Presenter's notes

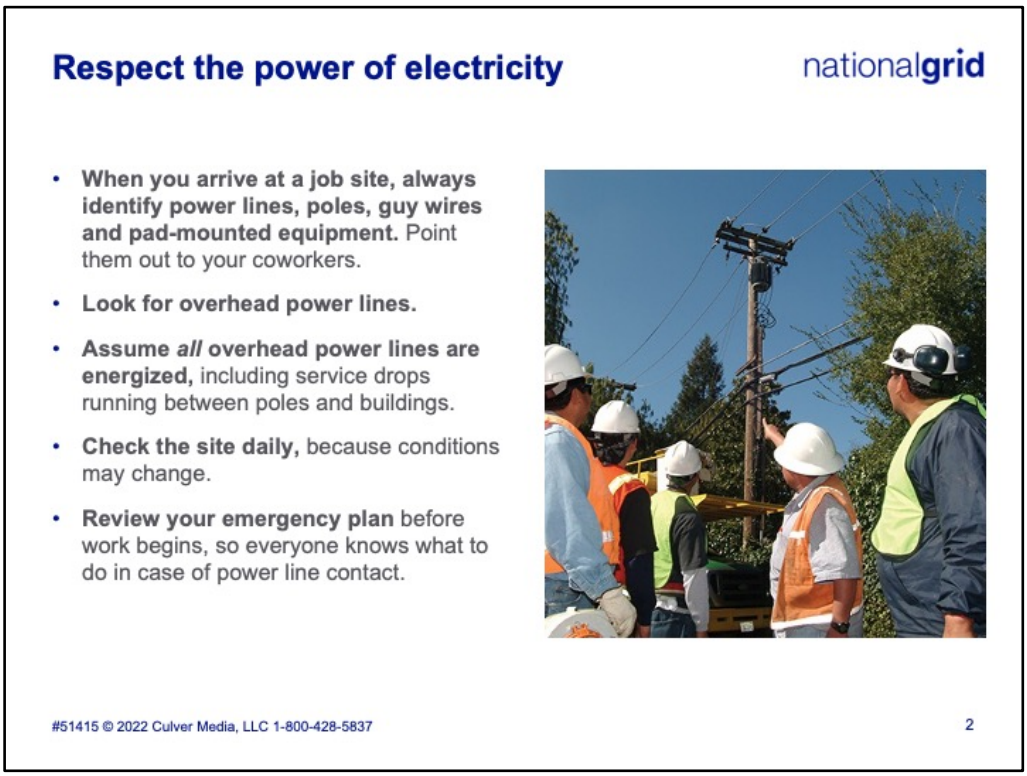
Before darkening the room, offer a welcome and overview.

Begin by introducing the program and its topic:

- Today's training session focuses on working safely around overhead and underground electric power lines and near natural gas pipelines. The procedures we'll cover here today will help you and your coworkers be safer on the job. On the other hand, if you cut corners where utility 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.

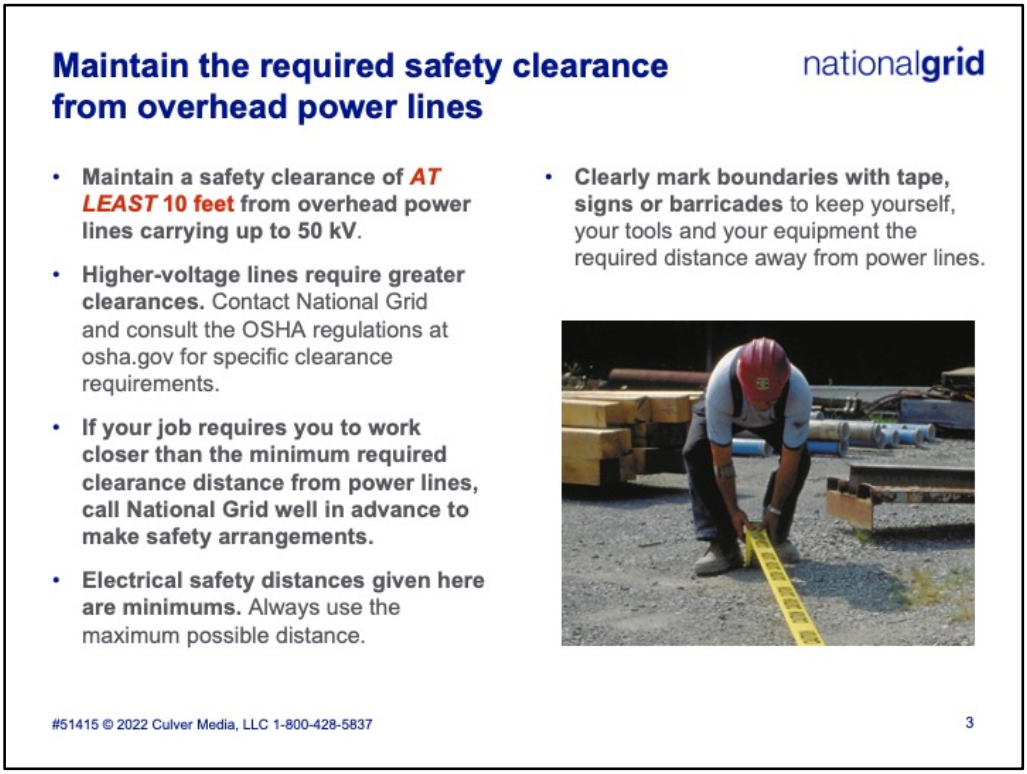
Presenter's notes



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

- When you arrive at a job site, always identify power lines, poles, guy wires and pad-mounted equipment. Point them out to your coworkers. Review proper safety procedures before beginning work.
- Look for overhead power lines hidden by trees or buildings, and for equipment on the ground that may be hidden by bushes or small trees.
- 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.

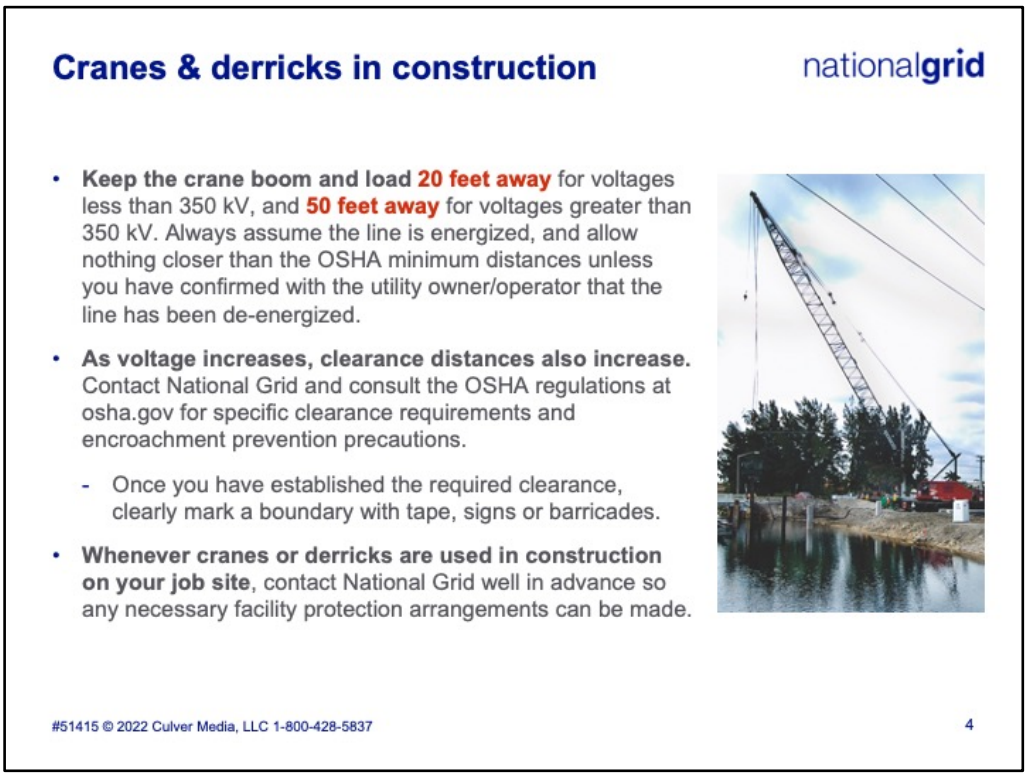
Presenter's notes



Maintain the required safety clearance from overhead power lines.

- Maintain a safety clearance of AT LEAST 10 feet 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, which we will discuss on the next slide. 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 National Grid and consult the OSHA regulations at osha.gov for specific clearance requirements. 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 the minimum required clearance distance from power lines, call National Grid 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.
- Clearly mark boundaries with tape, signs or barricades to keep yourself, your tools and your equipment the required distance away from power lines.

Presenter's notes



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

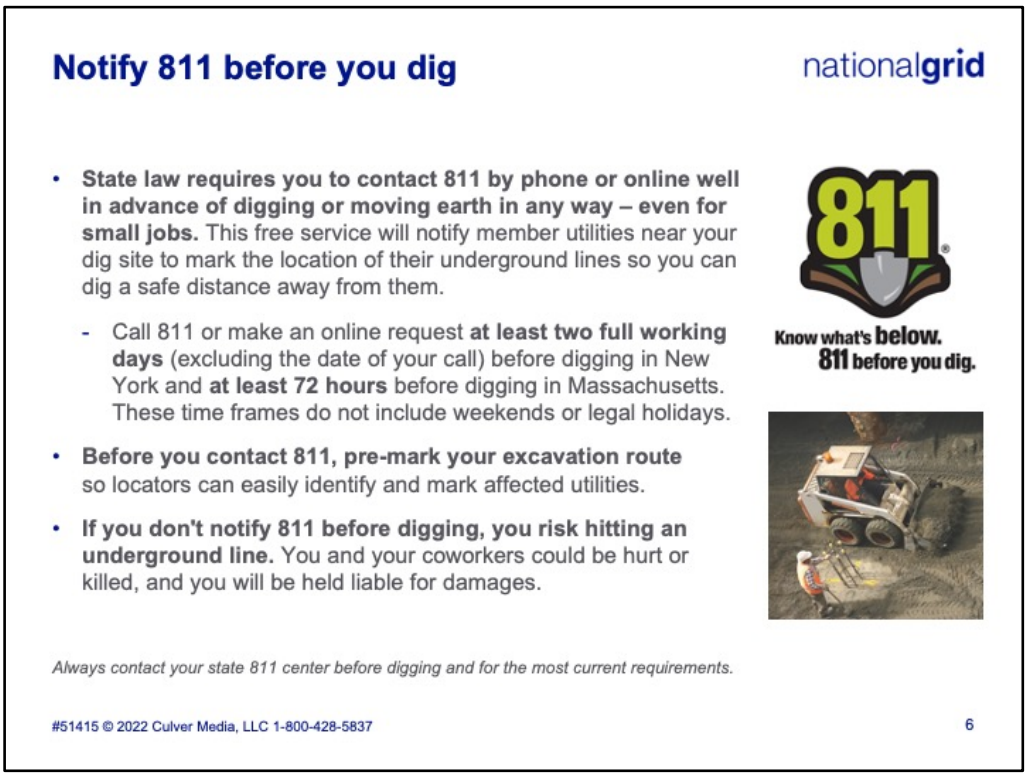
- Keep the crane boom and load at least 20 feet away for voltages less than 350 kV, and 50 feet away for voltages greater than 350 kV. Always assume the line is energized, and allow nothing closer than the OSHA minimum distances unless you have confirmed with the utility/operator that the line has been de-energized.
- As voltage increases, clearance distances also increase. Consult National Grid and the OSHA regulations at 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 National Grid well in advance so any necessary facility protection arrangements can be made.

Presenter's notes

Use a dedicated spotter when working with hoisting 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.
- Don't divide the spotter's attention with other tasks, and don't ever allow a spotter to try to guide a load and spot at the same time. They'll risk injury or death.
- The spotter's only responsibility should be power line safety. To be effective, the spotter must make spotting and clear communication with the equipment operator the top priorities.

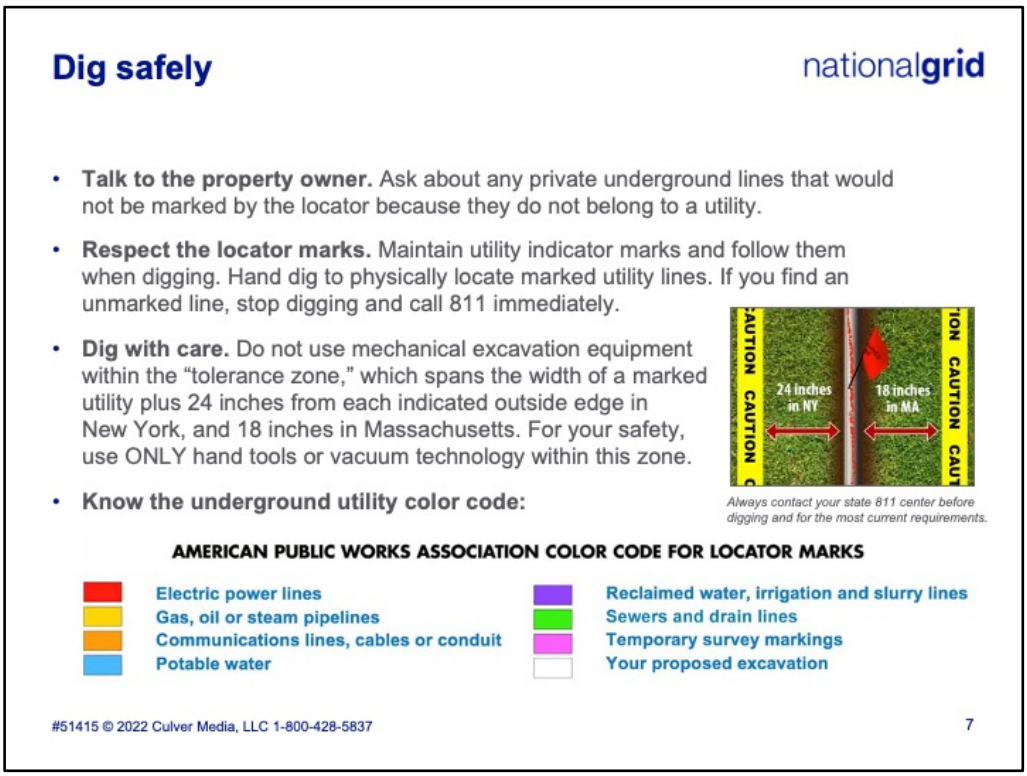
Presenter's notes



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

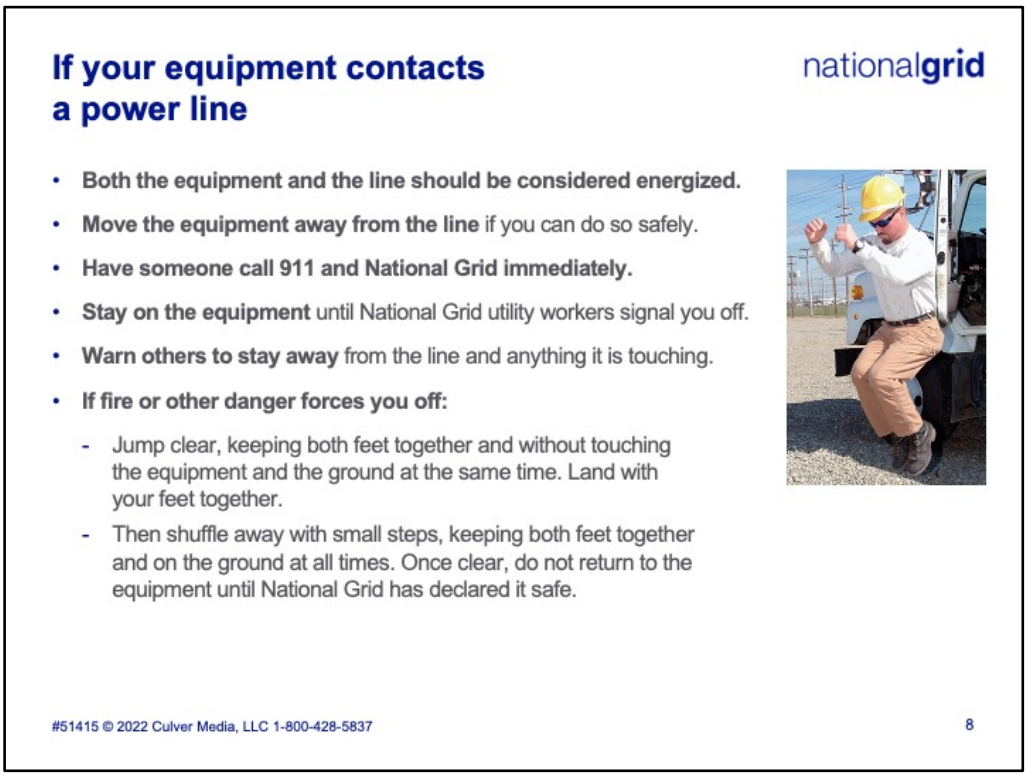
- State law requires you to contact 811 by phone or online well in advance of digging or moving earth in any way – even for small jobs. This free service will notify member utilities near your dig site to mark the location of their underground lines so you can dig a safe distance away from them.
    - Call 811 or make an online request at least two full working days (excluding the date of your call) before digging in New York and at least 72 hours before digging in Massachusetts. These time frames do not include weekends or legal holidays. 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.
- Before you contact 811, pre-mark your excavation route so locators can easily identify and mark affected utilities.
- If you don't notify 811, you risk hitting an underground line. You or your coworkers could be hurt or killed, and you will be held liable for damages. Don't risk it. Notify 811 before you dig – it's the law!
- Always contact your state 811 center before digging and for the most current requirements.

Presenter's notes



Dig safely. After you notify 811, 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 indicator marks and follow them when digging. Remember that notifying 811 is just the first step. This system works only if you follow the locator marks whenever you dig in the vicinity of underground utilities. Be sure to physically locate marked utility lines by hand digging. If you cannot visually verify marked electric or natural gas lines, STOP digging and contact National Grid immediately. And remember, if you find an underground line that has not been marked by the locator, stop digging and call 811 immediately.
- Dig with care. Do not use mechanical excavation equipment within the "tolerance zone," which spans the width of a marked utility line plus 24 inches from each indicated outside edge in New York, and 18 inches in Massachusetts. For your safety, use ONLY hand tools or vacuum technology within this zone.
- 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: Communications lines, cable 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

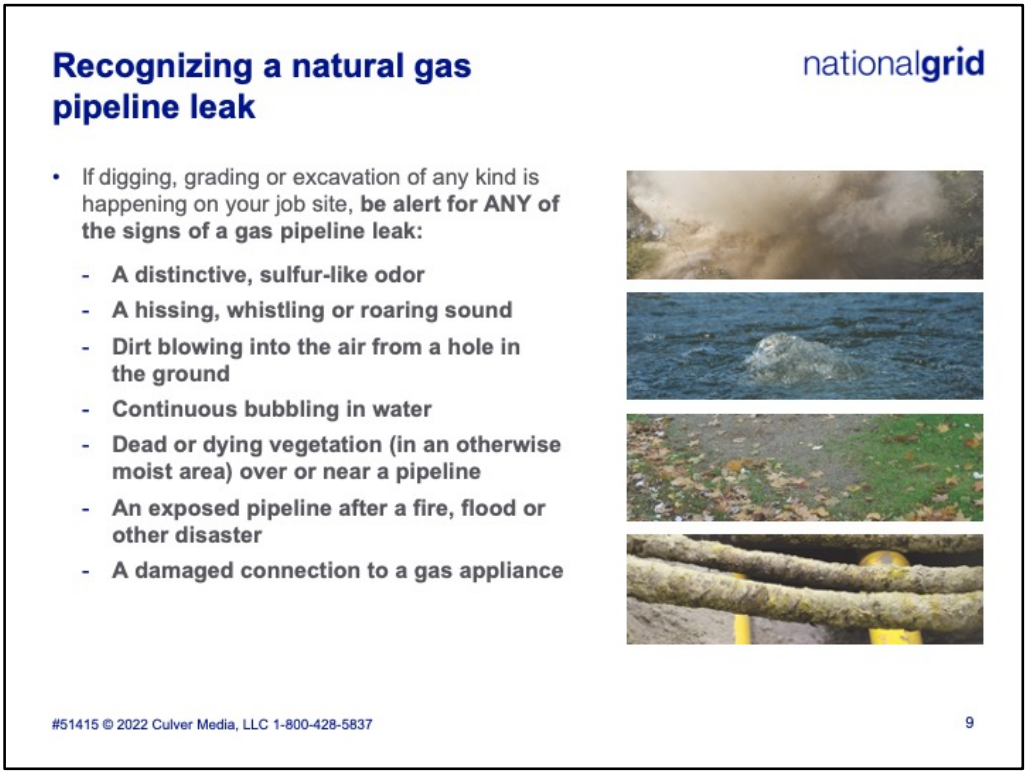


If your equipment contacts a power line, it's critical to follow proper safety procedures.

- Both the equipment and the line should be considered energized.
- Move the equipment away from the line if you can do so safely.
- Have someone call 911 and National Grid immediately. Utility personnel will respond and switch off the power.
- Stay on the equipment until National Grid utility workers signal you off. You are safe there as long as you stay put. Wait for National Grid to tell you when it is safe to leave or move the equipment.
- Warn others to stay away from the line and anything it is touching. In a power line contact situation, people on the ground are in the greatest danger of shock.
- If fire or other danger forces you off, follow the proper jump-off procedure:
    - Jump clear, keeping both feet together and without touching 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 steps, keeping both feet together and on the ground at all times. Resist the temptation to run or take a long steps because this puts you at risk for shock. Once clear, do not return to the equipment until National Grid has declared it safe.

Demonstrate the jump-off procedure, then click for the next slide.

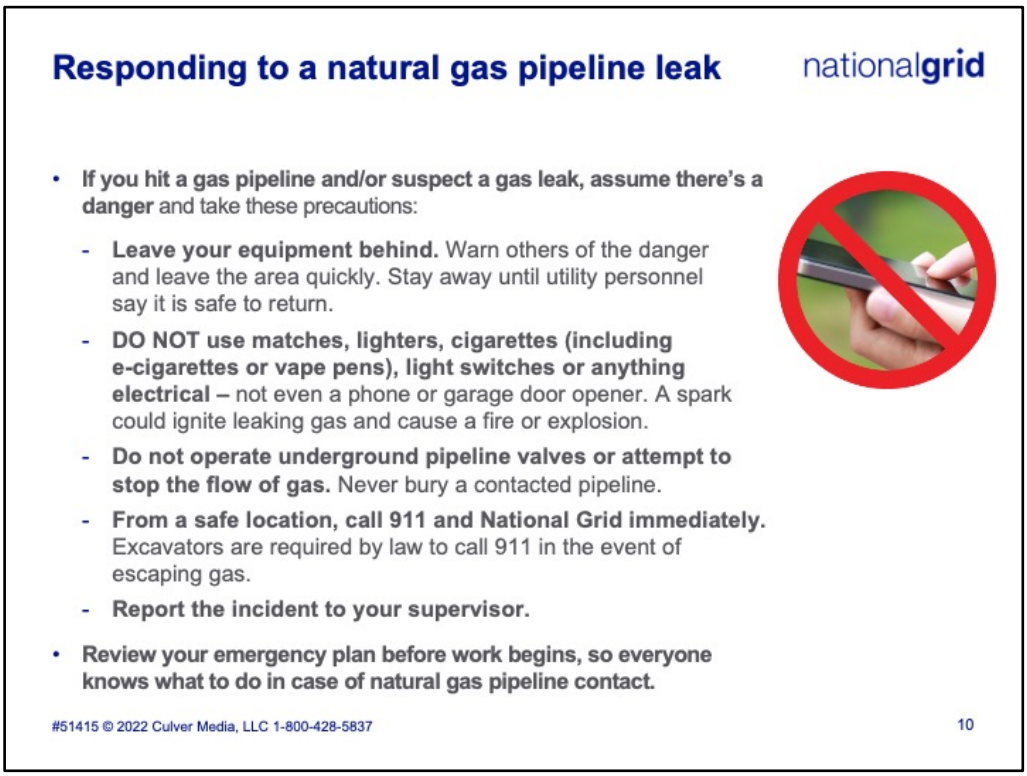
Presenter's notes



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

- If digging, grading or excavating of any kind is happening on your job site, be alert for the signs of a gas pipeline leak. They include:
    - A distinctive, sulfur-like odor. Not all gas is odorized, and sometimes even odorized gas is difficult to smell. So do not rely on your sense of smell alone to detect a leak.
    - A hissing, whistling or roaring sound. The sound will vary with the pressure in the line.
    - Dirt blowing into the air from a hole in the ground. This will vary with pressure as well.
    - Continuous bubbling in water. This may occur in ponds, creeks or areas of standing water.
    - Dead or dying vegetation (in an otherwise moist area) over or near a pipeline.
    - An exposed pipeline after a fire, flood or other disaster.
    - A damaged connection to a gas appliance.

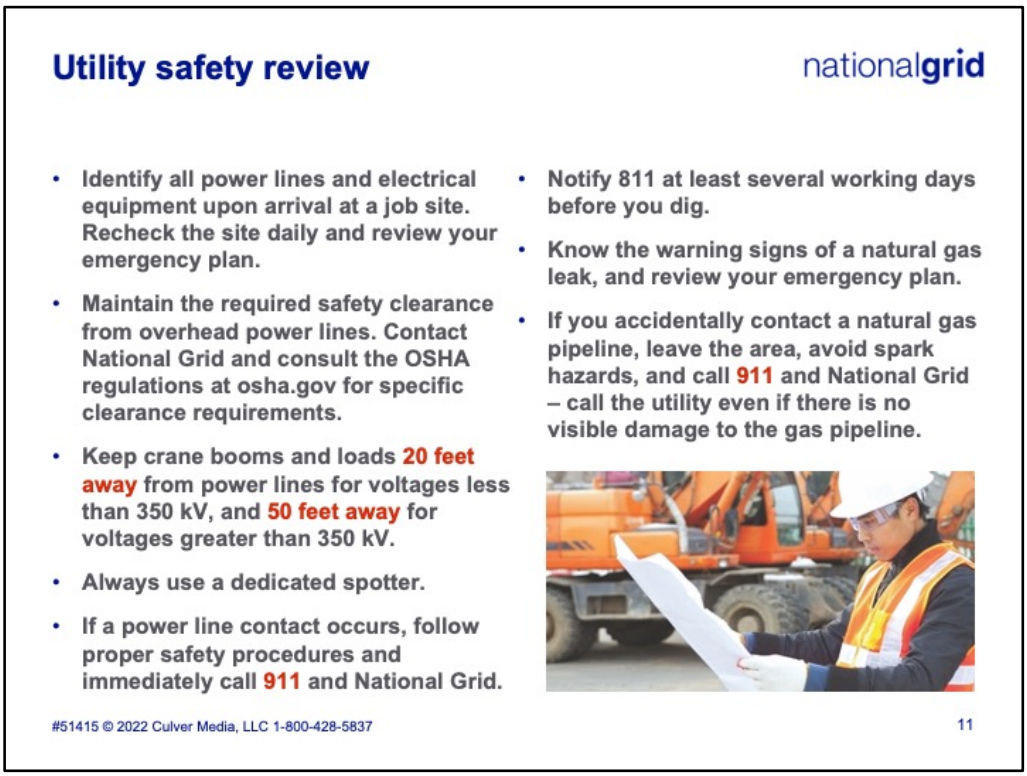
Presenter's notes



Responding to a natural gas pipeline leak. 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. So it's important to know the proper do's and don'ts for dealing with a natural gas leak.

- If you hit a gas pipeline and/or suspect a gas leak, assume there's a danger and take these precautions:
    - Leave your equipment behind. Warn others of the danger and leave the area quickly. Stay away until utility personnel say it is safe to return.
    - DO NOT use matches, lighters, cigarettes (including e-cigarettes or vape pens), light switches or anything electrical – not even a phone or garage door opener. A spark could ignite leaking gas and cause a fire or explosion.
    - Do not operate underground pipeline valves or attempt to stop the flow of gas. Never bury a contacted pipeline.
    - From a safe location, call 911 and National Grid immediately. Call if you make ANY contact with a natural gas line, even if there is no visible damage. Just scraping the coating on a gas pipe or cutting a tracer wire can cause the pipeline to fail in the future. And if gas is escaping, you are required by law to call 911.
    - Report the incident to your supervisor.
- Review your emergency plan before work begins, so everyone knows what to do in case of natural gas pipeline contact.

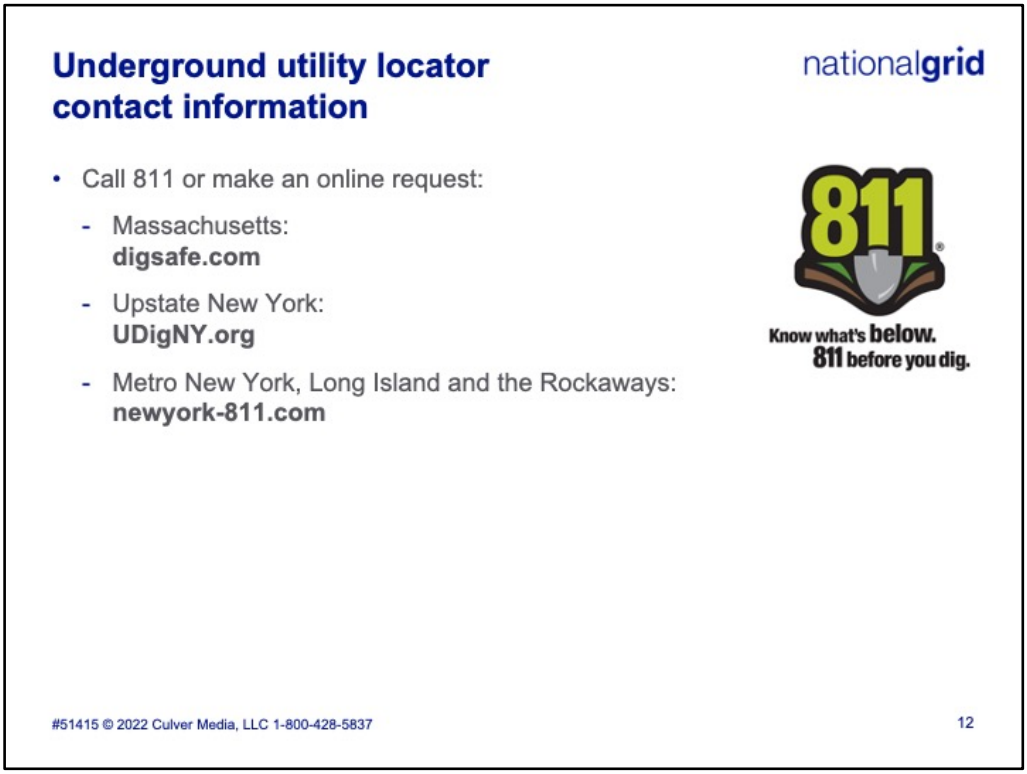
Presenter's notes



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, and review your emergency plan. Always alert your coworkers to the presence of power lines and electrical equipment.
- Maintain the required safety clearance from overhead power lines. Contact National Grid and consult the OSHA regulations at osha.gov for specific clearance requirements.
- Keep crane booms and loads 20 feet away from power lines for voltages less than 350 kV, and 50 feet away for voltages greater than 350 kV.
- 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 National Grid.
- Notify 811 before you dig. Be sure to call the required number of working days before any digging or other earth-moving operations. Respect the marks, and dig with care.
- Know the warning signs of a natural gas leak, and review your emergency plan. Always call 911 if you suspect a gas leak!
- If you accidentally contact a natural gas pipeline, leave the area, avoid spark hazards, and call 911 and National Grid immediately – call the utility even if there is no visible damage to the gas pipeline.

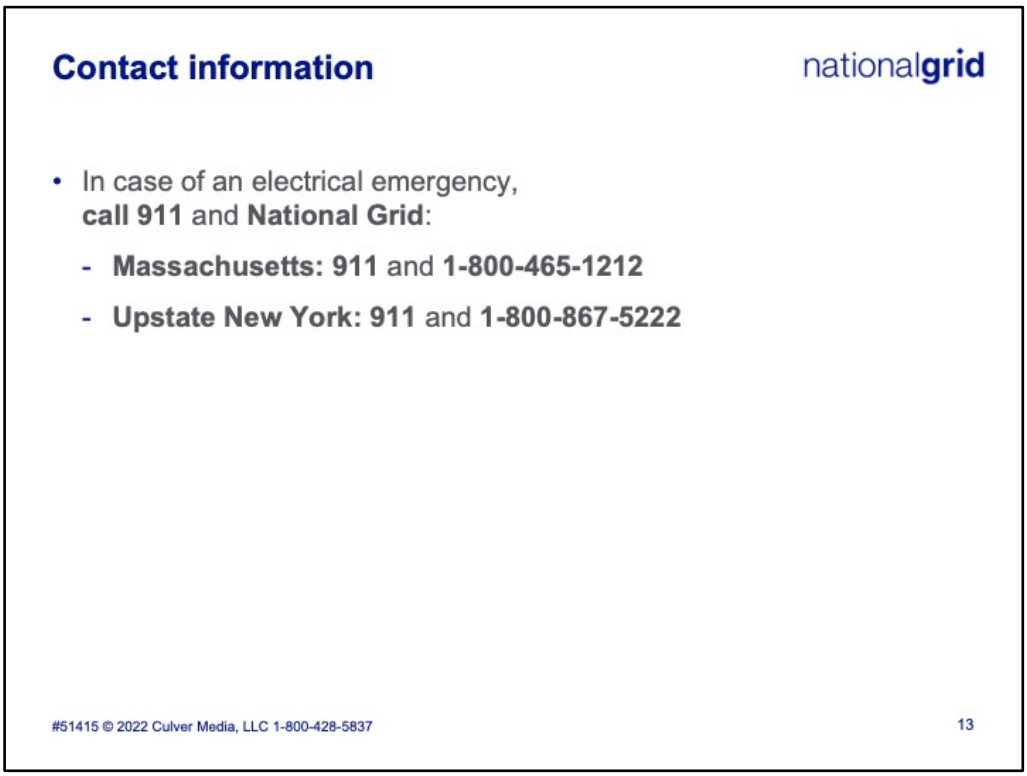
Presenter's notes



To reach the underground utility locator service, call **811** or make an online request:

- Massachusetts: **digsafe.com**
- Upstate New York: **UDigNY.org**
- Metro New York, Long Island and the Rockaways: **newyork-811.com**

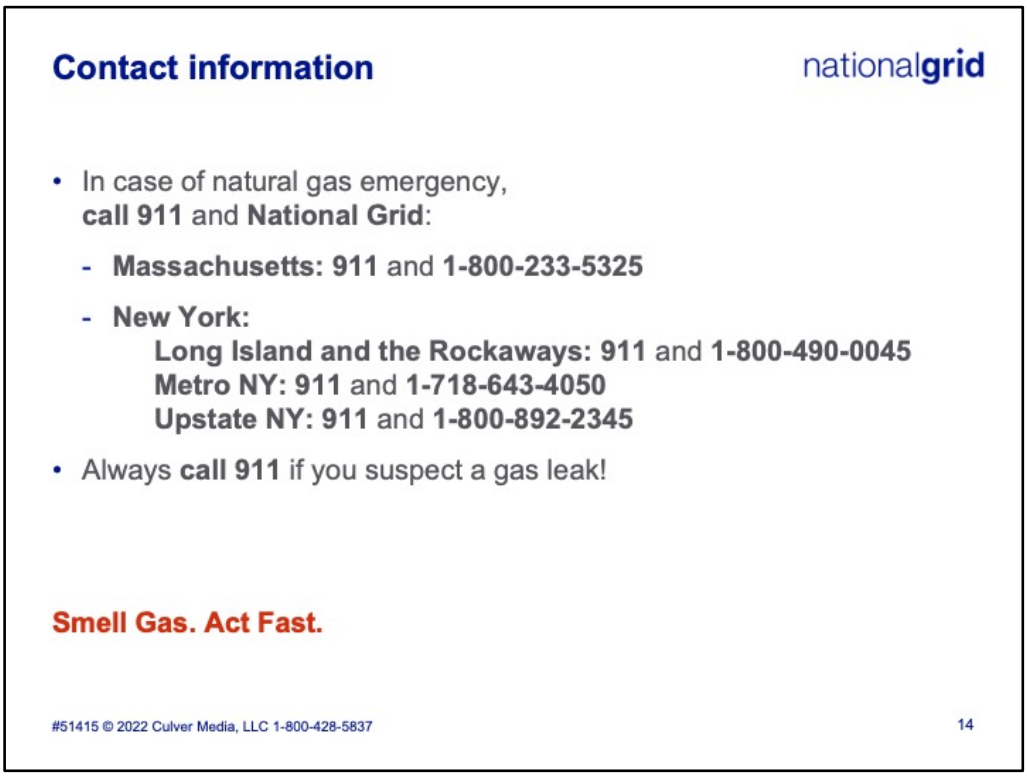
Presenter's notes



In case of an electric emergency, call 911 and National Grid:

- Massachusetts: 911 and 1-800-465-1212
- Upstate New York: 911 and 1-800-867-5222

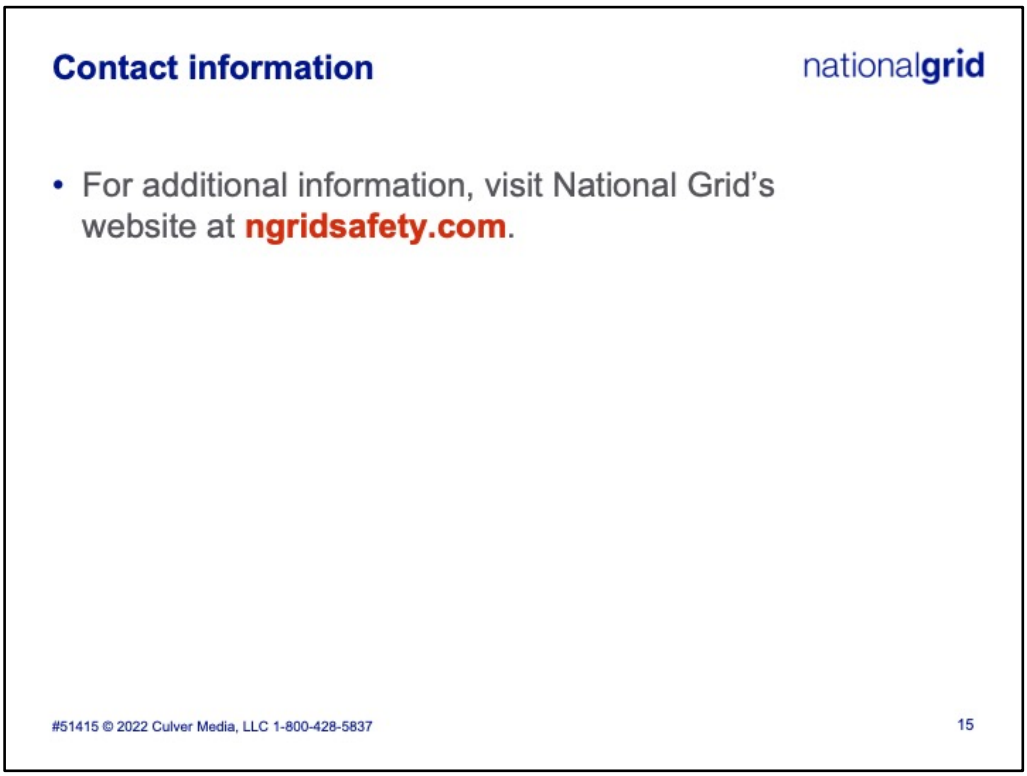
Presenter's notes



- In case of a gas emergency, call 911 and National Grid at:
  - Massachusetts: 911 and 1-800-233-5325
  - New York:
    - Long Island and the Rockaways: 911 and 1-800-490-0045
    - Metro NY: 911 and 1-718-643-4050
    - Upstate NY: 911 and 1-800-892-2345
- Always call 911 if you suspect a gas leak. Don't assume someone else will do it – be the one to call 911.

Smell Gas. Act Fast.

Presenter's notes



For additional information, visit National Grid's website at ngridsafety.com.

Presenter's notes

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 electricity and natural gas, when to contact National Grid, and other information.

National Grid thanks you for helping keep contractors safe.