

## Stay clear

Ensure you understand the OSHA standards for safe work clearances near high-voltage transmission lines before beginning your work and follow them—**it could mean your life**. Lines sag with temperature and electric load changes. Know how much clearance you have from the transmission line at all times and use a spotter to supplement operator vision that may be obstructed.

## Do not excavate around structure foundations

Just as working too close to transmission lines can create dangerous and costly mistakes, excavations can compromise the stability of the structures that suspend the lines.



Buried transmission structure anchor

Transmission structures rely on the weight of the earth for stability. Removing soil from around the base of a structure could cause it to become unstable and fall over.

Placing additional fill around the base of a structure can also create problems. The buried portion of transmission structures is treated with a special protective coating to guard against corrosion or decay. The portion of the pole that is intended to be above ground is not protected. If it is covered with fill, the moisture in the soil could corrode and weaken steel or promote decay in wood.

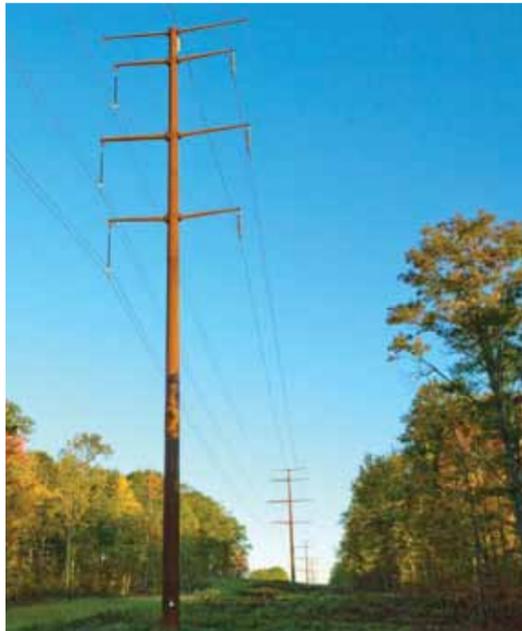
## Clear the right-of-way

The transmission system operates 24 hours a day, seven days a week. Our crews need access to the system at all times to restore outages or perform regular maintenance. Sheds, septic systems and other structures are not allowed within the rights-of-way.

All of our transmission lines must maintain certain code clearances from the ground. ATC must review plans for projects that call for changing the grade under the transmission lines prior to construction to make sure that clearance requirements are met.

## Keep us in the loop

Please keep us in the loop. We want your project to be successful, completed on time and, above all, safe. Remember, when working around the electric transmission system, **practicing safety makes perfect sense.**



## ATC AT A GLANCE

- Formed in 2001 as the first multi-state, **transmission-only utility.**
- Owner and operator of approximately **9,480 miles of transmission line and more than 529 substations.**
- Helping to meet the electric needs of approximately **5 million people.**
- Transmission facilities in **four states:** Wisconsin, Michigan, Minnesota and Illinois.
- **Five offices** in Cottage Grove, De Pere, Madison and Pewaukee, Wis., and Kingsford, Mich.



Helping to **keep the lights on,**  
businesses running and communities strong®

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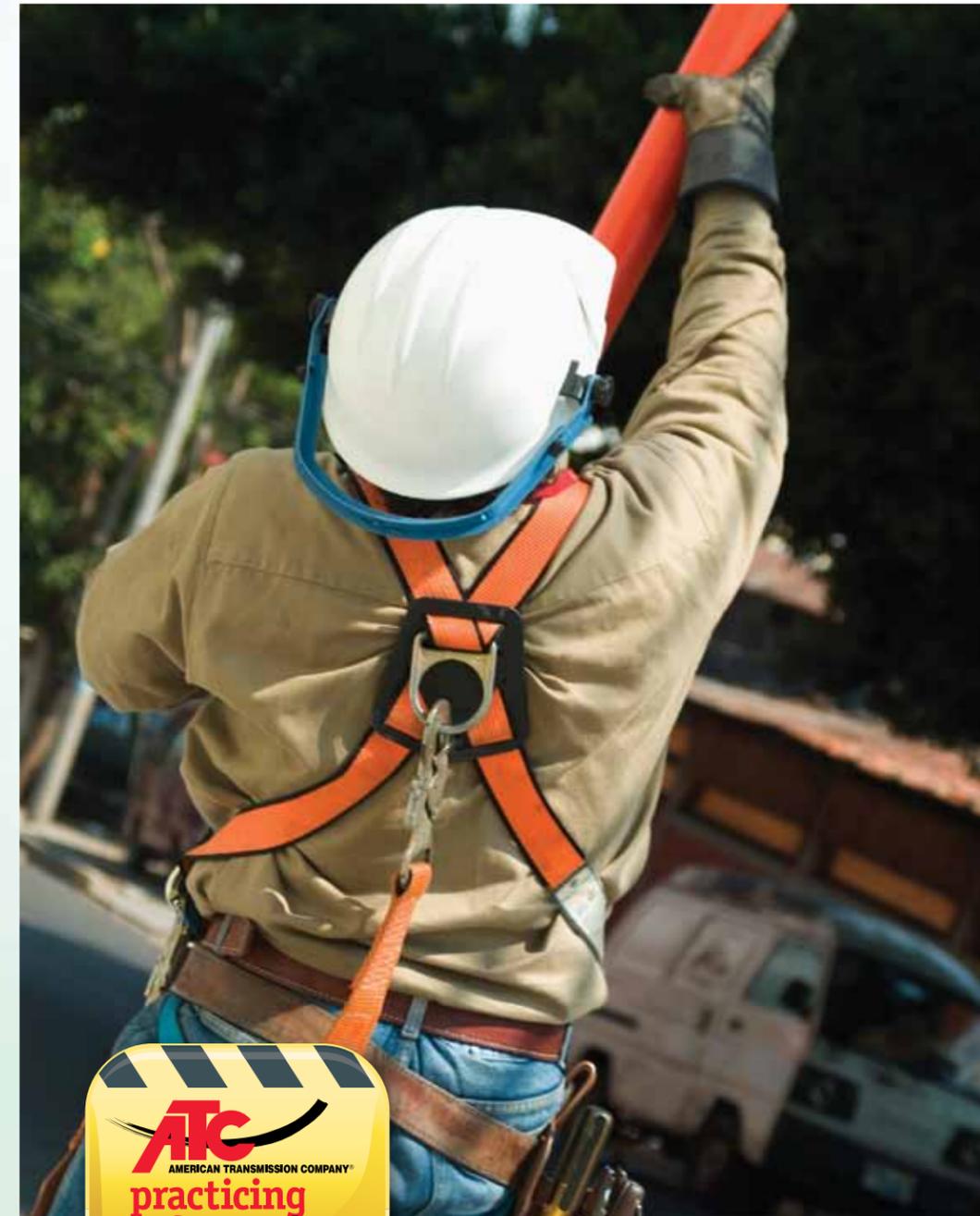
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## PRACTICING SAFETY MAKES PERFECT SENSE

Tips for working safely near the  
high-voltage electric transmission system



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**As someone who works near transmission facilities, it's up to you to work safely to protect yourself, your crew and the public. American Transmission Co. wants your project to be successful, completed on time and, above all, safe. Remember, when working around the electric transmission system, practicing safety makes perfect sense.**

**Give us a call**

Any time your construction plans require you to work near overhead or underground transmission lines or substations, **call ATC at 866-899-3204**. We will review your plans to make sure your project is compatible with the reliable operation of our transmission system and construction is completed safely. If you're working near an underground cable, we'll arrange for someone to be on site while you do your work. As always, remember to call 811 to reach your local one-call location service before you dig.



**Our transmission system**

ATC owns and operates the electric transmission system that moves electricity at high voltages over long distances in the region. Our system is made up of:

- steel poles
- two-pole wooden structures
- single wooden poles
- substation facilities
- underground transmission lines
- lattice towers

**Underground transmission line safety**

ATC has underground high-voltage transmission lines that are located throughout Wisconsin and Upper Michigan. These lines can pose a significant danger to crews working around them if the proper safety measures aren't taken.

Some high-voltage transmission cables are contained within a high-pressure, fluid-filled steel pipe. The coatings on these pipes may be gray, yellow or black, and could resemble a gas pipe or water pipe. Many underground transmission lines are direct-buried and surrounded by either specialized thermal sand or a slurry backfill to allow for heat dissipation. Other transmission cables are encased within concrete duct packages.

**Look before you dig**

Before you can safely work near an underground transmission line, you must first locate the line and verify its depth. Flags and locator marks tell you the direction the cable is running, but not how deep. The only way to be certain of the location and depth is to carefully expose it.

Prior to crossing or paralleling any ATC transmission line with directional drilling construction methods, the line must be exposed by hand digging or by using vacuum excavation.



Underground cable



Underground marker

Exercise caution when hand digging. It is important to safely verify the depth of an underground transmission line. **Do not use a pickaxe or a pointed spade, and do not stab at the soil or jump on the shovel with both feet. Instead, use a blunt-nosed shovel to loosen the soil, and a regular shovel to remove it.** Dig to the depth where you expect the utility to be, but off to the side. Then, use a prying motion to break away soil as you approach the underground transmission line laterally.

The line must be inspected for defects in the coating while it is exposed and before the specialized thermal fill is replaced. The specialized thermal backfill must be replaced around any underground transmission line that has been exposed.

If damage to an underground transmission line occurs, report it immediately to ATC at 866-899-3204. Repairs can be made more easily while the line is still exposed. Never try to fix a damaged line yourself. Trying to cover up an accident can be dangerous, and can lead to costly damages for you and your company.

**Know what's below**

You don't have to expose or contact an underground line to cause damage. Changing the grade over an underground transmission line compromises its ability to dissipate heat. Additional fill will cause excessive heat to build up and affect the capacity of the circuit and could cause the line to fail. If the grade is cut, the circuit will be vulnerable to future damage.

In addition, driving or staging heavy equipment on bare ground over an underground transmission line can cause soil compaction and sinking, which also can damage the line. Use matting or road plating to equalize or spread out the load. The contractor is responsible for taking all precautions to avoid damage to ATC underground transmission lines.

Blasting and pile driving also can cause damage to underground cables, conduits and pipes. If you intend to perform these activities near underground electric facilities, call ATC first.

**All work done near ATC underground transmission lines must be supervised by an ATC representative. Contact ATC at 866-899-3204 three business days prior to start of construction.**



Road plating equalizes the weight over underground transmission lines.



Wires move with wind and sag when warm. On a cold day, a lightly loaded line may hang 35 feet above the ground. On a hot day, or if the line is carrying a large amount of electricity, it may sag to only 25 feet above ground.

**Overhead transmission line safety**

Overhead transmission lines are not insulated, so contacting them with your body, equipment or tools could lead to serious injury or death.

You don't have to come into direct contact with a high-voltage power line to be harmed. The voltage on the energized line can "flash" or jump over the air gap to you or your equipment.

**Induced voltage and nuisance shocks**

Nuisance shocks are caused when someone who is electrically grounded contacts an object that has an induced voltage. Nuisance shocks will continue as long as a person is lightly touching the object causing the shock. Nuisance shocks can be minimized or eliminated when objects are grounded.

The severity of these shocks depends on the same factors that impact the amount of induced voltage:

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

Nuisance shocks can typically be avoided when nearby objects are grounded or connected to earth. Common methods include:

- Connecting ground rods to metal fences
- Avoiding refueling vehicles in power line rights-of-way
- Attaching grounding straps, grounding chains or using grounding bars if parking vehicles or boats in power line rights-of-way
- Attaching grounding chains or grounding straps on tractors; these items are typically available at industrial supply stores

**Any plans that include grade changes around ATC transmission lines must be reviewed and analyzed prior to construction. Call ATC at 866-899-3204.**