



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

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

*Darken the room.*

*Click for the next slide. (Throughout this presentation you will need to click to bring up new slides.)*

### 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 everyone knows what to do in case of power line contact.



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 co-workers. 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.

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**For tools & equipment other than cranes & derricks used in construction: always observe the 10-foot rule**

- OSHA requires that you keep yourself and your equipment (other than cranes or derricks used in construction) **AT LEAST 10 feet away** from overhead power lines carrying up to 50 kV.
- Higher-voltage lines require greater clearances. Contact BGE for clearance information.
- If your job requires you to work closer than 10 feet from power lines, call BGE 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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3

For tools and equipment other than cranes and 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 or 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 BGE 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 BGE 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.

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### Cranes & derricks in construction

- **When cranes and derricks are used 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 1000 kV. Always assume the line is energized, and allow nothing closer unless you have confirmed with BGE that the line has been de-energized.
  - If voltage is unknown, contact BGE before work begins.
- **As voltage increases, clearance distances also increase.** Contact BGE and consult the OSHA regulations at [www.osha.gov](http://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 BGE well in advance so any necessary facility protection arrangements can be made.



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4

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

- When cranes and derricks are used 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 1000 kV. Always assume the line is energized, and allow nothing closer unless you have confirmed with BGE that the line has been de-energized.
  - If voltage is unknown, contact BGE before work begins.
- As voltage increases, clearance distances also increase. Consult BGE and the OSHA regulations at [www.osha.gov](http://www.osha.gov) for specific clearance requirements and encroachment prevention precautions.
  - Once you have established the correct clearances, mark an obvious boundary to keep workers and equipment the required distance away.
- Whenever cranes or derricks are used on your job site, contact BGE well in advance so any necessary facility protection arrangements can be made.

*Click for the next slide.*

### 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, he or she will have the clearest vantage point and be best able to judge distances correctly.
- Cranes 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.

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### Call before you dig

- Call Miss Utility at **811** at least two full business days but not more than 10 days prior to digging. This free service will arrange to have underground utility lines marked so you can dig a safe distance away. They will arrange to have the underground utilities marked so you can dig safely.
- Before you call, **PRE-MARK** your excavation route so locators can easily identify and mark affected utilities.
- If you don't call and you hit an underground line, you could be hurt or killed. You may be held liable for damages.



Call before you dig. Underground natural gas lines and electric power lines can pose an unseen but very real danger.

- Call Miss Utility at 811 at least two full business days but not more than 10 days prior to digging. This free service will arrange to have underground utility lines marked so you can dig a safe distance away. Be sure to leave adequate time in your job schedule. The service is free, but the costs of not calling can be very high. Building in extra days for the job costs less in the long run than spending months or years recovering physically and financially from a utility-line accident. And remember, it's the law.
- Before you call, pre-mark your excavation route so locators can easily identify and mark affected utilities.
- If you don't call and you hit an underground line, you could be hurt or killed. You may be held liable for damages. Don't risk it. Call before you dig.

*Click for next slide.*

## 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 the marks and follow them when digging.
- **Dig with care.** Hand dig within 18 inches of each side of marked utility lines. Use ONLY hand tools or vacuum excavation equipment within this safety zone.
- **Know the underground utility color code:**

### AMERICAN PUBLIC WORKS ASSOCIATION COLOR CODE FOR LOCATOR MARKS



<span style="color: red;">█</span>	Electric power lines
<span style="color: yellow;">█</span>	Gas, oil, or steam pipelines
<span style="color: orange;">█</span>	Communications lines, cables, or conduit
<span style="color: blue;">█</span>	Potable water
<span style="color: purple;">█</span>	Reclaimed water, irrigation, and slurry lines
<span style="color: green;">█</span>	Sewer and drain lines
<span style="color: pink;">█</span>	Temporary survey markings
<span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>	Your proposed excavation



7

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 locator marks. Maintain the 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. Hand dig within 18 inches of each side of marked utility lines. Use ONLY hand tools or vacuum excavation equipment within this safety zone. 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.

*Click for chart and point 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: sewer and drain lines
- Pink: temporary survey markings
- White: your proposed excavation

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**If heavy equipment contacts a power line**

- **Remain on the equipment.**
- **Tell others to stay away.**
- **Have someone call 911 and BGE immediately.**
- **If fire or other imminent danger forces you off:**
  - Do not touch the equipment and the ground at the same time.
  - Jump clear, and land with your feet together.
  - Take very short hops, keeping feet together and making contact with the ground at the same time.



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

- Remain on the equipment.
- Tell others to stay away. Anyone who touches the equipment or even the ground nearby may be injured or killed.
- Have someone call 911 and BGE immediately.
- If fire or other imminent danger forces you off, 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.
  - Take very short hops, keeping feet together and making contact with the ground at the same time.

*Demonstrate the jump-off procedure.*

*Click for the next slide.*

### Recognizing a natural gas pipeline leak

- BGE puts the safety additive mercaptan in natural gas, giving it a rotten-egg odor and making it easier to detect. **Some gas leaks are also detectable by sight or sound.** Signs of a gas leak include:

- **Dirt** being blown into the air
- **Dead vegetation** in an otherwise green area
- **A dry spot** in an otherwise moist area
- **Fire** coming from the ground or appearing to burn above the ground
- **Water** bubbling or being blown into the air
- **Roaring**, blowing, or hissing sounds



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9

Recognizing a natural gas pipeline leak. It is important to learn the warning signs.

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### Responding to a natural gas pipeline leak

- If you suspect a gas leak or if you contact a gas pipeline, take these steps:
    - Leave the area immediately and go to a safe place where you can call BGE at 1.800.685.0123.
    - Extinguish open flames. Do not use matches or lighters. Do not attempt to light an appliance.
    - Do not use any phones, electric switches, thermostats, or appliance controls. All of these devices, including battery operated equipment can cause sparks and ignite natural gas.
    - Do not start or turn off vehicles or motorized equipment. Abandon any motorized equipment.
    - Do not attempt to find the source of the leak or to repair a leak.
    - Call 911 if you are concerned about your safety.
    - Emergency gas service calls are answered 24/7. BGE will respond promptly to survey the area, perform safety measures, and repair BGE's equipment. There is no charge to investigate a gas leak.
- Review your emergency plan before work begins, so everyone knows what to do in case of natural gas pipeline contact.



Responding to a natural gas pipeline leak requires great caution. The single greatest risk from natural gas leaks is explosion. Even the smallest spark can ignite the gas, and sparks can come from some unexpected sources.

- If you suspect a leak or if you contact a gas pipeline, even if a leak is not obvious, assume there's a danger:
  - Leave the area immediately and go to a safe place where you can call BGE at 1.800.685.0123.
  - Extinguish open flames. Do not use matches or lighters. Do not attempt to light an appliance.
  - Do not use any phones, electric switches, thermostats, or appliance controls. All of these devices, including battery operated equipment can cause sparks and ignite natural gas.
  - Do not start or turn off vehicles or motorized equipment. Abandon any motorized equipment.
  - Do not attempt to find the source of the leak or to repair a leak.
  - Call 911 if you are concerned about your safety.
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- Review your emergency plan before work begins, so everyone knows what to do in case of a natural gas pipeline contact.

*Click for the review slide.*

### Utility 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.
- Always use a dedicated spotter.
- If a power line contact occurs, follow proper safety procedures and immediately call **911** and BGE.
- Call Miss Utility at **811** before you dig.
- Know the warning signs of a natural gas leak.
- If you suspect a gas leak or if you contact a gas pipeline, leave the area immediately and go to a safe place where you can call BGE. Call **911** if you are concerned about your safety.



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11

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 co-workers to the presence of power lines and electrical equipment.
- 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. Always assume that lines are energized.
- Cranes and derricks used in construction may require clearances greater than 10 feet and encroachment prevention precautions. Visit [www.osha.gov](http://www.osha.gov) for specific clearance requirements.
- Always use a dedicated spotter to monitor distances between equipment and overhead power lines.
- If a power line contact occurs, follow proper safety procedures and immediately call 911 and BGE.
- Call Miss Utility at 811 before you dig. Be sure to call at least two full business days but not more than 10 days before any digging or other earth-moving operations. Respect the marks. Hand dig within 18 inches on each side of marked utilities.
- Know the warning signs of a natural gas leak.
- If you suspect a gas leak or if you contact a gas pipeline, leave the area immediately and go to a safe place where you can call BGE. Call 911 if you are concerned about your safety.

*Click for the next slide.*

**Underground utility locator contact information**

- Call Miss Utility at **811**.



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



- Call Miss Utility at 811.  
*Click for the next slide.*

**Contact information**

- In case of emergency, call BGE at **1.800.685.0123**.
- For additional information, visit our website at **BGE.COM/ContractorSafety**.

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- Thank you for your attention.

*Take questions and begin discussion. If you are using the trainer's guide, in it you will find more detail about the properties of natural gas and electricity; when to contact BGE; and other information.*

*Discuss how this information conflicts with what your audience believed about natural gas and electricity safety, 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 training before.*

*BGE thanks you for helping to keep workers safe.*