NOAA’s Climate Services: Connecting Energy Users with Climate Science and Services
Delivering Actionable Climate Information: National Scales

Overview info:
- U.S. National Climate Assessment: https://nca2018.globalchange.gov/
- Climate.gov
- Climate Resilience Toolkit: http://toolkit.climate.gov/
- Drought.gov
- Climate at a Glance: https://www.ncdc.noaa.gov/cag/national
Delivering Actionable Climate Information: Regional Scales

Quarterly Climate Summaries/Outlooks (2 page Summaries):
http://www.drought.gov/drought/content/resources/reports


Sectoral Information Dashboards: Gulf of Maine, Water, Energy, Health, Fisheries, Coasts

Story Map - http://arcg.is/1jOLCb
Delivering Actionable Climate Information: Energy Sector Partnerships

NOAA is working in a government to government relationship to offer weather and climate information to meet the requirements of DOE and its core partners

**Mission Interests** - Grid Sustainability and Critical Infrastructure Security

**Weather and Climate Information Requirements:**
- Icing events, temperature extremes, Wet bulb temperatures, Wind speed and duration, Water availability (drought impacts), and Sea level rise

**Climate Services co-development with utility partners (localized climatologies based on targeted severe events):**
- NCEI’s Storm Events Database ([https://www.ncdc.noaa.gov/stormevents/](https://www.ncdc.noaa.gov/stormevents/))
- Coop data/xmACIS for temp/precip ([https://www.rcc-acis.org/](https://www.rcc-acis.org/))
Questions?

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http://www.ncdc.noaa.gov/rcsd/eastern

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Aspen Global Change Institute  
Invited Virtual Lightning Talk
NCA4: Key Messages of Energy Chapter

- **Key Message 1:** Impacts on Energy Sector Extend Across the Nation

- **Key Message 2:** Transformations in the Energy System Are Changing Vulnerabilities to Climate and Weather Impacts

- **Key Message 3:** Actions are Underway to Improve Energy System Resilience
Extreme weather impacts all components of the Nation’s energy system, from fuel production and distribution to electricity generation, transmission, and demand.

Climate change will likely result in more frequent and longer-lasting impacts, damaging infrastructure, and creating fuel availability and demand imbalances.
Key Message 2:

- Changes in energy technologies, markets, and policies are affecting the energy system’s vulnerabilities to climate change and extreme weather.

- Some of these changes may increase reliability and resilience, while others create additional vulnerabilities.

- Changes include:
  - Natural gas is increasingly used for power
  - Renewables expanding market share
  - Energy efficiency efforts increase
  - Electrification of other sectors and more interconnected
Key Message 3: Actions are Underway to Improve Energy System Resilience

This progress occurs through:
- Improved data collection, modeling, and analysis to support resilience planning;
- Private and public-private partnerships supporting coordinated action;
- Development and deployment of innovative energy technologies for adapting energy assets to extreme weather hazards.

Opportunities remain to accelerate the pace, scale and scope of investments in systems resilience.
NCA4 Energy: Key Takeaways

- Extreme weather events are already impacting the energy sector and resulting in annual costs in the billions. The current pace, scale, and scope of efforts to improve energy system resilience are likely to be insufficient given the nature of the challenge.

- The need for adaptation will only increase without substantial mitigation efforts to reduce global greenhouse gas emissions and avoid more severe consequences in the long-term.

- Additional Resilience Opportunities:
  - Improved awareness of energy asset vulnerability
  - Reliable projections of extreme weather and climate change at a local level
  - Standardized cost-benefit methodologies to fully account for benefits of resilience investments
  - Cost-effective resilience-enhancing energy technologies
  - Resilience-based design codes and standards
  - Enabling policy framework to incentivize resilience investments