ATC

Quick guide to

living and working

near power lines

About ATC

ATC owns, operates, maintains and protects the electric power grid. To fulfill this mission, ATC has power lines across all types of property—agricultural, commercial, industrial and residential.

We know people who live and work near these lines often have questions. To provide some answers and basic information, we've put together this helpful guide.

The science of moving electricity

Can power lines affect people and animals?

Electric and Magnetic Fields (EMF)

From smartphones to desk lamps, any device that uses or carries electricity creates electric and magnetic fields, or EMF. Yes, power lines too. Electric fields are produced by voltage, while magnetic fields are created by current flow. According to the Electric Power Research Institute, there's no conclusive scientific evidence that EMFs generated by power lines cause any adverse health effects on people or animals living nearby.

Many variables affect the strength of a magnetic field around a power line, including:

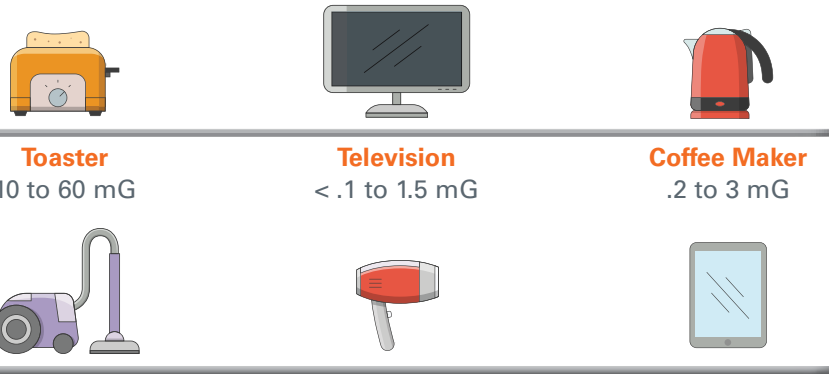
- The amount of electric current flowing through the wires
- Distance from the wires
- The configuration of the wires
- The intensity of the magnetic field is strongest directly beneath the wires and drops dramatically with distance

What the research says

According to the Electric Power Research Institute, there's no conclusive scientific evidence that EMFs generated by power lines cause any adverse health effects on people or animals living nearby.

Household magnetic field levels

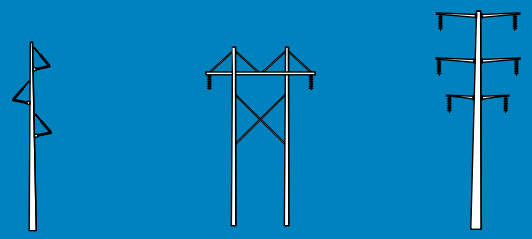
(at typical working distance)



Toaster	Television	Coffee Maker
10 to 60 mG	< .1 to 1.5 mG	.2 to 3 mG
Vacuum Cleaner	**Hair Dryer**	**Computer Tablet**
230 to 1300 mG	3 to 1400 mG	.1 to .2 mG

Sources: Gauger, Jr., Household Appliance Magnetic Field Survey. IEEE transactions on power apparatus and systems. PA 104.

The intensity of a magnetic field is strongest directly under wires and drops dramatically with distance.



	69,000 volts	138,000 volts	345,000 volts
Under wires	20-25 mG	35-40 mG	85-100 mG
Edge of utility corridor	5-10 mG	15-20 mG	50-60 mG
100 feet away	.5-12 mG	.5-12 mG	.5-15 mG

** Edge of utility corridor is typically 40 to 75 feet away from centerline on either side, depending on voltage.*

Nuisance shocks and induced voltage

Have you ever gotten a little shock when opening a car door? Nuisance shocks can occur when a person contacts an object with induced voltage, or a built-up electrical charge. This accumulation can form around ungrounded objects such as fences or vehicles near power lines. However, this phenomenon does not present a health or safety hazard and is not the same as direct electrical contact.

Nuisance shocks can be minimized or eliminated by ensuring vehicles and objects near lines are properly grounded

The significance of nuisance shocks depends on the same factors that influence the amount of induced voltage that may be present:

- Power line voltage
- Distance from wires
- Size or length of the object and its orientation to the line
- Object grounding

Stray voltage/electricity

Though typically not a concern in residential areas, stray voltage can present an issue on farms, where two separate electrical systems can be in operation. Stray voltage occurs when there is a difference in voltage between two surfaces that may be simultaneously contacted by animals. These surfaces can include stanchion pipes, water cups, feeders and more.

Causes

Stray voltage results from the simultaneous presence of on-farm wiring and electrical connections to local utilities. To ensure safe and dependable operation, both systems should be properly grounded. However, inevitably, some current will flow from each grounding point through the earth. This voltage is called neutral-to-earth voltage, or NEV. When differing levels of NEV come together at points that may be contacted by animals, it's referred to as stray voltage—and can present an issue that needs to be addressed.

Mitigation

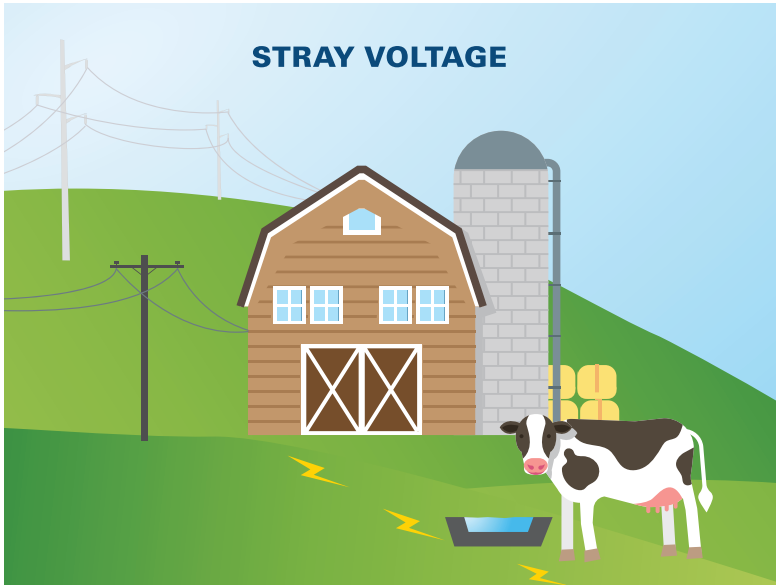
In Wisconsin, the Rural Electric Power Services Program was established to assist farmers with a variety of challenges related to herd health and production, including technical issues such as stray voltage. In addition, many local utilities offer on-site investigations and can recommend steps to correct any problems. Finally, in locations where local and regional grid facilities overlap, ATC enlists local companies to address concerns related to stray voltage.

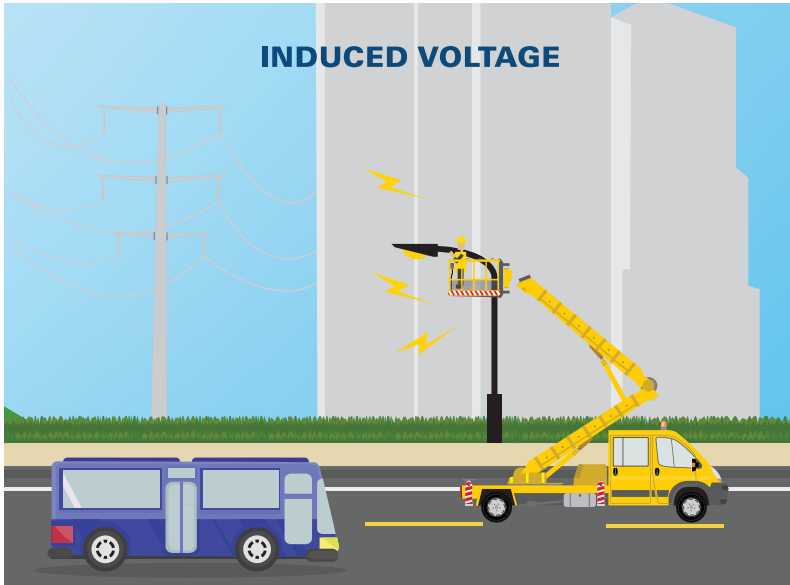
QUICK TIP:

Scan for more information on the Rural Electric Power Services Program.

Stray voltage can be a concern on farms, where separate wiring systems can come into conflict.

Induced voltage may be present in objects located near power lines, causing nuisance shocks.





Living near power lines

Many people live near power lines and facilities.

What are some common concerns?

Ice shedding
During weather events, ice can form on power lines presenting a potential concern for falling ice. Always use caution when walking under power lines in winter.

Noise
Noise emanating from power lines is common and no cause for concern. It may also increase in humid conditions. Generally, noise from power lines should fade into the background at a distance of 200 feet. Newer lines will also produce less noise over time.

Property values
Each property is unique, and many factors influence property values. The presence of a power line would be just one of them.

Placing structures in utility corridors
Private structures and objects may not be placed in utility corridors without prior written consent from ATC. These include residences, swimming pools, sheds, signs, deer stands, playground equipment and trampolines.

Radio, TV, and communication interference
It's possible for power lines to cause some degree of interference with AM receivers, TV receivers, aircraft communications receivers and specialized devices such as astronomy antennas. If you experience interference that you suspect may be caused by ATC facilities, please contact us. When possible, we will attempt to mitigate the issues.

Trees and landscaping
The federal government has set reliability standards requiring electric grid companies, like ATC, to keep trees and vegetation a safe distance from power lines. To uphold these standards and ensure the safe and reliable operation of the electric grid, ATC removes incompatible vegetation from the utility corridor. Tall-growing trees and other vegetation can present hazards to workers and public safety, threaten the reliability of electric service and risk damage to the electric system. Dense, incompatible vegetation may also be removed to allow crews to inspect, maintain and repair lines.

Land grade/slope changes
Making changes in the land grade of more than one foot in the utility corridor generally is not permitted.

Storm water mitigation/ retention ponds
Maintaining access to the utility facilities is important for inspection, maintenance and storm response. The installation of storm water run- off or retention ponds is typically not a compatible use in a utility corridor and generally is not permitted.

Encroachment Request Form
Have a question about uses or structures (including fencing) permitted in or near a utility corridor? Contact the ATC real estate department or visit: **www.atcllc.com/living-working-near-powerlines** to download, complete and submit an Encroachment Request Form.

Scan to download an Encroachment Request Form.

Grow Smart®

Planting near power lines

When you're smart about growing, you'll keep the power flowing! ATC's vegetation management program doesn't prohibit all planting in utility corridors. You simply need to Grow Smart. That means planting only low- growing flowers and other vegetation in and around utility corridors. Learn how you can support pollinators by planting vegetation beneficial to them at **www.atc-GrowSmart.com.**





Farming near power lines

Knowledge is power. ATC provides helpful guidance on a variety of topics related to the interaction between agriculture and electric power lines. Be sure to contact ATC if you have questions about how power lines may affect:

- Conservation Reserve Land Program
- Crops
- Electric fields, equipment and nuisance shocks
- Fences
- Fires and field burning
- GPS and communications equipment
- Irrigation systems and wells
- Livestock
- Manure pits and spreading
- Organic farming
- Property or crop damage
- Trees and landscaping

Fence construction and location
Want to construct a fence within a utility corridor? Our staff will help you identify an appropriate type of fence for the location and make sure the design complies with ATC policies and requirements.

Overhead clearance
Additional clearance may be needed when operating machinery that extends vertically such as sprayers, augers, elevators and fertilizer applicators. Stay at least 20 feet away from transmission lines to ensure your safety. This includes people, equipment, fallen trees, etc. Use a spotter to make sure all equipment remains a safe distance from wires. Also, avoid refueling vehicles within the utility corridor. For more information on identifying the hazards of energized power lines visit: www.osha.gov/electrical.

Materials and equipment in utility corridors
Do not store or pile materials or equipment within the utility corridor without prior approval from ATC.

Irrigation systems and wells
Improper installation of irrigation equipment may cause shocks. Before installing an irrigation system near an ATC transmission facility, be sure to contact us to discuss your plans. Wells are not permitted in utility corridors.

Nuisance shocks
Ungrounded vehicles and equipment parked near power lines can accumulate induced voltage. When this equipment is contacted by people standing on the ground, nuisance shocks can occur. However, this can be minimized or eliminated by either installing a grounding strap or chain to the equipment, or simply parking farther away from the power lines.

Burning near utility corridors
Fires near power lines can be dangerous. Before burning anything in or around an ATC utility corridor, contact us to learn proper burning methods and to let us know when such activity will take place.

GPS navigation
Major manufacturers of navigation systems have not found any degradation of their signals as a direct result of power lines.

Animal pens in utility corridors
ATC discourages placement of animal pens or confinements beneath power lines. We use helicopters to perform low flying inspections of our lines each year. We may also use helicopter-mounted aerial saws to manage vegetation. Animals confined to pens in or near utility corridors may become startled during these operations.

Manure pits
Due to various issues related to access and clearance, manure pits are not permitted within the utility corridor without prior approval from ATC.

Property and crop damage payments
If ATC maintenance or construction activities cause rutting or damage to property or crops, we will pay reasonable compensation upon completion of the work. The USDA Custom Rate Guide is used as the guideline for crop damage payments.

Call ATC at (866) 899-3204 before placing anything in the utility corridor or if you have any questions!

Stray voltage investigations
Think stray voltage may be an issue on your property? Contact your local electric utility. ATC and local utilities work together to perform individual investigations to better understand the interactions between both systems.

Working safely near poles, wires and substations

Clearances

Power lines are not insulated. Getting too close to a power line with your body, equipment or tools can result in severe injury or death. Working near power lines carries risk whether you operate heavy equipment, trim or cut trees, or use ladders and handheld tools. It is your responsibility to work safely to protect yourself, your crew and the public.

If you plan to work or operate machinery near ATC power lines, stay at least 20 feet away from power lines to ensure your safety. This includes people, equipment, fallen trees, etc. Use a spotter to make sure all equipment remains a safe distance from wires.

The height of power lines above ground will vary throughout the day, depending on a number of factors such as voltage, type of structure, span length, wind speed, temperature and amount of power flowing through the line.

For more information on identifying the hazards of energized power lines, visit: [www.osha.gov/electrical.](http://www.osha.gov/electrical)

Stay away from downed power lines

ATC works hard to make sure power lines remain safe and secure. However, if you encounter a downed power line here are a few safety tips:

- Always assume a power line is “live.” You can’t tell its status by looking at it.
- Move away from the line and anything touching it using shuffling, short steps. Keep your feet together and on the ground at all times to minimize the potential for a shock.
- Do not attempt to move a downed power line or anything in contact with it by using an object such as a broom or stick.
- Do not touch or step in water near a downed power line.

In case of emergency:

If your equipment contacts a power line

- Call 911 immediately.
- Call ATC at (262) 506-6199 or call you local utility.
- Assume objects and area in contact with the power line are energized.

If you are not in danger from fire or being struck by the power line

- Stay where you are.
- Move equipement away from the power line, if possible.
- Warn others not to approach equipment.

If you are in danger and must get off equipment:

- Jump as far away from the equipment as you can and land with both feet together. No part of your body should touch the equipment and the ground at the same time.
- Hop or shuffle away from the equipment with your feet together to reduce the risk of electric shock.

If another person is in danger:

- Stay away.
- Warn fellow workers to stay away.
- Call 911.

ATC owns, operates, maintains and protects the electric grid that helps meet the electric needs of approximately five million people in parts of Wisconsin, Michigan, Minnesota and Illinois.

We are regulated by the Federal Energy Regulatory Commission, North American Electric Reliability Corporation and the states in our service area. We also work with state natural resource and environmental quality departments, the U.S. Fish and Wildlife Service and the Army Corps of Engineers when building new projects or upgrading existing facilities. We are a member of the Midcontinent Independent System Operator that manages the flow of electricity across 15 U.S. states and the Canadian province of Manitoba.

ATC

Energizing Your Future

atcllc.com

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