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

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:

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

Staying safe while saving others

firstresponder.ngridsafety.com

nationalgrid

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 received severe electrical burns.

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.

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

- **Keep all personnel and equipment as far away as possible from overhead power lines,** including the service drops that run from utility poles to buildings. Consider how close equipment will be when fully extended.
- **Use a spotter to monitor aerial equipment and keep it away from power lines and rooftop photovoltaic (PV) panels.** An equipment operator cannot do this alone.
- **Be alert for indoor electrical hazards** when entering any structure. Even low-voltage electrical shock can kill you.
- **Do not enter, touch or even approach 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 and natural gas safety.

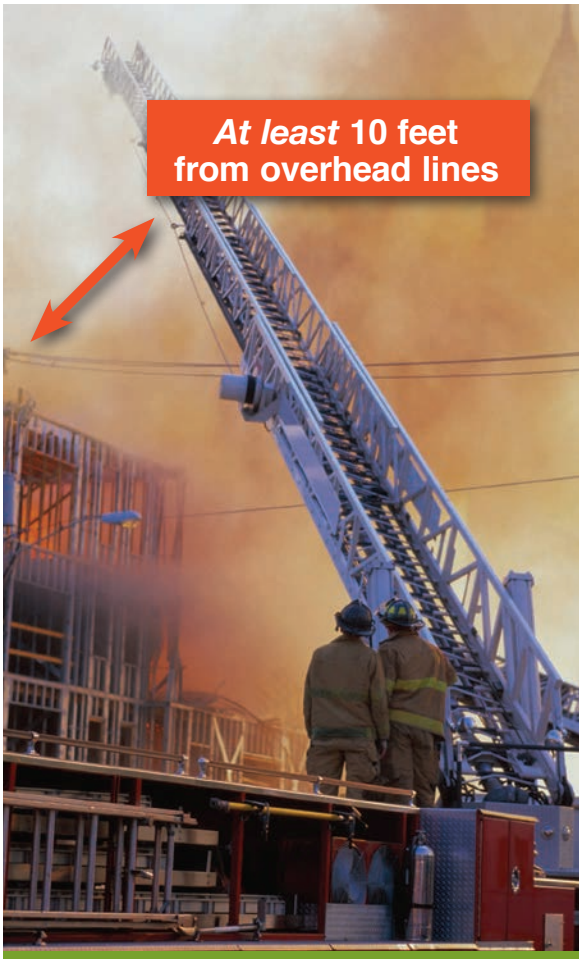
Avoid overhead power lines and PV hazards

Assume all electrical equipment is energized, and always follow the 10-foot rule.

Upon arrival at every incident scene, survey the area to find overhead power lines and poles, photovoltaic (PV) systems, and batteries.

- **Locate overhead power lines.** Check for downed lines as well.
- **Park emergency vehicles as far from overhead lines as possible.**
- **Assume all power lines, PV systems, and batteries are energized** as well as all objects and areas around electrical hazards.
- **Keep all personnel, ladders, drones and aerial equipment *at least* 10 feet away from energized overhead power lines at all times.** Remember that wind can move lines or equipment.
- **Never try to retrieve a drone that has crashed into an electrical facility.** Call National Grid immediately.
- **If your aerial equipment contacts a power line:**
  - If there is no immediate danger, remain on the equipment, move it away from the line if you can do so safely and warn others to stay far away. Have someone call National Grid immediately.
  - **If you must get off the equipment due to 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 clearance distances. **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 7.2-kV 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, touch or even approach vehicles that may be energized.** 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.** Staying in the vehicle is their best protection against electrical shock.
  - **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.

800-428-5837
Product #38650 Run #5015 January 2025
Printed by Quad/Graphics, West Allis, WI

Substation, transformer and BESS 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. Keep people *at least* 300 feet away** from a burning substation or a compromised battery energy storage system (BESS).
- **Be alert to the risk of explosions, toxic-smoke hazards and oil releases, and stay upwind.** A BESS can present an explosion hazard, even without signs of fire.
- **Prevent contamination of water resources.** Monitor for oil runoff and direct it away from catch basins, surface waters and wetlands.
- **Protect area exposures** to prevent fire from spreading. Do not direct water into a substation.
- **Never attempt to open a ground transformer** or switch cabinet.

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

Even a tiny spark from a light switch or phone is enough to ignite accumulated natural gas and cause an explosion. If you suspect a leak, do not use garage door openers or turn on or off any lights or electrical appliances or devices, including e-cigarettes and vape pens. Knock on doors instead of ringing doorbells. 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.** When unconfined, it will rise vertically and dissipate. When underground or in enclosed spaces, it will move laterally, or "migrate," until it finds a way up.
- **Natural gas will only ignite when the gas-to-air ratio is between 5% and 15%.** This is known as the flammable (explosive) range. At concentrations below 5% or above 15%, natural gas will not burn.
- **Leaking gas can accumulate in storm drains, utility lines, buildings and other enclosed spaces.** As gas concentrations increase or decrease, they can pass through the explosive range.
- **Gas can displace oxygen.** In confined spaces where gas cannot dissipate, it can create oxygen-deficient conditions and pose an asphyxiation hazard.
- **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
  - An exposed pipeline after an earthquake, a fire, a flood or other disaster

**National Grid adds an odorant called mercaptan to natural gas to give it a sulfur-like smell. Although this odorant often aids in detection of gas leaks, you may not be able to smell it if you have been exposed to the odor for too long, if the mercaptan odor is masked by other smells or if the odor fades due to chemical or physical processes that strip mercaptan from the gas. Additionally, the gas in some transmission pipelines is not odorized.*

Responding to **natural gas emergencies**

Know the precautions for gas leaks and fires.

When called for a gas leak or fire or if you smell gas at an incident site, **confirm that your dispatcher has notified National Grid and follow these precautions:**

- **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.**
- If you are trained to do so, **you may shut off gas ONLY at an aboveground service valve before the meter** or at appliance supply lines. NEVER handle underground pipeline valves or relief valves.
- **After a service valve or appliance supply line has been closed, do not open it under any circumstances.** Only utility personnel may restore gas service.
  - Inform the gas utility of any valve you have closed and its precise location. This information is critical for system safety and service restoration.
- **Remain alert for migrating gas and possible reignition.**
- **If gas has ignited, let it burn.** Extinguishing the fire may allow unburned gas to collect and cause an explosion.
- **Do not use water to suppress a natural gas fire.** It is not effective and may introduce water into gas mains. You may use a fog spray to cool combustible exposures or gas valves and to assist with rescue operations.

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.

First Responder Beware®

Electrical and natural gas safety for first responders

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.
- **Your body is a conductor,** and your standard-issue protective gear does not insulate against electrical shock. Even low-voltage shock can be fatal.
- **Assume power lines, PV systems, and batteries are energized** as well as all objects and areas around electrical hazards.
- **Never approach or touch fallen power lines or energized vehicles** until utility personnel give the all clear.
- **Keep yourself and your equipment *at least* 10 feet from all overhead power lines,** including the service drops that run between utility poles and structures. Do not fly drones near power lines or other electrical equipment.
- **If an electrical equipment fire must be suppressed,** await instruction from utility personnel and the incident commander.
- **Avoid and prevent ignition** in the vicinity of natural gas leaks, and evacuate the area.
- **Shut off gas ONLY at an aboveground service valve** before the meter or at appliance supply lines. Never attempt to turn gas service back on. **Only utility personnel may restore gas service.**
- When natural gas is burning, **let it burn and protect exposures.**

nationalgrid