

EMERGENCY RESPONDER HANDBOOK

Electric and natural gas hazards and emergency response



Introduction

This booklet is a guide for emergency responders who confront fires and other emergencies that involve electricity and/or natural gas. It is not intended to establish or replace any fire or emergency personnel training guidelines or policies covering this subject.

Because fire and police personnel are often the first to arrive at the scenes of fires and emergencies, it is important they be able to identify electric and natural gas equipment and handle fires that result from damage to this type of equipment.

It is also vitally important to inform Alliant Energy in the event of an electric and/or natural gas emergency. We have specialized knowledge, expertise, tools and equipment to handle any electric and/or natural gas hazard found on the scene. We can help you stay safe around unforeseen electric and/or natural gas hazards that may arise as the emergency progresses.

Alliant Energy is available 24 hours a day to provide assistance during emergencies. The following emergency number is only for public safety agencies. Please DO NOT call this number for nonemergencies or give this number to the public.

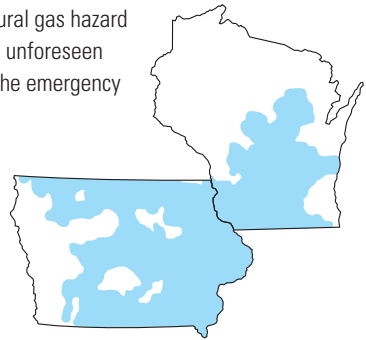
1-800-758-1576*

Incorporating a response procedure for utility incidents in your emergency preparedness plan can help prevent a serious incident. Also, remember to include your local utility in disaster drills. Utility companies are eager to work with emergency personnel by offering training and assistance with emergency planning.

Alliant Energy is committed to working with emergency personnel to assist in the safe and efficient handling of dangerous situations.

Alliant Energy is the trade name of utility companies Wisconsin Power and Light Company and Interstate Power and Light Company. Wisconsin Power and Light Company provides natural gas and electric utility service to customers in Wisconsin. Interstate Power and Light Company provides natural gas and electric utility service to customers in Iowa.

* In unusual circumstances, such as a flood or other natural disaster, you may not be able to reach a distribution dispatch center via this dedicated emergency number. If this happens, please call 1-800-ALLIANT (800-255-4268).



Contents

**Keeping communities safe
(One Call Centers) 4**

Electric distribution system 5

**Electric hazards:
Emergency response procedures. 7**

Natural gas distribution system 16

**Natural gas hazards:
Emergency response procedures. 18**

**Emergency contact information/request
more information. back cover**

This Emergency Responder Handbook is provided as a courtesy to emergency responders within the service territories of Alliant Energy's utility companies, Wisconsin Power and Light Company and Interstate Power and Light Company, and is to be used solely as one resource tool to assist emergency responders in these areas. Alliant Energy does not warrant the accuracy or completeness of the materials contained herein, nor that following the guidelines set forth herein will minimize or prevent property damage, injury or even death. This Emergency Responder Handbook should not be used as a substitute for detailed training and additional education on applicable safety codes and regulations related to emergency response.



Keeping communities safe

Damage prevention: One Call Centers

Damage to electric and natural gas facilities caused by third parties such as contractors and excavators is the leading cause of injury and property damage involving electric and natural gas utilities. For this reason, One Call Centers are in place across the country.



One easy phone call to 811 instantly begins the process of getting underground utility lines marked. Local One Call Centers will contact the appropriate utility companies, that send crews out to mark the underground lines within three days. This service is free of charge.

You can also still contact your state's local One Call Center:

Iowa: Iowa One Call	1-800-292-8989
Wisconsin: Diggers Hotline	1-800-242-8511
Illinois: JULIE	1-800-892-0123

Underground facilities owners such as Alliant Energy are required to belong to One Call Centers and to respond to locate requests within three business days of notification.

Excavators are required to call 811 or the local One Call Center at least three working days before digging.

If you observe excavators working around electric and natural gas facilities without the required locate marks or flags, call Alliant Energy.



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

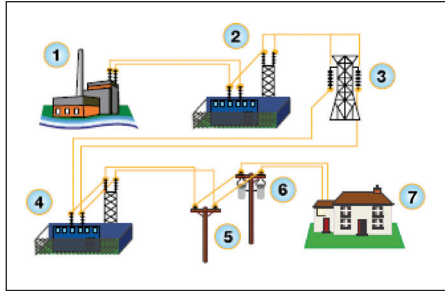
When you contact a local One Call Center to have electric and natural gas utility lines marked, the location of other underground utilities are also marked. Learn to recognize which color indicates each utility.

WHITE	Proposed excavation
PINK	Temporary survey markings
RED	Electric lines, conduit and lighting cables
YELLOW	Gas, oil, steam, petroleum or gaseous materials
ORANGE	Communication, alarm or signal lines
BLUE	Potable water
PURPLE	Reclaimed water, irrigation and slurry lines
GREEN	Sewers and drain lines

Electric distribution system

Thousands of miles of power lines deliver electricity to Alliant Energy customers. Knowing how electricity gets to homes is important during emergency situations.

1. Electricity leaves a power plant, wind farm or solar site.
2. The voltage is increased at a nearby substation.
3. The energy travels along a transmission line to the area where the power is needed.
4. Once there, the voltage is decreased at another substation.
5. The voltage travels along a distribution line into or towards neighborhoods.
6. Voltage is reduced through the use of a pole-mounted or pad-mounted transformer to levels acceptable for household or business use.



Poles and conductors (wires)

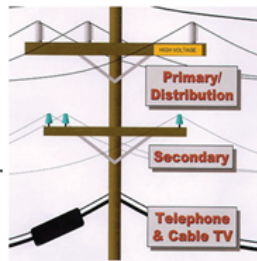
Utility poles are mainly constructed of steel or wood. Higher voltage, called “primary voltage,” are normally the wires at the top of the pole. Low voltage, called “secondary voltage,” are normally the wires at the bottom of the pole.

Conductors are made of aluminum, steel or copper. They are sometimes wrapped or coated with a black layer for weather protection or sometimes for insulation. NEVER assume that if you see the black coating that the conductor is insulated.

The top wires are considered primary voltage which are voltages in excess of 600 volts.

Moving down, you will find low voltage lines which generally include voltages below 600 volts.

The lowest lines are TV and telephone fiber communication lines.



Electrical injuries

Contact with electrical equipment can lead to serious injuries or even death. These injuries happen very quickly and often without warning. The reason electricity affects us is that the human body is made up of about 70% water, so it is a perfect conductor.

Effects on the body include:

- Heart stopping.
- Burns and tissue damage.
- Muscle contractions.
- Paralysis.
- Damage to organs such as the heart and kidneys.
- Death.

Always seek medical attention for an electrical shock or burn. Because of these dangers, it's important for emergency responders to know how to protect themselves and the public.



Electric hazards: Emergency response procedures

Downed wires

Treat all downed wires, including telephone and cable television wires, as energized and dangerous until proven otherwise. It is impossible to determine by its appearance if a wire is energized. Though some wires will jump, make loud sounds or emit showers of sparks, others will lie silent – and may be deadly.



When you arrive at the scene of a downed wire or broken pole:

1) Establish a safety zone that only authorized persons may enter.

The safety zone should extend a minimum of two full span lengths of wire – span length is the distance between two poles – in each direction beyond the downed wire. When establishing the safety zone, it's important to keep the following in mind:

- Stresses may be placed on poles adjacent to the downed wire causing them to break and fall.
- Wires can slip through insulators and sag to the ground in adjacent spans of wire.
- Always be on the alert for conductive materials that may be in contact with the fallen wire such as metal fences, trees, vehicles and metal buildings. You will have to increase the safety zone to include them.
- Be aware that when a body is in contact with a wire it may be energized. Do not touch or approach the individual or downed wire until an Alliant Energy employee or representative has determined that it is safe to approach the injured person.



2) Notify Alliant Energy as soon as possible using the emergency telephone number on the back cover. Include information such as:

- Nature of incident.
- Is anyone's life in danger?
- Exact location. In some areas, power poles and electrical equipment are labeled with numbers. If you can safely do so, please provide these numbers.
- Any other hazards involved.

3) NEVER attempt to move or cut any downed conductors.

- Only electric utility employees, using approved procedures and highly specialized tools, should move or cut any wire.

Other important safety considerations when close to downed wires:

- Wood or fiberglass pike poles are not the same as the insulated sticks used by electric utility employees. They are not tested and most likely contain sufficient moisture, and/or are contaminated enough to be conductive.
- Keep in mind firefighter's boots are only designed to keep your feet dry. They will not insulate or isolate you from a voltage source.
- High-voltage wires are not insulated. The protective coating found on some wires is to protect the wire from damage, not to insulate it.
- Always use extra caution and make sure you have adequate light during storms or when it's dark. It is often difficult to see downed or sagging wires.

Substations

First responders should NEVER enter an electric utility substation unless accompanied by an Alliant Energy employee, or an authorized representative.

Our trained employees can walk you through the substation safely and identify equipment and voltages. Only our trained employees have the training to de-energize a substation.



The hazards you may encounter include:

1. High-voltage lines entering the substation, both overhead and underground.
2. High voltage bus work, frames, aluminum pipe and conductors crisscrossing the substation are at a relatively low height.
3. Oil-filled equipment, such as transformers and circuit breakers, that may catch fire.
4. Toxic smoke and gases due to burning oil and insulating materials.
5. Explosions from oil-filled equipment, both overhead and at ground level.
6. Lead acid batteries in control houses.
7. Exploding glass and porcelain insulators.
8. Falling wires, both inside and outside the substation.

DO NOT try to salvage any electrical apparatus, transformer or switch that is on fire. There is nothing in the substation worth more than your life.

And, never operate electric utility high-voltage switches that are within a substation property, mounted on poles or located within manholes or vaults. Attempting to open the switch could cause an explosion or flashover and create an extremely hazardous situation.

Car vs. pole accidents

Arriving at the scene

When you arrive at the scene of a vehicle accident there may be downed wires or wires hanging low to the ground that are energized. These wires may energize other objects they are in contact with such as fences, or telephone and cable television wires. Also, be aware that overhead conductors could fall any time as a result of the accident.

You must remain alert. The wire and/or electrical equipment may appear harmless, but could still be energized and extremely dangerous. You should first establish a safety zone and immediately notify Alliant Energy.



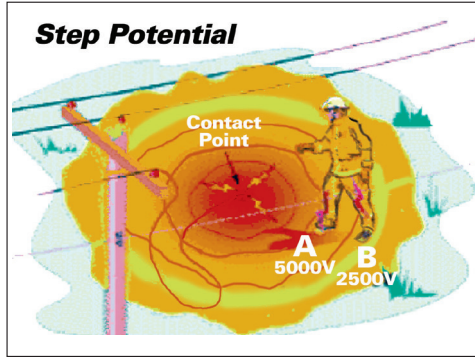
Helping individuals in a vehicle

If a power line has fallen on a vehicle, the vehicle and anything attached to it (such as a camper or trailer) may be energized at hazardous voltages. NEVER touch a vehicle that is in contact with an overhead power line. The electricity coming out of the line will travel down through the metal and find the easiest path to the ground. This could be through you if you stand near or touch the vehicle.

Stay away from the vehicle. Tell the driver and passengers to remain in the vehicle, and that they will remain safe if they do so.

If it is imperative to have the occupants exit the vehicle (for example, the vehicle is burning), they must not contact the ground and any part of the vehicle at the same time. Coach them to jump with both feet together as far away as possible from the vehicle to avoid contact and/or falling

back onto the vehicle. Once on the ground, they should use small shuffling steps to move a safe distance. This will help prevent injuries from step potential, which is the difference between two places that are a step apart on energized ground. If you stand on energized ground, there could be a significant difference in voltage between where one foot and the other are placed. An electrical current could flow up one leg and down the other.



Underground lines and equipment

Alliant Energy has two separate underground electrical distribution systems. One is a conduit system, the other a direct burial system. Though both systems utilize wires and cables that run underground, they differ from each other and the hazards presented by each system are also unique.

Conduit system

Conduit systems are usually located in metropolitan areas. Direct burial systems may be found in metropolitan areas, but are more prevalent in suburban and rural areas.

The conduit system consists of high-voltage cables, low-voltage cables, transformers and switchgear located in manholes or vaults.

An electrical failure of a cable could result in an explosion and/or fire. In addition, gases from failed cables could accumulate in manholes or vaults and displace oxygen. Natural or manufactured gases may also seep into manholes, vaults or tunnels through conduit runs and broken sewers.

When attempting to cope with a fire or explosion in a manhole, a first responder should:

1. Call Alliant Energy to give the location, number of manholes involved and nature of the emergency.
2. Establish a safety zone. Keep the public away and route traffic around the area.
3. If the cover is in place and smoke is coming from the holes in the cover, DO NOT attempt to remove it until the conditions have been thoroughly discussed with an Alliant Energy employee or an authorized representative. If flammable gases are present in the manhole, removing the cover may provide sufficient air to cause an explosion. If the transformer has failed and the oil is above the ignition temperature, removing the manhole cover may cause a backdraft. The resulting explosion could seriously harm you and others nearby.

A spark resulting from removing the cover may cause a natural gas explosion in the manhole. If there are gases present in the duct package that runs manhole-to-manhole, there may be additional explosions in other manholes.

Explosions in manholes can propel a manhole cover that weighs approximately 270 pounds a significant distance. Maintain a safe distance and be prepared to evacuate the area quickly if an explosion occurs.

4. If the manhole cover is off, DO NOT enter the manhole or take any further action until the conditions have been discussed with an Alliant Energy employee or authorized representative. Manholes must always be treated as highly hazardous confined spaces. Except for rescue in coordination with Alliant Energy employees, a first responder should NEVER enter a manhole.

CAUTION: Unless human life is at stake, there is no great urgency to extinguish the fire or enter a manhole. Maximum damage to its contents has already taken place.

Direct burial (URD)

The direct burial system consists of wires and cables buried in the ground. High-voltage switchgear and pedestal transformers are contained in metal or fiberglass enclosures. Pedestals (small upright metal or plastic boxes) stand aboveground and are connection points for underground low-voltage cables (120 to 240 volts).



NEVER open ground-mount electrical equipment or attempt to extinguish a fire involving the equipment until it is de-energized by an Alliant Energy employee. There are two reasons for this:

- You could be shocked if you open energized ground-mount electrical equipment.
- Any piece of electrical equipment will continue to burn until it is de-energized, regardless of the method employed to extinguish the fire.



If the emergency involves a motor vehicle running into a piece of ground-mount equipment, it should be handled as if it were an electrical wire on a vehicle. If the vehicle is no longer in contact with the equipment, continue to treat the metal equipment enclosure as energized at high-voltage.

Aerial equipment

Whenever possible, contact Alliant Energy to de-energize electrical lines in advance of working with aerial equipment.

If action is needed before you contact Alliant Energy, use extreme caution when positioning fire department apparatus at the scene of a fire. NEVER park vehicles near or under overhead electrical conductors. The heat of the fire could cause a wire to melt or burn.



You should position aerial ladders and articulating booms as far away as possible from overhead wires. Although the Occupational Safety and Health Administration requires a safe distance from all energized lines and equipment, we recommend you take extra safety precautions and exceed these distances. You can receive a shock without actually contacting a line. If the voltage is high enough or humidity levels vary, electricity can jump out of the conductor and find a better path to get to the ground.

If any part of the aerial apparatus comes into contact with an electrical conductor, the entire vehicle must be considered energized at high-voltage.

If the aerial device is an articulated arm, the firefighter in the basket should immediately rotate the arm away from the wire, cradle the arms and reposition the vehicle. Before the vehicle is put back in service, it's important to have it inspected. Contact with an electrical conductor can cause damage not immediately obvious like burned hoses or overinflated tires.

If the apparatus is an aerial ladder, the vehicle should be considered energized at high-voltage and guarded as such. As long as the firefighter on the vehicle remains still and does not touch the wire or any other object such as the building, they will remain safe from electric shock. Remember, if you touch the wire and contact any other object you will provide a path to the ground and will most certainly be injured and possibly killed. Immediately request that the line be de-energized.

As in most overhead wire contacts, the people who are at the highest risk of electric shock are those who are in contact with the ground such as firefighters at the end of the hose lines or anyone who touches the energized truck while standing on the ground.

Structure fires

In residential and commercial buildings, it is rarely necessary to interrupt the electric service to the entire building. It is usually best to leave the power on as long as you safely can. The lights will be helpful during firefighting, evacuation and overhaul operations. It may also be useful in running pumps, fans and other power equipment needed to minimize property damage.



When safe firefighting tactics require the power to be shut off, use the following actions as appropriate:

1. First, de-energize the fire-affected area by opening customer-owned circuit breakers or switches.
2. Open the main disconnect to de-energize the entire building.
3. If the building is damaged to the extent that electric service is no longer necessary or if the main disconnects cannot be utilized, the power supply to the building should be interrupted. This should only be done by an Alliant Energy employee or authorized representative.

NEVER pull an electric meter to de-energize the building. Meters ARE NOT switches. They have been known to explode, sending out a shower of razor-sharp glass splinters.

Here's why you SHOULD NOT remove a meter:

1. Pulling an electric meter may not de-energize the electric service to the building.
 - a. Most services over 200 amperes are metered by current transformers. Pulling the electric meter WILL NOT shut off the electric supply to the building.
 - b. Some meter bases are equipped with automatic bypasses. When the meter is removed, the bypasses close and the building remains energized.
 - c. People have developed many unique methods to bypass the meter. Though Alliant Energy continually looks for these dangerous and illegal practices, there's no way for us to guarantee they don't exist.
2. If explosive gases are present in the building, the service wire piping can act as a chimney. A small amount of natural gas may be present in the meter socket and pipe. When the meter is removed, a small arc will occur and the natural gas may explode.
3. If the meter glass is exposed to the heat of a fire, it can build up internal stresses and explode on contact.
4. After an electric meter is removed, the energized contacts in the meter socket are left exposed. The exposed contacts present an electrical hazard to anyone who is near the meter base.

CAUTION: Use extreme caution when installing and removing roof ladders and stay a safe distance away from overhead conductors. Contact with an overhead electric line can cause serious injury or death.

Pole and pole-mounted equipment fires

Most pole fires are caused by lightning, equipment failure or insulator breakdown.

If a grass or small brush fire is burning under power lines or around poles, use standard firefighting practices to extinguish the fire.

If there is a downed wire involved in the fire, do not spray water near the wire.

If the fire is near the top of the pole or is in pole-mounted equipment and it appears that the fire will not endanger life or property, let it burn and notify Alliant Energy. Most pole-mounted equipment contains oil. If the equipment is still energized, very little can be done to extinguish the fire, since the oil will continue to reignite.



Rescue operations

If a person has climbed a pole or entered a substation and you are called to the scene, do not assist the person until Alliant Energy arrives on the scene. You could endanger the victim and/or yourself.

Animal rescue

The fire department is usually the first to be called upon to rescue cats or other animals that have climbed utility poles. There have been times when firefighters have lost their lives while attempting to rescue animals. All of these calls should be turned over to Alliant Energy. In most cases, these animals will return to the ground if left alone.

If you attempt to rescue an animal from a tree, check carefully for nearby overhead lines. Power lines in trees are particularly difficult to see. Identify their location before you begin climbing. NEVER touch a power line or allow a tree branch to make contact with the line.

CAUTION: It is very difficult to tell utility lines apart. You MUST assume all overhead lines, including cable and phone, are energized.

Summary

Remember the following principles when dealing with electrical emergencies:

1. Call Alliant Energy or the local power company.
2. Treat all wires as dangerous and energized at high-voltage.
3. Exercise extreme caution when approaching the scene of an electrical emergency. Assess the situation before taking any action.
4. Establish a safety zone at the scene of an electrical emergency. Prevent all unauthorized persons from approaching the scene.
5. Continue to guard the scene until relieved by an authorized utility representative.
6. NEVER tamper with energized wires or equipment. Your primary responsibility is to save lives – including your own.

Natural gas distribution system

Energy companies bring natural gas to homes and businesses through a network of underground pipelines. These pipelines are located throughout your community, in residential, commercial and rural areas.

Pipeline operators, which are regulated by state and federal agencies, have exceptional safety records, but on rare occasions incidents do occur.

If a natural gas pipeline is damaged, natural gas can escape into the air, migrate into nearby structures, sewer systems and under frost caps, and possibly ignite. Since many natural gas facilities are near homes and businesses, it is critical that you respond appropriately to protect yourself and the public.

To ensure our pipelines stay safe and secure, Alliant Energy inspects our natural gas system, designs reliable pipelines and invests in new technologies and pipeline integrity programs. We are also committed to educating the communities along our pipelines about our natural gas system and how to prevent, recognize and respond to natural gas leaks.



Pipeline location

Natural gas utilities and other pipeline operators bury pipelines underground, so aboveground signs and markers are used to indicate approximate pipeline location. These markers are often placed where a pipeline crosses a street, highway, railroad or waterway, and at other points along the right-of-way.

However, not all pipelines are marked. For example, markers ARE NOT required in high-density urban areas where it would be practically impossible to place a marker.

The color, format and design of markers may vary, but all markers must provide the pipeline contents, the name of the pipeline operator and an emergency phone number.

National pipeline mapping system

To identify pipeline operators with facilities in your area, use the National Pipeline Mapping System (NPMS). This database was created so local government and emergency officials can find up-to-date contact information for pipeline companies.

Visit npms.phmsa.dot.gov to request a password to access this information.

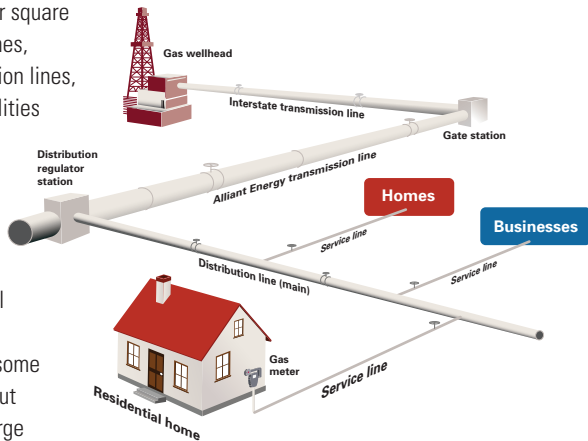
Natural gas delivery system

Natural gas is delivered to homes and businesses through underground pipelines.

Large diameter, high pressure (300 to 1,000 pounds per square inch gauge) steel pipelines, referred to as transmission lines, bring natural gas to facilities called gate stations where the gas is reduced in pressure and mercaptan odorant is added before it enters the local distribution system.

Alliant Energy owns some high pressure pipeline but most are operated by large pipeline companies like Northern Natural, Natural Gas Pipeline Company and ANR.

From gate stations, natural gas is transported at a lower pressure, generally at 60 p.s.i.g. or less, through steel or plastic pipe known as distribution pipelines or "mains." These mains are usually located in roadways or under the grassy areas between curbs and property lines, some on private property.



What is natural gas?

Natural gas is a colorless, tasteless and odorless flammable gas that is lighter than air and must be mixed with air to ignite. The flammable range is 4% to 15% in air. To burn or explode, you also need an ignition source such as an open flame, electrical spark, mechanical spark or static electricity discharge from walking on carpeting or using a cell phone.

Natural gas is nontoxic, but it can displace the oxygen in a confined space or enclosed area.

Because natural gas is odorless, we add a liquid odorant called mercaptan to distribution pipelines that smells similar to rotten eggs. This makes even small leaks easy to detect. Most transmission lines are not odorized. Pipeline leaks are rare, but it's important to know the signs and be ready to respond. Follow our emergency response procedures if you smell a distinctive rotten egg odor, see blowing dirt, bubbling water or discolored vegetation in an otherwise green area, or hear a hissing or whistling sounds near a gas appliance meter or pipeline.

Liquid odorant storage

The odorant that gives natural gas its distinctive smell is called mercaptan. It's a flammable sulphur-based compound injected in the pipeline at gate stations. Liquid odorant may be stored in cylinders at these gate stations prior to injection. The storage of this compound does not cause an extreme hazard, but fire departments that have gate stations and mercaptan storage cylinders in their communities should be aware of the properties and characteristics of this chemical.

Natural gas hazards: Emergency response procedures

Taking control of a natural gas emergency may involve closing an aboveground gas valve. Natural gas mains and services are equipped with valves to control the flow of natural gas through the pipe.

In an emergency, you can stop the flow of gas by closing the valve on the service meter. This valve is located at the natural gas meter serving homes and smaller buildings.

You should NEVER operate underground valves or valves inside regulation stations or fenced areas at gate stations as this could cause a serious problem elsewhere in the system. Only trained utility employees can safely operate valves on the utility system, which is why it's critical to call Alliant Energy in an emergency.

If you shut off a service meter valve, you must notify Alliant Energy or the local natural gas utility. You should NEVER open a gas valve that has been closed as this could create a hazardous situation. Alliant Energy MUST be made aware of the services that need to be turned on once the situation is safe. Our employees will check for potential problems on the system before reestablishing service.

Natural gas valves

Service laterals

Service laterals are pipes that carry natural gas from the main to homes and buildings.

For homes and most buildings, service laterals in areas served by Alliant Energy are of two types: Steel and plastic. Service laterals range from ¾-inch to 2 inches for steel, and from ½-inch to 2 inches for polyethylene plastic. Larger service laterals, such as those serving factories, range in size from 4 to 12 inches in diameter.

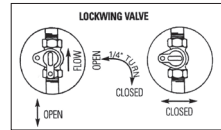
Outside meters and valves

Alliant Energy prefers to install meters outdoors, adjacent to homes or buildings. An outside meter allows greater accessibility and safety. It is best to allow the utility company to operate natural gas shut-off valves. On **rare occasions**, emergency responders may need to shut off the supply before Alliant Energy is on site.

On an outside meter, the natural gas inlet pipe (riser) is abovegrade leading to the meter. The shut-off valve is located below the regulator (pressure-reducing device). To close the valve, use an adjustable pipe wrench and give the valve core a quarter turn clockwise.

If a valve turns hard, make sure the nut or other holding mechanism on the back of the brass core also starts moving. If the holding mechanism is not turning, it indicates the core is being twisted and deformed. **DO NOT CONTINUE TO OPERATE THE METER STOP. IT MUST BE REPLACED BY ALLIANT ENERGY. CONTINUED OPERATION OF THE STOP MAY CAUSE THE CORE TO BREAK AND RESULT IN A SITUATION OF UNCONTROLLED BLOWING GAS.**

If you shut off a valve, leave it off and notify Alliant Energy. Alliant Energy will ensure safety and turn the service back on. Shutting off the natural gas supply extinguishes all pilot lights, which are small, constantly burning flames used to ignite natural gas at a burner. If you open the valve, you may create a hazard.



Inside meters and valves

Some meters are still located inside homes and buildings, particularly in urban areas. The meter shut-off valve for this type of installation is typically located inside the building at the point where the service pipe comes through the basement wall.

This valve may not be accessible because of fire or water in the basement. In this situation, an underground shut-off valve or "curb stop" should be operated **ONLY** by Alliant Energy employees. An underground curb stop is usually installed on all services where the meter is located inside buildings.

However, some inside meters may have the meter stop and regulator outside the building. A regulator (pressure-reducing device) is located in the vertical pipe (riser) coming up from the service lateral. A shut-off valve is located in the riser below the regulator.



Natural gas emergency response tactics

In the event of a natural gas emergency (examples include outside gas leaks, excavation damage to pipelines, inside gas leaks, fires and explosions) you should always do the following:

- Establish an effective and safe perimeter.
- Evacuate the public to a safe distance. If you suspect a natural gas leak, keep bystanders outside the leak perimeter. Alliant Energy employees can help determine the perimeter.
- Eliminate ignition sources. DO NOT smoke, ring doorbells or touch anything that might create a spark, such as electric light switches or cell phones. Even walking on carpeting can create a spark. Turn off engines or other power equipment. Any emergency equipment that must be kept running should be moved a safe distance away.
- Always call Alliant Energy immediately, especially for possible inside natural gas leaks. We are on call 24 hours a day to assist first responders with natural gas emergencies. Our employees are specially trained to operate natural gas equipment and know how to make the situation safe.
- Natural gas can migrate underground, so check nearby buildings and structures. DO NOT ring doorbells if checking other homes in the area.



Free online safety training

- alliantenergy.com/safetytraining

The National Association of State Fire Marshals offers Pipeline Emergencies online.

- pipelineemergencies.com
- Get the Pipeline Emergencies app for Apple or Android

Additional tactics if a natural gas leak is known or suspected

All leaks may be hazardous to life or property and are to be treated as emergencies until it is known that no hazard exists.

- If natural gas is escaping outside, approach the scene with the wind at your back.
- Use a natural gas detector to determine if gas is present in accordance with your department's procedures and use only a detector that is maintained according to manufacturer's instructions.
- If gas is escaping outside, keep water out of excavations where gas is blowing.
- DO NOT enter an enclosed area such as an excavation, sewer, vault or pit where gas is blowing. Natural gas may displace oxygen in these areas. In addition, static electricity may accumulate on plastic pipe, creating an ignition hazard.
- Use fog spray to move escaping natural gas away from hazard areas such as roads or buildings where the natural gas could ignite.

In addition:

- DO NOT allow anyone to enter or remain in buildings where natural gas is present.
- DO NOT plug electric fans into house electrical outlets. They could be an ignition source.
- Use positive pressure ventilation (PPV) and remember to keep the PPV itself out of any area where natural gas is present. A remote exhaust hose should be used to prevent carbon monoxide accumulation.
- DO NOT open stoves, ovens, furnaces or other appliances.

CAUTION: Use the wind to your advantage at outside natural gas incidents. In order to maintain a safe work zone around your equipment and to avoid other ignition sources, position vehicles upwind or outside the plume of the natural gas leak. This will prevent intake of natural gas into the vehicle combustion system that may ignite the natural gas. If you smell natural gas, you need to move to a safer location. Watch out for wind shifts throughout the incident.

Report damage

You should immediately report any damage or suspicious activity along a pipeline right-of-way by calling 1-800-ALLIANT. Crews will immediately investigate and repair any damage.

Additional tactics for natural gas fires

- Let the gas burn unless life is in danger. Do not try to extinguish burning gas with water.
- If you must perform rescue operations, use a dry chemical extinguisher to put out the fire or a fog spray to protect personnel.
- To prevent the fire from spreading, protect exposures. Burning gas may ignite surrounding combustibles.

CAUTION: If you extinguish the fire before the natural gas is shut off, an explosion may occur as the accumulating natural gas is ignited by nearby ignition sources. If you must extinguish the fire to perform a rescue, do so as part of a coordinated effort of extinguishment and natural gas shutdown. Watch for re-ignition.

Sources of ignition

There are many ignition sources that must be considered when natural gas is leaking. If there is an ignitable mixture of natural gas present (4% to 15% gas-to-air), elimination of ignition sources MUST be the first priority. Common ignition sources are pilot lights, spark igniters, electrical switches, garage door openers, disconnects and any other source between 900 F to 1,200 F. Other ignition sources not always considered are doorbells, security systems, nonrated flashlights, pagers, radios and static electricity. Eliminate ALL ignition sources.

If you need electricity disconnected to the building because of natural gas accumulation, DO NOT shut off circuit breakers or pull the electric meter. The act of pulling the meter may cause an arc or spark that could ignite the natural gas. Call Alliant Energy or the local electric utility to have the electric service disconnected at the pole.

Consider the possibility that the building could be served by an automatic source of backup power, such as a generator fueled by diesel or natural gas.

If there is no hazard of natural gas accumulating, an electrical disconnect could be used to shut off the alternate power source.

Another option may be to shut off the natural gas or diesel fuel line to the generator. In the case of natural gas generators, shutting off the natural gas supply may cause the generator to try to restart, creating an ignition source hazard in the area of the generator. For this reason, we DO NOT recommend you operate any switch or ignition source if there is a danger of accumulating natural gas being ignited. It may be better to keep people away, including firefighters, until the natural gas hazard has been dissipated by shut-off or ventilation.

Relief valves

Natural gas systems contain relief valves to prevent over-pressurization. These valves are located at many gate stations and meter sets. If gas is blowing, do not turn off any valve. And, if gas is burning, do not extinguish the fire. If you must perform rescue operations, use a dry chemical extinguisher to put out the fire or a fog spray to protect personnel.



Incomplete combustion and carbon monoxide

Incomplete combustion of natural gas or other fossil fuels can produce carbon monoxide. This odorless, colorless gas is toxic and flammable. The health effects of carbon monoxide are serious and may be fatal.

Incomplete combustion may occur in an over-gassed, under-gassed or unvented appliance. It can also be caused by a flame supplied with insufficient oxygen. A broken or plugged appliance or furnace vent, or a plugged chimney, may allow carbon monoxide to collect in living spaces. Carbon monoxide poisoning can also be caused by automobile exhausts and charcoal or gas grills.

Signs of carbon monoxide poisoning are: Headache, nausea or vomiting, dizziness, burning eyes, drowsiness, feeling faint, insomnia, irritability and coughing without fever. Sometimes these symptoms are mistaken for the flu.

If contacted, an Alliant Energy employee will assist fire service officials by shutting off the natural gas supply to the appliance or home. If carbon monoxide is suspected, evacuate people from the contaminated area and if necessary, call Alliant Energy. If carbon monoxide levels are 200 parts per million or higher, only emergency responders wearing self-contained breathing apparatuses can enter the area.

Summary

If you suspect a natural gas leak, take the following steps:

- Call Alliant Energy immediately from a phone outside the building or leak area.
- Clear the building and/or area of all occupants.
- Keep all sources of flame and sparks away from the suspected gas leak area.
- DO NOT smoke, use a light switch, flashlight, elevator, telephone or matches.
- Eliminate all ignition sources.
- If it can be done safely, ventilate the building by opening windows and doors.
- Wait in a safe location for assistance from Alliant Energy.

Emergency contact information

In an emergency, **fire and law enforcement** should call **1-800-758-1576**.

Always provide the following information when you call:

- Exact location of the emergency (municipality, fire number and street address).
- Type of emergency (natural gas or electric).
- Nature of emergency (fire, explosion, natural gas leak).
- Number of emergency personnel at the emergency location.

In an emergency like a downed wire or natural gas odor **the public** should call 1-800-ALLIANT (800-255-4268).

More information

To obtain a copy of Alliant Energy's integrity management program or a community's Pipeline Emergency Response Plan, please call 1-800-ALLIANT or email customercare@alliantenergy.com.

To learn more about natural gas safety visit alliantenergy.com/gas.

alliantenergy.com

