FREE PREVIEW

PATROL REFERENCE PRESS

Critical Infrastructure Recognition: Electric Grid Systems

Volume 2 — A Recognition Reference for Public Safety, Security & First Responders

OBSERVE · ASSESS · DECIDE · TEACH

undefined

First Edition — 2026
patrolreferencepress.com

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About This Free Preview

This preview gives you the complete opening of Critical Infrastructure Recognition: Electric Grid Systems (Volume 2) — the How to Use this Guide and the full first chapter, *Understanding the Electric Grid*. You'll see the guide's real format: the entry-by-entry field pages, the hazard callouts, and the checklist-and-case-study structure that carry through the full volume. If this preview helps, the full 42-page manual continues with the chapters listed on the closing page.

How to use this guide

A patrol officer usually sees the consequence before the system label: a flash, fallen pole, locked gate, humming cabinet, transformer fire, storm-damaged corridor, or drone near a fence. Start with observation, not theory. Ask: **What am I looking at? What does it do? Why is it important? What hazards and weather impacts matter? What should I observe, report, or avoid?** Each entry is stand-alone. Equipment appearance varies by utility, age, voltage class, and jurisdiction; technical descriptions require operator confirmation.

The grid links generation, transmission, substations, distribution, and customer service. A local-looking failure can affect traffic signals, water pumps, hospitals, communications, rail, fuel, and dispatch. The officer's job is not to restore power. It is to protect life, preserve a safe scene, give the utility a useful first report, and support lawful investigation.

> 💡 **OFFICER NOTE**
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> **Officer note — first report:** Give dispatch your location, nearest cross street or mile marker, what is visible and audible, whether anyone is exposed, line position, fire/smoke, weather and wind, traffic impact, signs or asset numbers visible from safety, and what you did **not** touch.

Observe. Assess. Decide. Teach.

1. **Observe:** Stop short. Scan overhead, ground level, and beyond fences. Use binoculars, not trespass.
2. **Assess:** Identify downed conductors, fire, arc flash, energized vehicles, flooding, structural collapse, and public access.
3. **Decide:** Apply policy and ICS. Request fire, EMS, the electric utility, and utility security early.

4. **Teach:** Brief responders in plain language: known, unknown, location, weather, exposures, and actions taken.

Federal framework and local roles

DHS/CISA identifies Energy as one of 16 critical-infrastructure sectors. Electric power is a dependency for water, communications, transportation, health care, emergency services, and fuel. ESF #12—Energy under the National Response Framework—supports energy assessment, restoration coordination, and resource support; it does not replace local command or utility authority. NIMS/ICS supplies structure for objectives, assignments, documentation, and public information.

Local law enforcement protects life, controls public space and traffic under lawful authority, supports evacuation or sheltering, investigates crimes, and preserves evidence. Utility security protects owner assets and employees, controls access under owner authority, and reports to the operator. The utility knows its system and establishes electrical clearances. Fire/HazMat manages fire and rescue hazards within its authority. No officer or guard should promise that equipment is de-energized without qualified confirmation.

> 💡 **OFFICER NOTE**
>
> “The utility has been called” is not a complete plan. Confirm command, public protection, hazards, staging, and how updates will be shared.

Chapter 1 — Understanding the Electric Grid

Entry: Bulk power system versus distribution

Objective — Recognize the asset or condition and make a safe, useful first report.

Recognition — The bulk power system is the regional network of large generators, high-voltage transmission, balancing facilities, and transmission substations. Distribution is the lower-voltage network of local substations, feeders, poles, underground cabinets, and customer services. Voltage cannot be safely estimated by appearance.

Purpose — Bulk facilities move and transform electricity over long distances; distribution delivers it locally. Substations connect voltage levels and provide protection and switching.

Why it matters — A damaged transmission corridor can interrupt hospitals, water, communications, rail, fuel, and public warning across jurisdictions.

Hazards — Electricity can arc across air; conductors can fall, re-energize, or remain energized from another source. Transformers may contain hot oil and fail violently.

Weather impacts — Lightning, wind, ice, heat, wildfire smoke, flood, and cold alter load, access, clearance, and reliability.

Security considerations — Report conditions, not theories. Do not direct switching or announce restoration. Identify exposed critical facilities and preserve utility access.

Officer/First Responder Checklist —

- Stop short and establish a safe public-side position.
- Call 911/fire/EMS and the electric utility when damage, fire, exposure, or intrusion is possible.
- Keep civilians and vehicles away; preserve access for qualified crews.
- Record location, time, weather, visible signs, exposures, and actions taken.
- Do not touch, enter, climb, open, reset, cut, or move electrical equipment.

Field questions to ask — What equipment is affected? Are lines down? Which critical facilities or roads are affected? Who is the utility contact?

Case study — The 2003 Northeast blackout showed how a bulk-system disturbance can cascade across states and Canada. Treat power loss as a community-lifeline problem.

Academic/Emergency Management connection — Use NIMS common operating picture and ESF #12. Exercise communications loss, signal failure, water-pump failure, and prolonged restoration together. Apply NIMS/ICS, unified command when authorities overlap, and ESF #12 energy coordination. **SME VERIFY:** local utility contacts, distances, terminology, and current legal/policy requirements.

> 🛑 **RED LINE**
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> Electricity is not made safe by silence, darkness, distance guessed from appearance, or a caller's assurance.

Entry: Energy sector dependencies and ownership

Objective — Recognize the asset or condition and make a safe, useful first report.

Recognition — Look for poles, substations, generation sites, rights-of-way, cabinets, and service equipment. Labels may identify an investor-owned, municipal, cooperative, transmission, or contracted operator.

Purpose — The Energy Sector connects generation, transmission, distribution, fuel, communications, transportation, water, health care, and emergency services.

Why it matters — Correct ownership prevents delayed notification and conflicting instructions. The nearest agency may not own the asset.

Hazards — Crews, police, fire, security, generators, batteries, and blocked roads create secondary hazards.

Weather impacts — Heat waves raise demand; storms disrupt communications and access; wildfire may trigger planned shutoffs; floods isolate facilities.

Security considerations — Verify identity through dispatch or posted public numbers. Do not publish schedules, camera positions, or detailed maps.

Officer/First Responder Checklist —

- Stop short and establish a safe public-side position.
- Call 911/fire/EMS and the electric utility when damage, fire, exposure, or intrusion is possible.
- Keep civilians and vehicles away; preserve access for qualified crews.
- Record location, time, weather, visible signs, exposures, and actions taken.
- Do not touch, enter, climb, open, reset, cut, or move electrical equipment.

Field questions to ask — Who owns this asset? What authority is present? What dependencies are affected? What public message is approved?

Case study — After major storms, mutual-aid crews cross jurisdictions. Confused staging and authority delays restoration and endangers crews.

Academic/Emergency Management connection — ICS unified command and ESF #12 clarify roles. Include private owners, emergency management, public works, and communications providers in exercises. Apply NIMS/ICS, unified command when authorities overlap, and ESF #12 energy coordination. **SME VERIFY:** local utility contacts, distances, terminology, and current legal/policy requirements.

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Patrol Reference Press — First Edition, 2026

This manual is a recognition and response reference for public safety, security, and emergency-response professionals. It is not an operations manual. Consult your agency's policies and the owning operator/utility for jurisdiction-specific guidance.