

Climate Fast Forward



Climate Resilience and Adaptation

May 20, 2020

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CLIMATE BREAKFAST SERIES

Climate Resilience & Adaptation

- ❑ *Climate resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends or disturbances related to climate.*
- ❑ *Improving climate resilience involves assessing how climate change will create new, or alter current, climate-related risks, and taking steps to better cope with these risks.*
- ❑ *Climate adaptation is the “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”*

Department of Defense (DoD) concern about energy resilience is being captured in policy, directives, and instructions

- ❑ DoD Directive 4180.01 – DoD Energy Policy is to strengthen energy security by improving the energy performance of installations
- ❑ DoD Instruction 4170.11 Installation Energy Management
 - ❑ Establishes requirements for energy resilience on military installations and allows for the use of integrated, distributed, and renewable energy sources for energy resilience
 - ❑ Requires alignment between energy requirements and critical mission operations, and maintaining primary and emergency energy systems
- ❑ DoD Directive 4715.21: Climate Change Adaptation and Resilience (2016)
requires DoD to:
 - ❑ Consider climate change resilience in installation planning to include impacts on built and natural infrastructure
 - ❑ Engage with subnational government to promote compatible development
 - ❑ Assess and manage risks to built and natural infrastructure

Source: Converge Strategies: Summary briefing for energy officials July, 2019

<https://convergestrategies.com/>



Military Service Energy Resilience Policies



Army

- Army Directive 2017-07 – 14 days energy and water requirement for critical missions
- Army Energy Security and Sustainability (ES2) strategy provides a roadmap to foster a more adaptable and resilient force



Air Force

- Air Force Policy Directive (AFPD) 90-17 – 7 days power requirement for mission essential critical infrastructure
- Air Force Energy Flight Plan sets goal that all mission critical functions have assured access to a reliable energy supply at all times by 2036

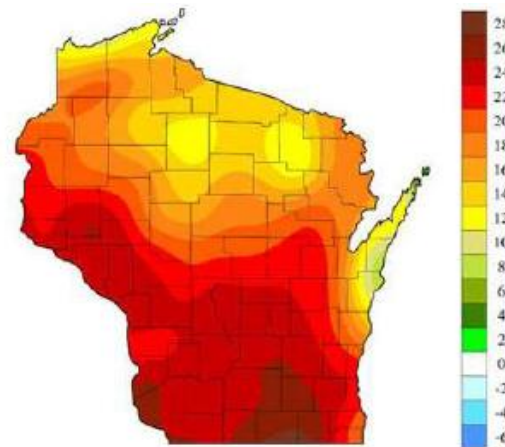


Navy

- Navy Energy Security Framework (ESF) describes the three pillars of energy security: 1) resiliency, 2) reliability, 3) efficiency
- Up to 7-day back-up power requirement, depending on type of facility

What Does Climate Change Mean to Wisconsin?

- Flooding
- More hotter days coupled with an increase in annual precipitation of 3.1 inches, primarily in south and west with some drying in north
- Economic impacts
- Society & the built environment
- Changing habitat



Projected Change in the Frequency of 90°F Days Per Year from 1980 to 2055



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Climate Resilience: Anticipating Impacts

Urban

- Increases in population shift land use from pervious to impervious
- Urban heat island effect
- Increased stress on aging and vulnerable critical infrastructure

Rural

- Highly dependent on natural resources for livelihoods and economic activities
- Physical isolation, limited economic diversity, aging populations all increase vulnerability
- Rural government structures may not have the funding or capacity to plan for and respond to impacts of climate change

The Big Audacious Goal That Will Make A Difference In The Next Decade?

- ❖ Develop strategies and steps to build Wisconsin's capacity for community and ecological resilience and adaptation to climate change
- ❖ Identify, frame, and strategize approaches focused on **anticipation** **and prevention-not just disaster recovery**
- ❖ Quantify and communicate the **economic impact** of doing nothing vs well-thought out climate adaptation and resilience strategies.

Challenges & Barriers to Pursuing Solutions

- A regulatory framework to advance and support resilience in the face of climate change in Wisconsin
- Coordination across agencies (local-county-state-federal)
- Capacity to develop and implement solutions
- Becoming proactive rather than being reactive
- Building public support
- Some of the topics we discussed in small groups:
 1. Flooding
 2. Human health & safety
 3. Agriculture & land use
 4. At-risk species & habitat
 5. Energy security
 6. Resilience in rural communities
 7. Institutions & support

Questions?



Part II

Recommendations



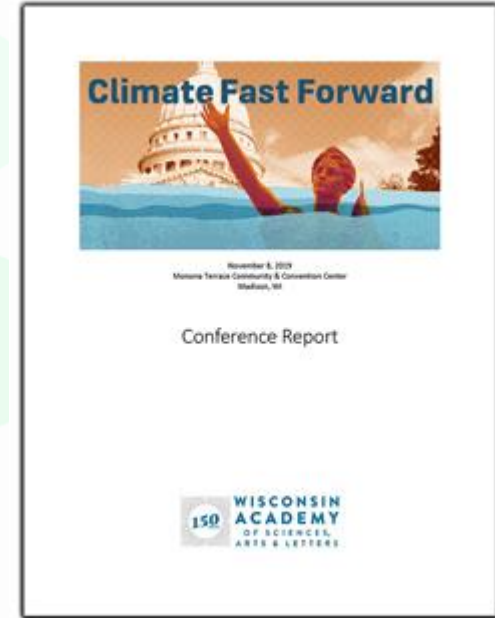
Climate Fast Forward Recommendations

- Climate Fast Forward Report ([Download PDF](#))
- [Video of Climate Fast Forward Report Briefing](#) | *with* Jane Elder, Chelsea Chandler, and panelists
- Dominic Holt, Wisconsin DNR
- Joe Fontaine, Public Service Commission
- Amber Meyer Smith, Clean Wisconsin
- Wenona Wolf, Lt. Governor's Office



Climate Fast Forward Recommendations

- Resilience Recommendations:
{Near term 1-3 years}
- Create a state-funded and state-run AmeriCorps-like program to coordinate resilience
- **Pilot microgrids for critical infrastructure**
{Long term 4-10 years}
- Develop a new message for community engagement and education



What is Critical Infrastructure?

Combined Heat & Power- Texas Medical Center in Houston-
circa 2012



What Can You Do?

What has been done? Review case studies- Combined Heat & Power- Texas Medical Center in Houston- circa 2017

Lots of examples from Sandy in Lower Manhattan



What Can You Do?

Local Governments, Tribal Nations & Facility Operators/Owners

- PLAN
- Think outside the macro-grid- consider alternatives, particularly public purpose microgrids, community resilience centers, flexible grid
- What could the impact of privately owned microgrids be?
- COMMUNICATE- with utilities, emergency management, local government.

- Be **Creative**
- Be **Practical**
- Be **Prepared**

What Can You Do?

Local Governments & Tribal Nations

- Set a Goal
- Plan with electric, water, wastewater utilities, critical infrastructure owners, businesses,
- Understand and prioritize infrastructure in your jurisdiction
 - What facilities perform life safety functions?
 - What facilities enable responders to function during emergencies?
 - What facilities provide basic essential services (water, wastewater, power, etc.)
 - Which facilities already generate renewable energy? Is it all grid-tied?
 - Consider the ¹⁶ value of resilience

OEI NEXT STEPS

- ❑ Statewide Assistance For Energy Resilience and Reliability (SAFER2 grant)
- ❑ Recruit Tribes and Communities to participate in “deep-dive analysis”
 - ❑ Deep-dive components (customized to participants’ needs and goals):
 - ❑ Wisconsin Clean Cities fleet assessment
 - ❑ Grant review- provided by OEI & WEM- listing of all available funding sources
 - ❑ Micro-grid feasibility study of critical infrastructure

Current project example:

The Oneida Nation has already deployed a significant amount of solar PV, this analysis will consider linking loads to storage, associated costs, and practicality of alternative back-up power to diesel or propane generators.



RESOURCES

- ❑ FEMA Building Resilience Infrastructure and Communities BRIC program.
- ❑ Public Comment period just closed 5/11
- ❑ Training and NOFA release expected summer 2020
- ❑ Grant period should open October 2020

- ❑ Disaster Recovery Reform Act(DRRA) Section 1234, which amends Section 203 of the Stafford Act
- ❑ Funded by a 6% set-aside from federal post-disaster grant funding
- ❑ Eligible applicants – major disaster declaration in seven years prior
- ❑ Will replace existing pre-disaster mitigation (PDM) program



Questions?

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