

County	Public Service	Name
Chippewa	Ambulance Service	Clara City Ambulance
		Montevideo Ambulance Department
		Prinsburg Ambulance
	Fire Department	Clara City Fire Department
		Granite Falls Fire Department
		Maynard Fire Department
		Montevideo Fire Hall
		Watson Fire Department
	Hospital	CCM Health
		CCM Health: Emergency Services
		Granite Falls Clinic
		Granite Falls Health: Emergency and Health Center
		Montevideo Hospital and Clinic
		Municipal Hospital
	Law Enforcement	Chippewa County Sheriff
		Montevideo Police Department
Kandiyohi	Ambulance Services	Atwater Ambulance Services
		Spicer Ambulance Services
		Sunburg Ambulance Services
	Fire Departments	Atwater Fire Department
		Kandiyohi Fire Department & First Responders
		Lake Lilian Fire Department
		New London Fire Department
		Pennock Fire Department
		Prinsburg Fire Department
		Raymond Fire Department
		Sunburg Fire Department
		Willmar Fire Department
	Hospitals	Carris Health - Rice Memorial Hospital
		CentraCare - Wilmar Clinic
		CentraCare - Wilmar Lakeland Clinic
	Law Enforcement	Wilmar Police Department

County	Public Service	Name
Lyon	Ambulance Services	North Ambulance Marshall
		Tracy Ambulance Services Inc. Ambulance
	Fire Departments	Balaton Fire Department
		Cottonwood Fire Department
		Garvin Fire Hall
		Lynd Fire Department
		Marshall Fire Department
		Minneota City Fire Hall
		Russel Fire Department
		Tracy Fire Department
	Hospitals	Access Health and Avera Medical Group in Marshall - Carlson Street
		Avera Marshall Regional Medical Center
		Mecca Medical Center
		Sanford Tracy Medical Center
	Law Enforcement	Lyon County Police Department
		Lyon County Sheriff Office
		Minneota City Police Office
		Tracy Police Department
Meeker	Ambulance Services	Cosmos Ambulance
		Watkins Ambulance Services
	Fire Departments	Cosmos Fire Department
		Eden Valley Fire Department
		Grove City Fire Hall
		Litchfield Fire Department
		Watkins Fire Department
	Hospitals	Meeker Memorial Hospital and Clinic
	Law Enforcement	Litchfield Police
		Meeker County Jail



A photograph of two black power lines lying on a grey asphalt surface, surrounded by scattered green and brown leaves, suggesting a storm or accident scene.

# **ENERGY SAFETY FOR EMERGENCY RESPONDERS**

**GUIDANCE FOR RECOGNIZING  
POTENTIAL HAZARDS INVOLVING  
WORK AROUND ELECTRICITY**





## TABLE OF CONTENTS

Introduction .....	2
Electric Safety.....	3
Substation Safety.....	6
Solar Safety .....	9
Wildfire Response .....	12
Contacts and Resources.....	13

## INTRODUCTION

At Xcel Energy, safety is our number one priority. We appreciate the emergency responders who are committed to keeping our customers and communities safe in the eight states where we operate.

When a 911 operator receives a call reporting an energy-related emergency, such as a downed power line, you and your fellow emergency responders are often first on the scene. This book provides important energy-safety guidance from Xcel Energy for police officers, firefighters, and other first responders to help you stay safe when you are first to arrive on the scene of an energy emergency.

Your safety is important to us, and we encourage you to follow the guidance provided in this booklet. These resources will help you recognize potential hazards involving electricity, as well as provide guidelines to help keep you, your co-workers, the public, and our employees safe.

Just as you have been trained and know your jobs well, our employees receive extensive, ongoing training, making them uniquely qualified to respond safely to electrical emergencies. When a situation requires electric crews, please call our electricity emergency numbers (see Contacts and Resources section for numbers). We encourage our customers and community partners to call us to report any outage in your area so we can pinpoint the equipment involved and assign crews accordingly.

If you have any questions about how to stay safe around energy lines or would like additional information, please contact Public Safety team [publicsafety@xcelenergy.com](mailto:publicsafety@xcelenergy.com). Please forward this information to the appropriate people on your staff to ensure they have the correct numbers on record.

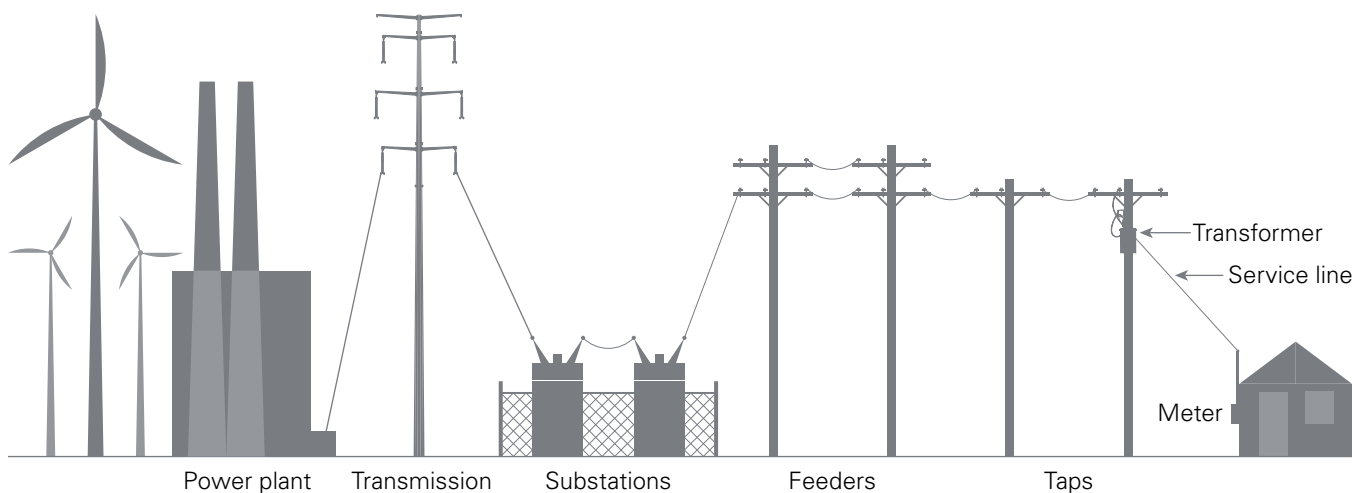
Please note that Xcel Energy may not be the electric or natural gas service provider in your area. While you should be sure to reach out to your local energy service provider in emergencies, the safety information contained in this book is still valuable to you and your team. In some cases, you may provide mutual aid to a neighboring municipality that we do service.



## ELECTRIC SAFETY

The presence of any electrical hazard can alter rescue operations and require tactical changes. Responders must quickly size-up the electrical hazards present at the scene and develop actions to reduce, avoid or eliminate those hazards. To fully understand the hazards you are dealing with, it helps to know how the electric distribution system works.

### How the electric distribution system works



Power is carried to homes or businesses through an electric distribution system. Electricity is generated at a power plant and distributed by high-voltage transmission lines through various distribution systems until it reaches homes or businesses.

1. Power plants generate energy and distribute it to substations via high-voltage transmission lines.
2. Transmission lines are used to distribute power to strategically located area substations that may serve one or multiple communities.
3. Substations distribute power to major power lines called feeders.
4. A feeder takes power from the substation and distributes it throughout an area serving several hundred to several thousand customers.
5. Taps are lines branching off feeders and typically serve 40 to 400 customers, including businesses and residential neighborhoods.
6. Transformers convert electrical power from high-voltage to the lower voltages used in homes or businesses. They typically serve individual buildings for commercial customers and several customers on the residential side.

Xcel Energy repairs power lines as safely and as rapidly as possible, working around the clock until power is restored to all customers. We give top priority to situations that threaten public safety, such as live downed wires. After that, repairs are prioritized based on what will quickly restore power to the largest number of customers.

Typically, we repair transmission lines first, because they serve the largest number of customers. Next we repair feeder lines, which serve thousands of customers, followed by tap lines (40 to 400 customers), transformers, and individual service wires.



## **Electric safety guidelines**

Please review these guidelines for recognizing potential hazards involving electrical lines and help keep you, your co-workers, the public, and our employees safe:

### **Do**

- Ensure your dispatch has communicated the electric emergency to Xcel Energy.
- Keep bystanders away.
- Position apparatus a minimum of 10 feet away from distribution wires, with greater distances required for higher voltage wires.
- Wait for Xcel Energy to arrive.
- Assume all lines are hot; consider them energized or live, as is anything they are touching. Always stay away!
- Anticipate potential ignition sources—they can be anywhere.
- Expect the electric system to try to re-energize. Our system is designed to keep electricity flowing. It locks out, or stops flow, after a few consecutive tries to rid the system of a problem, such as tree limbs blowing into lines, etc. When a problem persists, the system locks out.
- Follow your department's standard operating procedures (SOP) for pulling breakers/electric mains.

### **Do not**

- Become a victim yourself.
- Remove fallen wires from vehicles, etc.
- Disconnect electrical services.
- Remove electric meters.
- Open transformers or switch cabinet secondary pedestals (green metal or fiberglass boxes).
- Enter substations unescorted.

### **Downed wires and structure fires**

- Always establish a safe clearance for downed lines—a minimum of one full span between two structurally sound poles.
- Position apparatus emergency trucks safely. Watch for downed lines and lines that could fail with potential to hit apparatus.
- Keep aerial equipment a minimum of 10 feet from distribution wires and further for high voltage wires.
- Only Xcel Energy qualified electrical personnel should use rubber gloves, dielectric overshoes and special equipment for handling energized equipment. Pike poles are not the same as insulated and regularly tested utility fiberglass sticks.
- Never pull meters.
- Never cut wires.
- Never cut or remove padlocks from transformer or switch cabinets.



### Electric equipment fires

- Never enter a substation, switchyard or generation plant fire, or attempt to fight one. Ensure utility company has been contacted and wait for utility personnel.
- As necessary, provide fire suppression to prevent fire from spreading to adjacent areas and facilities. Look up first for overhead lines before starting suppression.
  - Transformers can explode.
  - Arcing can kill.
- Maintain clearances from damaged or burning underground utilities, pad-mounted transformers or switch-cabinets. Treat vehicle collisions with electrical equipment the same as car/pole collisions. The vehicle's chassis may become energized along with other conductive objects.

### Tactical use of hose streams

- In the event of a life-threatening emergency rescue, emergency responders may request an outage from the local utility provider.
- Wait for trained electric utility personnel to de-energize any equipment before any operations begin.
- Avoid using water until you are advised to proceed by electric utility personnel.
- If water is used, you must use fog at 30 degrees or wider (100 psi at nozzle) applied from at least 33 to 35 feet, or 10 meters.
- Protect exposures and let the fire burn. Monitor the runoff.
- Never use straight streams.
- Never spray energized equipment.

### Rescue

- In car/pole collisions, if electrical hazards are present (lines down), have victims remain in the car, if possible, and wait for electric utility personnel.
- If it's possible for the driver to move the vehicle away from fallen lines, first consider if movement will increase risk to area by pulling more lines down.
- Keep others far away from the collision site.
- If victims are free from life-threatening injuries, have them stay in the vehicle and keep others back, including you. Reassure the victims that it will be safest for them to stay in the vehicle.
- If victims must exit the vehicle, follow step potential safety procedures. Instruct them to jump clear without touching the vehicle and ground at same time. They must shuffle or hop away to avoid step potential.
- Use protective shields, barriers or alerting techniques to protect firefighters and bystanders from electrical hazards and energized areas.
- Treat vehicle/pad-mount collisions the same as car/pole collisions. The vehicle's chassis and surrounding area may be energized. Wait for utility personnel to verify equipment is dead before rescue is attempted.
- Remove vehicle only after equipment is determined to be de-energized.





## **FIRE SAFETY RESPONSE FOR SUBSTATION EMERGENCIES**

All operations involving Xcel Energy substations require de-energizing the affected equipment and isolating the surrounding area. If entry is deemed necessary by a unified command team, emergency personnel should be guided by Xcel Energy substation electricians.

### **Decision making for high voltage/substation emergencies**

The initial task during high voltage emergencies involving Xcel Energy substations is to determine the tactical action plan. This is done by assessing the incident's potential.

The incident commander (IC), based on input from Xcel Energy, should estimate the likely outcome of the emergency and select the overall operating strategy to favorably impact this outcome.

Pre-planning for substation emergencies will help identify response strategies and tactics, as determined by representatives from both the emergency services and local utility companies, like Xcel Energy. The absence of a preplan for a substation or generation plant emergency raises the risk of disaster and injury.

### **Strategy and tactics for substation emergencies**

Strategy is an important step of the response effort. Strategic goals should be general in nature, such as life preservation, incident stabilization, environmental impact, and utility service restoration. Examples of common strategic goals at utility emergencies could include the following:

- Rescue (if possible and can be done safely)
- Public protective actions (isolate downed wires, arc safety and downwind evacuation)
- Preventing cooling oil from impacting the environment
- Controlling the spread of oil around the substation
- Fire suppression and control
- Safety during restoration operations



Tactics are action-specific and implemented to achieve the strategic goals. Tactics could include:

- Protecting in place vs. evacuating
- Use extinguishing agents rather than water spray
- Cooling exposures from radiant heat

### **Operational modes**

Mitigating utility emergencies requires implementation of an overall operational mode. The three modes are nonintervention, defensive and offensive. Criteria for evaluating operational modes include the level of resources available (e.g. personnel and equipment), level of training and capabilities of the emergency responders, and the potential harm created by the incident.

#### **Nonintervention**

“No action” is taken. The risks of intervening are unacceptable when compared to the dangers of fighting the electrical fire. All personnel are withdrawn to a safe location.

#### **Defensive**

Conditions indicate that the defensive actions chosen will buy time, enabling the response effort to be directed towards limiting the overall spread of the problem.

#### **Offensive**

The offensive mode must never be initiated without local utility provider substation electricians present to advise the responder. All operations must be done in conjunction with, and under the direct supervision of, substation personnel.

### **Substation fire response**

The overall mission of an emergency response involving Xcel Energy substations is always to:

1. Protect lives.
2. Establish a protective perimeter around the substation, protecting surrounding structures: DO NOT enter or extinguish any substation equipment until receiving authorization from Xcel Energy substation personnel.
3. Assist Xcel Energy in efforts to stabilize the incident, as directed/needed.

Responders must use extreme caution around high voltage areas due to the severe electric hazards. High voltages in these sites can exceed 500,000 volts, or 500 kilovolts (kV), and operating amperages (A) of 1000A or more. Substations contain transformers, circuit breakers, switch gear, capacitors, bus bars (large diameter, non-insulated metal conductors), and large banks of batteries to control power in control rooms.

Electrical emergencies at Xcel Energy substations should be approached cautiously. Responders should wait for Xcel Energy personnel to arrive before initiating any type of offensive actions (see note 2 above). Since there is extreme risk to responders during high voltage emergencies, decisions must be made by the emergency services incident command in conjunction with Xcel Energy's incident commander. Unified command is critical in these types of operations.

