

First Responder Beware®

Electrical and natural
gas safety for
first responders



Produced by Culver Media for National Grid

Smell Gas. Act Fast.

To report emergencies, call **911**
and **National Grid** immediately.

In case of gas emergencies:

Massachusetts: **1-800-233-5325**

Rhode Island: **1-800-640-1595**

New York:

Long Island and the Rockaways: **1-800-490-0045**

Metro New York: **1-718-643-4050**

Upstate New York: **1-800-892-2345**

In case of electric emergencies:

New England: **1-800-465-1212**

Upstate New York: **1-800-867-5222**

Staying safe while saving others

firstresponder.ngridsafety.com

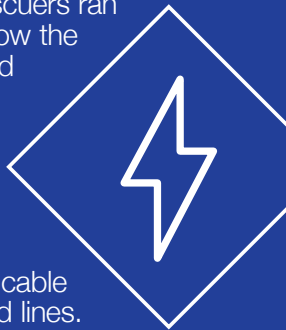
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Respect the **power of electricity**



Vehicle rescue goes awry

A car that had struck a utility pole lay on its side with an injured passenger pinned inside, just two feet away from downed power lines. In an attempt to stabilize the vehicle, rescuers ran a steel winch cable below the sagging power lines and attached it to the car's luggage rack. A fire chief, a firefighter, an EMT and a bystander were holding the cable when the luggage rack pulled loose; it and the cable contacted the energized lines. The fire chief and bystander were both killed; the firefighter and EMT were severely burned.



Stay out of its path!

Electricity always seeks the easiest path to the ground. It will travel there through conductors, including water, the human body, and metal objects like ladders, poles and fences.

Your standard protective gear does not insulate against electric shock, and even low-voltage electric shock can kill you. To keep yourself safe, you must stay out of electricity's path:

- **Assume all power lines are energized and potentially dangerous.**
- **Keep yourself and your equipment *at least* 10 feet from all overhead power lines.** Consider how close aerial equipment will be when fully extended, and use a spotter to monitor placement.
- **Be extremely cautious when using water to fight fires near power lines.** If you must use water, use only a mist or spray—**never** a solid water stream.
- **Do not attempt to enter or contact vehicles that may be energized.** This is extremely dangerous and can lead to serious injury or death.
- **NEVER cut service wires or remove electrical meters.** Instead, turn off power at the main circuit breaker.

This booklet is designed to supplement, not replace, your department's standard operating procedures on electrical safety.

If National Grid does not provide electricity or natural gas in your department's response area, please coordinate your incident response with the appropriate local utility.

Avoid overhead power lines

Assume all power lines are energized, and always follow the 10-foot rule.

Upon arrival at every incident scene, survey the area to find overhead power lines and poles and check for downed lines:

- **Park emergency vehicles as far from overhead lines as possible.**
- **Keep yourself, your ladders and all aerial equipment *at least 10 feet* away from overhead power lines at all times.** Lines over 350,000 volts require even greater clearances. Remember that wind can move lines or aerial equipment, so always use the maximum possible clearance.
- **If your aerial equipment contacts a power line:**
 - If there is no immediate danger, **stay put, have someone call National Grid immediately, warn others to stay away, and move the equipment away from the line** if you can do so safely.
 - **If you must get off the equipment due to fire or other imminent danger, jump clear, land with your feet together and shuffle away with small steps, keeping your feet together and on the ground.** Do not touch the equipment and the ground at the same time. Do not run or take large steps.

Electrical safety distances given are minimums. Higher voltages require greater clearances. **Always use the maximum possible distance.**



Firefighter burned when ladder boom strikes power line

Firefighters arrived at a burning warehouse intending to douse the roof with water. While a firefighter on the ground was trying to connect a pumper truck hose to a fire hydrant, the truck's ladder boom hit a 7,200-volt power line. Electric current traveled through the ladder and hose, severely burning the firefighter.

Downed power lines



Blowing power line kills state trooper

A 36-year-old state trooper came to the aid of a motorist who had struck a utility pole. A high-voltage power line hung several feet off the ground and was blowing in the wind. As the trooper approached the wrecked vehicle, the power line touched the side of his neck. He died en route to the hospital.

Never attempt to move a downed wire.

Downed power lines can be energized even if they don't hum or spark, and anything contacting a downed line may be energized—including the ground. If you know or even suspect that a power line is down, call National Grid immediately, secure the area and wait for utility personnel to give the all clear.

- **Secure the area.** Keep yourself and the public **at least** 30 feet away from downed distribution lines. Fallen transmission lines from large towers require 100 feet of clearance.
- **Do not enter or contact vehicles that may be energized.** This is extremely dangerous and can lead to serious injury or death. Instead:
 - **Instruct vehicle occupants to drive the vehicle away from the line** if they can do so safely.
 - **If the vehicle cannot be safely moved, instruct occupants to stay in the vehicle until utility personnel give the all clear.**
 - **If occupants are in imminent danger from fire or other hazards, stay away, and instruct them to jump clear** without touching the vehicle and the ground at the same time. They must land with their feet together and shuffle away with small steps, keeping their feet together and on the ground.
 - **If occupants are injured, disabled or otherwise unable to safely exit the vehicle,** your incident commander will tell you how to proceed.



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Substation & transformer emergencies

Let it burn.

Burning electrical equipment is already ruined and will be replaced. Your safest course of action is to let it burn unless or until otherwise instructed by electric utility personnel.

Immediately contact National Grid and wait for their personnel to arrive. While you are waiting, secure the area:

- **Isolate the area *at least* 300 feet** in all directions. Keep unauthorized persons away.
- **Be alert to the risk of transformer explosions, smoke hazards and oil releases.** Stay upwind and consider initial downwind evacuation for ***at least* 1000 feet.**
- **Protect area exposures** to prevent fire from spreading.
- **Never attempt to open a ground transformer** or switch cabinet.
- **Monitor for oil runoff;** direct it away from catch basins or surface waters.

If an equipment fire must be suppressed, utility personnel and the incident commander will tell you how to proceed.



Successful response to substation fire

A circuit breaker containing 20 gallons of mineral oil caught fire and exploded at a rural electric substation. Flames and smoke shot 200 feet into the air. Firefighters evacuated nearby residences within 300 feet, set up a 100-foot perimeter around the substation, closed the nearby highway and let the fire run its course. Thanks to proper response procedures, no one was injured.

Understanding the **properties of natural gas**



Avoid ignition hazards

A lit cigarette is enough to ignite natural gas, and even the smallest electrical spark has been known to cause an explosion. If you suspect a leak, do not ring doorbells, use garage door openers, or turn on or off any lights or electrical devices or appliances. Do not step on doormats, as friction from your boots could create a spark of static electricity. Do not use spark-producing equipment. Use only intrinsically safe radios and flashlights in the vicinity of a gas leak.



Prevent natural gas ignition.

- **Natural gas is lighter than air** and will move laterally or migrate upward when underground or in enclosed spaces.
- **Natural gas has an explosive (flammable) concentration range between about 5% and 15% gas to air.** At concentrations below 5% or above 15%, natural gas will not burn.
- **Gas can accumulate in storm drains, construction trenches, buildings and other utility lines.** As gas concentrations rise or fall, they can pass through the explosive range.
- **Learn to recognize the common indicators of a leak:**
 - A distinctive, sulfur-like odor*
 - A hissing, whistling or roaring sound
 - Dirt blowing into the air from a hole in the ground
 - Continuous bubbling in water
 - Dead or dying vegetation (in an otherwise moist area) over or near a pipeline
 - A damaged connection to a gas appliance
 - Exposed pipeline after an earthquake, fire, flood or other disaster

**The odor of natural gas comes from a sulfur-smelling chemical additive called mercaptan. Because some natural gas has never been odorized, some leaks may not be detectable by smell alone. Additionally, the odor of gas may fade due to chemical or physical processes that strip mercaptan from the natural gas so that it no longer smells. This is known as "odor fade."*

Responding to **natural gas emergencies**

Know the procedures for gas leaks and fires.

When called for a gas leak or fire, or if you smell gas at an incident site, **contact National Grid and follow these procedures:**

- **Park emergency vehicles away and upwind from the area**, and do not park over manholes or storm drains.
- **Evacuate the area and nearby structures immediately**—330 feet in all directions, if possible. For larger leaks, consider downwind evacuation for at least a half-mile. Be alert to risks from migrating natural gas.
- **First responders who have been trained to do so may turn off gas at aboveground meter valves or appliance supply lines only—NEVER at underground valves or relief vents.** Remain alert for gas migration and possible re-ignition.
- **Let it burn. DO NOT use water to suppress a natural gas fire**, as it is ineffective. However, it can be used to cool exposures. National Grid personnel and the incident commander will tell you how to proceed.



Natural gas migrates, explodes, kills four

Emergency personnel responded to the scene of a natural gas pipeline rupture caused by construction workers. The responders did not check nearby buildings to determine if gas was accumulating or to help assess the need for a possible evacuation, even though the high-pressure pipeline continued to leak. About 39 minutes after the pipeline rupture, an explosion occurred. It destroyed six buildings, killed four people and injured eleven, including two firefighters and one police officer.



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When you suspect electrical or natural gas hazards, ask your dispatcher to contact National Grid.

Firefighters, police and EMTs are typically the first on the scene in an emergency and face the greatest risk from utility hazards. Understanding the potential dangers of electricity and natural gas and dealing with them correctly makes everyone safer.

- **Contact National Grid immediately** when electric or natural gas lines are involved in an emergency.
- **Park emergency vehicles away** from the area of a utility-related incident.
- **Assume all power lines are energized** as well as all objects and areas around electrical hazards.
- **Never attempt to move fallen power lines or contact energized vehicles** until utility personnel give the all clear.
- **Keep yourself and your equipment *at least* 10 feet from all overhead power lines.** Always use the maximum possible distance.
- **Avoid and prevent ignition** in the vicinity of natural gas leaks and evacuate the area.
- Turn off natural gas service **at aboveground meter valves and appliance supply lines only.**
- When natural gas is burning, **let it burn and protect exposures.**

