

First Responder Safety

The background image shows a portion of a house's exterior wall with horizontal siding. On the left, there is a large, light-colored electrical meter mounted on the wall. Below the meter, there are several electrical boxes and conduits. A white vertical pipe runs down the wall. In the bottom right corner, a small warning label is visible, partially obscured, which reads "MAIN SOLAR SYSTEM AC DISCONNECT" and "CAUTION SOLAR PANELS".

Chapter 1

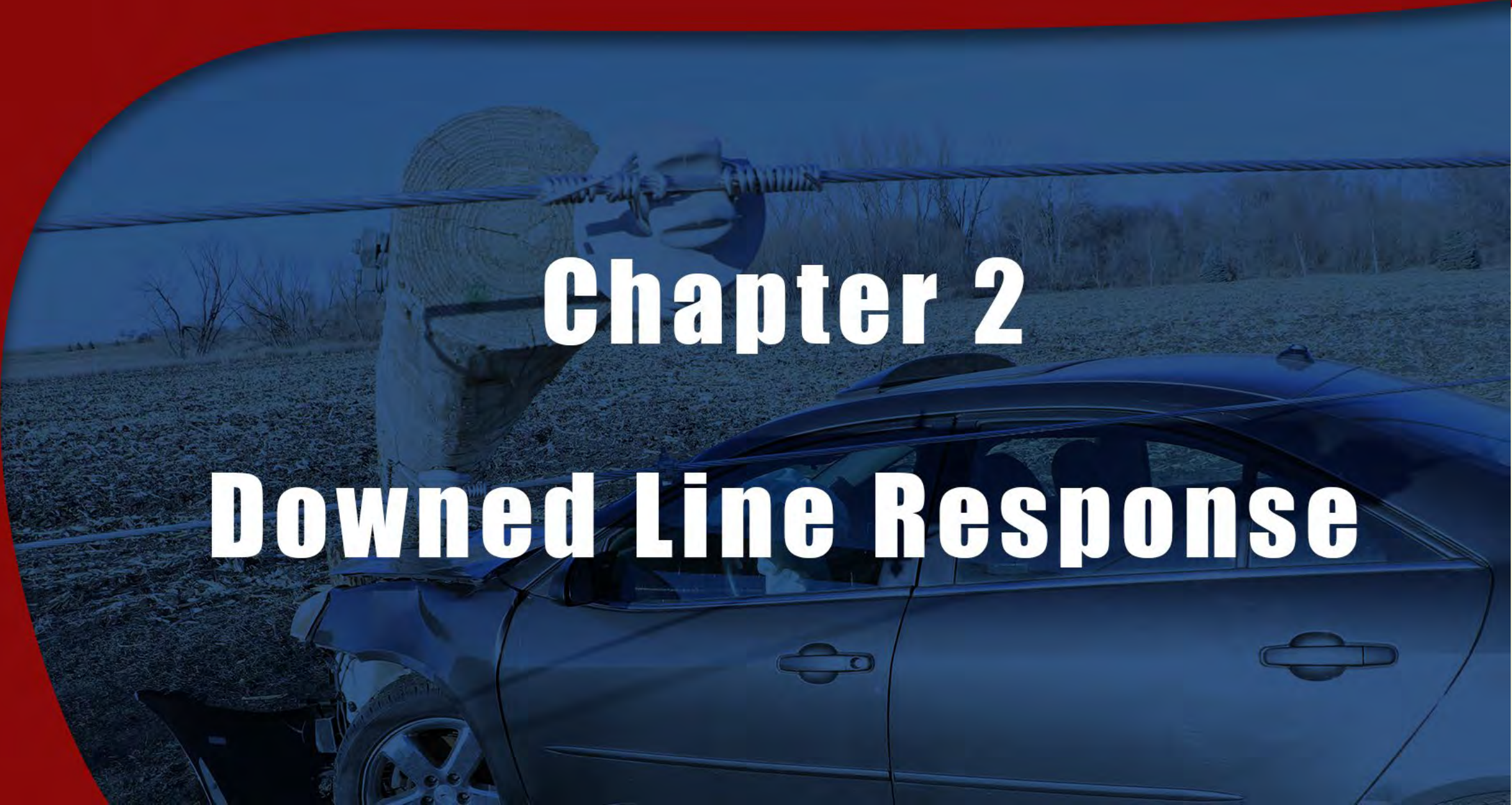
Electrical Hazards

Utility Disconnects

- Power to house should be shut off with a switch or disconnect point
 - Meter is not a switch
 - **Wear full PPE when disconnecting power**
 - Face shield down
- **Do not** attempt to pull a meter
- **Do not** attempt to cut wires
- Contact utility as soon as possible
 - Response time may be lengthy
 - **Wait** for the electric utility to deenergize power lines

Utility Disconnects (cont.)

- **Less than 1 amp can cause cardiac arrest**
 - Typical household circuit has 15-amp breaker
- Beware of generators
 - Generator can start up once you disconnect power
- Beware of battery systems
 - Uninterruptible Power Supply (UPS) units
 - Battery backup for solar

A blue-tinted photograph of a car accident scene. A dark-colored car is visible in the foreground, with its front end damaged. A power line is downed and draped over the car. In the background, there is a utility pole and a field. The image is framed by a red curved shape on the left side.

Chapter 2

Downed Line Response

Causes of Downed Power Lines

Vehicle Accidents

- Automobile accidents
- Oversized Vehicles
- Farm Equipment
- Construction Equipment

Fallen Trees

Storms

- Ice
- Wind



Consider Downed Lines Energized

- All lines are considered energized until a qualified person from electric utility has determined that they are deenergized
 - **Electricity is invisible, you can't see it!**
- Two types of Potential
 - Step potential (stepping from one voltage to another)
 - Touch Potential (touching something that is energized and another object or the ground at the same time)
- Remain at least 50 feet away from a downed line

Exiting a Vehicle

- If lines are touching or near a vehicle, have person remain in the vehicle if it is safe
- If they must exit, have them jump clear of vehicle then hop or shuffle until they are at least 50 feet away



Exiting a Vehicle (cont.)

- Never touch the vehicle and another object at the same time (the ground)
- Hop with feet together
- Shuffle with very short strides with feet touching
- Exiting vehicle should be last resort
- You could become a victim too!



Pole Fires

Do not attempt to extinguish fire until directed to do so by the utility

Extinguish any brush fire that may have started

Expect lines to fall

- No vehicles or people under lines or within fall zone
- Lines may already be down when you arrive

Secure the area until utility arrives

Scene Safety

- Secure the scene to prevent electric contacts
 - Members of the public
 - Possible Victims
 - First Responders
- Stay back at least 50 feet
- Consider fall zones of poles/lines/spans (could require staying back more than 50 feet)
- Be aware there could be damage to other poles that is not visible

Utility Response

01

Notify utility as soon as possible

- May have a delayed response

02

Be able to quickly identify utilities in response area

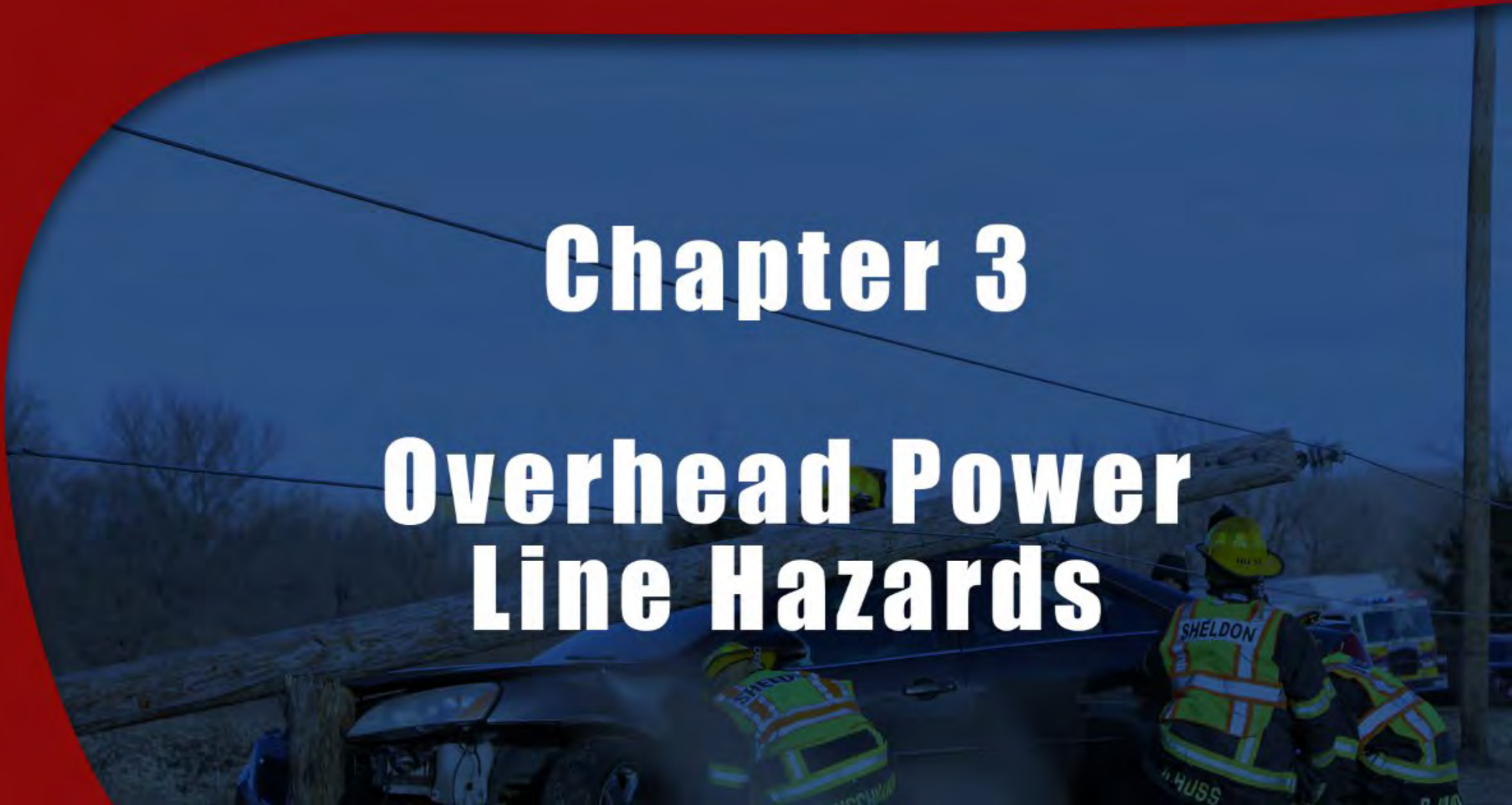
- Know utility service areas/boundaries
- Understand the different pole tags used
- Know emergency contacts

03

Stand by and secure scene until utility arrives

Chapter 3

Overhead Power Line Hazards



Overhead Power Lines

- Equipment Contact Examples
 - Large Equipment
 - Trash Trucks
 - Delivery Trucks
 - Farm Machinery
 - Tractors
 - Spray Booms
 - Grain Augers
 - Construction Equipment
 - Excavators
 - Dump Trucks

If Equipment is Touching Power Lines

- Secure Scene
 - Keep back 50 feet
 - Protect bystanders and first responders
- **Do not touch equipment**
- Have the person remain in the vehicle until utility arrives and the power is deenergized
 - If equipment is on fire/there is imminent danger, have individual jump clear of the cab and hop or shuffle away at least 50 feet (see example of proper exit in chapter 3 video).
 - Exiting equipment should be last resort

Downed Power Lines

- Storms
 - Thunderstorms
 - Ice Storms
 - Tornados
- Floods
- Vehicle Accidents
- Brush Fires
- Planes/Helicopters
- Equipment Failure



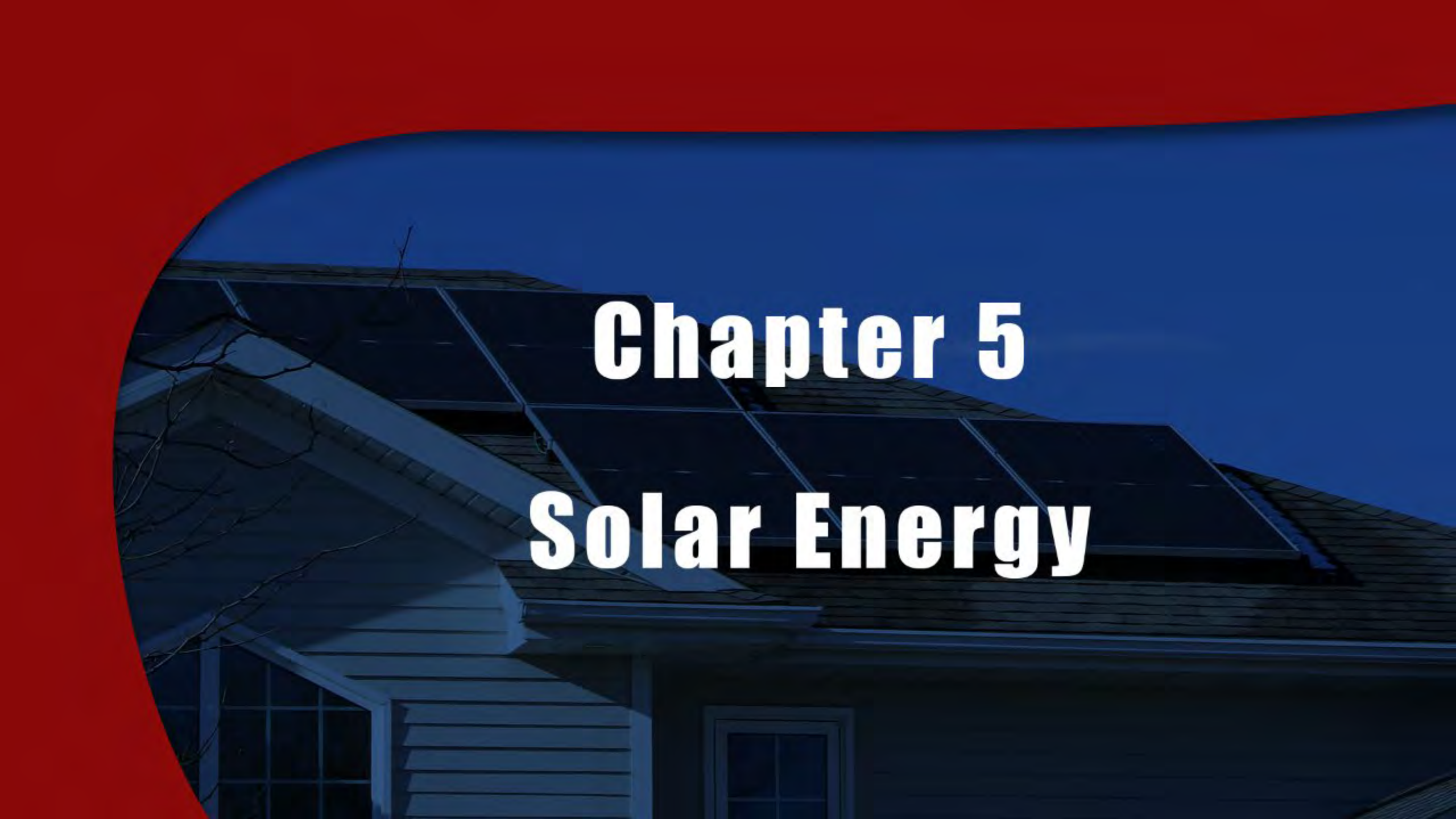


Chapter 4

Underground Electrical Hazards

Pad-Mounted Transformers

- These reduce voltage from high voltage to a low voltage
 - If damaged or moved, can become energized
 - **If on fire, do not attempt to extinguish**
 - Protect exposures
 - Stop the spread of fire
 - Notify Utility ASAP
- If a car hits a transformer, the car can become energized
 - Have person remain in vehicle if safe to do so
 - If not, have them jump clear from vehicle then hop or shuffle 50 feet away
- Same dangers as overhead lines, just hidden

The image features a photograph of a house with solar panels installed on its roof. The house is partially obscured by a large, semi-circular blue graphic that covers the right side and top of the frame. The background is a solid red color. Overlaid on the blue graphic is the text 'Chapter 5' and 'Solar Energy' in a bold, white, sans-serif font.

Chapter 5

Solar Energy

Solar Facilities

- Will generate electricity if any light hits solar panel
 - Moon
 - Flashlight
- Many different sizes
 - Large solar farms
 - Rooftop solar
 - Ground-mounted solar
 - Small pole-mounted solar (warning signs)
- Solar farms are just like substations
 - Do not enter unless utility escorts you
 - Everything has a potential to be energized



Rooftop Solar

- Adds extra weight to roof
 - Can cause premature roof collapse
- Can slide/fall off the roof
- Eliminates ability for vertical ventilation
- Panels can still generate electricity if damaged

Solar Panels

- Look for warning stickers and signs near disconnects
- May not be properly installed/wired
- Can generate electricity with any type of light
- Many solar systems also have battery storage

A blue and white fire truck is shown from a side-front perspective. The word 'RESCUE' is written in large, bold, black letters on the side of the cab. Below it, 'SHELDON FIRE CO.' is written in a smaller, stylized font. A firefighter in a blue uniform and helmet is visible through the cab window. The truck has various emergency lights and equipment on top. The background is a solid red color.

Chapter 6

Pole and Grass Fires

Pole Fires

- Usually involves energized lines
- Pole may be burning internally
- Do not spray pole with water
- Do not try to extinguish areas within 50 feet of pole
- Prepare for lines to fall to ground
 - Remain clear of area under lines or within fall zone
 - Apparatus
 - First Responders
 - Hose Lines

Grass Fires

- Power lines can be hard to see when on the ground
- Verify that lines are still attached to poles
- When completing 360-degree scene survey, also look up for lines that are down or damaged
- If lines are down, remain 50 feet away and prevent spread of fire



A photograph of a light blue electric car parked at a charging station. The car's hood is open, revealing the internal battery pack and components. A charging cable is plugged into the car's port. The background shows a building with a sign that says "COM \$14 OUR #". The car has a sticker that says "SAVE ENERGY SAVE MONEY" and "CO-OP POWER".

Chapter 7

Electric Vehicles

Electric Vehicles (EVs)

- EVs are becoming more prevalent
- Very quiet, so you may not be able to hear that they are running
 - Chock Wheels
 - Place in Park
 - Remove Key Fob
- Will have an emergency power disconnect switch
 - Apps available to locate disconnect switch
 - Do an internet search of car model to determine switch location



Electric Vehicles (cont.)

- Large Battery Packs
 - If on fire, will require copious amounts of water
- Battery may still have a charge after a fire
 - Many will rekindle days later
- Peel and Peak
 - Remove trim before beginning extrication cutting
 - Be aware of large power cables in door frames

**DON'T BECOME
A VICTIM**