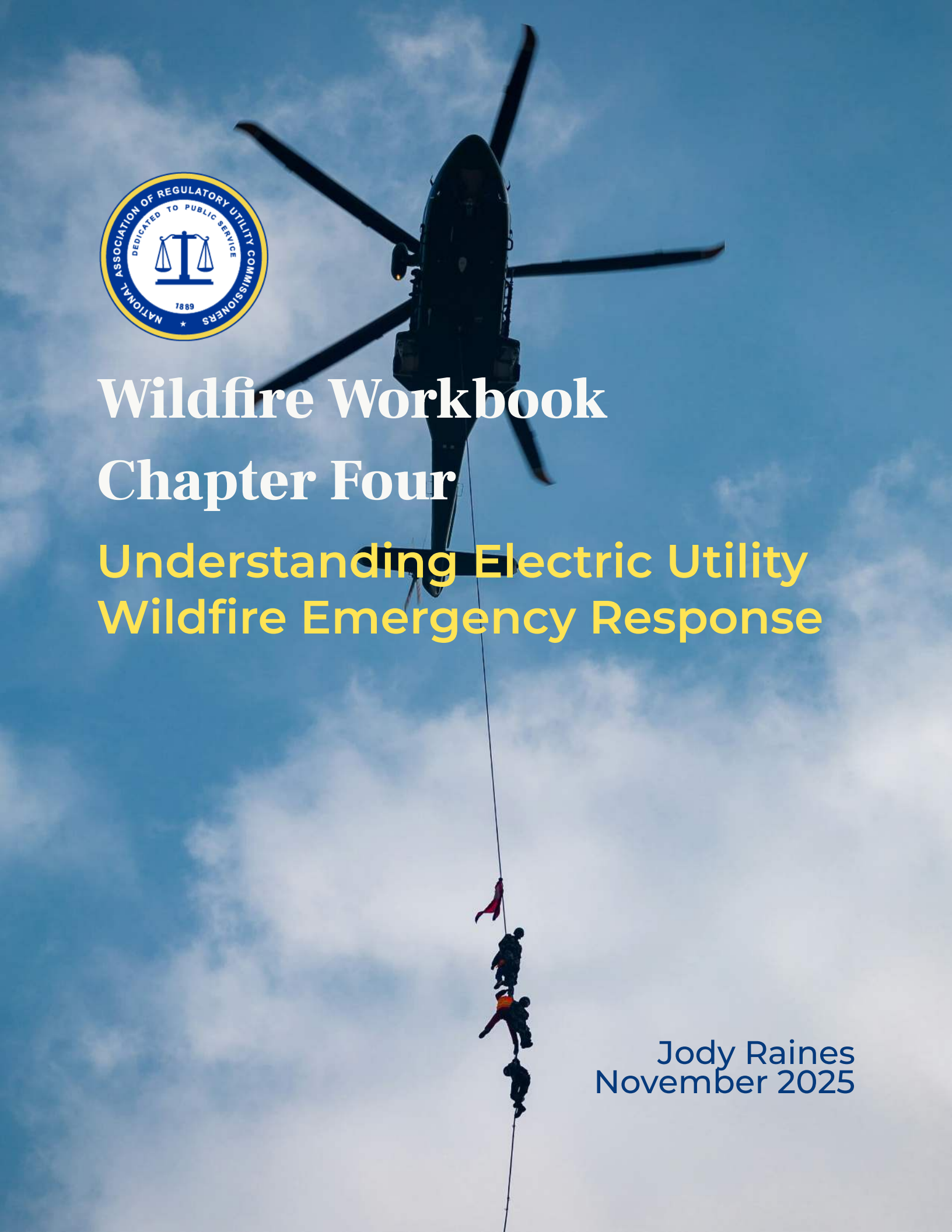


Wildfire Workbook

Chapter Four

Understanding Electric Utility Wildfire Emergency Response

Jody Raines

November 2025

Table Of Contents

Chapter Introduction

This chapter's purpose is to equip state utility regulators with an understanding of current practices and plans for electric utility wildfire emergency response. The chapter addresses critical components, steps, parties involved, and key questions regulators might ask to ensure wildfire plans are robust, coordinated, and tailored to respond effectively to wildfire risks.

01

Overview of Wildfire Emergency Response

Wildfires pose significant risks to electric utilities, particularly in high fire threat districts (HFTDs), where there is the highest risk of utility equipment igniting fires or threatening equipment. The 2018 Camp Fire, caused by Pacific Gas & Electric (PGE) equipment, resulted in 86 deaths and over $30 billion in liabilities, highlighting the need for comprehensive response plans (Columbia University Report). Effective response plans integrate Incident Command System (ICS) principles, coordinate with stakeholders, and prioritize public safety, system reliability, and community recovery. The ICS principles are scalable and adaptable depending on the severity of the event. Note that these response plans may be part of a utility's comprehensive emergency management plan or included in an emergency/critical communications plan.

Key Components of a Utility Wildfire Emergency Response Plan

1. Emergency Response Structure and Organization

- **Incident Command System (ICS) Integration**: Utilities must align with ICS for seamless coordination with fire agencies. This includes a unified command structure (when necessary) for joint decision-making, liaison officers at incident command posts (ICPs), resource coordination (e.g., municipal vegetation management crews, bucket trucks for fire reconnaissance), and real-time information sharing about electrical hazards. Incident Command may be led by the utility, but it could be led by local or state fire officials.

- **Emergency Operations Center (EOC)**: A centralized hub for strategic oversight, with sections for command, operations, planning, logistics, and finance and administration. The EOC supports ICP operations and coordinates resources, communications, and recovery efforts.
- **Response Team Roles**:
    - **Incident Commander**: Oversees utility response, interfaces with fire agencies, and requests or authorizes Public Safety Power Shutoffs (PSPS). Here is an example of how a utility handles this role:
        1. For PG&E, there is a position called the “Officer in Charge” (OIC). Here is the scope for PSPS role, per Company Emergency Response Plan (CERP), located in section 8 EOC Staffing and Organization: (Company Emergency Response Plan)
        2. The Officer-in-Charge (OIC) is a position specific to PSPS. This was created to engage higher-level management accountability of the decision to de-energize given the magnitude and impact of PSPS, while enabling real-time, rapid decision-making. Whereas the OIC is given “Authority to Act” and owns PSPS decisions, the EOC Commander is responsible for executing those decisions and owns the response executed by the EOC. The OIC approves all PSPS decision records and associated documentation after a PSPS event.
    - **Operations Chief**: Manages field activities, crew safety, and system de-energization/restoration.
    - **Safety Officer**: Monitors personnel safety and develops incident-specific safety plans.
    - **Public Information Officer (PIO)**: Handles all media inquiries and provides strategic communications counsel to the EOC Commander, customer notifications, and stakeholder communications.

- **Response Team Roles (continued)**:
    - **Planning Chief**: Responsible for action plans, mapping, and coordination among different groups.
    - **Customer Strategy Officer (CSO)**: Serves as an advocate for customers by providing updates to customers, addresses customer issues, and communicates high-priority outage concerns to the emergency operations team.
    - **Liaison Officer (LNO)**: Primarily responsible for being the point of contact for representatives of government agencies, non-governmental organizations, and/or private entities. In either a single or unified command structure, representatives from assisting or cooperating agencies and organizations coordinate through the LNO.

2. Response Activation Triggers and Procedures

- **Triggers (Different utilities have different levels of triggers to activate their Emergency Response Plans and teams**):
    - Immediate: Utility equipment ignition, fire threatening critical infrastructure, fire agency requests, or PSPS implementation. Note PSPS implementation may have different guidelines. (See Deep Dive from Chapter Two).
        1. The triggers PGE implemented are based on a 1-5 rating system that categorizes the classification levels from routine to catastrophic. Below is a snip from their Wildfire Annex of the CERP, and is available here: https://www.pge.com/assets/pge/docs/outages-and-safety/outage-preparedness-and-support/emer-3105m-2022-wildfire-annex-to-cerp.pdf.
    - Escalated: Multiple fires, extended outages affecting critical facilities, significant infrastructure damage, or multi-day responses.

- **Notification Procedures (Different utilities have different time frames, these are given as examples, not guidelines**):
    - Internal (e.g., within 15 minutes): System operations, emergency management, executive leadership, field supervisors, public affairs.
    - External (e.g., within 30 minutes): Regulatory commissions, state/local emergency services, affected governments, media.

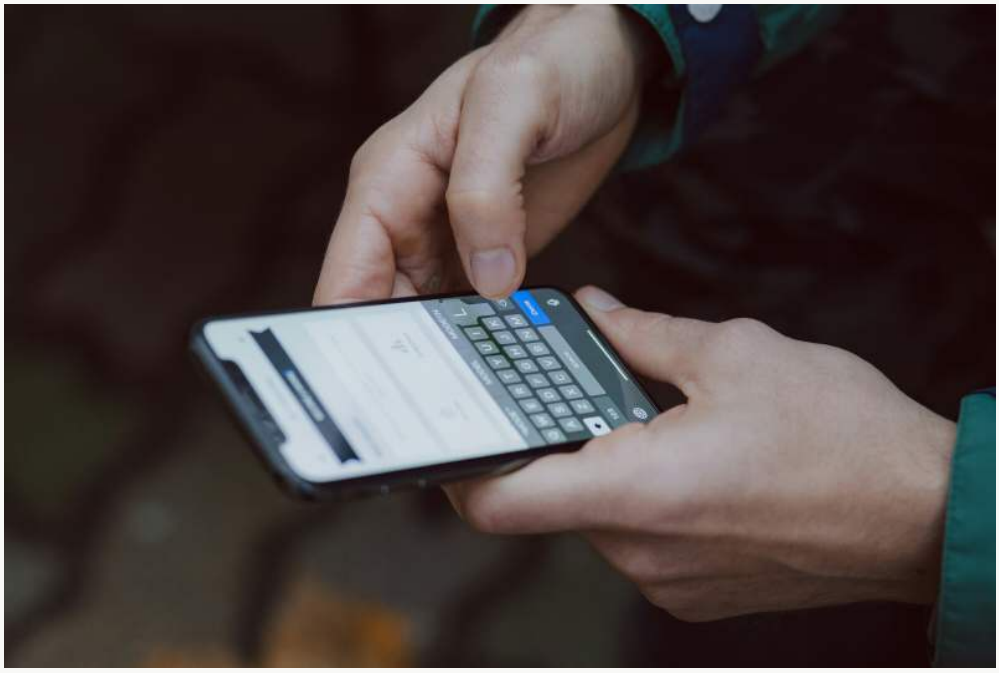
- **Initial Actions (0-24 hours)**:
    - Conduct safety and system assessments.
    - Deploy crews and equipment.
    - Initiate customer communications. (See Chapter Three)
    - Establish ICP integration and preliminary restoration plans.

3. Field Response Procedures

- **Crew Safety**: Requires appropriate arc flash or fire-resistant personal protective equipment (PPE), emergency communication tools, evacuation routes, and continuous fire weather monitoring.
- **De-energization**: Isolation of equipment involved in ignitions, have the potential for ignition, or threatened by ignition, with customer notifications and critical facility coordination. There may be a need to de-energize lines that are not involved with ignition, but for fire fighter safety and PSPS.
- **Infrastructure Protection**: Temporary line guards, increased patrols, changing relay settings, and coordination with fire suppression for equipment protection.

4. Communication and Customer Management

- **Customer Notifications**: Use multi-channel systems (calls, texts, emails, social media) to inform customers about outages, safety, and resources. (See Chapter 3)
- **Critical Facility Coordination**: Prioritize hospitals, clinics, dialysis centers, emergency services, and water treatment plants with backup power and restoration planning. Evaluate impact on lifeline services and cascading effects and organize communication and support.
- **Community Resource Centers**: Provide charging stations, information points, drinking water, and medical equipment support during extended outages. (See Deep Dive From Chapter Three).



5. Multi-Agency Coordination and Communication

- **Fire Agencies**: Share system maps, coordinate resources, and participate in unified command.
- **Emergency Management**: Integrate with county/state EOCs and federal agencies [e.g., Federal Emergency Management Administration (FEMA), US Bureau of Land Management (BLM), U.S. Forest Service] for resource and recovery support.
- **Other Utilities**: Leverage **mutual aid** networks for crew, equipment, and expertise sharing.
- **Critical Infrastructure Partners**: Water, telecom, emergency services, and medical facilities ensure service continuity. Telcom may share infrastructure and affect emergency notification capabilities.
- **Regulators**: State commissions and/or energy emergency offices that are designated ESF12 or otherwise oversee wildfire response plan compliance.
    - Note that NARUC has created a Resource to indicate leads for **ESF12 and energy emergencies**.

6. Restoration and Recovery

- **Damage Assessment**: Use aerial and/or ground inspections to document infrastructure damage and environmental impacts.
- **Restoration Priorities**: Focus on safety-critical facilities (hospitals, water systems), followed by community and economic-critical facilities, then residential customers.
- **Quality Assurance**: Conduct inspections, testing, and fire agency clearance before re-energization.

7. Documentation and Reporting

- **Incident Documentation**: Track timelines, resources, costs, and customer impacts. Resources include staffing and staging information.
- **Regulatory Reporting**: Submit immediate (e.g., 24-48 hours) and detailed (e.g., 30-90 days) reports, including root cause analysis and lessons learned.
- **Cost Recovery**: Document labor, equipment, and contractor costs for insurance, FEMA, or regulatory recovery.

8. Performance Metrics and Continuous Improvement

- **Metrics**: Measure response timeliness, effectiveness, safety, and customer satisfaction.
- **After-Action Reviews**: Analyze response effectiveness, update plans, and enhance training. Helpful in identifying gaps and opportunities for improvement.

9. Training and Preparedness

- **Training**: Training may include hands-on practice of emergency procedures, such as shutting off power, possibly shutting off gas (which requires planning before it can be restarted due to risks), conducting damage assessments, or coordinating with external stakeholders. It ensures that personnel are familiar with their roles and can execute tasks effectively under pressure. ICS courses (100-400), fire behavior awareness, emergency communications, and crisis response.

- **Exercises**: Conduct on a regular basis. It is important to include stakeholders and test procedures. These exercises can take various forms, each with a specific focus:
    - **Tabletop Exercises**: These are facilitated roundtable discussions where key personnel review and discuss response strategies for hypothetical wildfire scenarios. They typically last a few hours and focus on testing communication, roles, and decision-making. Tabletop exercises are particularly useful for identifying gaps in planning without the need for physical deployment.
    - **Functional Exercises**: These simulate emergencies using "message inserts" (pre-scripted scenarios) to test specific teams or procedures, such as coordinating with external agencies or managing Public Safety Power Shutoffs (PSPS). They help identify gaps in multi-agency coordination and operational procedures.
    - **Full-Scale Exercises**: These are the most comprehensive, mimicking real-world conditions and involving multiple functions, community responders, businesses, and regulatory agencies. They use actual systems and can last an entire business day, providing a realistic test of the utility's response capabilities.

- **Who Should Participate**: Participation in training and drills for a wildfire emergency response plan is crucial for ensuring a coordinated and effective response. The following groups should participate:
    - **Internal Personnel**:
        1. **Emergency Response Team**: Includes key roles such as Incident Commander, Public Information Officer, Energy Leader, or representative of the utility emergency management team, and other designated personnel responsible for coordinating the response. These individuals are central to decision-making and strategy execution. In an ICS organization, Incident Command consists of the Incident Commander and various Command Staff positions. The Command Staff are specifically designated, report directly to the Incident Commander, and are assigned responsibility for key activities that are not a part of the functional elements of the General Staff. Three staff positions are typically identified in ICS: Public Information Officer, Safety Officer, and Liaison Officer. Additional positions may be required, such as technical specialists, depending on the nature, scope, complexity, and location(s) of the incident(s), or according to specific requirements established by the Incident Commander.
        2. **Operations and Maintenance Staff**: Those responsible for managing infrastructure, conducting repairs, and ensuring system stability during and after a wildfire. Their participation ensures they can respond quickly to infrastructure damage or power outages.
        3. **Communications Team**: Handles internal and external communications, including updates to customers, media, and government and regulatory agencies. Their training ensures accurate and timely dissemination of information.

- **Who Should Participate (continued):**
  - **Internal Personnel**:
    4. **Field Crews**: Employees who may be deployed to assess damage, restore power, or secure infrastructure. Hands-on training is critical for operational effectiveness.
    5. **Second-Role Employees**: Staff who have additional responsibilities during emergencies, such as assisting with damage assessment or safety standby. Their training ensures they can seamlessly transition to these roles when needed.
  - **External Stakeholders (for certain exercises):**
    1. Fire Departments and Local Emergency Management Agencies: Participate in joint exercises, particularly full-scale exercises, to ensure coordinated response efforts and alignment with community safety plans. Includes law enforcement to coordinate evacuations, controlling access to sensitive areas.
    2. Other Utilities: Through mutual assistance agreements, other utilities may participate in drills to practice resource sharing and coordination, enhancing regional response capabilities.
    3. Regulatory Agencies: Representatives from agencies like the state public service commission, energy office or emergency management agency may observe, or participate in exercises to ensure compliance, coordination, and provide feedback.

10. Technology and Equipment

- **Communications**: Digital radios, satellite backups, and emergency notification systems. Satellite Internet and redundant systems may be important to ensure communication.
- **Response Equipment**: Fire-resistant vehicles, portable generators, and water tanks. Effective wildfire response plans include advanced technologies, such as sensors that detect line disturbances and automatically shut off power, PSPS programs, vegetation management, and infrastructure hardening (e.g., pole wrapping, covered conductors, undergrounding power lines – see Chapter 2) are also critical. These plans should outline roles, responsibilities, and resource allocation, ensuring utilities are prepared for rapid response.
- **Situational Awareness**: Real-time weather monitoring, fire detection cameras, satellites, planes, helicopters, and drones.

02

Response Steps During a Wildfire Event

Activate Emergency Operations Center

The activation of an Emergency Operations Center (EOC) serves as the nerve center for coordinating a utility's response to a wildfire. This step involves:

- **Setup and Staffing**: Establish a physical or virtual EOC equipped with communication systems, real-time monitoring tools, and access to critical data (e.g., grid status, weather feeds, and fire progression maps). Staff the EOC with key personnel, including incident commanders, grid operators, safety officers, and communication specialists, ensuring 24/7 coverage.
- **Real-Time Monitoring**: Integrate advanced tools such as satellite imagery, weather stations, and AI-based fire detection systems to track fire spread, wind patterns, and smoke impacts. For example, utilities using real-time monitoring equipment like Portland General offer real time access to their monitoring cameras to the public, Puget Sound Energy and Pacific Gas & Electric (PG&E) use high-definition cameras, weather sensors, and local emergency radio communications to monitor conditions in real-time.
- **Decision-Making Framework**: Implement a clear chain of command and decision-making protocols to prioritize actions, such as de-energization or resource allocation. Use incident management systems (e.g., ICS-100 protocols) to ensure structured responses.

- **Stakeholder Coordination**: Maintain continuous communication with external entities, including local and state fire agencies, local governments, and other utilities, to share situational updates and align efforts. This may involve liaison officers embedded with fire incident command teams.
- **Redundancy Planning**: Ensure the EOC has backup power (e.g., generators) and redundant communication systems (e.g., satellite phones, dedicated radio frequencies) to operate during power outages or network disruptions.

Implement Public Safety Power Shutoff (PSPS) if Necessary

PSPS is a proactive measure to de-energize power lines in high-risk areas or during periods of extreme fire ignition danger (e.g. high winds, dry, low humidity) to prevent utility infrastructure from igniting wildfires. This step includes:

- **Pre-Established Criteria**: Base de-energization decisions on predefined triggers, such as red flag warnings from the National Weather Service, low humidity (e.g., below 20 percent), high winds (e.g., sustained speeds above 25 mph or gusts above 45 mph), and fuel conditions. These criteria are often set in collaboration with state regulators.
- **Advance Notification**: Notify affected customers, including medically dependent or vulnerable customers, critical facilities (e.g., hospitals, water treatment plants), and first responders at least 24–48 hours in advance when possible, using automated systems like text alerts, emails, or phone calls. Provide clear information on the scope, duration, and safety measures for the shutoff.
- **Execution of De-energization**: Coordinate with grid operators to safely shut down targeted circuits or feeders, ensuring minimal disruption to non-affected areas. Use remote switching capabilities or field crews to isolate lines, with safety checks to prevent accidental re-energization.

- **Monitoring and Adjustments**: Continuously monitor fire and weather conditions during the PSPS event to determine if additional areas need de-energization or if restoration can begin earlier than anticipated.
- **Mitigating Impacts**: Provide resources to affected communities, such as backup generator support for critical facilities, community resource centers with charging stations and water, and medically dependent customers, to reduce the impact of outages.

Support Firefighting Efforts

Utilities play a critical role in supporting firefighting operations by providing resources and information. This involves:

- **Infrastructure Data Sharing**: Provide fire agencies with detailed maps of utility infrastructure, including pole locations, substations, and underground lines, to aid in firefighting strategy and ensure responder safety. This data can be shared via Geographic Information System (GIS) platforms or secure digital portals.
- **Equipment Access and Shutdowns**: Facilitate rapid access to utility assets for fire crews, such as opening gates to substations or de-energizing specific lines to allow safe aerial or ground firefighting operations. For example, utilities may need to disable automatic reclosers to prevent unintended power surges.
- **Road Closure Assistance**: Support fire agencies by managing access to utility-owned roads or rights-of-way, ensuring clear paths for firefighting vehicles or evacuation routes.
- **Liaison Support**: Assign utility representatives to work directly with incident command teams, providing real-time updates on grid status and addressing requests for equipment adjustments or hazard mitigation.
- **Safety Protocols**: Ensure utility field crews follow strict safety guidelines when operating in active fire zones, including wearing personal protective equipment (PPE) and maintaining safe distances from fire fronts.

Customer Communication

Effective communication with customers is essential to maintain trust and ensure safety during a wildfire event. This includes:

- **Multi-Channel Notifications**: Use a combination of text messages, emails, phone calls, social media, and website updates to inform customers about outages, PSPS events, and safety measures. For example, automated alert systems are helpful in reaching customers quickly.
- **Tailored Messaging**: Provide specific information for vulnerable populations, such as medical baseline customers who rely on power for life-sustaining equipment, or those with limited mobility, including contact details for support programs or backup power options.
- **Real-Time Updates**: Share ongoing updates about fire progression, outage status, and estimated restoration times, ensuring transparency and clarity to manage customer expectations.
- **Multilingual Outreach**: Deliver communications in multiple languages, especially in diverse regions, to ensure accessibility for all customers.
- **Feedback Channels**: Establish hotlines, chatbots, or social media response teams to address customer inquiries and provide guidance on safety measures, such as preparing for outages or reporting hazards.

03

Post-Wildfire Recovery and Restoration

Damage Assessment

Assessing infrastructure damage is a critical step to prioritize restoration and ensure safety. This involves:

- **Rapid Inspection Teams**: Deploy trained field crews and engineers to inspect power lines, poles, transformers, and substations for fire-related damage, such as melted conductors, charred poles, or compromised insulators. Use drones or helicopters equipped with LiDAR (Light Detection and Range) or thermal imaging for hard-to-reach areas.
- **Prioritization of Critical Infrastructure**: Focus initial assessments on facilities serving essential services, such as hospitals, emergency shelters, water pumping stations, and communication towers to restore power to these locations first.
- **Safety Checks**: Ensure inspections account for hidden damage, such as weakened foundations or compromised underground cables, to prevent hazards during re-energization.
- **Coordination with Authorities**: Work with fire agencies and local governments to gain access to fire-affected areas, ensuring inspections occur only when safe and approved by incident commanders.
- **Documentation**: Record findings with detailed reports, photographs, and GIS data to support repair planning, insurance claims, and regulatory compliance.

Safe Re-energization

Restoring power must be done systematically to avoid risks to infrastructure, personnel, and the public. This includes:

- **Pre-Restoration Verification**: Confirm that all damaged equipment has been repaired or replaced, and that lines are clear of debris, vegetation, or fire-related hazards. Conduct electrical testing to ensure circuit integrity.
- **Phased and Systematic Restoration**: Re-energize the grid in stages, starting with backbone transmission lines and substations, then moving to distribution circuits. Prioritize critical facilities and densely populated areas while monitoring for faults or instability.
- **Coordination with Fire Agencies**: Obtain clearance from fire officials to ensure areas are safe from active fire risks or smoldering hot spots before restoring power.
- **Communication with Customers**: Notify customers of restoration timelines and any temporary restrictions (e.g., load shedding to prevent grid overload) through the same multi-channel systems used during the event.
- **Post-Restoration Monitoring**: Use grid monitoring tools to detect any anomalies, such as voltage fluctuations or faults immediately after re-energization to ensure system stability.

Community Support

Supporting affected communities helps mitigate the social and economic impacts of wildfires and outages. This involves:

- **Mobile Resource Centers**: Set up temporary facilities in affected areas to provide charging stations, Wi-Fi, water, and cooling/heating areas, particularly for vulnerable populations like the elderly or low-income households.
- **Backup Power Programs**: Offer support for medical baseline customers, such as providing portable generators or battery backups, to ensure access to critical medical equipment during outages. Consider also relocation when possible—as it might be much faster to implement than generator and battery backups.
- **Financial Assistance**: Implement hardship programs, such as bill relief or deferred payments for customers impacted by prolonged outages or property damage.
- **Community Engagement**: Partner with local organizations to distribute resources, such as food or emergency supplies, and host town halls to address community concerns and gather feedback.
- **Restoration Updates**: Continue proactive communication about restoration progress, safety tips, and available resources through social media, local media, and direct outreach.

Documentation and Reporting

Thorough documentation is essential for regulatory compliance, future planning, and accountability. This includes:

- **Incident Logs**: Maintain detailed records of all actions taken during the wildfire response, including EOC activation, operational decisions including de-energization, infrastructure inspections, and customer communications. Use timestamps and personnel assignments for accuracy.
- **Regulatory Reporting**: Submit required reports to state and federal agencies, such as emergency response plan updates or de-energization or PSPS event summaries, as mandated by state utility commissions or the Federal Energy Regulatory Commission (FERC).
- **Data Analysis**: Compile data on fire impacts, outage durations, and response effectiveness to identify trends and areas for improvement. For example, analyze the number of customers affected by PSPS in comparison to the number of ignitions prevented.
- **Stakeholder Debriefs**: Share documentation with internal teams and external partners during after-action reviews to ensure transparency and inform future planning.
- **Legal and Insurance Considerations**: Retain records (per regulated retention policy if applicable) to support potential insurance claims, litigation, or investigations related to wildfire causes or utility liability.

Additional Notes

- **Regulatory Context**: Where states have enacted laws governing wildfire mitigation plans and reporting requirements, such as Senate Bill 901 In California, utilities must adhere to and submit plans and reports in compliance. Utility wildfire plans should align with these standards and incorporate lessons from past events, such as the 2018 Camp Fire.
- **Technology Integration**: Advanced tools, such as AI-driven fire prediction models or real-time grid monitoring systems, can enhance response efficiency and should be integrated into EOC operations and recovery efforts.
- **Community Trust**: Transparent communication and robust community support are critical to maintaining public trust, especially for complex operational decisions. Utilities may hold community meetings to discuss the event, gain customer feedback, and identify any lessons learned for future implementation.

04

Considerations

- **Utility Differences**: Electric utilities prioritize PSPS and hardening, while water utilities focus on firefighting water supply. Plans must reflect local risks (e.g., vegetation, weather). There is no one size fits all, as any plan must be tailored to the specific situation and requirements of the environment.
- **Community Impact**: PSPS and outages may potentially disproportionately affect vulnerable populations, requiring robust communication and resource centers.
- **Regulatory Oversight**: Ensure compliance with state (e.g., the public utility commission or state energy office) and federal (e.g., North American Electric Reliability Corp or NERC, National Incident Management System or NIMS) standards.
- **Insurance Criteria**: As financial risk mitigation and impact changes due to wildfires and ignition, insurance company requirements have also changed. To address liability and cost recovery, utilities have had to become creative with self-insurance, and create funds (e.g., California's $21 billion wildfire fund). The role of insurance and financial risk mitigation is addressed in Chapter 6.

05

Additional Helpful Information

- **Local Risk Profiles**: Plans should include specific risk assessments for local conditions (e.g., vegetation, weather patterns).
- **Vulnerable Population Support**: Detailed strategies for assisting medically dependent, mobility impaired, or low-income customers during wildfire response or PSPS events.
- **Insurance Partnerships**: Specific examples of utility-insurer collaborations beyond California's wildfire fund.
- **Technology Adoption**: Data on the effectiveness of sensors, drones, and fire cameras in reducing ignition risks.

06

Case Examples

- **California: Pacific Gas and Electric (PG&E)**

    - **Plan**: PG&E's Wildfire Annex to the Company Emergency Response Plan details strategies for wildfire management.
    - **Roles/Responsibilities**: Includes the Distribution Integrity Management Program for gas asset assessments, Remote Estimating Team for rebuilding designs, and Safety and Infrastructure Protection Teams for facility protection.
    - **Mutual Aid Agreements**: Coordinates with CAL FIRE, Cal OES, BLM, NPS, USFS, and local agencies, ensuring resource sharing during incidents.
    - **Resource Allocation**: Uses a five-level incident classification, emergency centers, field sites, and the Hazard Awareness and Warning Center (HAWC). Enhanced powerline safety settings (EPSS) achieved 72 percent effectiveness in reducing ignitions in 2023, with 800 miles of lines buried since 2021 and a goal of 10,000 miles in high-risk areas.

- **California: Southern California Edison (SCE)**

    - **Plan**: SCE's 2026-2028 Wildfire Mitigation Plan focuses on reducing wildfire risks.
    - **Roles/Responsibilities**: Led by executive-level owner, program owner, asset intelligence, and subject-matter experts for inspections, plus ignition investigations for lessons learned.
    - **Mutual Aid Agreements**: Partners with firefighting agencies, Cal OES, and local governments, including a quick reaction force with helitankers.
    - **Resource Allocation**: Invests $6.2 billion (2026–2028), including 440 circuit miles of covered conductor and 260 miles of underground lines, using technologies like LiDAR and Rapid Earth Fault Current Limiter.

- **Colorado: Xcel Energy**

    - **Plan**: Xcel Energy's 2025-2027 Wildfire Mitigation Plan addresses evolving wildfire risks. Xcel offers information to its customers on a dedicated website for wildfire safety.
    - **Roles/Responsibilities**: Includes climate, fire, forestry, and emergency management teams, using Technosylva's software for risk modeling.
    - **Mutual Aid Agreements**: Works with local and state emergency services for coordinated response.
    - **Resource Allocation**: Requests $1.9 billion (2025–2027) for undergrounding lines, adding weather stations, and expanding vegetation management, with a 9.56 percent bill increase projected by 2028.

- **Texas: Austin Energy**

    - **Plan**: Utilizes AI technology with Pano AI for smoke detection, as announced by the company and detailed in this podcast.
    - **Roles/Responsibilities**: The utility's Wildfire Manager oversees AI implementation, focusing on grid resilience.
    - **Mutual Aid Agreements**: Not specified but collaborates with local fire departments for response.
    - **Resource Allocation**: Invests in AI-driven early detection systems, with 13 camera stations deployed, covering Travis County and beyond.

- **Oregon: Portland General Electric (PGE)**

    - **Plan**: PGE's 2026-2028 Wildfire Mitigation Plan (WMP) aims to reduce wildfire risks through system hardening, vegetation management, and advanced technology. The plan builds on year-round efforts to enhance grid resilience and minimize ignition risks in High Fire Risk Zones.
    - **Roles/Responsibilities**: Led by PGE's Wildfire Mitigation and Resilience team, including subject-matter experts for system inspections, vegetation management, and technology integration. The team coordinates with operational crews for maintenance and Public Safety Power Shutoff (PSPS) execution, with data analysts overseeing AI-driven monitoring and ignition reporting.
    - **Mutual Aid Agreements**: Partners with local, state, and federal agencies, including the US Forest Service, Bureau of Land Management, Oregon Department of Forestry, tribes, fire districts, and emergency responders. PGE shares wildfire technology resources and geospatial data to support coordinated prevention and response efforts.
    - **Resource Allocation**: While specific 2026-2028 budgets are not detailed, PGE's 2023 WMP included $23.6 million for operations and maintenance and $15.1-$27 million for system improvements. Investments include nearly 1,000 iron utility poles since 2019, covered conductors, undergrounding in high-risk zones, AI-powered wildfire cameras, and high-tech weather stations for real-time monitoring.

- **Washington/Idaho: Avista**

    - **Plan**: Avista's 2026-2028 Wildfire Mitigation Plan focuses on reducing wildfire ignition risks through infrastructure upgrades, enhanced vegetation management, and operational protocols like PSPS in high-risk conditions. The plan emphasizes grid resilience and community safety in wildfire-prone areas. (Note: Specific 2026-2028 details are unavailable; this is inferred from Avista's 2023 WMP and general practices.)
    - **Roles/Responsibilities**: Managed by Avista's wildfire mitigation team, including executives overseeing strategy, field crews conducting inspections and maintenance, and specialists in data analytics for risk assessment. The team also includes coordinators for community engagement and emergency response planning.
    - **Mutual Aid Agreements**: Collaborates with local fire departments, state agencies like the Washington Department of Natural Resources, and regional utilities for coordinated wildfire response. Avista participates in mutual assistance programs with other utilities for resource sharing during emergencies.
    - **Resource Allocation**: While 2026-2028 budgets are not specified, Avista's prior plans invested in system hardening (e.g., replacing wooden poles with fire-resistant materials), vegetation clearing along 12,000+ miles of power lines, and technologies like weather monitoring systems and fault detection sensors to reduce ignition risks.

- **Idaho: Idaho Power**

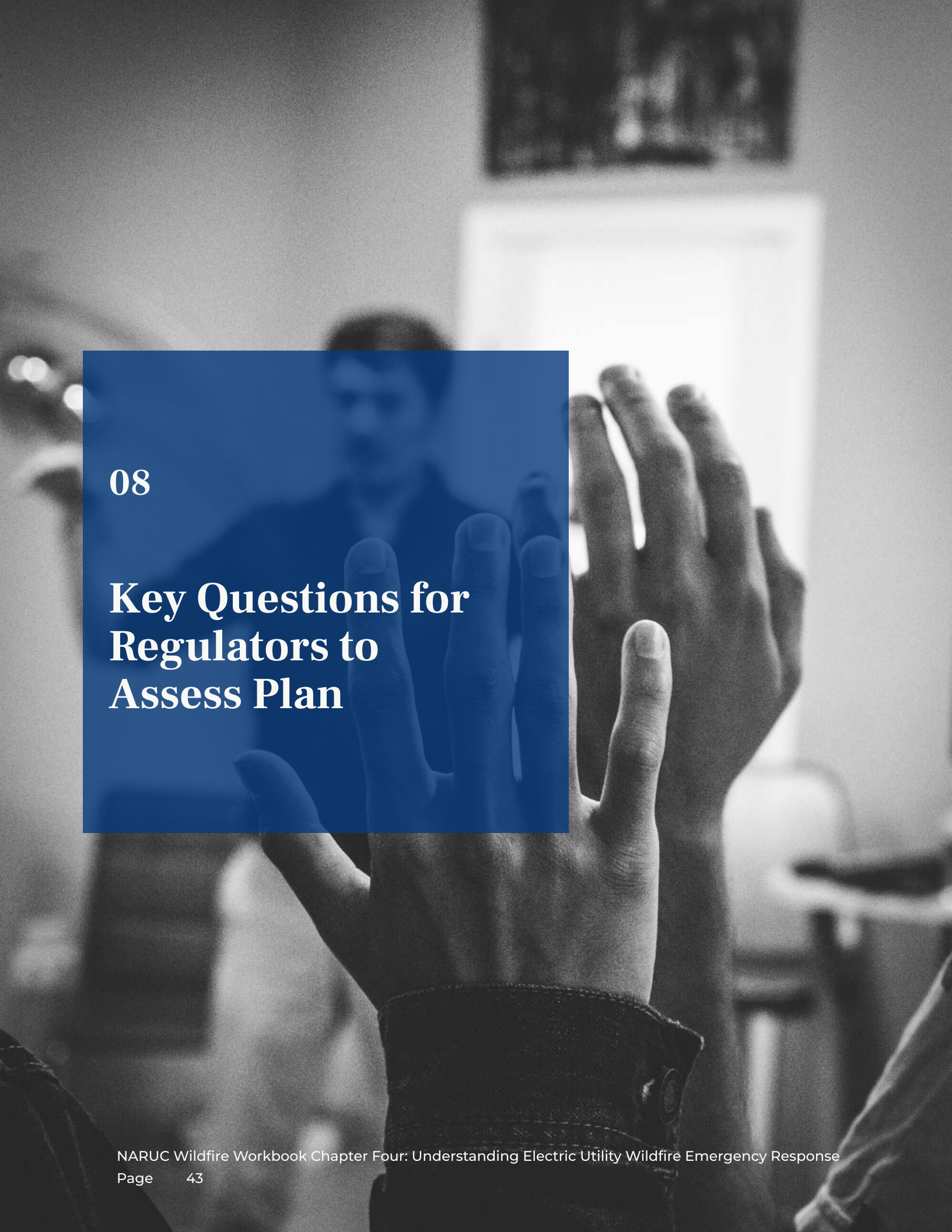
    - **Plan**: Idaho Power's 2026-2028 Wildfire Mitigation Plan prioritizes preventing ignitions through proactive maintenance, system upgrades, and situational awareness. The plan includes enhanced vegetation management and operational measures like PSPS to mitigate risks during extreme fire weather. (Note: Specific 2026-2028 details are unavailable; this is based on Idaho Power's 2023 WMP and operational trends.)
    - **Roles/Responsibilities**: Led by Idaho Power's executive leadership and wildfire mitigation team, with roles for asset management specialists, field inspectors, and data analysts monitoring fire risks. The team also handles post-incident ignition investigations to improve future strategies.
    - **Mutual Aid Agreements**: Partners with Idaho Department of Lands, local fire agencies, and federal entities like the Bureau of Land Management for wildfire prevention and response. Idaho Power engages in regional mutual aid networks to share resources during wildfire events.
    - **Resource Allocation**: Although 2026-2028 investments are not detailed, Idaho Power's 2023 efforts included vegetation management across thousands of miles of power lines, installation of fire-resistant equipment, and deployment of advanced weather monitoring and fault detection systems to enhance grid safety.

07

Tools for Regulators

- **Sample Response Plan**: PG&E's plan outlines EOC structure, ICS integration, and mutual aid (PG&E WMP).
- **Tabletop Exercise Templates**: EPA's tool includes wildfire scenarios for utilities (EPA Tabletop Tool). NARUC offers a Cybersecurity Tabletop Exercise Guide that can be adopted for wildfire scenarios.
- **Partner List**: Create a list of important contacts well before needed and create a plan to update annually. Include:
    - **Critical Infrastructure Partners:** Utilities must establish mutual aid agreements with water, telecom, medical, and public safety providers. For example, water utilities may prioritize water supply for firefighting, whereas telecom providers ensure communication continuity during outages.
    - **Emergency Responders and Incident Command System (ICS)**: Utilities should integrate with ICS to ensure structured communication and coordinated action. Joint exercises with first responders, as seen in California's collaborative drills, enhance preparedness
    - **Regulatory Oversight**: Each jurisdiction may require oversight (See NARUC Critical Infrastructure Resource Repository). For example, California utilities submit Wildfire Mitigation Plans (WMPs) to the Office of Energy Infrastructure Safety "Energy Safety" and the California Public Utilities Commission (CPUC) for review and approval. The Wildfire Safety Advisory Board provides recommendations, ensuring stakeholder input.

- **Partner List (continued)**:
    - **Community Engagement**: Utilities should educate communities about wildfire risks, PSPS events and provide resource centers for affected residents. PG&E's outreach includes preparedness brochures and progress maps.
    - **Partnerships with Insurance Companies**: Collaborations with insurers, as seen in California's $21 billion wildfire insurance fund, help address liability and financial risks, balancing costs among ratepayers and utilities
- **NGA/NASEO** Energy Crisis Communications Playbook: This playbook provides an overview of crisis communications best practices and guidance for states.



08

Key Questions for Regulators to Assess Plan

1. Plan Comprehensiveness:

- Does the plan integrate ICS principles with clear roles for unified command, liaison officers, and resource coordination?
- Are EOC sections (command, operations, planning, logistics, finance) fully defined and staffed?
- Does the plan address differing needs for electricity, water, and telecommunications utilities?

2. Activation and Response:

- Are triggers for immediate and escalated activation clearly defined (e.g., equipment ignition, PSPS)?
- Do notification procedures meet timelines (15 minutes internal, 30 minutes external)?
- Are initial actions prioritized for safety, system assessment, and stakeholder coordination?

3. Stakeholder Coordination:

- Are mutual aid agreements in place with other utilities and agencies? Has the mutual aid agreement been practiced and are the contacts up to date?
- Does the plan include real-time information sharing with fire agencies and critical partners?
- How does the utility engage communities on wildfire risk, fast-trip settings, PSPS, and resource centers?

4. Safety and Infrastructure:

- Are crew safety protocols (PPE, evacuation routes) robust and wildfire-specific?
- Do de-energization and restoration procedures prioritize critical facilities and public safety?
- Are infrastructure protection measures (e.g., line guards, patrols) proactive and coordinated?

5. Training and Exercises:

- Do personnel complete ICS training (100-400) and wildfire-specific courses?
- Are tabletop and full-scale exercises conducted with stakeholders, including fire agencies, city, county and state officials in alignment with industry standards?

6. Technology and Metrics:

- Does the plan leverage technologies like sensors, drones, and fire detection cameras?
- Are there performance metrics (timeliness, safety, customer satisfaction), are they tracked and reviewed, and is the data made publicly available or to the state commission?

7. Documentation and Reporting:

- Are immediate and detailed reporting processes compliant with regulatory requirements?
- Does the plan include cost tracking for recovery through insurance or FEMA?

8. Continuous Improvement:

- Are after-action reviews conducted to update plans and training? What agencies and personnel are the reviews shared with?
- How does the utility address lessons learned from past incidents? Does the utility conduct after-action reviews of the incident to review what happened and what could be improved?

09

Summary

When reviewing electric utility wildfire plans, state utility regulators should ensure the response elements are comprehensive, ICS-integrated plans that prioritize safety, coordination, and community support. By asking targeted questions about plan components, stakeholder engagement, and continuous improvement, regulators can verify compliance with standards and evaluate effectiveness in utility response to wildfire risks. Tools like sample plans and tabletop exercises, combined with case studies, provide practical frameworks for oversight.

Key Citations:

- CPUC Wildfire Mitigation
- PG&E Community Wildfire Safety
- EPA Tabletop Exercise Tool
- Columbia University Wildfire Report
- Athena Case Studies
- American Public Power Association
- Electrical Safety Policy – Office of Energy Infrastructure Safety
- California Public Utilities Commission - Utility Wildfire Mitigation Plans
- NGA/NASEO Energy Crisis Communications Playbook

Acknowledgments

This material is based upon work supported by the Department of Energy under Award Number DE-CR0000009. NARUC thanks the U.S. Department of Energy (DOE) Office of Cybersecurity, Energy Security, and Emergency Response (CESER) for their generous financial support of this initiative, as well as their insights that informed the development and scope of this report.

Special thanks to the members of the NARUC Wildfire Working Group, particularly Commissioner Ann Rendahl of the Washington Utilities and Transportation Commission. Appreciation is also extended to NARUC staff members Lynn Costantini, Deborah Reynolds, Taylor Fitzgerald, Jessica Diaz, and Hyleah O'Quinn, as well as these invited experts for their review and comments to inform the practices and procedures contained in this report:

- Amy Andrews, Washington Utilities and Transportation Commission
- Leodoloff Asuncion Jr., Hawaii Public Utilities Commission
- Chuck Bondurant, Public Utility Commission of Texas
- Heide Caswell, Oregon Public Utilities Commission
- Zenon Christodoulou, New Jersey Board of Public Utilities
- Amanda Coolidge, DOE CESER
- Matt Dale, Virginia State Corporation Commission
- Devlin Daneshforouz, Berkshire Hathaway Energy
- Campbell Delahoyde, National Association of State Energy Officials
- Andrew Fay, Florida Public Service Commission

- Blair Fink, Georgia Public Service Commission
- Emily Gerhardt, Southern Company
- Carrie Gilbert, Maine Public Utilities Commission
- Wade Greenacre, Pacific Gas & Electric
- Shawn Hazard, Public Utility Commission of Texas
- Sheri Haugen-Hoffart, North Dakota Public Service Commission
- Darcie Houck, California Public Utilities Commission
- Caroline Thomas Jacobs, California Office of Energy Infrastructure Safety
- Forest Kaser, California Public Utilities Commission
- Karen Kemerait, North Carolina Utilities Commission
- Bryan Law, National Conference of State Legislatures
- Megan Levy, DOE CESER
- Ed Lodge, Idaho Public Utilities Commission
- Kimberly Loskot, Idaho Public Utilities Commission
- David McRee, Duke Energy
- Riaz Mohammed, Xcel Energy
- Heather Moline, Washington Utilities and Transportation Commission
- Jesse Murray, NV Energy
- Joel Nelson, DOE CESER
- Christian Noyce, Minnesota Public Utilities Commission
- Dalton Oberfoell, National Conference of State Legislatures
- Ann Rendahl, Washington Utilities and Transportation Commission
- Dan Searfoorce, Pennsylvania Public Utility Commission
- David Springe, National Association of State Utility Consumer Advocates
- Nina Suetake, National Association of State Utility Consumer Advocates
- Kristine Telford, Edison Electric Institute
- Taylor Thomas, Idaho Public Utilities Commission
- Sarah Trent, National Association of State Energy Officials
- Carolee Williams, Public Service Commission of South Carolina

Disclaimer

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

NARUC
National Association of Regulatory Utility Commissioners

1101 Vermont Ave. NW • Suite 401 • Washington, DC 20005
www.naruc.org • (202) 898-2200