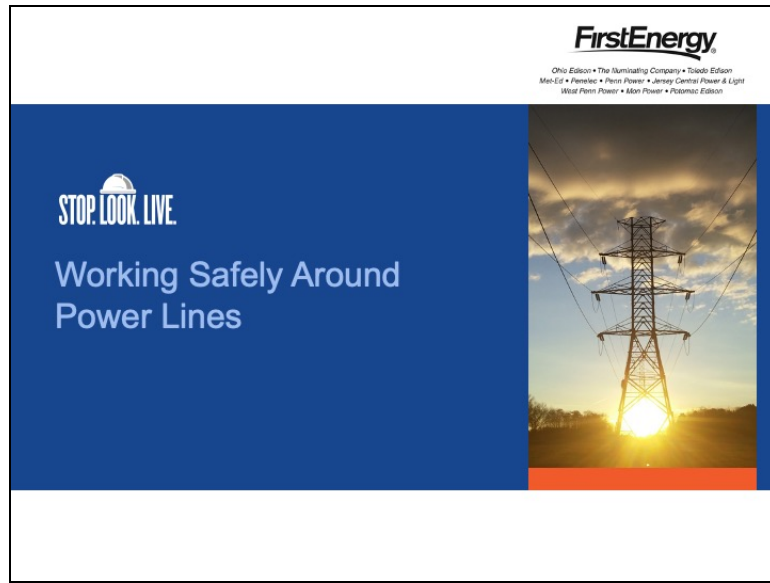


Worker Beware Presenter's Notes



Before darkening the room, offer a welcome and overview. Begin by introducing the program and its topic:

Today's information session focuses on working safely around overhead and underground electric power lines. Following the procedures we'll cover here today will assist you in keeping yourself and your coworkers safe on the job. On the other hand, if you cut corners where power lines are concerned, you put yourself and your coworkers at risk of serious injury and even death. Please pay careful attention and ask questions if you don't understand.

Darken the room and begin the slide presentation.

Worker Beware Presenter's Notes

Respect the Power of Electricity

- **Perform a hazard assessment of the work site every day before work begins. Look for overhead power lines, poles, and guy wires.** Point them out to your coworkers.
- **Assume *all* overhead power lines are energized,** including service drops running between poles and buildings.
- **Check the site daily** because conditions may change.
- **Review your emergency plan** before work begins so everyone knows what to do in case of power line contact.



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Respect the power of electricity. Follow some simple best practices before starting work.

- Perform a hazard assessment of the work site every day before work begins. Look for overhead power lines, poles, and guy wires. Point them out to your coworkers. Review proper safety procedures before beginning work.
- Assume *all* overhead power lines are energized, including service drops running between poles and buildings. These wires may look insulated, but any coating you see is designed to protect the lines from weather, not to protect you from shock. Contact can still be deadly, so keep your distance.
- Check the site daily because conditions may change. Always survey the site before beginning the day's work.
- Review your emergency plan before work begins so everyone knows what to do in case of power line contact.

Worker Beware Presenter's Notes

For Tools and Equipment Other than Cranes and Derricks
Used in Construction: Always Observe the 10-Foot Rule

- OSHA requires that you keep yourself and your equipment (other than cranes and derricks used in construction) at least 10 feet away from overhead power lines carrying up to 50 kV. If you are unsure of the voltage, contact your FirstEnergy electric company.
- Higher-voltage lines require greater clearances. Contact your FirstEnergy electric company at 1-888-LIGHTSS for clearance information.
- If your job requires you to work closer than 10 feet from power lines, call your FirstEnergy electric company well in advance to make safety arrangements.
- Electrical safety distances given here are minimums.
- Always use the maximum possible distance, and clearly mark boundaries to keep workers and equipment the required distance away.

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For tools and equipment other than cranes or derricks used in construction, always observe the 10-foot rule. (Cranes and derricks on construction sites may require greater clearances, which we will discuss on the next slide.)

- OSHA requires that you keep yourself and your equipment at least 10 feet away from overhead power lines carrying up to 50 kV. This applies to all personnel, tools, and equipment other than cranes and derricks used in construction. Be aware that wind can move long or tall equipment, so build in some extra distance in case of an unexpected shift.
- Higher-voltage lines require greater clearances. Contact your FirstEnergy electric company at 1-888-LIGHTSS for clearance information. Remember that your best practice is always to stay as far away as possible from power lines.
- If your job requires you to work closer than 10 feet from power lines, call your FirstEnergy electric company well in advance to make safety arrangements. They will take steps to help you work safely. Cutting corners and failing to call could threaten your life and livelihood.
- Electrical safety distances given here are minimums.
- Always use the maximum possible distance, and clearly mark boundaries with tape, signs, or barricades to keep workers and equipment the required distance away.

Worker Beware Presenter's Notes

Cranes and Derricks in Construction

- **Keep the crane boom and load at least 20 feet away** from lines up to 350 kV and **50 feet away** from lines over 350 kV and up to 1000 kV.
- For specific clearance requirements and other required encroachment prevention precautions, consult osha.gov.
- If voltage is unknown, contact your FirstEnergy electric company.
- Once you have established the required clearance, clearly mark an obvious boundary to keep workers and equipment the required distance away.

If your job requires additional safety precautions, contact your FirstEnergy electric company well in advance so appropriate arrangements can be made.

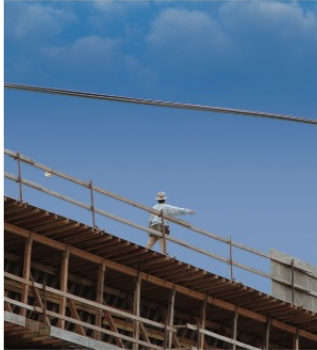
Cranes and derricks used in construction require different safety precautions than other equipment.

- Keep the crane boom and load at least 20 feet away from lines up to 350 kV and 50 feet away from lines over 350 kV and up to 1000 kV. Always assume the line is energized and allow nothing closer unless you have confirmed with the utility owner/operator that the line has been de-energized.
- For specific clearance requirements and other required encroachment prevention precautions, consult osha.gov.
- If voltage is unknown, contact your FirstEnergy electric company.
- Once you have established the required clearance, clearly mark an obvious boundary to keep workers and equipment the required distance away.

If your job requires additional safety precautions, contact your FirstEnergy electric company well in advance so appropriate arrangements can be made.

Worker Beware Presenter's Notes

Use a Dedicated Spotter



- **Always use a dedicated spotter on the ground** to safely judge distances between hoisting equipment and power lines.
- **Crane and derrick operators must** maintain continuous contact with a dedicated spotter to comply with electric line clearance requirements.
- **The spotter's only responsibility should be power line safety.** Don't divide the spotter's attention with other tasks.

Use a dedicated spotter when working with heavy equipment around overhead lines.


- Always use a dedicated spotter on the ground to safely judge distances between hoisting equipment and power lines. From the ground, they will have the clearest vantage point and be best able to judge distances correctly.
- Crane and derrick operators must maintain continuous contact with a dedicated spotter to comply with electric line clearance requirements.
- The spotter's only responsibility should be power line safety. Don't divide the spotter's attention with other tasks. To be effective, the spotter must make spotting and clear communication with the equipment operator the top priority.

Worker Beware Presenter's Notes

Notify 811 Before You Dig

- **Dial 811 or use the online ticket-entry system, then wait the required time before you dig or move earth in any way.**
- **The 811 service will arrange to have underground utilities marked** so you can dig safely.
- **Before you call, mark your excavation route in white** so locators can easily identify and mark affected utilities.
- **If you don't notify 811, you risk hitting an underground power line.** You or your coworkers could be hurt or killed. You may be held liable for damages and repair costs.

Always contact your state 811 center before digging and for the most current requirements.



811
Know what's below.
Call before you dig.

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Notify 811 before you dig. Underground power lines can pose an unseen but very real danger.

- Dial 811 or use the online ticket-entry system, then wait the required time before you dig or move earth in any way. This wait time varies by state:
 - In Ohio, wait at least 48 hours excluding weekends and legal holidays.
 - In Pennsylvania and New York, wait at least 2 business days not including the date the ticket was created, weekends, and holidays.
 - In New Jersey, wait at least 3 full business days, excluding weekends and federal or state legal holidays.
 - In Virginia, wait at least 48 hours excluding the date of notification, weekends, and federal or state legal holidays.
 - In West Virginia, wait at least 48 hours excluding weekends and federal or state legal holidays.
 - In Maryland, wait at least 2 full business days, excluding the date of notification, weekends, and legal holidays.
- The 811 service will arrange to have underground utility lines marked so you can dig safely. Be sure to leave adequate time in your job schedule. Building in a few extra days for the job costs less in the long run than spending months or years recovering physically and financially from a power line accident. And remember, it's the law.
- Before you call, mark your excavation route with white paint, flags, and/or stakes so locators can easily identify and mark affected utilities.
- If you don't notify 811, you risk hitting an underground power line. You or your coworkers could be hurt or killed. You may be held liable for damages and repair costs. Don't risk it. Call before you dig.
- Always contact your state 811 center before digging and for the most current requirements.

Worker Beware Presenter's Notes

Dig Safely

- **Talk to the property owner.** Ask about any private underground lines that may not belong to a utility. These would not be marked by the locator.
- **Respect the locator marks.** Maintain utility locator marks and follow them when digging.
- **Dig with care in the tolerance zone.** Do not power dig within this safety area. Hand dig or use other nonintrusive methods.
- **Know the underground utility color code:**

AMERICAN PUBLIC WORKS ASSOCIATION COLOR CODE FOR LOCATOR MARKS



Red	Electric power lines
Yellow	Gas, oil, or steam pipelines
Orange	Communications lines, cables, or conduit
Blue	Potable water
Purple	Reclaimed water, irrigation, and slurry lines
Green	Sewers and drain lines
Pink	Temporary survey markings
White	Your proposed excavation

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Dig safely. After you call, the underground utility locator service will arrange for each utility to send someone out to mark underground lines.

- Talk to the property owner. Ask about any private underground lines that may not belong to a utility. These would not be marked by the locator.
- Respect the marks. Maintain utility locator marks and follow them when digging. Remember that calling for a line location is just the first step. This system works only if you follow the locator marks whenever you dig in the vicinity of underground utilities.
- Dig with care. Follow state laws for digging within the "tolerance zone." This safety area spans the width of a marked utility plus a state-mandated distance from each indicated outside edge. (In Ohio, Pennsylvania, and Maryland, this distance is at least 18 inches. In New York, New Jersey, Virginia, and West Virginia, it is at least 24 inches.) Do not power dig within this zone; hand dig or use other nonintrusive methods. Too many accidental utility contacts have occurred when someone dug with a backhoe instead of a shovel.
- Know the underground utility code. Utilities use these colors to mark their lines. Learn the code to stay safe.

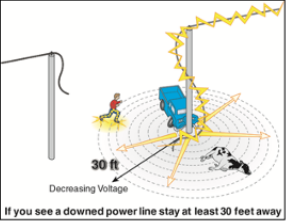
Point to the chart as you speak.

- Red: electric power lines
- Yellow: gas, oil, or steam pipelines
- Orange: communications lines, cables, or conduit
- Blue: potable water
- Purple: reclaimed water, irrigation, and slurry lines
- Green: sewers and drain lines
- Pink: temporary survey markings
- White: your proposed excavation

Worker Beware Presenter's Notes

Protect Yourself from Step Potential

- **Step potential is a difference in voltage across the ground near an energized, grounded object.** It can be as dangerous and deadly as touching a live wire.
- **When a downed power line touches the ground,** electric current flows into the ground and spreads out in concentric circles of decreasing voltage from the point of contact. If you walk or stand with one foot in an area of higher voltage than the other, the step potential in the ground could cause you to be electrocuted. Electricity will use your legs as a path to equalize the voltage.
- **Always stay at least 30 feet away from downed power lines and anything they are touching.** This safety zone differs from the 10-foot rule for working near overhead power lines. We require a larger safety zone of **at least 30 feet** for fallen power lines to keep the public safe.
- **Keep others away.** BLOCK OFF the area **at least 30 feet away** in all directions.
- **Call 911 and confirm that your dispatcher has notified your FirstEnergy electric company.**



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Protect Yourself from Step Potential

- Step potential is a difference in voltage across the ground near an energized, grounded object. It can be as dangerous and deadly as touching a live wire.
- When a downed power line touches the ground, electric current flows into the ground and spreads out in concentric circles of decreasing voltage from the point of contact. If you walk or stand with one foot in an area of higher voltage than the other, the step potential in the ground could cause you to be electrocuted. Electricity will use your legs as a path to equalize the voltage.
- Always stay at least 30 feet away from downed power lines and anything they are touching. This safety zone differs from the 10-foot rule for working near overhead power lines. We require a larger safety zone of at least 30 feet for fallen power lines to keep the public safe.
- Keep others away. BLOCK OFF the area at least 30 feet in all directions.
- Call 911 and confirm that your dispatcher has notified your FirstEnergy electric company.

Worker Beware Presenter's Notes

If Your Equipment Contacts a Power Line

- **Both the equipment and the line should be considered energized.**
- **Move the equipment away from the line** if you can do so safely.
- **Stay on the equipment until electric utility workers notify you it is safe to exit.**
- **Warn others to stay away.** Individuals on the ground in contact with or near equipment can be seriously injured or killed.
- **Have someone call 911 immediately.**
- **If you must exit the equipment due to fire or other imminent danger:**
 - Do NOT touch the equipment and the ground at the same time. Jump clear, and land with your feet together.
 - Then shuffle *at least 30 feet away*, keeping your feet close together and on the ground at all times.
 - Do not return to the equipment.



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If your equipment contacts a power line, it's critical to follow proper safety procedures.

- Both the equipment and the line should be considered energized.
- Move the equipment away from the line if you can do so safely.
- Stay on the equipment until electric utility workers notify you it is safe to exit. Anyone on the equipment is safe from shock as long as they stay put.
- Warn others to stay away. Individuals on the ground in contact with or near equipment can be seriously injured or killed. In a power line contact situation, people on the ground are in the greatest danger of shock.
- Have someone call 911 immediately to report the emergency. Utility personnel will respond, switch off the power, and tell you when it is safe to leave or move the equipment. Wait for their instructions.
- If you must exit the equipment due to fire or other imminent danger, follow the proper jump-off procedure.
 - Do NOT touch the equipment and the ground at the same time. Jump clear, and land with your feet together. If you touch the equipment and the ground at the same time, you could be shocked. Make every attempt to land on both feet at the same time.
 - Then shuffle at least 30 feet away, keeping your feet close together and on the ground at all times. Resist the temptation to run or take long steps because this puts you at risk for shock.
 - Do not return to the equipment. Wait for utility personnel to tell you it is safe.

Worker Beware Presenter's Notes

Electrical Safety Review

- Identify all power lines and electrical equipment upon arrival at a job site. Recheck the site daily.
- Keep yourself and all tools and equipment other than cranes or derricks used in construction *at least 10 feet away* from all overhead power lines carrying up to 50 kV.
- Cranes and derricks used in construction may require clearances *greater than 10 feet* and encroachment prevention precautions. For specific requirements, consult osha.gov.
- Build in extra safety distances.
- Always use a dedicated spotter.
- Notify the underground utility locator service at **811** before you dig.
- If a power line contact occurs, follow proper safety procedures and immediately call **911**.

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So let's review the key points of this presentation.

- Identify all power lines and electrical equipment upon arrival at a job site and recheck the site daily. Alert your coworkers to the presence of power lines and electrical equipment. Always assume that lines are energized.
- Keep yourself and all tools and equipment (other than cranes and derricks used in construction) at least 10 feet away from all overhead power lines carrying up to 50 kV. Higher-voltage lines require greater clearances.
- Cranes and derricks used in construction may require clearances greater than 10 feet and encroachment prevention precautions. For specific requirements, consult osha.gov.
- Build in extra safety distances. Remember that wind can move equipment.
- Always use a dedicated spotter to monitor distances between equipment and overhead power lines.
- Notify the underground utility locator service at 811, then wait the required time before you dig. Respect the marks and do not power dig within the tolerance zone; hand dig or use other nonintrusive methods.
- If a power line contact occurs, follow proper safety procedures and immediately call 911.

Worker Beware Presenter's Notes

Underground Utility Locator Contact Information

■ **To reach the underground utility locator service, dial 811 or use your state's online ticket-entry system:**

- Pennsylvania: www.pa1call.org
- New York: UDigNY.org
- Ohio: oups.org
- Maryland: missutility.net
- New Jersey: nj1-call.org
- Virginia: va811.com
- West Virginia: wv811.com

Always contact your state 811 center before digging and for the most current requirements.



**Know what's below.
Call before you dig.**

- To reach the underground utility locator service, dial 811 or use your state's online ticket-entry system.
- Always contact your state 811 center before digging and for the most current requirements.

Worker Beware Presenter's Notes

Contact information

- In case of emergency, call 911.
- For additional information, visit [firstenergycorp.com/worksafe](https://www.firstenergycorp.com/worksafe).

- In case of emergency, call 911.
- For additional information, visit [firstenergycorp.com/worksafe](https://www.firstenergycorp.com/worksafe).

Worker Beware Presenter's Notes



Thank you for your attention.

Take questions and begin discussion. If you are using the safety guide, in it you will find more details about how electricity works, when to contact your FirstEnergy electric company, what sort of materials and objects conduct electricity, and other information.

Discuss how this information conflicts with what your audience believed about electricity, and ask how they may have put themselves or others at risk in the past. Ask what they would have done differently had they had this informational session before.

Your FirstEnergy electric company thanks you for helping to keep workers safe.