Caution:

WORK SAFELY NEAR ELECTRICITY AND NATURAL GAS

Para solicitar una version en espanol de este folleto, llame at 1-800-257-3645 o visite *alliantenergy.com/espanol*.

Alliant Energy™

Electricity and natural gas are brought to homes and businesses through a complicated transmission and distribution system. Contractors must work near Wisconsin Power and Light Company's and Interstate Power and Light Company's power lines and underground gas pipelines on both commercial and residential construction sites, so it's important to know the risks and how to avoid getting injured from accidental contact with utility equipment.

The most obvious and unfortunate cost of contact with power lines or gas pipelines is injury or death. Contact with utility equipment can also damage equipment and increase insurance premiums and workers' compensation payments.

Alliant Energy is the trade name of Alliant Energy Corporation and its principal utility subsidiaries Wisconsin Power and Light Co. and Interstate Power and Light Co.

This manual is a guide for contractors working around electricity or natural gas. It contains information on how to plan for and operate on projects near electric or natural gas facilities and how to deal with emergencies. However, it is not intended to replace or supersede any customary training, guidelines or policies otherwise required by contract or law.

Overhead power lines

Electric power lines have become part of the landscape, so you may not consider poles and wires located on your job site when planning construction projects. Although power lines safely carry electricity, direct contact can be extremely dangerous. Power lines also present a danger even if you don't touch them. Under the right conditions, high voltage lines can arc surprising distances to a nearby conductor. That conductor could be the boom of your truck or a wrench in your hand.

Overhead power lines carry electricity at different voltages, but most people can't tell the voltage of a line just by looking at it. This means you should use caution when working near any power line – all lines carry voltage that can cause serious injury or death – and always assume the lines are energized.

Also, don't be lulled into a false sense of security because power lines are covered. You may see covered lines in residential areas or on street and traffic lights. Even though the lines may have a protective covering, the cover may not provide protection against electrical shock. Besides, sunlight and weather may deteriorate the covering and leave the line with no protection at all.

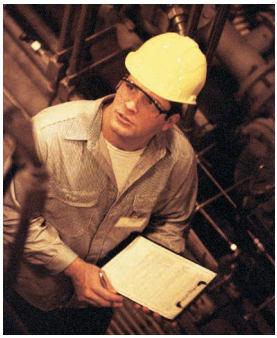
Underground power lines and natural gas pipelines

Energy companies also deliver electricity through power lines and natural gas through pipelines that are buried underground. In recent years, these underground electric lines in particular have become more prevalent, especially in new residential and commercial developments.

While you can see overhead power lines at a job site, you need to have professionals mark the location of underground utilities in accordance with the requirements of the applicable One-Call Center in the state where the job site is located.

This is important because if you contact an underground line, the results can be catastrophic. Damaging a natural gas pipeline can lead to fires or explosions. And, if equipment touches an electric line, the equipment operator and innocent bystanders could be shocked, burned or killed.

Before the job



Through careful planning you can help prevent accidental contacts with power lines and natural gas pipelines.

When your company is bidding a job, check to see if any utilities, either overhead or underground, need to be moved or rerouted.

Before starting any job, look around the site to identify any electrical facilities (overhead powerlines, poles, guywires, service pedestals, padmount transformers or service drops) and natural gas facilities (gas meters, gas valves, regulators, stations or pipeline markers).

Everyone on the crew should know where these overhead and underground lines and other utility equipment are located.

Determine the type of equipment you will need for the job and, whenever possible, plan to locate equipment away from the hazard.

Establish a safety boundary

You should clearly mark the location of power lines and the minimum clearance area with signs that say **Danger: Overhead Power Lines, Buried Power Lines, Buried Natural Gas Lines** or **Look Up and Live**. Barricade the area where materials or equipment are to be moved and supervise the area, restricting entry to personnel engaged in the work.

If you will not be able to maintain these clearances, call the local electric or natural gas utility company to make arrangements. Once work begins, use a designated spotter to guide you and keep your equipment clear of lines both above and below ground. The spotter must order the movement stopped if contact appears likely or when conditions prevent the spotter from performing his/her job. The person in charge of the project should also decide on a clear, understandable stop signal to give the equipment operator.

Delivering and storing materials

Before work begins, decide on the safest place to have materials delivered and unloaded at the job site that is not near overhead or underground power lines or natural gas pipelines. You should also plot out the safest route for transporting building materials to the site. Also, do not store any type of pipe near overhead power lines.

Call 811 before you dig

To prevent damage to underground utility equipment, state law requires contractors to call the appropriate One-Call Center to have underground facilities located. It is important to call at least three days before moving earth in any way, including digging basements for footings; excavating or grading; planting trees/landscaping; placing fence posts; trenching; drilling; tiling or scraping.

To get facilities marked, just contact your state's One-Call Center or 811. Local One-Call Center operators will notify member utilities that they need to mark the location of underground lines on your job site. Utility companies will then send a professional to your location to mark lines **at no charge**.

In Iowa: Iowa One-Call, 1-800-292-8989

In Wisconsin: Diggers Hotline, 1-800-242-8511

In Illinois: JULIE, 1-800-892-0123

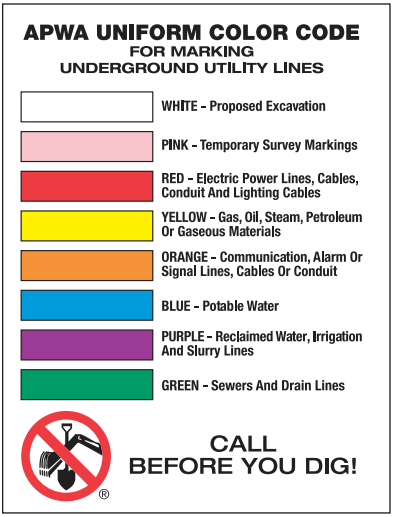
811®

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

Locating underground facilities

Learn to recognize which color indicates each utility. Underground utility lines will be marked with flags or paint to show approximate location. To obtain information on utility locator marks visit *commongroundalliance.com.*

Once the lines are clearly marked, make sure you maintain safety clearance requirements for both hand digging and mechanical excavating.



In addition to utility lines, there may be privately-owned gas, sewer, electric or other facilities that may not be covered under the one-call laws. If these are present, the facility owner should arrange locating of these facilities. Many of the contract locators used by utilities will locate these facilities for a fee.

You should also look for signs of a possible natural gas leak before work begins. Use your eyes, ears and nose, and contact Alliant Energy or the local natural gas utility company if you:

- See unexplained dead or dying grass or other vegetation near a pipeline, dirt or debris blowing into the air, or water bubbling in a puddle, river, pond or creek;
- Hear an unusual hissing, whistling or roaring sound;
- Smell an odor like rotten eggs.

If fire is burning above ground or coming from the ground – another sign of a natural gas leak – call 911 and the local natural gas utility company. Do not attempt to put the fire out.

During the excavation process, if you hit, touch, scrape or damage an underground pipeline or electric cable, call Alliant Energy at 1-800-257-3645. **If gas is blowing call 911**. Even minor damage such as a small gouge, dent crease or scrape may cause future safety problems.

On the job

Operating equipment near power lines and natural gas pipelines

When operating construction equipment near power lines and/or gas pipelines, make sure you maintain minimum clearances required by the Occupational Safety and Health Administration (OSHA) or established by the laws in your state.

Safe working distance from overhead lines

Operators of tall and long equipment like backhoes, concrete pumping rigs and long-bed dump trucks must know and adhere to the minimum clearances established by OSHA when working near overhead power lines.

The regulations say that you should keep vehicles, equipment, tools and people:

- At least 10 feet away from lines rated 50 kilovolts or below.
- At least 10 feet away plus 0.4 inch for each kilovolt above 50 kilovolts (or maintain twice the length of the line insulator, but never less than 10 feet).

OSHA regulations also state that no material shall be piled, stored or otherwise handled and no scaffolding shall be erected or dismantled within the minimum clearances.

While equipment or materials are in motion in proximity to an energized electrical conductor, no one is allowed to touch any part of the equipment or material.

Operators must remain on their equipment at all times until completely clear of the power lines. Even when maintaining the minimum clearance distance, the loss of control of the boom or load could cause an accidental power line contact. Using remote, wired controls – even those with insulated cable – won't guarantee your safety.

Crane operators in particular are at risk, so it's especially important that they are trained in safe operating procedures and OSHA regulations.

Under the 2010 OSHA crane standard, if you use cranes, a 20-foot clearance must be maintained from power lines. Preventing encroachment within the 20-foot clearance requires that specific options be followed to ensure the safety of workers. Check the OSHA Standard 29 CFR A26.1400 to determine if your equipment is covered and which options should be used.

When operating a crane, be aware of the limitations of boom guards, insulated lines, ground rods, nonconductive links and proximity warning devices. Do not use these devices as a substitute for de-energizing and grounding lines or maintaining safe clearances.

Minimum requirements for excavating and digging

When digging, excavating or moving earth in any way, you need to use extreme caution when working near marked utilities. The safest procedure to use when breaking ground near an underground utility is to dig by hand at least 24 inches on either side of the mark.

When you begin powered (mechanical) excavation, regulations are specific about distance requirements while working near unexposed facilities. When you start digging, stay at least 24 inches away from unexposed, underground facilities.

Distance requirements for hand digging and powered excavating vary by state, so ask for guidelines when you contact the One-Call Center.

Use caution when carrying ladders, paint rollers and gutters

Workers have contacted overhead lines when adjusting ladders or carrying paint rollers or gutters. To avoid touching a line, carry long objects parallel to the ground until it's time to use them. Before adjusting a ladder or other long equipment, add your own height and make sure the total height will remain a safe distance of at least 10 feet away from overhead lines. Don't use metal ladders or wire-reinforced wooden ladders near live overhead lines, and don't build scaffolds close to power lines.

Delivering, loading and unloading materials

When delivering, loading or unloading building materials, be sure to maintain the minimum clearance distances required by OSHA. Building materials stored on the job site must be stored with respect for these requirements as well.

If you cannot maintain minimum clearances discussed so far, you must stop the work and call the local electrical or natural gas utility. Together with the utility company representatives, decide on a course of action before starting or continuing the project.

Tree trimming

Perform tree trimming near high voltage energized conductors with the same level of careful planning and consideration that you would any other work enacted near overhead power lines and always follow OSHA regulations.

Do not trim trees or limbs within 10 feet of power lines. Whenever there is a question, call Alliant Energy or your local electric utility company before starting work.

If you cannot maintain the minimum distance required by OSHA, proceed only under the following conditions:

- A qualified line clearance tree trimmer must be in charge at the work site.
- All tree trimmers must be certified as line clearance tree trimmers unless the trimmer is being trained and is under immediate supervision. Certification for the ground crew is not necessary.
- Insulated hand tools must be used whenever possible. Tools must be tested so they conform to a standard that is set by an authority acceptable to OSHA. All tools and lifts must be properly maintained.
- If a tree or limb is touching a power line, it must be removed by a certified line clearance tree trimmer who is authorized by the owner of the electrical system to do so. This presents a dangerous situation and calls for special procedures and special equipment.

In emergency situations like tornadoes, wind storms or natural disasters, you may not be able to meet normal requirements. In such emergencies, set up a barricade and allow only qualified personnel to enter the area.

Trenchless technology

To prevent damage and maintain safe operation of underground facilities, Alliant Energy recommends the following guidelines for persons operating equipment for directional drilling, boring, jacking and reaming adjacent to any Alliant Energy underground facilities:

- Maintain a 5-foot horizontal separation between Alliant Energy underground facilities and the drill head or other equipment when the route is parallel to such facilities.
- Expose Alliant Energy underground facilities at least each 100 feet when the route is parallel to and less than five feet from such facilities.
- When directional drilling parallel to Alliant Energy facilities, continuously monitor the location of the drill head with properly calibrated electronic equipment and verify its physical location to that of Alliant Energy underground facilities. Also, expose all Alliant Energy underground facilities that are being crossed by the drilling unit to ensure the initial drill path and pullback reamer do not jeopardize those facilities.

Electrical and natural gas emergencies

Electrical emergencies

When construction equipment accidentally contacts an overhead power line, the electric current seeks a path to the ground. If you touch the equipment, you provide another path for the electric current to reach the ground – this is called touch potential.

Do not touch any piece of equipment that comes in contact with an overhead or underground power line.

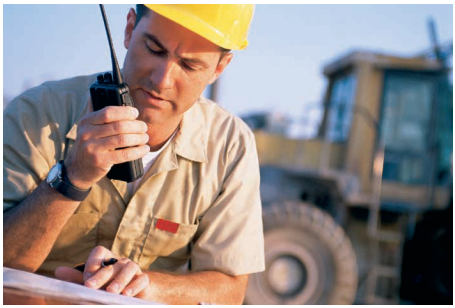
When contact is first made, the line may also trip out (de-energize). However, the line will probably be re-energized almost immediately by automatic switching equipment. Stay clear until Alliant Energy or your local electrical utility company tells you that the line is "dead and grounded."

Also, just standing near something that comes in contact with a power line can prove fatal because of "step" voltage or "step" potential. If a piece of equipment touches a power line, the current flows through the equipment and into the ground, radiating out from the area like ripples in a pool of water. If you stand with your feet in two different voltage areas, your legs provide another path through which current can flow, often with devastating results. It is equally dangerous for any workers or other bystanders who walk or run into the area.

If your equipment contacts a line

If your equipment contacts a power line and there is no risk of fire, stay on the equipment and call 911 if you have a cellular telephone. Please tell the operator your equipment has contacted an electric power line.

If you must get off the equipment because of an immediate danger, such as a fire, exit the vehicle in the following manner:



1. Remain calm and think about what you are going to do next. Remember that even if a power line is not sparking, electric current may be flowing through it.
2. Jump out of the equipment landing with both feet together and DO NOT touch the equipment and ground at the same time. You must clear the equipment in one jump without stumbling. Don't fall or reach back toward the equipment.
3. Keeping your feet together, shuffle or hop away from the machine for about 25 to 30 feet. Make sure you are no longer standing under the power line.
4. Contact Alliant Energy or the local electric utility company in your area.
5. Once you are clear of the machine, barricade the energized area to keep workers and bystanders out of the danger zone.

Before you can reuse any equipment that has contacted a power line, you must have it inspected for structural and functional integrity. Remember, the damage may not always be evident immediately after the incident, but inspection is imperative. A crane, hoist or similar equipment involved in an electrical mishap must be recertified by a qualified worker before it can be used again. Load lines involved in a power line contact must be taken out of service.

If a co-worker contacts a line

When electricity flows through the body it can cause extensive damage to your heart, tissue and bones. This can lead to heart failure, severe burns, broken bones, and even death.

Although burn marks may appear small, they may be deep and slow to heal. More serious damage is often inside the body where internal tissues may actually be cooked by being instantly heated to extremely high temperatures.

Never attempt to rescue the victim of an electrical accident unless you have the appropriate skills and tools.

Planning and training are integral to handling emergency situations where electrical shock has occurred. Workers are often injured because they are unprepared for an emergency. There are many tragic examples of workers, supervisors and even safety personnel who rushed in to save an injured fellow worker without thinking and were hurt themselves.

In case of injuries due to contact with power lines, follow these three important steps:

1. Call 911.
2. DO NOT touch the injured person if he/she is still in contact with the power line.
3. Stay away from the area – a wide radius of energized area surrounds the downed lines.

Natural gas emergencies

Natural gas comes into homes and businesses through a network of underground pipelines that may be located on your job site. Not only is it a clean, efficient and convenient energy source, the pipelines used to transport natural gas have exceptional safety records. However, like electricity, it can be dangerous and must be respected.

To ensure our pipelines stay safe and secure, we inspect our natural gas system, design reliable pipelines and invest in new technologies and follow pipeline integrity programs. We are also committed to educating the communities located along our pipelines.

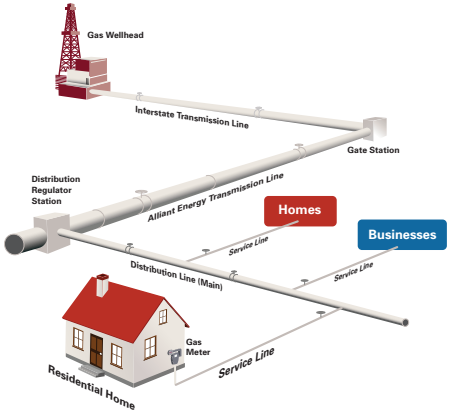
Making natural gas safety our priority

Alliant Energy is dedicated to keeping our employees, customers and communities safe through training, education and awareness. We continuously seek out new technologies in pipeline design, construction, inspections, and operations to make delivery of natural gas safe, cost-effective and secure.

Pipeline awareness

Approximately 88 percent of the natural gas consumed in the United States is produced in the U.S.

Natural gas is extracted from the earth and travels to your community through underground transmission pipelines. According to the National Transportation Safety Board, the 2.5 million miles of pipelines in the U.S. are the safest method of transportation for natural gas.



Once the natural gas reaches your community it passes through a gate station, where the pipeline pressure is reduced and the local distribution company, like Alliant Energy, distributes the natural gas to customers. The underground pipelines within your community are called mains and are typically buried in or next to streets. Service lines, approximately ½ inch to 1 inch in diameter, connect to the main and carry the gas to homes, businesses, and factories.

When the gas passes through a customer's gas meter, it becomes the property of that customer. Customers are responsible for installing and maintaining the piping natural gas flows through to reach appliances and equipment.

Pipeline markers

These markers indicate approximate, but not exact, locations of transmission pipelines. The markers provide a toll-free number (800-255-4268) to report problems. Transmission line markers are typically placed at public road crossings, fence lines and street intersections. In most cases, pipeline markers are not located on a natural gas distribution system inside urban service territories.

Visit the National Pipeline Mapping System at *npms.phmsa.dot.gov* to learn who operates transmission pipelines in your area.

Detecting a gas leak

Natural gas is colorless and odorless. Gas companies add an odorant to give gas its distinctive rotten egg odor so you can smell a leak immediately.

Contractors are responsible for damage to pipelines that occur while they are working on a construction site. Hitting an underground gas pipeline can become a dangerous proposition, leading to injured workers and bystanders. Always use caution near a gas leak and recognize the possible hazards, such as fire, ignition or explosion.

If you contact an underground natural gas pipeline, report the incident to Alliant Energy or your local natural gas utility company immediately. Even if the pipe does not appear to be damaged, or no gas seems to be leaking, it needs to be professionally inspected by utility crews before excavation is filled back in. Even a minor scrape to a pipeline could cause major safety problems in the future.

When a natural gas pipeline is accidentally damaged by construction equipment, the gas leaks out and you may hear a hissing, blowing or roaring sound. You may also notice a gas or petroleum odor. Because natural gas is lighter than air, it rises and mixes with the air. And when mixed with air, natural gas can be explosive. To burn or explode, natural gas needs an ignition source. Examples of ignition sources include open flames, electrical sparks, mechanical sparks and static electricity discharges.

If you suspect a gas leak, follow these steps:

- Shut off any equipment quickly (e.g., backhoe, etc.).
- Do not try to stop a gas leak.
- Remove all ignition sources, **if it can be done safely**.
- Do not use electrical switches or other devices that may create a spark, including cellular telephones.
- Leave the equipment and get away from escaping gas immediately.
- Warn workers to evacuate the area and others to stay away from the area. Remain upwind at a safe distance.
- Call Alliant Energy or your local natural gas utility company immediately.
- Call 911 from a safe distance.

To learn more about our integrity management program or other natural gas pipeline safety topics call 1-800-257-3645 or visit *alliantenergy.com/pipeline safety.*

Electrical emergency

- If your equipment contacts an electrical line, stay on the equipment and call **911**.
- If a co-worker contacts a line, DO NOT touch the injured person. Call **911**.
- If you must get off your equipment, jump from the vehicle and land with both feet – do not touch the vehicle and ground at the same time. Shuffle or hop away from the area.
- Call Alliant Energy at **1-800-255-4268** or the local electric utility company.

Natural gas emergency

- Shut off all equipment.
- Remove ignition source and DO NOT use electrical devices that may create a spark.
- Evacuate the area and remain upwind.
- Call Alliant Energy at 1-800-255-4268 or the local natural gas utility company.
- Call 911 from a safe distance.

On the job

- Locate overhead power lines and establish a safety boundary.
- Call your state's One-Call Center before you dig.
- Keep vehicles, equipment and people at least 10 feet away from overhead power lines.
- When digging, excavating or moving earth in any way, stay at least 24 inches from marked utilities.

One-Call Centers

Iowa: Iowa One-Call, 1-800-292-8989

Wisconsin: Diggers Hotline, 1-800-242-8511

Illinois: JULIE, 1-800-892-0123

For more natural gas safety information, call **1-800-257-3645** or visit *alliantenergy.com/pipelinesafety*.

Alliant Energy™

Place this card in your visor or toolbox