



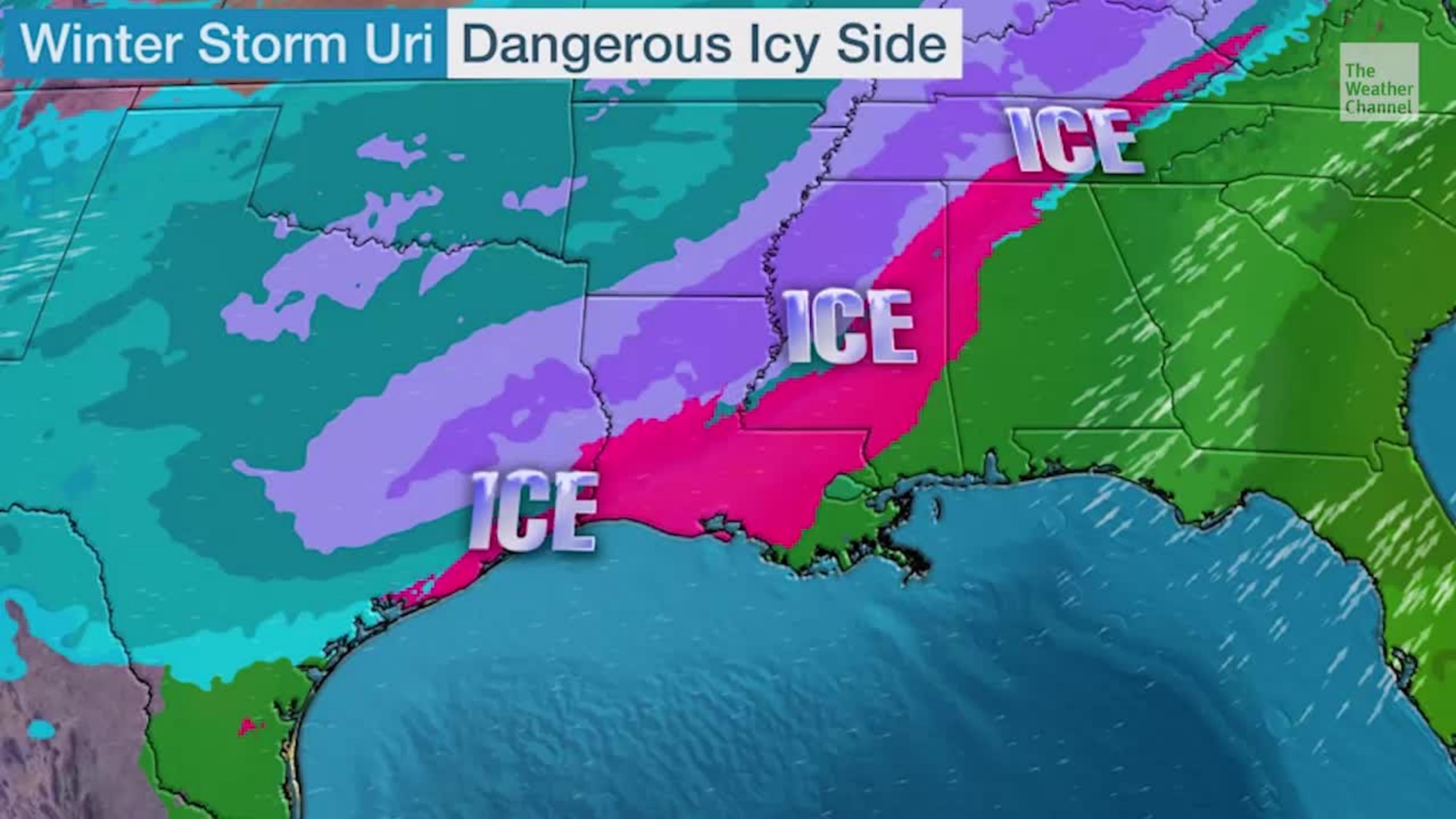
# Grid Reliability Through Clean Energy

Alexandra Klass, Josh Macey, Shelley Welton, Hannah Wiseman

74 STANFORD L. REV. \_\_ (forthcoming 2022)

# Winter Storm Uri Dangerous Icy Side

The  
Weather  
Channel







# Texas's Agriculture Commissioner after the February 2021 blackout:

*“We should never build another wind turbine in Texas.”*



More  
mainstream  
arguments,  
too



*“Environmental regulations are shown to be the number one risk to reliability over the next one to five years.”*

# Central aims of the project

**Rebuttal** to growing argument that entrenching fossil fuels is necessary for **reliable energy**.

Technical issues are manageable. Key remaining hurdles relate to **policy and governance**.

Proposals to **modify U.S. energy policy system** to achieve more renewables and greater reliability.

# Structure of the Talk

- (1) decarbonization & grid reliability
- (2) key players in energy law
- (3) the “silo-ization” of energy law and governance
- (4) linking silos and issues for effective reforms across four key areas

# The Decarbonization Imperative & the Electricity Grid

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**#Electrify  
Everything**

A lot more clean generation

A lot more transmission

A lot more coordination

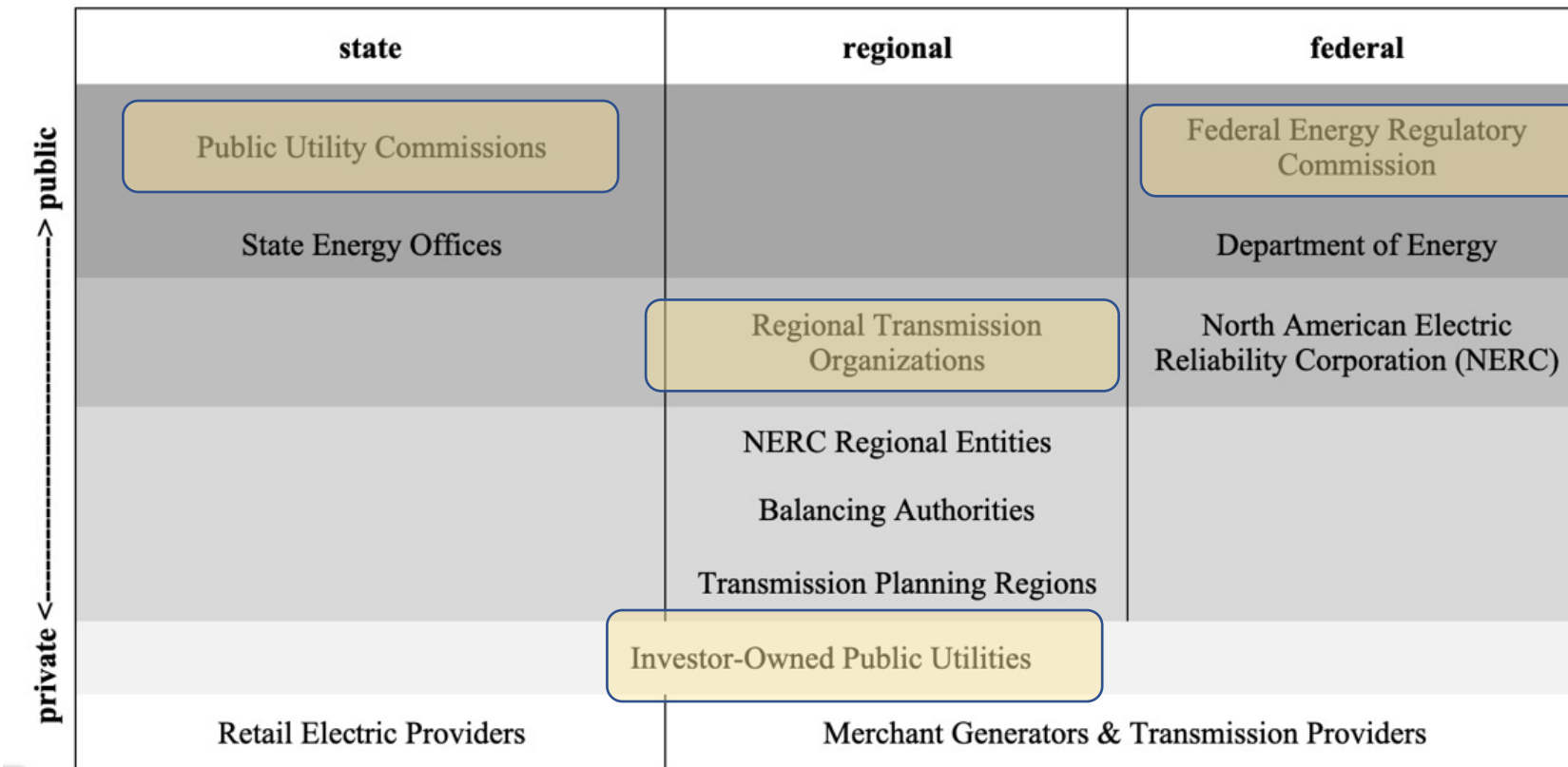
# Grid reliability can be maintained under changing conditions

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**National Renewable Energy Laboratory, Renewable Electricity Futures Study, (2012):** “[R]enewable electricity generation from technologies that are commercially available today, in combination with a more flexible electric system, is more than adequate to supply 80% of total U.S. electricity generation in 2050 while meeting electricity demand on an hourly basis in every region of the United States.”

**Goldman School of Public Policy, UC Berkeley, The 2035 Report (2020):** The United States can deliver 90 percent clean, carbon-free electricity nationwide by 2035, dependably, at no extra cost to consumer bills and without the need for new fossil fuel plants.

# Key Players in Energy Law



# Silos as Policy Hurdles

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*Substantive  
Responsibilities*

*Jurisdiction*

*Public/Private*



Clean Energy

Federal

Government  
agencies



Reliability

Regional, State,  
Local

Corporations  
and hybrids

# **Siloed governance in four substantive areas of energy law**

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Electricity markets

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Transmission planning,  
financing, and siting

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Reliability regulation

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Regional transmission  
organization (RTO) governance

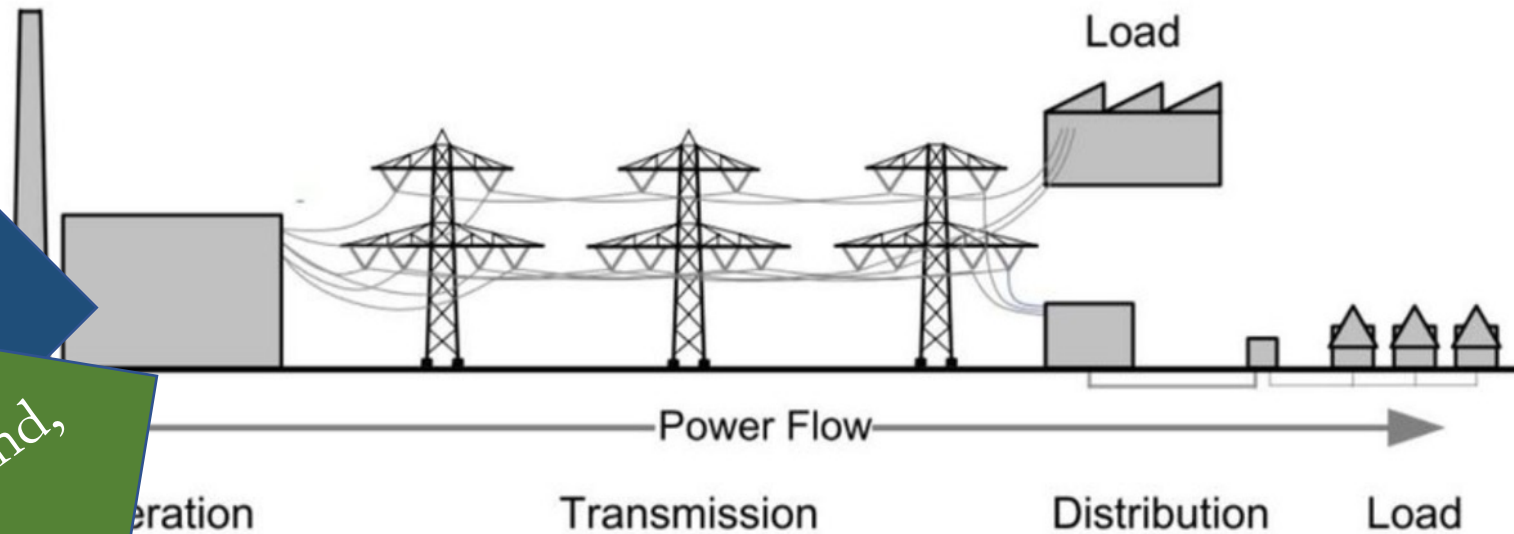
# RTO-Run Electricity Markets

- **Energy Markets:** pay generators for megawatt-hours produced now
- **Ancillary Service Markets:** pay generators for providing other services to the grid (voltage regulation, spinning reserves, etc.)
- **Capacity Markets (in some regions):** pay generators for a promise to be available three years in the future, if needed

# Electricity Markets and Shifting Generation Preferences

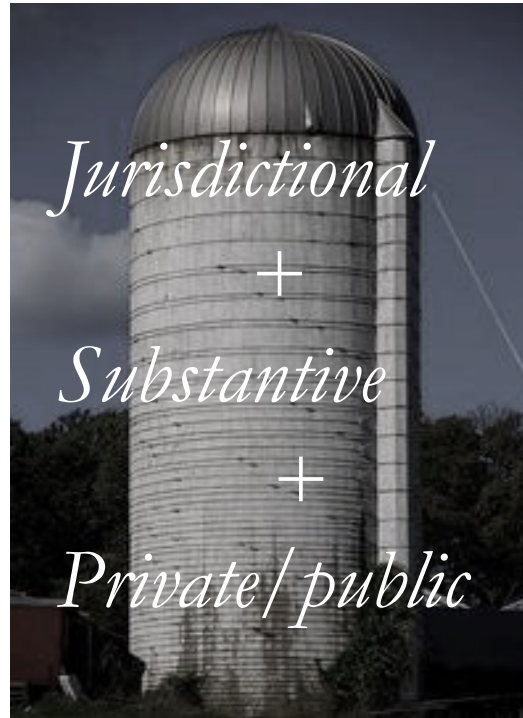
62% Fossil Fuels  
19% Nuclear  
7% Hydropower  
7% Wind  
2% Solar

State-supported wind,  
solar, etc.



**The challenge:**

electricity market design has thwarted accomplishment of state clean energy goals and promoted a narrow vision of reliability



**The solutions:**

integrate goals into competitive market design; respect state priorities re: resource adequacy; properly parameterize reliability

Electricity Markets & Shifting Generation Preferences

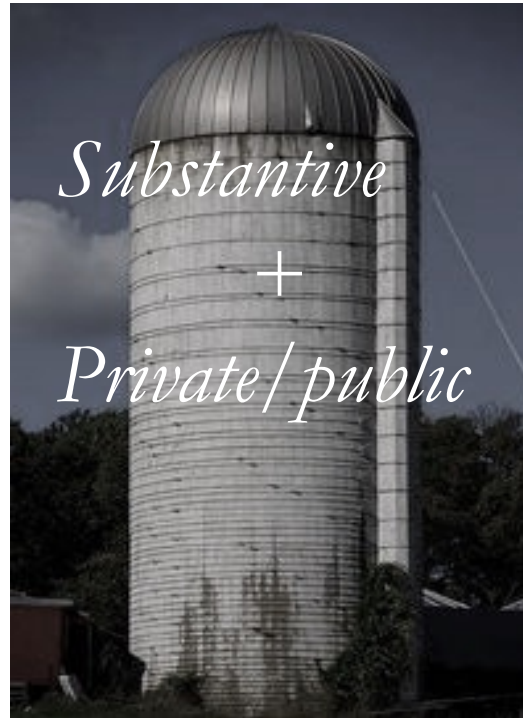
**The challenge:** too much conflicting state and regional control. Inadequate coordination and mismatched incentives



**The solution:** enhanced federal authority. Creative use of existing tools to work around silos.

Transmission Planning, Siting, & and Financing

**The challenge:** light-touch approach to regulating reliability. Failure to recognize reliability benefits of renewables.



**The solution:** include benefits of renewables in reliability assessments; rethink NERC structure & oversight mechanisms

## Reliability Regulation

**The challenge:**  
private membership organizations make the rules for electricity market eligibility, grid interconnection, etc. Often disfavor new competitor technologies or entrants.



**ISO-NE**

**The solution:** reform governance processes; enhance public oversight (state & federal).

## Regional Grid Governance

U.S. Coast Guard



The Equities of Grid Reliability through Clean Energy