

# Alton Fire & Rescue Department Standard Operating Guidelines (SOG)

SOG 2.3.2 Downed Power Lines & Energized Electrical Equipment (Reference SOP 2.3.2)

**PURPOSE:** To maintain safety in response to reports of power lines down and any energized electrical equipment.

**SCOPE:** All responses to downed power lines or hazards involving energized electrical equipment.

**SPECIFICS:**

- The Incident Commander shall ensure a level of safety for Department members and any members of the public until the situation is deemed safe or under control by a utility company.
- The Incident Commander shall consider potential for electrical shock, electrocution and secondary fire at all times.
- Power lines or other energized electrical equipment can come in contact with the ground as a result of storm related activity, fire, or vehicles striking power poles thus energizing the ground.

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## Standard Operating Procedure (SOP)

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**SCOPE:**        All responses to downed power lines or hazards involving energized electrical equipment.

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### ELECTRIC SAFETY AWARENESS

- Electricity always seeks its lowest level or ground. It will travel any path it can as it seeks a ground. A direct path to ground is when contact is made between something energized and a portion of your body such as your hand, arm, head, or other body part. An indirect path to ground occurs when you are holding something or touching an object that is in contact with something energized. This could include tools or other equipment you may be holding or when touching a fence, vehicle, or other object that may be in contact with something energized.
- When power lines are down, they will energize the ground around them. For example: point of ground contact could be 700 volts. This voltage will lessen as it radiates out from this point; for example, 400 volts. If your feet are in areas where there is a voltage difference, you could complete the circuit and be the source to ground. This is called “step potential”. This danger could be indicated by a tingling sensation in the feet and serve as a warning to back away from the area.

### KEY POINTS

- Lock out of down power lines generally occurs after three operations or attempts to re-energize. Even though you may hear this, do not assume the line is dead or de-energized. Downed lines must always be considered energized with potentially lethal current.
- Lines can reset and become “hot” or “energized” again by manual operation of a switch, by automatic re-closing methods (either method from short or long distances away), by induction where a de-energized line can become hot if it’s near an energized line, or through back feed conditions.
- Power line tends to have “Reel Memory” and may curl back or roll on itself when down.

- Use caution when spraying water on or around energized electrical equipment. Hose streams conduct current. Never spray directly on power lines. Your primary responsibility is to protect the surrounding area.
- PCB hazards: Smoke potentially fatal; avoid and contain pools of oil around transformers.

#### RESPONSE TO POWER LINES DOWN

- **Request utility company to respond.**
- Consider all down wires as “energized”.
- TAC Stick may be used to **identify** energized areas.
- Place apparatus away from “down lines and power poles”.
- Locate both ends of downed wires.
- Secure the area/deny entry.
- Periods of high activity; company officer may choose to leave one crew member on-scene with a radio to wait for utility company.
- In the event of multiple lines/poles down over a large area, call additional resources.

#### DOWN POWER LINES AND VEHICLES

- Request utility company to respond.
- TAC Stick may be used to **identify** energized areas.
- Do not touch vehicle.
- Have occupants remain inside the vehicle.
- Place apparatus a safe distance away from downed lines.
- If occupants **must** leave the vehicle (fire or other threat to life) instruct them to open the door, not step-out. **They should jump free of the vehicle without touching vehicle and ground at the same time.**

#### SUB-STATION, TRANSFORMER, ELECTRICAL VAULT AND MANHOLE FIRE

- Request utility company to respond.
- Clear the area.
- Be aware of explosion potential.
- Place apparatus in a safe location away from overhead power lines.
- Protect exposures.
- TAC Stick may be used to **identify** energized areas.
- Do not make entry until above electrical equipment has been de-energized by the utility company..

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