid Tree

Anacahuita/Wild Olive

Buckeye, Mexican

Condalia, Bluewood

Crape Myrtle

Desert Willow

Holly, Possumhaw

Holly, Yaupon

Goldenball Leadtree

Persimmon, Texas

Plum, Mexican

Redbud, Mexican or Texas

Sophora, Eve's Necklace

Sophora, Texas Mt. Laurel

Viburnum, Rusty Blackhaw

Vitex

These are the tall-growers on the CPS tree poster

Tall Growing (Plant more than 30' from edge of easement)

Anacua

Elm, Cedar

Oak, Bur

Oak, Chinkapin

Oak, Live

Oak, Mexican White Live

Oak, TX or Shumard

Oak, Lacey

Sycamore, Mexican

Red Oak

Montezuma Cypress