Resilience, Sustainability, and Coordination Across Government




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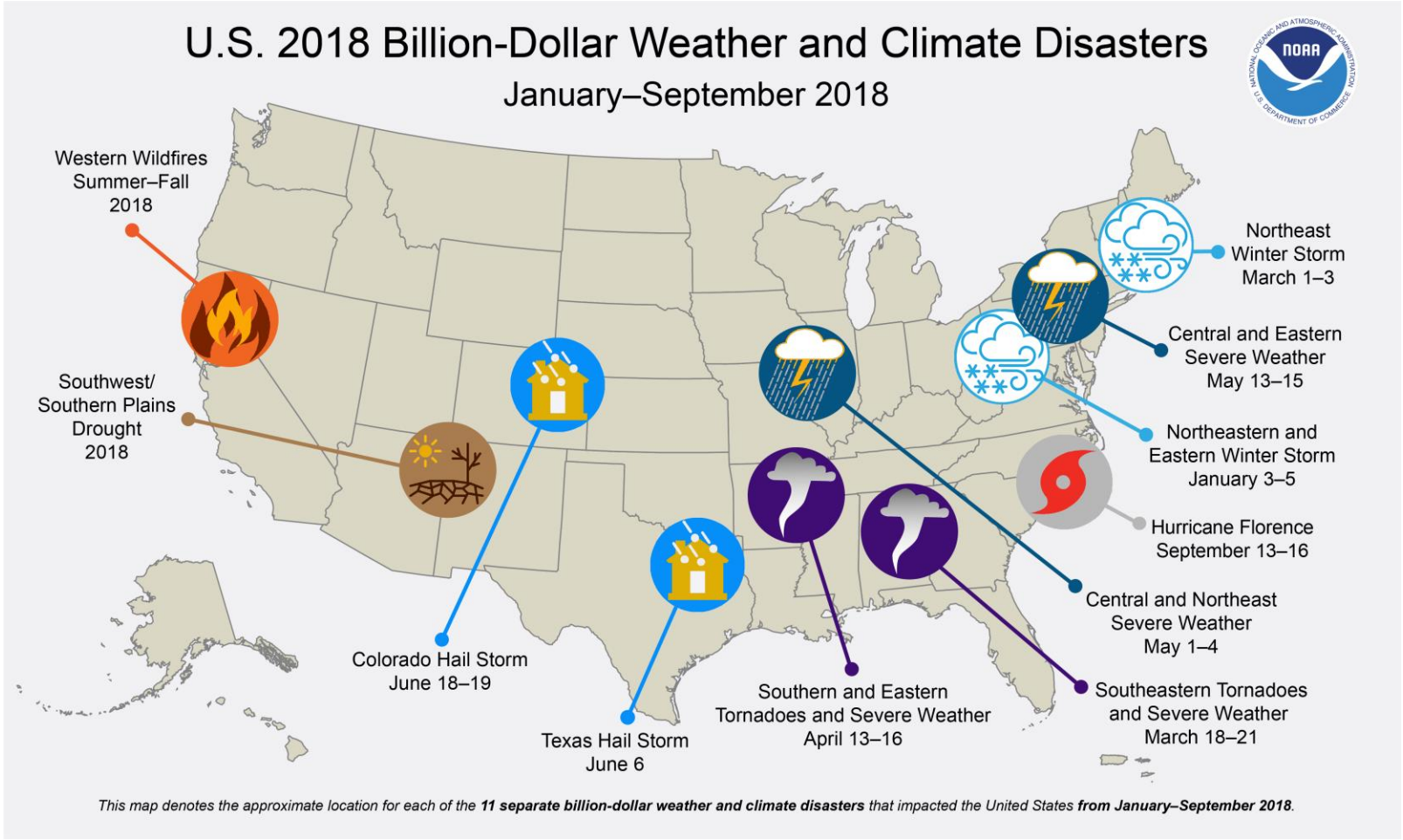
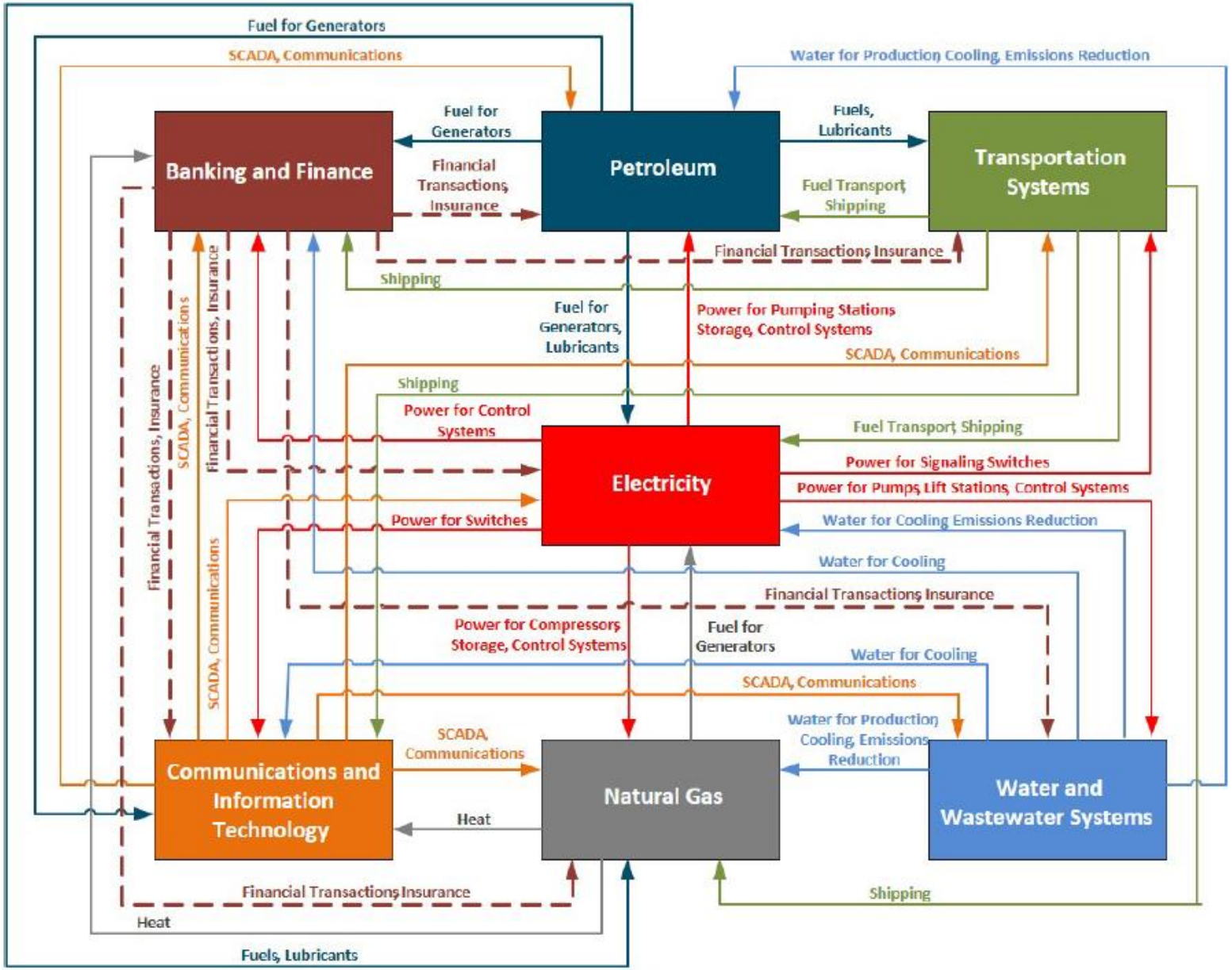
As of October 8, 2018, the U.S. has experienced 11 weather disasters costing over a billion dollars



Source: National Oceanic and Atmospheric Administration's National Centers for Environmental Information. U.S. Billion-Dollar Weather and Climate Disasters: Overview. https://www.ncdc.noaa.gov/billions/. Accessed on October 12, 2018.

Interdependencies Among Critical Infrastructure

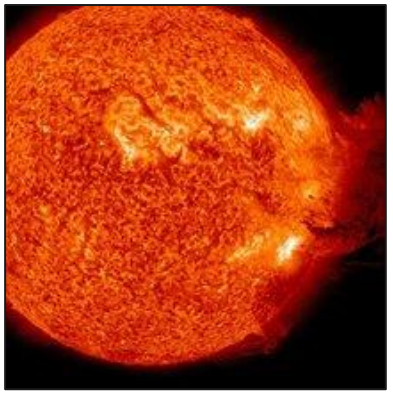


Preparedness, Resiliency, Sustainability

- **Plan and Respond** to events that disrupt energy supply and assure a rapid return to normal conditions. This is a coordinated effort involving the private energy sector's response, augmented by local, state, and federal governments as needed

- **Mitigate Risks (energy, economic, environmental)** through policies, programs and investments that provide for a more secure, resilient, and sustainable energy infrastructure that also reduces interdependencies impacts
  - *Where risk is a function of consequences, vulnerabilities and threats.*



Improving Resilience of the Built Environment

- Energy efficiency (EE) can prevent or reduce stress to the grid and broader energy system (NG, propane, oil) and mitigate environmental and economic impacts
- EE and DERs support survivability and service during and outage
- The marriage of EE with other distributed and grid resources can support reliability, resilience, economic, and environmental goals.

On-site generation and storage can ensure service during an outage

Improving Resilience of the Built Environment

- Microgrids integrating EE with onsite/local DG, storage, and load management of increasing interest.
  - Microgrids offer greater flexibility and service (and better use of capital) than hard-wired diesel backups.
  - They can be an asset rather than a detriment to the grid.
  - But they require a good distribution system and controls

Montgomery County Public Safety Headquarter plans to install microgrids

Improving Resilience of the Transportation System

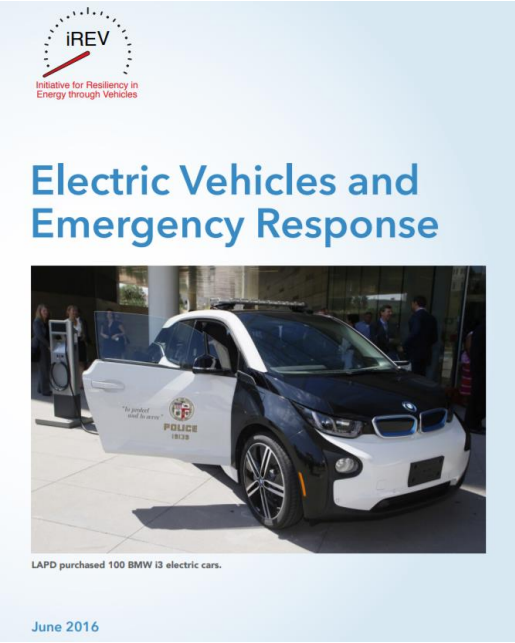
- Alternative fuel vehicles (AFVs) ensure a diverse fuel supply and can support emergency activities during a petroleum shortage

Biodiesel vehicles are a large part of NYC's fleet and were a major asset during the 2012 gasoline shortage

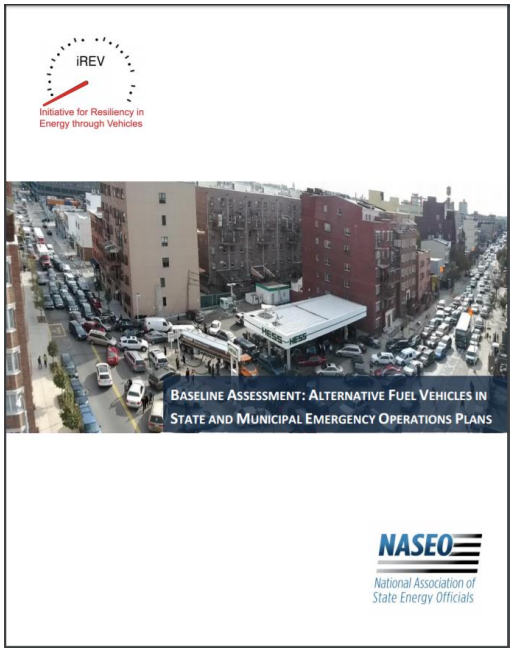
PG&E is using electric vehicles on utility trucks to supply power when lines are down

Improving Resilience of the Transportation System

- State Energy Offices, emergency managers, and others can learn about AFVs and incorporate AFVs into emergency planning exercises and plans. Resources from NASEO:



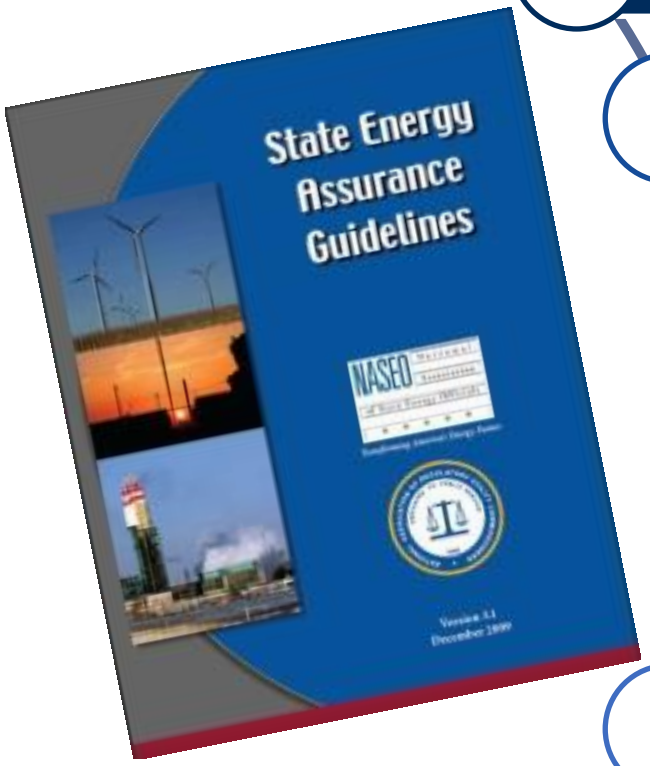
Case studies highlighting ways that AFVs have been used during emergencies



Baseline assessment highlighting emergency plans with AFVs

Toolkits for states with recommendations for how to integrate AFVs into plans

State Energy Assurance Guidelines

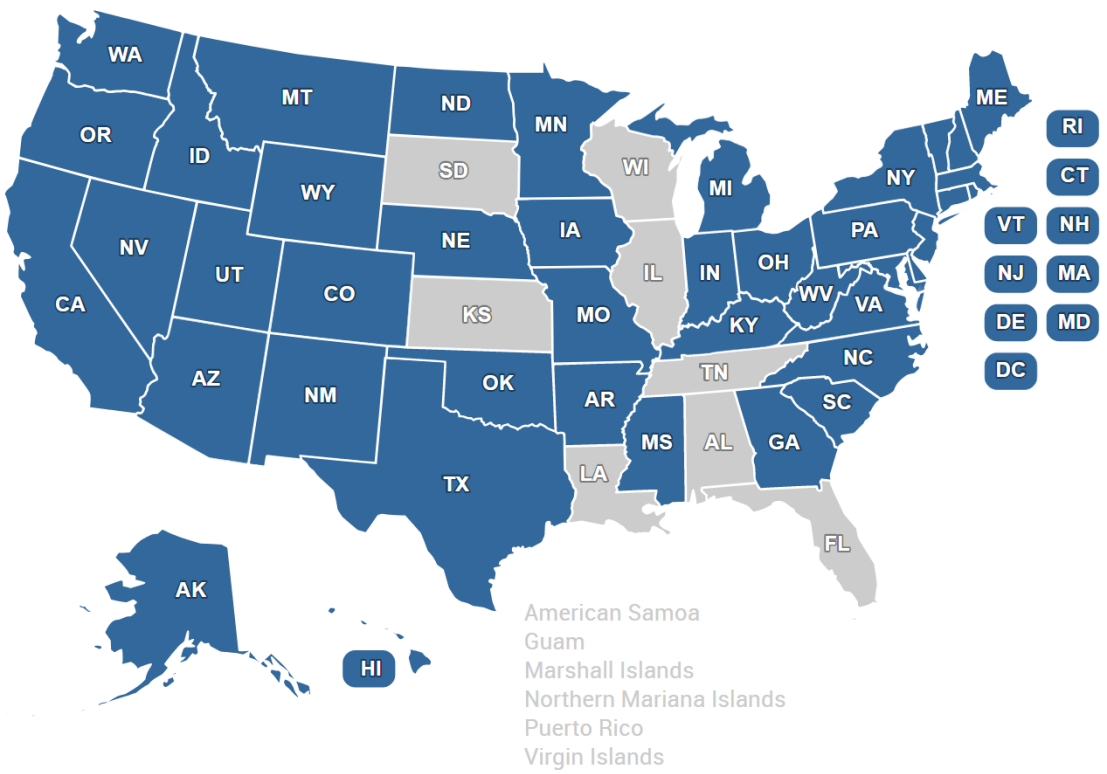


- Energy profile
- Historical events and actions taken
- Roles of energy assurance/response agencies
- Interrelationship of large energy producers, consumers, associations to state/local
- Methods of assessing severity and consequences of energy disruptions and tracking rate of recovery
- Emergency communications protocols
- Management decision processes

NASEO State Energy Assurance Guidelines. Available on NASEO website at: https://www.naseo.org/energyassurance. Accessed on October 12, 2018.

State Energy Planning

- 42 states have State Energy Plans
- State Energy Plans identify and design a pathway to a prosperous energy future that capitalizes on a state's resources, infrastructure, and human capital to promote a healthy economy and environment. State Energy Plans provide a policy backing for program and regulatory decisions, and can help catalyze positive, transformative change.



State Energy Planning Trends and Resources

- State Energy Offices engaging a diverse set of stakeholders and working with other agencies to gather data and reflect state-wide priorities in plans
- Increasingly incorporate energy, environmental, and other data to create a baseline and set goals within the plan
- Address a number of issue areas, including:
  - Resilience;
  - Emerging finance mechanisms;
  - Water-energy nexus;
  - Advanced nuclear technologies;
  - Planning for AMI and microgrids;
  - Support of technology "incubators";
  - Planning for EV deployment; and
  - Inter-agency coordination.