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National Association of Regulatory Utility Commissioners

NARUC Resilience Framework in Action Mini-Guide: Regional Coordination during Extreme Heat

LBNL Grid Resilience Training

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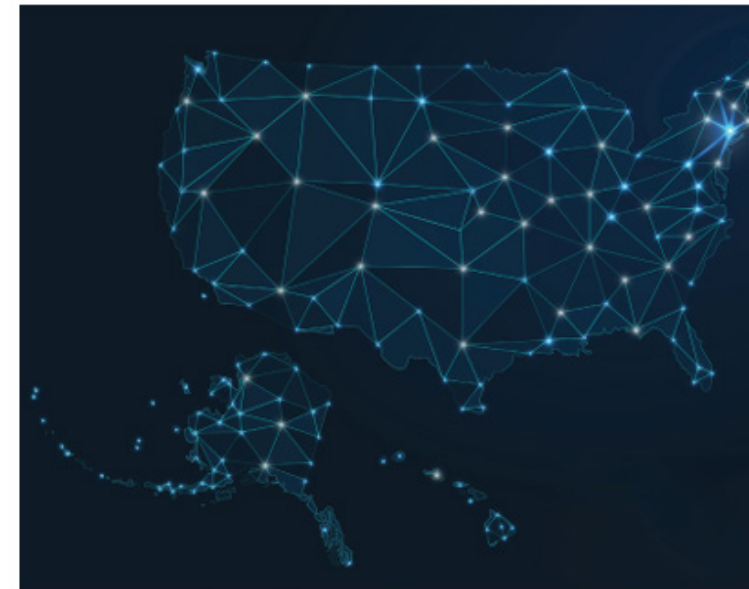
NARUC RESILIENCE FRAMEWORK

- Under our cooperative agreement with the Department of Energy's Grid Deployment Office, NARUC published the [NARUC Resilience Framework](#) in February 2025
- Provides state regulators with a structured approach to considering policies and programs that can enhance grid resilience amid evolving challenges .
 - Built with input and guidance from three peer-learning cohorts focused on specific topics: (1) resilience metrics, (2) valuation methodologies, and (3) regulatory mechanisms to support grid resilience .



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NARUC Resilience Framework



February 2025

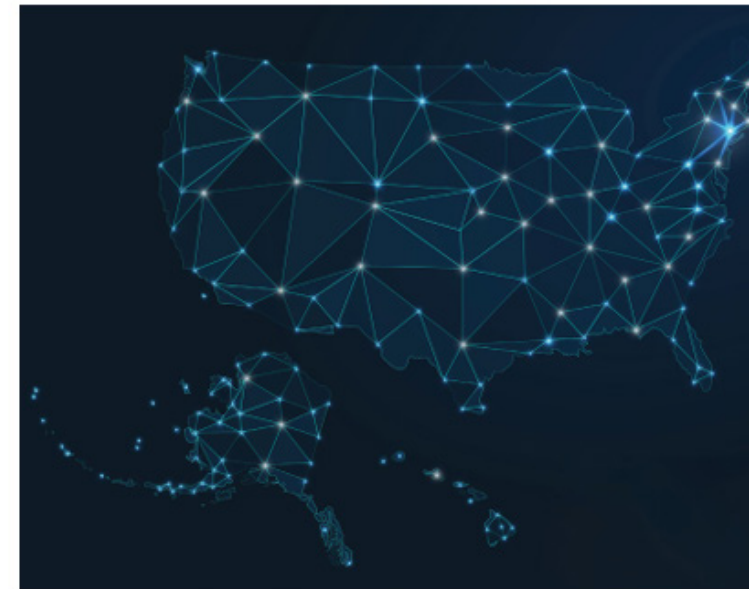
NARUC RESILIENCE FRAMEWORK FEATURES

- Not prescriptive → supports context-specific solutions.
- Six core components
 1. Goals + Objectives
 2. Use Cases
 3. Definitions
 4. Process Leadership + Participation
 5. Design Questions
 6. Implementation



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NARUC Resilience Framework



February 2020

RESILIENCE FRAMEWORK COMPONENTS

The components of the Framework can be used in any order depending on the specific needs of the user

Goals and Objectives

Identifies the importance of explicitly defining the desired outcomes of grid resilience initiatives.



Use Cases

Describes the value of specifying the scenarios and situations where resilience planning or activities occur and how this affects metrics, valuation, and regulatory mechanisms.



Definitions

Highlights that terms should be defined consistently and be based on decision-makers' specific situations.



Process Leadership and Participation

Encourages regulators to identify stakeholders and outline their roles in the area of resilience.



Implementation

Provides guidance and considerations for putting resilience strategies into action.



Design Questions

Offers guidance on questions to consider during the development of resilience planning, programs, or policies. Appendix 1 presents more detailed design questions developed by the resilience metrics and valuation methodologies cohorts.



MINI-GUIDE ON EXTREME HEAT

- To demonstrate the versatility of the Framework, NARUC applied the Framework to a timely resilience concern: regional coordination during extreme heat.
- [NARUC Resilience Framework in Action Mini-Guide: Regional Coordination during Extreme Heat](#)



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*Anna Weiss, NARUC
August 2025*

EXTREME HEAT + THE GRID

• Impact on Grid:

- Demand spike: Increased air conditioning use.
- Supply strain: Reduced efficiency in generation and transmission.
- Generation performance drop: solar panels, gas turbines, etc.
- Transmission performance drop: increased resistance and energy loss.



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EXTREME HEAT + THE GRID

- **Reliability vs. Resilience:**

- Reliability: Day-to-day grid performance, in the face of routine uncertainty in operating conditions.
- Resilience: the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions.

- Reliability weaknesses compound during resilience events.

- Reliability tends to improve with resilience investments.



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1) GOALS & OBJECTIVES

- **Goals** are desired outcomes that are aligned with policies, laws, and statutes. They may be legally binding or aspirational.
- **Objectives** are targets and activities that help achieve one or more goals. They may inform the tasks or steps necessary to reach goals.





1) GOALS & OBJECTIVES: APPLIED

• Goals:

- Improve interjurisdictional coordination.
- Prioritize load capability in high-risk zones.
- Promote consistency in reliability standards.
- Ensure continuity of service during extreme heat.

• Objectives:

- Establish shared heatwave response protocols.
- Create regional inventory of backup generation.
- Conduct tabletop exercises.
- Align planning timelines across jurisdictions.



2) USE CASES

- A use case can be either a collection of incidents around extreme heat, or a hypothetical yet predictable scenario around which activities can be programmed.
- The scenario, the context.



2) USE CASES: APPLIED



December 12, 2023 | News Release

Extreme heat stresses Oregon utilities trying to keep people cool and prevent fires



Supercharged Heat Waves Like Washington's Deadliest Will Strike Harder and More Often; New Study Reveals How

SCIENCE • CLIMATE CHANGE

How The Extreme Heat in the Pacific Northwest Is Taxing Electric Grids (and People's Air Conditioners)

4 MINUTE READ



2) USE CASES: APPLIED



“A sustained heatwave is forecasted to impact multiple states in the same Independent System Operator (ISO) over a five-day period in mid-July. Forecasts predict record-breaking temperatures in both urban and rural areas, driving a surge in air conditioning use and electricity demand. Grid operators anticipate that load will exceed historical peaks, while system operators also face reduced generation efficiency and damage to transmission lines. The transmission operator cannot secure as many imports from neighboring power sources as usual, as neighboring regions are facing similar conditions. In some areas, local distribution systems can fail due to overloaded transformers, stranding customers during dangerous heat conditions. Meanwhile, emergency management agencies may require clarity on expected impacts on critical infrastructure like hospitals, cooling centers, and water pumping stations.”



3) DEFINITIONS

- Differences in how terms are used and understood can create confusion or disagreement when coordinating across regions or utilities.
- Agreed upon definitions can ensure that resilience actions taken in one jurisdiction are understood by stakeholders in another.



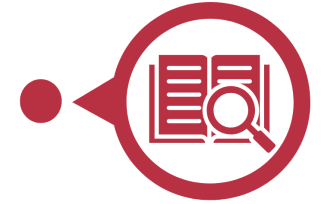
3) DEFINITIONS: APPLIED



- Resilience
 - The ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event.
- Regional coordination
 - Regional coordination connects stakeholders near one another to pursue joint or similar goals and responsibilities.
 - It may include coordination among distribution utilities, transmission operators, state energy offices, or emergency response agencies.



3) DEFINITIONS: APPLIED



- Extreme heat event
 - Define the temperature, humidity, duration, and extent for your jurisdiction which meets the expectations of an extreme heat event.
- Critical load
 - In a regional coordination context, stakeholders should have a shared understanding of which facilities qualify as critical during extreme heat, such as cooling centers, hospitals, and water systems.
- Grid data
 - When referencing data needs, regulators should clarify what types of data (e.g., load forecasts, outage maps) are needed to act, and what privacy or access constraints exist across jurisdictions.



4) PROCESS LEADERSHIP AND PARTICIPATION

- Which agencies, staff, and stakeholders are best positioned to lead and support the process?
- Who is responsible for each item in your plan?
 - Who has authority to lead coordination?
 - What staff or agencies should be involved?
 - Should other commissions or ISOs participate?
 - Should consumer advocates or community groups be included?
- **Goal:** Clear roles and responsibilities for effective coordination



4) PROCESS LEADERSHIP AND PARTICIPATION: APPLIED



Questions a regulator may ask include:

- Does the commission have appropriate staff to run or support proceedings on regional coordination?
- Are there other state or local agencies that should be formally included?
- Should the proceeding involve partnerships with other state commissions or regional entities like ISOs?
- Should consumer advocates or community organizations be invited to participate?



5) DESIGN QUESTIONS

- **Design questions guide planning and regulatory efforts:** They help define scope, structure proceedings, focus on practical goals, and ensure processes stay aligned with objectives, even as technologies or needs evolve.





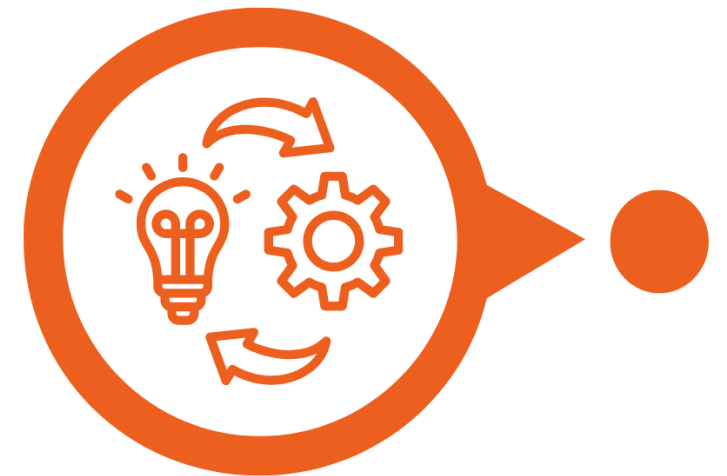
5) DESIGN QUESTIONS: APPLIED

- What specific heat-related threats should be included in planning? Should efforts focus only on high temperature days?
- How will the region define areas of highest vulnerability, and what data will be used to identify priority zones for coordination (e.g., outage history, load projections, presence of vulnerable populations)?
- What level of coordination is being pursued? Is the effort focused on information sharing, shared planning, joint emergency response, or operational integration? What kinds of agreements are appropriate?
- How will coordination work across IOUs and un-regulated entities like co-ops and municipal utilities?
- How will the planning process remain adaptive?



6) IMPLEMENTATION

- The pathway forward.
- May include deadlines, task assignments, and time built in for review.
- Since heat events are recurring and foreseeable, implementation should emphasize seasonal readiness, cross-agency alignment, and long-term investment follow-through.



6) IMPLEMENTATION: APPLIED

- Which entities are responsible for implementation?
- Which entity will lead implementation?
- How will responsibilities be distributed across agencies, utilities, and jurisdictions?
- What near-term actions can be taken ahead of the next heat season? For example, can the region conduct joint tabletop exercises, establish cross-jurisdictional communication protocols, or coordinate procurement of backup generation?
- How will regional coordination be operationalized in real time?
- What events or conditions trigger regional coordination (e.g., forecasted temperature thresholds)?



NEXT STEPS

- Extreme heat is a growing, foreseeable threat. Regional coordination is essential to mitigating its impacts. The NARUC Resilience Framework offers a flexible, structured approach to guide regulatory planning and action.
- Next steps:
 - Visit NARUC's [page on Grid Resilience](#)
 - Watch our related webinars with LBNL:
 - NARUC's Grid Resilience Framework: A Practical Application
 - [View recording](#)
 - [View slides](#)
 - Steady and Strong: The Case for Reliability and Resilience
 - [View recording](#)
 - [View slides](#)

