


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

Today's learning 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 and 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 presentation.

Respect the Power of Electricity

- **When you arrive at a job site, always identify power lines and high-voltage equipment**, and 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 that everyone knows what to do in case of power line contact.



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2

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

- When you arrive at a job site, always identify power lines and high-voltage equipment and 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 that everyone knows what to do in case of power line contact.

For Tools & Equipment Other than Cranes & Derricks Used in Construction

Always Observe the 20-Foot Rule

- **Keep yourself and your equipment (other than cranes or derricks used in construction) AT LEAST 20 feet away from overhead power lines carrying up to 50 kV.**
- **Higher-voltage lines require greater clearances.** Contact PPL Electric Utilities to verify line voltage if needed, and consult the OSHA regulations at osha.gov for clearance requirements and encroachment prevention precautions.
- **If your job requires you to work closer than 20 feet from power lines, call PPL Electric Utilities well in advance to make safety arrangements.**
- **Electric 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 and derricks used in construction, always observe the 20-foot rule. (Cranes and derricks on construction sites may require greater clearances, which we will discuss on the next slide.)

- Keep yourself and your equipment at least 20 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 PPL Electric Utilities to verify line voltage if needed, and consult the OSHA regulations at osha.gov for clearance requirements and encroachment prevention precautions.
- If your job requires you to work closer than 20 feet from power lines, call PPL Electric Utilities well in advance to make safety arrangements. They will take steps to help you work safely. Cutting corners and failing to call could have life-threatening and livelihood-threatening consequences.
- 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.


Cranes & 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 greater than 350 kV but at or less than 1,000 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.
- **Contact PPL Electric Utilities to verify line voltage if needed**, and consult the OSHA regulations at [osha.gov](https://www.osha.gov) for specific clearance requirements and encroachment prevention precautions.
 - Once you have established the required clearance, clearly mark a boundary with tape, signs or barricades.
- **Whenever cranes or derricks are used in construction on your job site**, contact PPL Electric Utilities well in advance so that any necessary facility protection 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 greater than 350 kV but at or less than 1,000 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.
- Contact PPL Electric Utilities to verify line voltage if needed, and consult the OSHA regulations at [osha.gov](https://www.osha.gov) for specific clearance requirements and encroachment prevention precautions.
 - Once you have established the required clearance, clearly mark an obvious boundary to keep workers and equipment the required distance away.
- Whenever cranes or derricks are used on your job site, contact PPL Electric Utilities well in advance so that any necessary facility protection arrangements can be made.

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.

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5

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, the spotter 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.

Notify 811 Before You Dig

- **Notify the Pennsylvania One Call System by dialing 811 or using the Web Ticket Entry tool at www.pa1call.org at least three business days before you dig or move earth in any way.** This service will arrange for facility owners to mark power lines and other buried utilities so that you can work safely.
- **Before you call, WHITE LINE your excavation route** so that locators can easily identify and mark affected utilities.
- **Be sure to check the KARL responses for your One Call ticket before beginning work** to ensure all facility owners have responded. If you see evidence of underground facilities in your dig area but no markings, do NOT dig. Call 811 and notify the ticket.
- **If you don't notify 811 before digging, you risk hitting an underground line.** You, your coworkers and others could be hurt or killed, and you may be held liable for any resulting damages and repair costs. Don't risk it. Call before dig.



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

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

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6

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

- Notify the Pennsylvania One Call System by dialing 811 or using the Web Ticket Entry tool at www.pa1call.org at least three business days before you dig or move earth in any way. This service will arrange for facility owners to mark power lines and other buried utilities so that you can work safely. Be sure to leave adequate time in your job schedule. The costs of not calling can be very high. 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, white line your excavation route so that locators can easily identify and mark affected utilities.
- Be sure to check the KARL responses for your One Call Ticket before beginning work to ensure all facility owners have responded. If you see evidence of underground facilities in your dig area, such as transformers or meters, but nothing has been marked, do NOT dig. Call 811 and notify the ticket.
- If you don't notify 811 before digging, you risk hitting an underground line. You, your coworkers and others could be hurt or killed, and you may be held liable for any resulting 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.

Dig Safely

- **Talk to the property owner.** Ask about any private underground lines that may not belong to a utility and so would not be marked by the locator.
- **Respect the locator marks.** Maintain utility locator marks and follow them when digging.
- **Dig with care.** The law requires you to use prudent digging techniques within the "tolerance zone," which spans the width of a marked utility line, plus 18 inches beyond each indicated outside edge of the utility line. Use only hand tools, vacuum excavation or similar devices within this zone.
- **Know the underground utility color code:**

American Public Works Association and Common Ground Alliance Color Code for Locator Marks



■	Electric power lines
■	Gas, oil or steam pipelines
■	Communication lines, cable or conduit
■	Potable water
■	Reclaimed water, irrigation and slurry lines
■	Sewers and drain lines
■	Temporary survey markings
■	Your proposed excavation

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

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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 and so would not be marked by the locator.
- Respect the marks. Maintain utility locator marks and follow them when digging. Remember that calling for a locate 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. The law requires you to use prudent digging techniques within the "tolerance zone," which spans the width of a marked utility line plus 18 inches beyond each indicated outside edge of the utility line. Use only hand tools, vacuum excavation or similar devices within this zone until you have determined the precise position of buried lines. 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.
 - Red: electric power lines
 - Yellow: gas, oil or steam pipelines
 - Orange: communication 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

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

If Heavy Equipment Contacts a Power Line

- Both the equipment and the line should be considered energized.
- If you can do so safely, move the equipment away from the line.
- Stay on the equipment.
- Warn others to stay far away.
- Call 911 and PPL Electric Utilities at 1-800-342-5775 (1-800-DIAL-PPL) immediately to report the emergency.
- If fire or other danger forces you off:
 - Jump clear, keeping both feet together, and **without touching the equipment and the ground at the same time.**
 - Then shuffle away with small movements, keeping both feet close together and on the ground at all times.
 - Do not return to the equipment.



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8

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

- Both the equipment and the line should be considered energized.
- If you can do so safely, move the equipment away from the line.
- Stay on the equipment. Anyone on the equipment is safe from shock as long as they stay put.
- Warn others to stay far away. In a power line contact situation, people on the ground are in the greatest danger of shock.
- Call 911 and PPL Electric Utilities at 1-800-342-5775 (1-800-DIAL-PPL) immediately to report the emergency. Their 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 fire or other danger forces you off the equipment, follow the proper jump-off procedure.
 - Jump clear, keeping both feet together, and without touching the equipment and the ground at the same time. 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 away with small movements, keeping both 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.

Demonstrate the jump-off procedure.

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 *AT LEAST 20 feet* away** from *all* overhead power lines carrying up to 50 kV. Contact PPL Electric Utilities for line voltage verification.
- **Cranes and derricks in construction:** Contact PPL Electric Utilities to verify line voltage if needed, and consult the OSHA regulations at osha.gov for clearance requirements and encroachment prevention precautions.
- **Build in extra safety distances.**
- **Always use a dedicated spotter.**
- **Notify the Pennsylvania One Call System at 811** or via www.pa1call.org at least three business days before you dig.
- **If a power line contact occurs**, follow proper safety procedures and immediately **call 911** and PPL Electric Utilities at 1-800-342-5775 (1-800-DIAL-PPL) to report the emergency.

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

- Identify all power lines and electrical equipment upon arrival at a job site. Recheck the site daily. Always alert your coworkers to the presence of power lines and electrical equipment.
- Keep yourself and all tools and equipment *AT LEAST 20 feet* away from all overhead power lines carrying up to 50 kV. Contact PPL Electric Utilities for line voltage verification. Always assume that lines are energized.
- Cranes and derricks in construction: Contact PPL Electric Utilities to verify line voltage if needed, and consult the OSHA regulations at osha.gov for clearance requirements and encroachment prevention precautions.
- 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 Pennsylvania One Call System at 811 or via www.pa1call.org at least three business days in advance of digging or moving earth in any way. Respect the marks. Hand dig within 18 inches of marked utilities.
- If a power line contact occurs, follow proper safety procedures and immediately call 911 and PPL Electric Utilities at 1-800-342-5775 (1-800-DIAL-PPL) to report the emergency.

Underground Utility Locator Contact Information

- To reach the Pennsylvania One Call System, **dial 811** or use the Web Ticket Entry tool at **www.pa1call.org**



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

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10

- To reach the Pennsylvania One Call System, dial 811 or use the Web Ticket Entry tool at www.pa1call.org.

Contact Information

- In case of emergency, call 911 and PPL Electric Utilities at **1-800-342-5775** (**1-800-DIAL-PPL**)
- For additional information, visit our website at **ppl.e-smartworkers.com**

- In case of emergency, call 911 and PPL Electric Utilities at 1-800-342-5775 (1-800-DIAL-PPL)
- For additional information, visit our website at ppl.e-smartworkers.com



Thank you for your attention.

Take questions and begin discussion. If you are using the instructor's guide, in it you will find more detail about how electricity works, when to contact PPL Electric Utilities, 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 known this information before.

PPL Electric Utilities thanks you for helping to keep workers safe.