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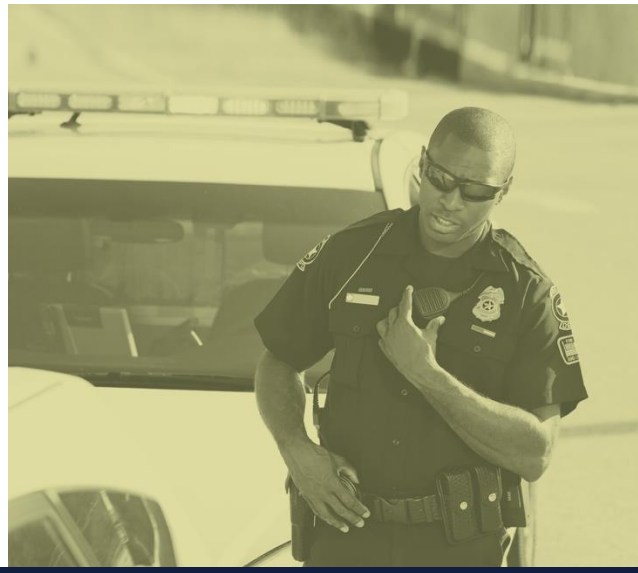

Electrical Safety for First Responders

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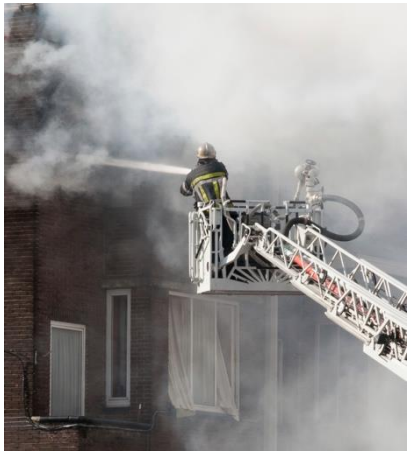
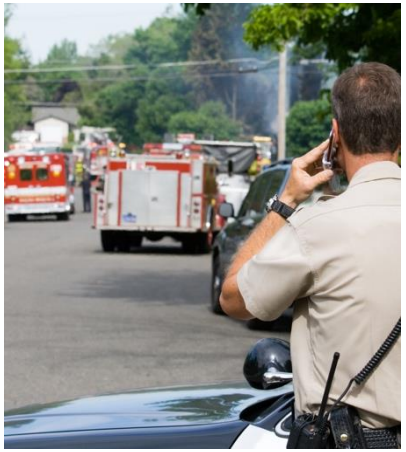
Firefighters, police, and EMTs are typically first on the scene in an emergency and face the greatest risk from electrical infrastructure contacts.

Understanding the potential dangers and dealing with them correctly makes everyone safer.

This program is designed to supplement, not replace, your department's standard operating procedures (SOPs).

Electrical Safety Basics

- Respect the Power of Electricity
- Hands Off Electrical Systems
- Protect Yourself and Others from Shock
- Always Observe the 10-Foot Rule
- Be Aware of Overhead Power Lines
- Always Assume PV Systems Are Energized
- Use Extra Caution Near Downed Power Lines
- Manage Substation, BESS, and Transformer Fires


Respect the Power of Electricity

- **Electricity always seeks the easiest, most direct path to ground** through conductors like:
  - Your body
  - Trees
  - Water
  - Metal objects and structures
  - Long or tall equipment
- **Even low-voltage electrical shock can be fatal.**
- **Standard-issue protective gear DOES NOT insulate you against electrical shock.**
- **Electrical shock and burn injuries may include internal tissue damage that is not immediately apparent.** Make sure victims receive thorough medical attention.

Hands Off Electrical Systems

- **Never attempt to disconnect electrical services:**
  - **Never cut service wires.** This is extremely dangerous. Instead, turn off power at the main circuit breaker.
  - **Never attempt to remove electrical meters.** This is extremely dangerous and can cause serious injury or death.
  - **Never attempt to open or enter a manhole or vault** until utility personnel tell you it has been de-energized**.**
- **Never touch or attempt to move power lines.**
  - **Although some wires may appear insulated, they are not.** Their weatherproof coating will not protect you from electrical shock.

Protect Yourself and Others from Shock

- **Always identify power lines and electrical equipment upon arrival at an incident scene.**
- **Assume all lines are energized**, as well as all objects touching power lines.
- **If power lines or electrical equipment are involved in an incident,** have your dispatcher contact the local electric utility.
- **Provide the best possible directions** to the location.
- **Secure the area.** Be prepared for the utility vehicle to arrive and make sure there is a clear path to the incident site for utility personnel.

Always Observe the 10-Foot Rule

- **Keep yourself and your equipment *at least* 10 feet away from overhead power lines.** Drones must be kept ***at least*** **200 feet away**.
- **There is no uniform system for identifying power line voltage.** When in doubt, contact the local electric utility for clearance information.
- **Have a spotter monitor the placement of ladders and aerial equipment** to ensure they remain a safe distance away from power lines.

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

Be Aware of Overhead Power Lines

- **Park emergency vehicles as far away as possible** from overhead power lines.
- **Keep aerial equipment *at least* 10 feet away** from overhead lines.
- **Use a spotter** to keep your aerial equipment away from power lines.
- **Never use a solid water stream** to fight fires near overhead power lines.

Be Aware of Overhead Power Lines

- **If your aerial equipment contacts a power line:**
  - **Remain on the equipment.** Move the equipment away from the line if you can do so safely. If the equipment cannot be moved, all personnel on the equipment should remain there.
  - **Warn others to stay far away.** Anyone who touches the equipment or even the ground nearby may be injured or killed.
  - **Have someone call the local electric utility immediately.** Utility personnel will respond quickly, switch off the power, and tell you when it is safe to get off the equipment. Wait for their instructions.

Be Aware of Overhead Power Lines

- **If fire or other imminent danger forces you off the equipment:**
  - **Jump clear,** keeping both feet together and without touching the equipment and the ground at the same time**.**
  - **Shuffle away with small steps,** keeping both feet close together and on the ground at all times.
  - **Do not run or take large steps.** When equipment contacts a line, electricity spreads out in the ground like ripples in a pond, and the voltage decreases with distance from the point of contact. If your legs bridge two areas of different voltage, serious injury or death can occur.

Always Assume PV Systems Are Energized

- **In incidents involving photovoltaic (PV) systems,** be alert for electrical, structural, and chemical hazards.
  - **Consider all PV equipment,** junction boxes, batteries, and wiring to be energized at all times. Do not touch or cut into PV modules, conduit, or equipment.
  - **Prepare for fires** near a rooftop array to grow unexpectedly, in some cases causing rapid structural failure.
  - **Always wear full protective clothing and SCBA.** Batteries that ignite or overheat may release hazardous materials and highly toxic and explosive gases.

Use Extra Caution Near Downed Power Lines

- Assume every downed power line, and anything in contact with it, is **energized and dangerous**.
- Park emergency vehicles **away from fallen lines**.
- Secure the area:
  - Keep yourself and the public ***at least*** **30 feet away** from fallen power lines.
  - Transmission lines from large towers require a distance of **100 feet**.
- **Never touch or attempt to move fallen lines** or objects contacting them.
- **Never use a solid water stream** to fight fires near downed lines.

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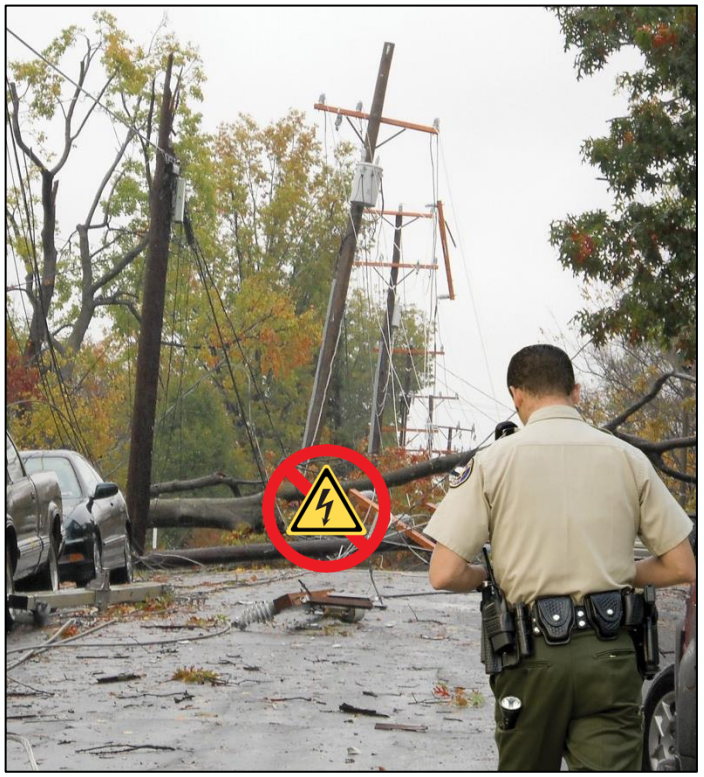
Use Extra Caution Near Downed Power Lines

- **DO NOT enter, touch, or even approach a vehicle that may be energized.** Resist the temptation to extract passengers.
  - **Call the local electric utility.**
  - **Instruct occupants to drive the vehicle far away from the line if this can be done safely.**
  - If the vehicle cannot be moved, **instruct all occupants to stay put until utility personnel give the all clear.** Staying in the vehicle is their **BEST** protection against electrical shock.



Use Extra Caution Near Downed Power Lines

- **If occupants in an energized vehicle are in imminent danger from fire or other hazards:**
  - **Instruct them to jump clear** without touching the vehicle and the ground at the same time.
  - **Tell them to shuffle away with small steps,** keeping both feet close together and on the ground at all times.
  - Demonstrate the proper procedure from a distance.
- **If occupants are injured, disabled, or otherwise unable to safely exit the vehicle on their own,** your incident commander will tell you how to proceed.

Substation and BESS Fires

- **Burning electrical equipment is already ruined and will be replaced.** The safest course of action is to **LET IT BURN**.
- Contact the utility and wait for their personnel to arrive. **Never attempt to enter a substation without utility personnel present.**
- **Evacuate the area** and keep everyone ***at least* 300 feet away** from a burning substation or Battery Energy Storage System (BESS).
- **Be alert for explosions, toxic smoke, and oil releases.** Stay upwind.
- **Protect area exposures** to prevent fire from spreading.
- **Prevent contamination of water resources.**
- **If an equipment fire must be suppressed,** utility personnel and the incident commander will tell you how to proceed.

Transformer Fires

- **Do not open or enter switch cabinets or pad-mounted transformers.**
  - **Never cut locks or pry cabinets open.** Equipment contains live electrical components, and if you touch them, serious injury or death can occur.
- **Call the local electric utility, evacuate the public, and protect area exposures.**
- **Let transformers burn unless or until otherwise instructed by utility personnel.**

Electrical Safety Review

- **Identify all overhead power lines and electrical equipment upon arrival at an incident scene.**
- Whenever you suspect electrical infrastructure is involved, or when in doubt, **call** the local electric utility. Be prepared for the utility vehicle to arrive and make sure there is a clear path to the incident site for utility personnel.
- **Hands off electrical systems.**
  - Never attempt to disconnect electrical service.
  - Never touch power lines.
- **Assume all power lines are energized, and keep yourself and your equipment *at least* 10 feet away.**
- **Use a spotter to keep equipment away from power lines.**
- Remember, your gear does NOT insulate you against electrical shock. **Even low-voltage electrical shock can be fatal.**
- **When responding to a substation or transformer fire, let it burn,** evacuate the area, and protect exposures and water resources.

Additional Information

- In case of an electrical emergency, call:
  - **AEP:** 800-277-2177
  - **Appalachian Power:** 800-956-4237
  - **Indiana Michigan Power:**
    Indiana 800-311-4634, Michigan 800-311-6424
  - **Kentucky Power:** 800-572-1113
  - **AEP Ohio:** 800-672-2231
  - **Public Service Company of Oklahoma:** 888-216-3523
  - **Southwestern Electric Power:** 888-216-3523
  - **AEP Texas:** 866-223-8508
  - **AEP Wheeling Area:** 800-982-4237
- For additional information, visit **AEP's** first responder safety website at **aep.e-smartresponders.com**.

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THANK YOU