

# first responder beware<sup>®</sup>

**Staying Safe While Protecting Others**  
**Electrical Safety for First Responders**

**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.**

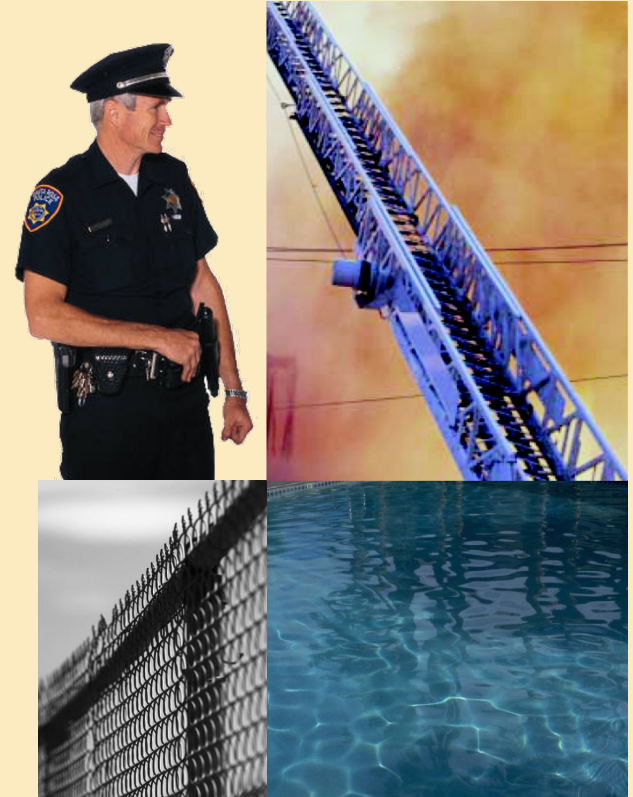
**This program is designed to supplement, not replace, your department's standard operating procedures (SOPs).**

# 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 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 electric shock can be fatal.**
- **Standard-issue protective gear DOES NOT insulate you against electric shock.**
- **Electric shock and burn injuries may include internal tissue damage that is not immediately apparent.** Make sure victims receive thorough medical attention.

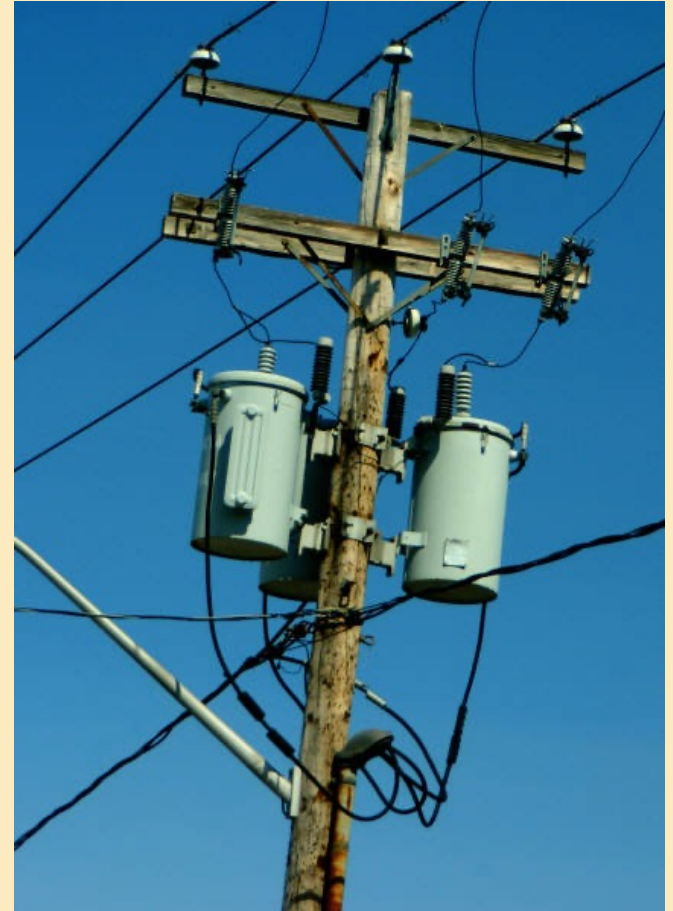


# Hands Off Electrical Systems

- **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.**
  - **Some wires may appear to be insulated but they are not.** Their coating is weatherproofing and is not designed to protect you from electric 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.
- Higher voltages require greater clearances.
- 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 near power lines and service wires to make sure they remain a safe distance away when fully extended.
- **Electrical safety distances given are minimums. 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.

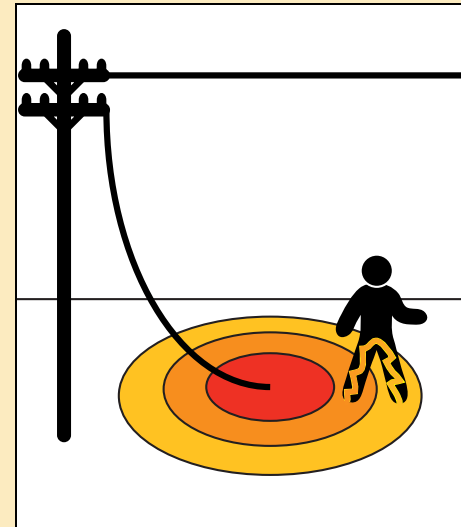


# Be Aware of Overhead Power Lines

- **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 Photovoltaic (PV) Systems Are Energized

- **In incidents involving 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.



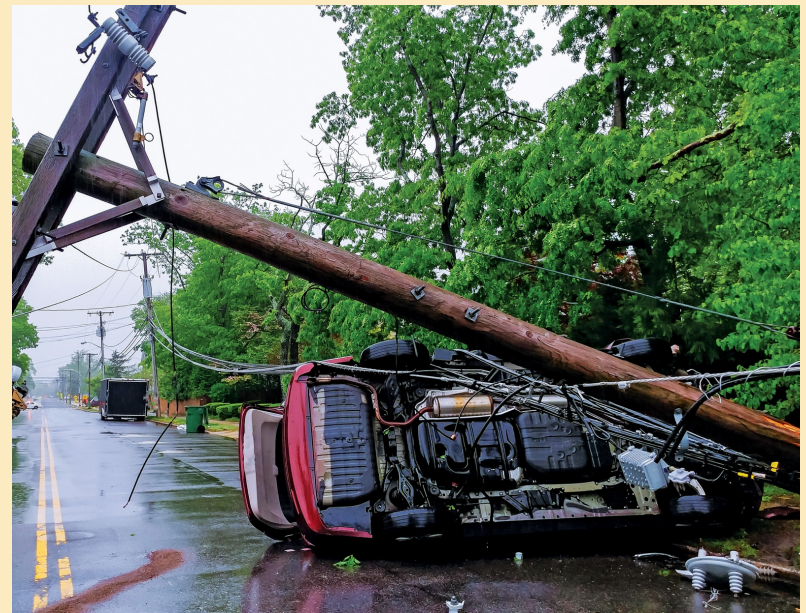
# Use Extra Caution Near Downed Power Lines



- 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.

# 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 electric 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 assess the situation and tell you how to proceed.

# Substation 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 the substation.
- **Be alert for explosions and toxic smoke, and stay upwind.** Electrical equipment contains oil and other hazardous materials.
- **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.**



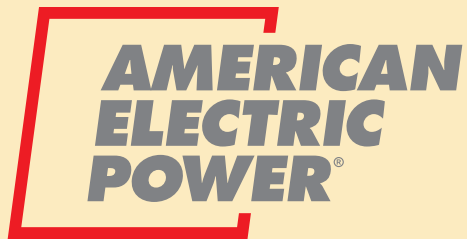


# Electrical Safety Review

- **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.**
- **Even low-voltage electric shock can be fatal.** Your gear does not insulate you against electric shock.
- **When responding to a substation or transformer fire, let it burn,** evacuate the area, and protect exposures and water resources.

# Contact Information

- **In case of emergency, call the local utility:**
  - **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:** 833-776-7697
  - **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](http://aep.e-smartresponders.com).**



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**Thank You**