

Natural Disasters and Utilities

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Defining Natural Disasters

- Is the nomenclature correct?
- Natural disaster versus natural hazard
- Floods, earthquakes, hurricanes, forest fires, ice storms, tornadoes, storm surges, northeasters, prairie/brush fires are all natural phenomena and a predictable hazards—they becomes disasters when human-created structures are damaged by these natural forces.

How Utilities Prepare for Natural Disasters

- Mutual aid agreements
- How they work
- limitations of these agreements
- Proactive measures
- Hardening transmission and distribution lines
- Enhanced communication systems
- Purchase of utility-owned fire fighting equipment

Utility Preparations (continued)

- Stockpiling equipment for rapid replacement
- Contracting with equipment suppliers to ensure that poles, wires & transformers are available when needed
- Limitations: Stockpiling inventory is expensive

Global Warming is Exacerbating Natural Hazards and Making Them More Costly To Respond To

- Sea Level Rise and Warmer Ocean Temperatures Are Increasing the Strength of Hurricanes
- Warmer Temperatures Encourage the Migration of Harmful Species: Bark Beetles in Western Forests, Vector Borne Diseases Such as Dengue Fever, Malaria
- Forest Fires have become more prevalent and destructive
- We're already paying a lot for global warming—higher utility bills (summer heat waves), replacing infrastructure damaged by rising sea levels: “managed retreat” from rising sea levels has been proposed

Global Warming (continued)

- Mediterranean Climates are Particularly Vulnerable to Global Warming, e.g., California, Southeastern Australia, Mediterranean Basin
- In the past decade we have seen unprecedented forest fires in Greece, Spain, Portugal, Australia & California
- Extended Droughts Are Becoming More Common
- “Fire Season” now includes much of the calendar year in California

Forest Fires & Utilities

- In 2003, 2007, 2011, 2017 & 2018 utility owned & operated equipment was implicated in California forest fires
- California utility risk managers dread forest fires more than any other hazard facing a utility
- Pacific Gas & Electric (PG&E) equipment has been identified as the source of the “Camp Fire” which destroyed the town of Paradise, California (14,000 structures destroyed, 86 fatalities, 53 of whom were elderly)
- PG&E has filed for bankruptcy because of the potential \$30 billion in claims related to utility-caused forest fires.
- Forest fires are not just a California phenomenon in the U.S. Serious fires have hit Arizona, Colorado, Utah, Oregon, Washington, Oklahoma & Tennessee in recent years.
- In 2017: 2,158 sq. miles of California burned, in 2018: 2,959 sq. miles burned. Fire suppression costs in 2018 were \$1.792 billion
- Rhode Island has 1,545 sq. miles, Delaware 2,489 sq. miles.

Photos of the Camp Fire



Cars Destroyed by the Camp Fire



Utility Strategies for Coping with Forest Fires

- Unilateral service terminations in rural portions of service territories served by radial transmission/distribution lines
- Hardening of transmission/distribution lines by replacing wood poles with steel and some undergrounding of lines

Legal Issues Raised

- If unilateral service termination become the norm for “at risk” rural customers are utilities discriminating against rural customers in violation of their statutory obligation to serve?
- California Pub. Util. Code section 453(a) “no public utility shall, as to rates, charges, services, facilities, or in any other respect, make or grant and preference or advantage to any corporation or subject any corporation or person to any prejudice or disadvantage. ... (c) No public utility shall establish or maintain any unreasonable difference as to rates, charges, services, facilities, or in any other respect, either as between localities or as between classes of service.

Inverse Condemnation

- Key Case finding Utilities Liable: *Barkham v. S. Cal Edison Co.*, 88 Cal. Rptr. 2d (1999)
- Mass Litigation currently underway in San Francisco Superior Court: *CJC 17004955*
consolidated California North Bay Fire Cases

PG&E has argued that holding it liable for the fires would be a 5th Amendment taking and finding liability is unfair because PG&E cannot collect taxes or raise rates to pay for the fires without the Commission's approval.

Regulatory Responses to Disasters

- Catastrophic Event Memorandum Account

Arose in response to the 1989 Loma Prieta Earthquake to cover utility expenses associated with restoring service, replacing and/or repairing facilities and complying with governmental edicts.

Statutory Basis: Section 454.9(a) et. seq. (b) of the Pub. Util. Code

Commission decisions on CEMA requests: Resolution E-3238, D.07-07-041

Must be a disaster declaration by competent state or federal authorities to be eligible for CEMA treatment.

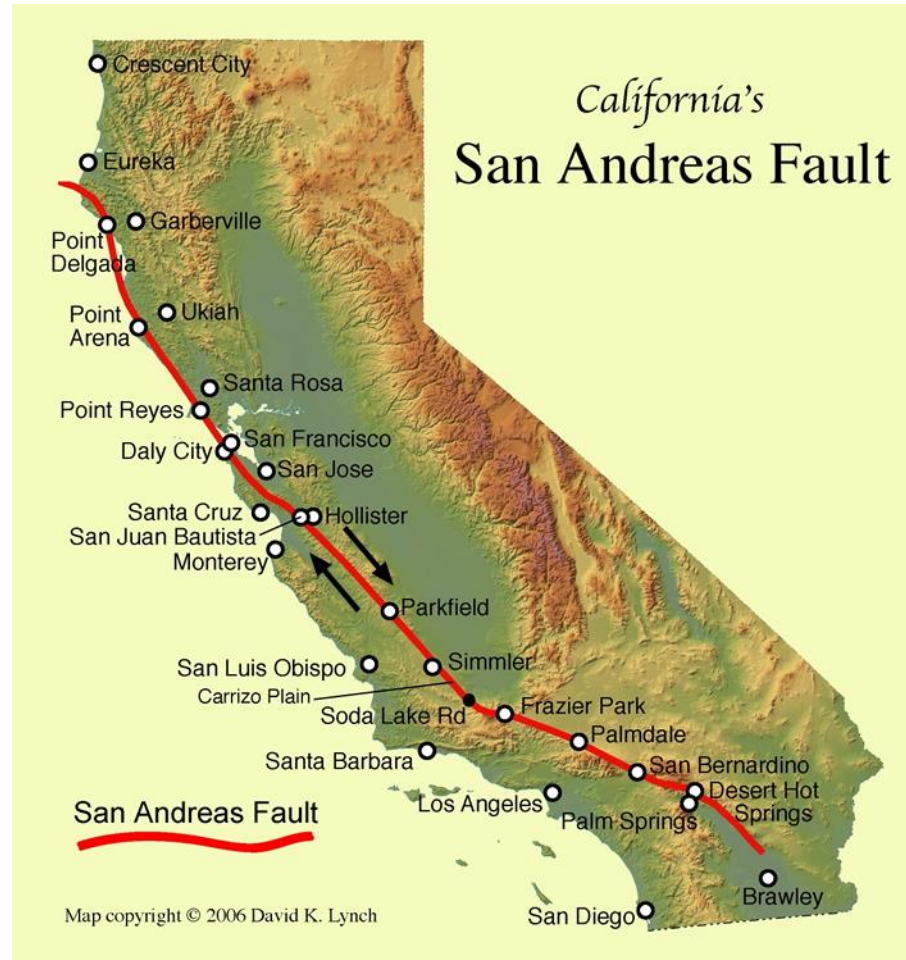
Key Commission Decision on Cost Recovery for Fires

- San Diego Gas & Electric requested Commission approval of \$379 million for costs that arose from three 2007 wildfires: The Witch, Guijito and Rice Fires. CalFire had determined that utility facilities were implicated in starting the fires. Both Pacific Gas & Electric and Southern California Edison supported SDG&E's request. The Commission declined to award the \$379 million in D.17-11-033.

Earthquake Hazards

- Earthquakes don't typically kill people, buildings kill people.
- California is earthquake country
- Other parts of the U.S. at risk: Alaska, Oregon, Washington, New Madrid area of Missouri, Tennessee, Illinois
- Vulnerable utility facilities:
- Pipelines, aqueducts & some transmission/distribution lines

Map of San Andreas Fault



Recent California Earthquakes

- Loma Prieta: 1989, 67 deaths \$5 billion in damages
- 6.9 magnitude—not on main San Andreas Fault
- Northridge Earthquake: 1994, 57 deaths, \$20 billion in damages, 125,000 people rendered homeless
- Also not on the San Andreas Fault

California is Overdue for the “Big One”

- The Southern portion of the San Andreas Fault has been locked since 1857 when an estimated 7.9 magnitude earthquake hit north of Los Angeles. Historically a major quake has hit about every 100 years
- 1906 San Francisco Earthquake displaced surface approximately 20 feet. (also estimated to be a 7.9 magnitude quake.