First Responder Safety

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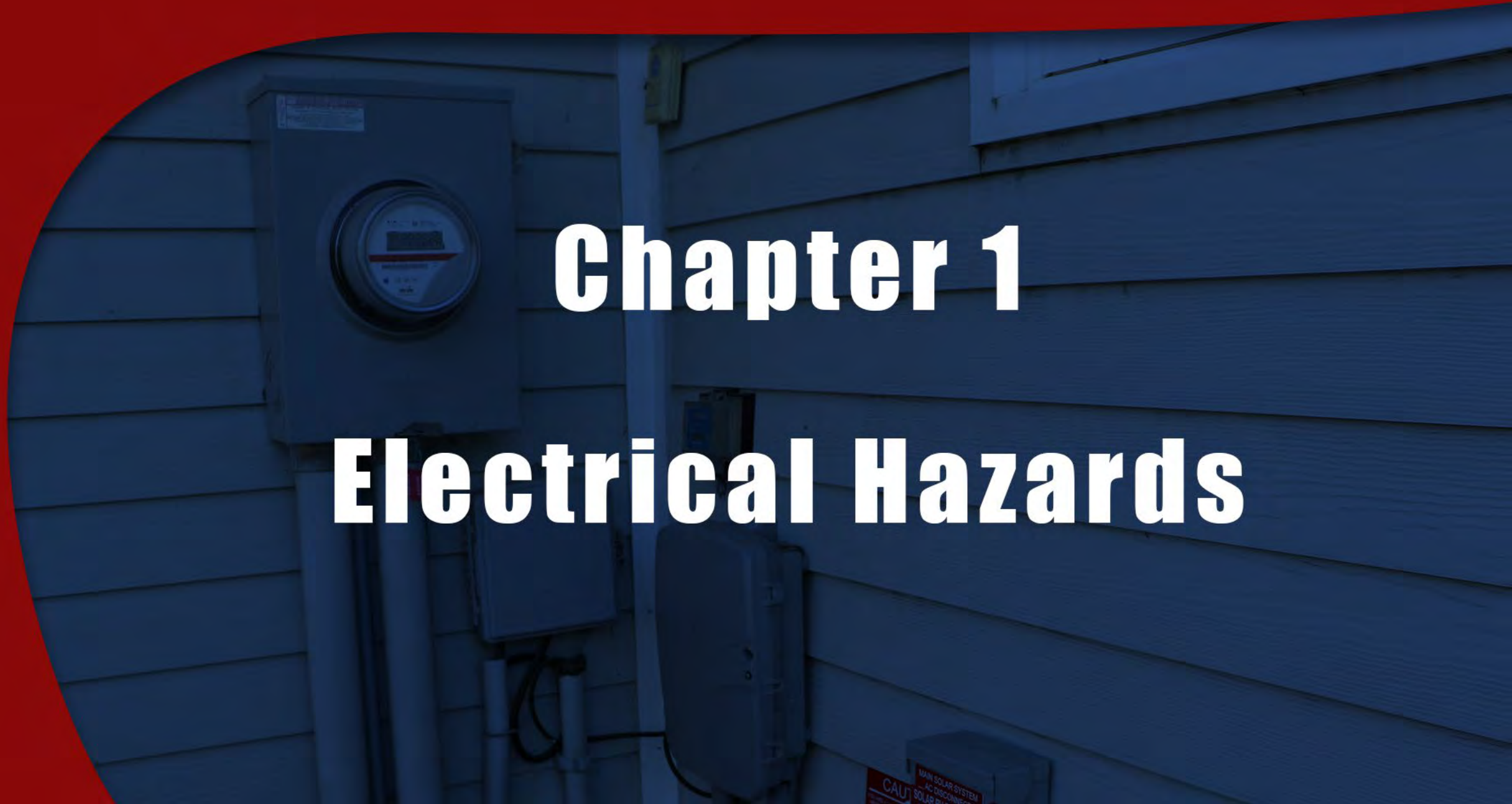


Chapter 1

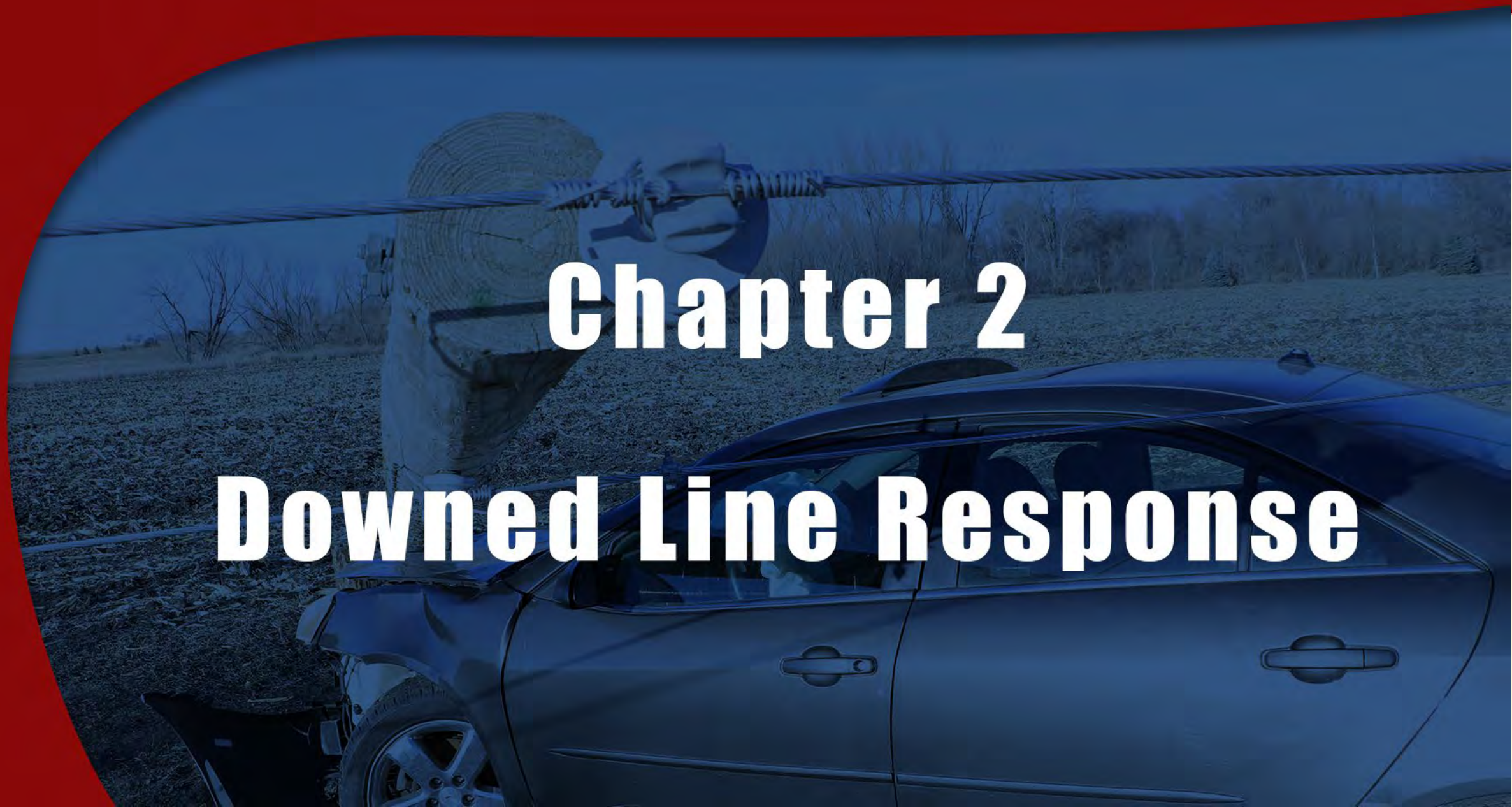
Electrical Hazards

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



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

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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

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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

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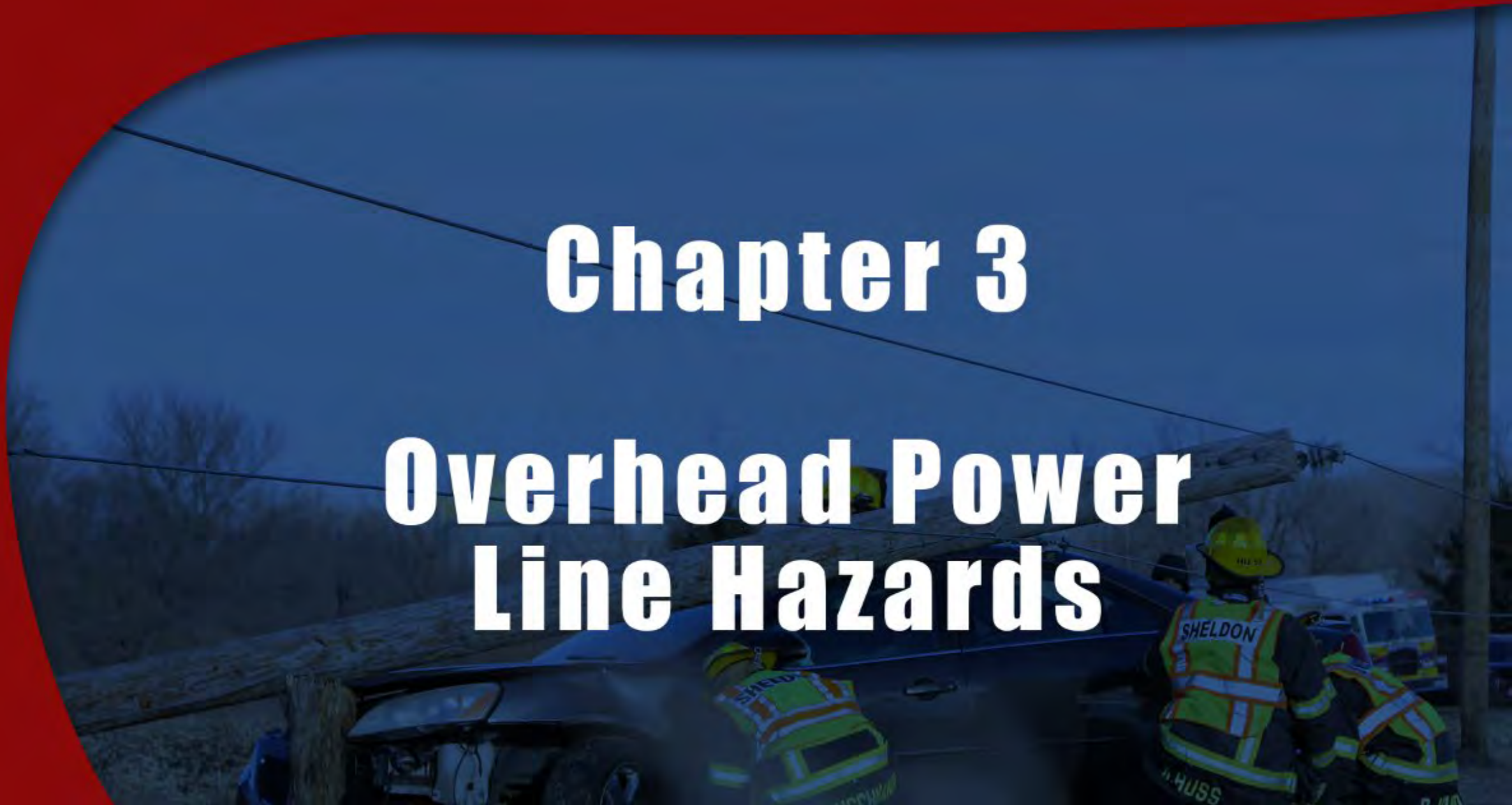


Chapter 3

Overhead Power Line Hazards

Overhead Power Lines

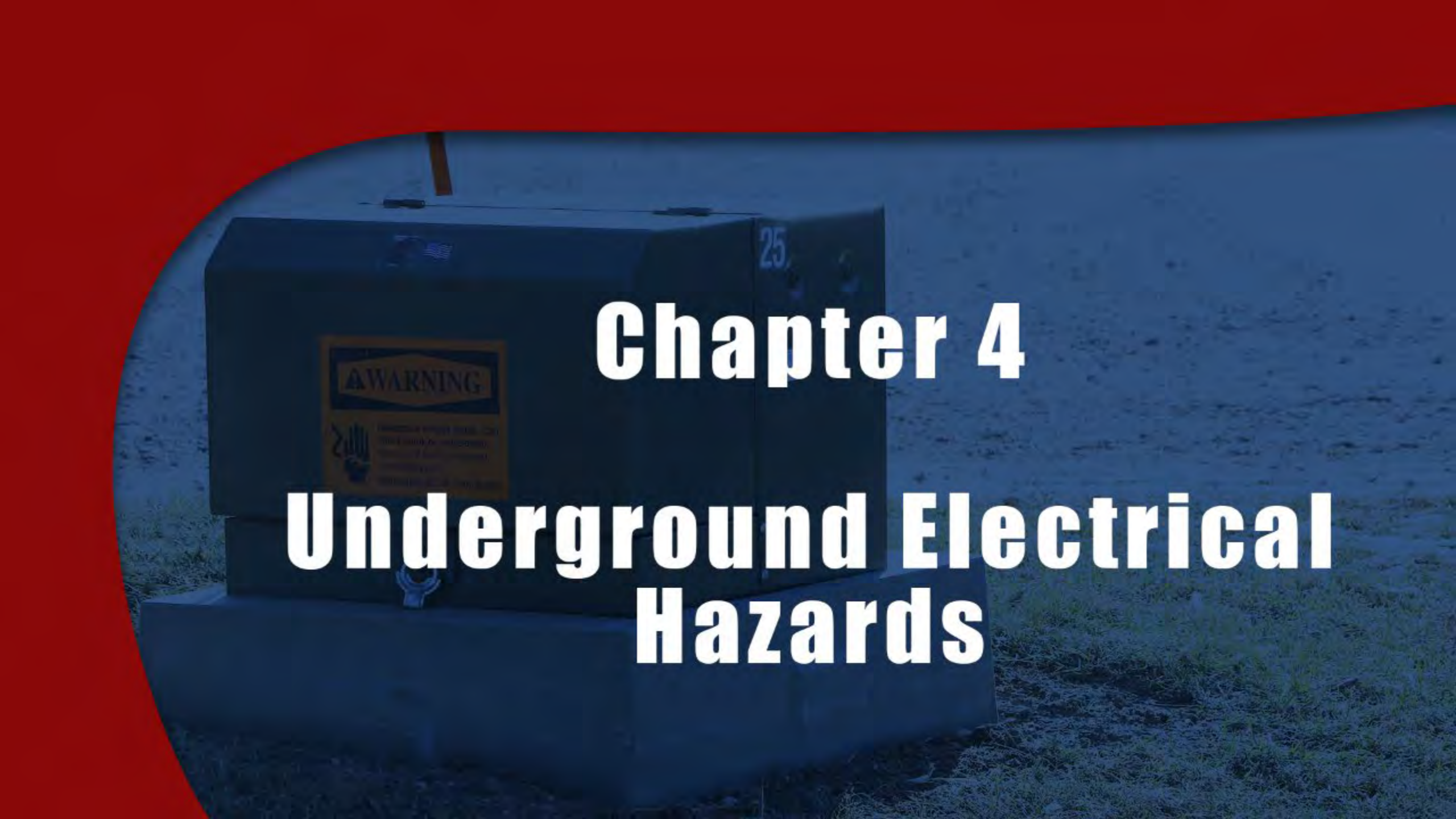
- Equipment Contact Examples
  - Large Equipment
    - Trash Trucks
    - Delivery Trucks
  - Farm Machinery
    - Tractors
    - Spray Booms
    - Grain Augers
  - Construction Equipment
    - Excavators
    - Dump Trucks

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

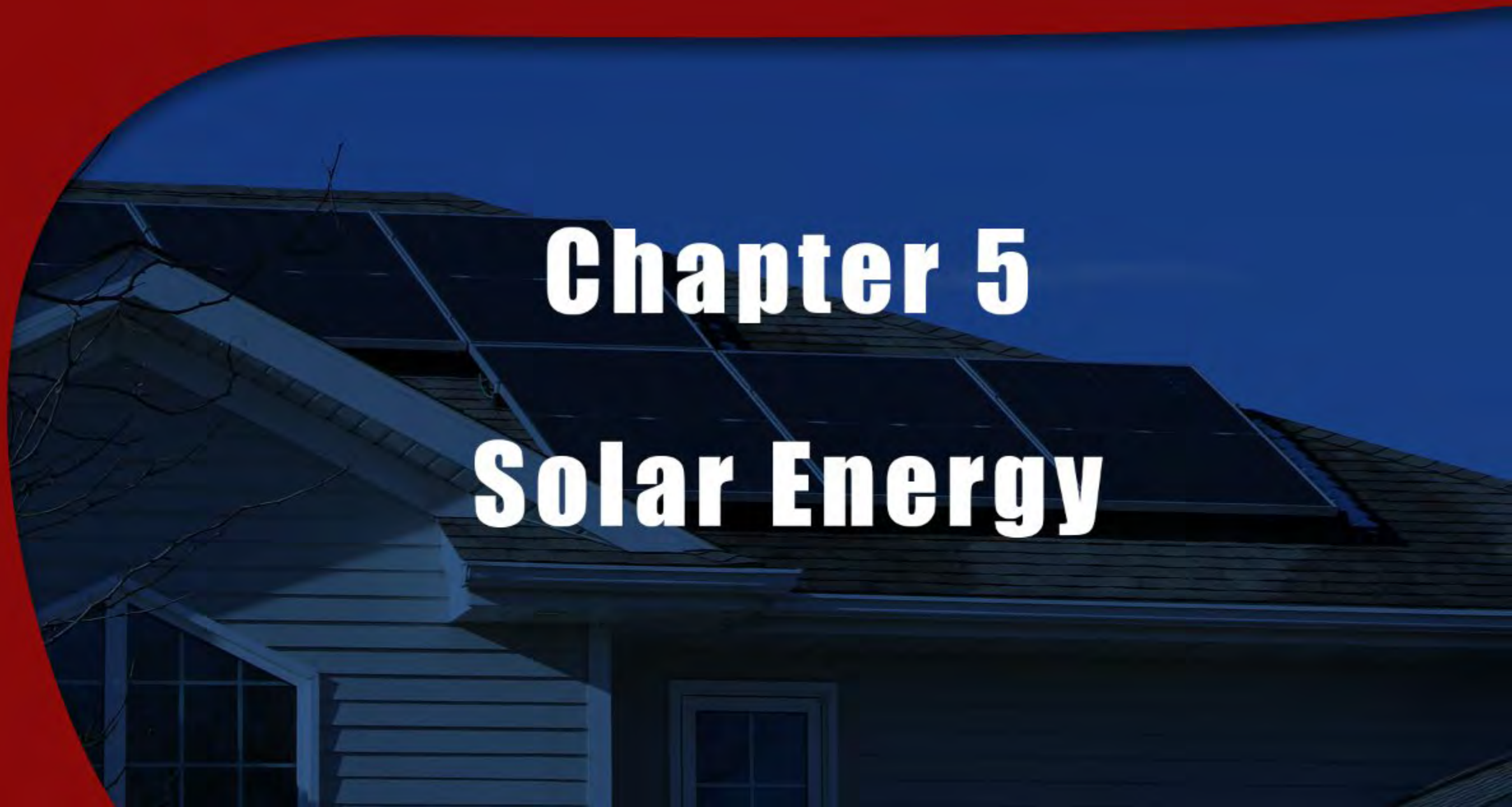


Chapter 4

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



Chapter 5

Solar Energy

Solar Facilities

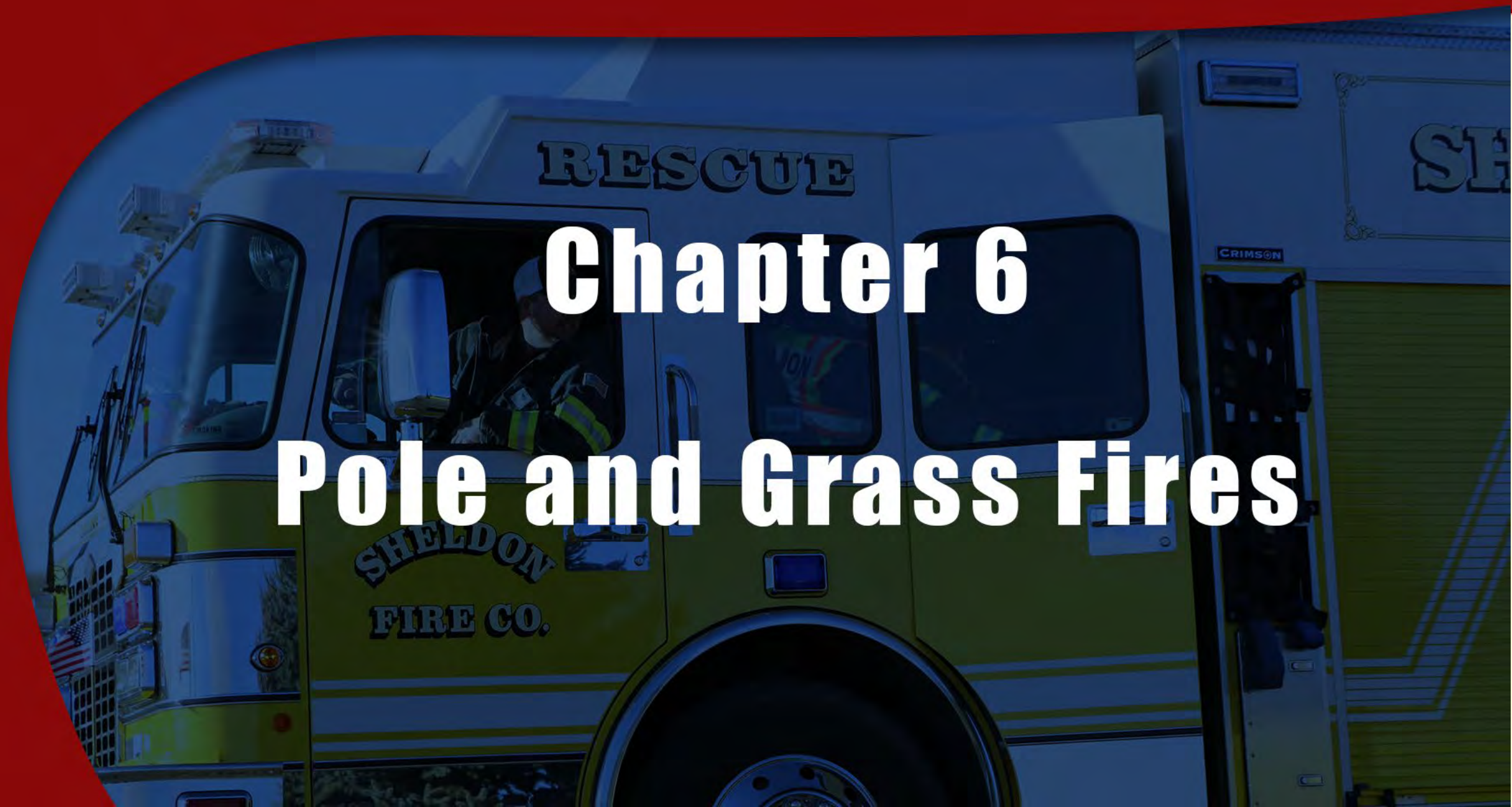
- Will generate electricity if any light hits solar panel
  - Moon
  - Flashlight
- Many different sizes
  - Large solar farms
  - Rooftop solar
  - Ground-mounted solar
  - Small pole-mounted solar (warning signs)
- Solar farms are just like substations
  - Do not enter unless utility escorts you
 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



Chapter 6

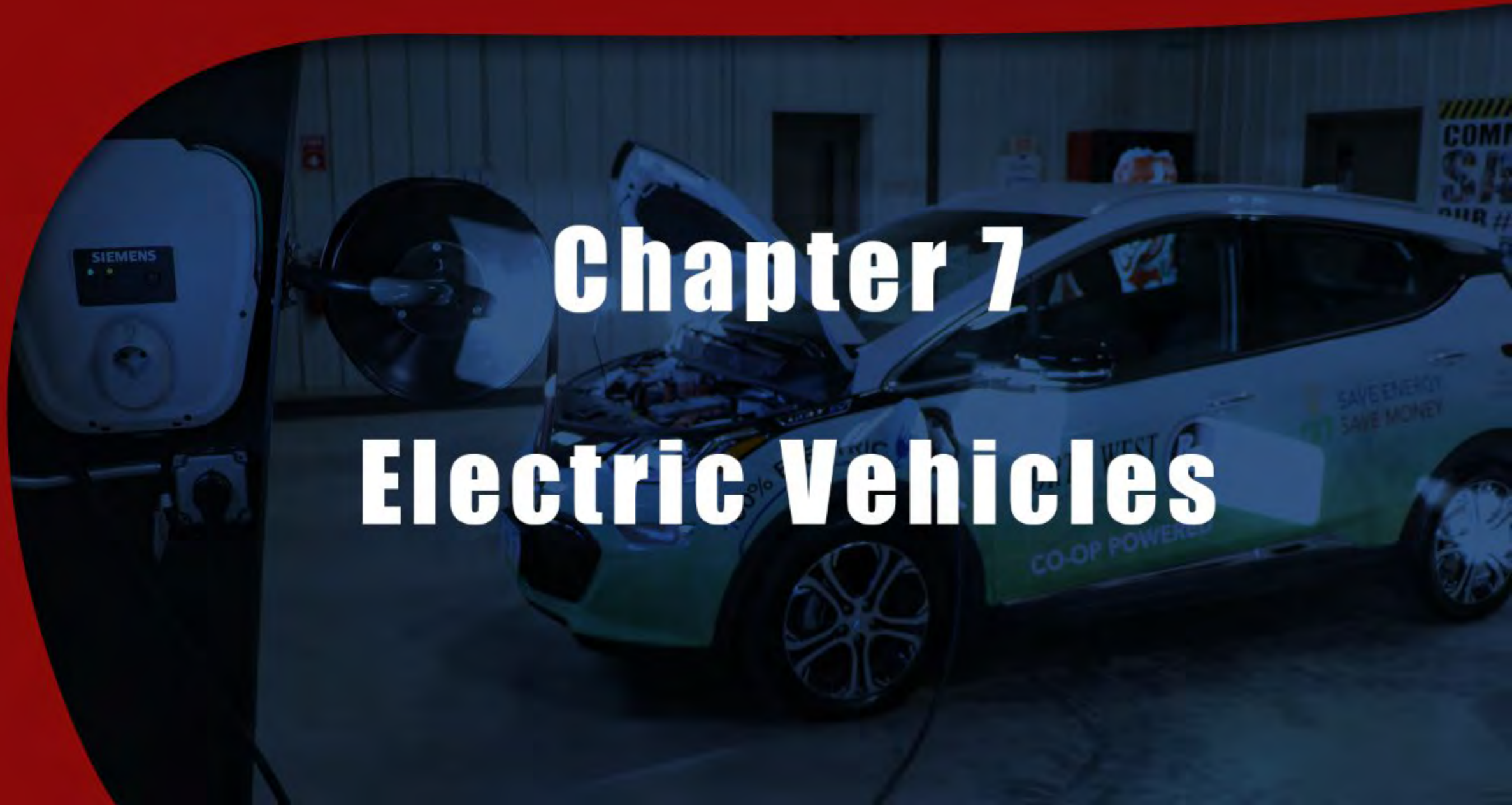
Pole and Grass Fires

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



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

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