

# Electricity Markets and Resiliency

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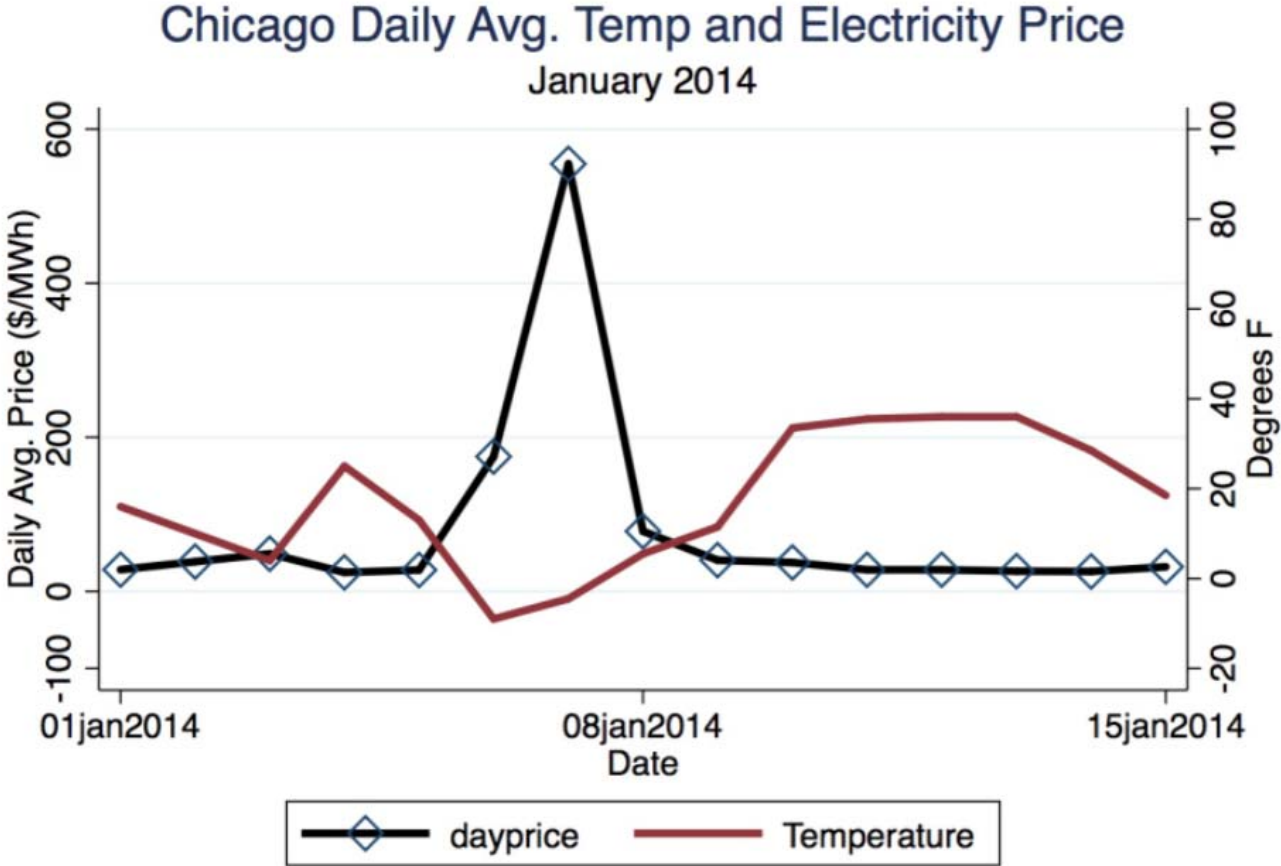
# What is a blackout?

Name	Area Effected	Predictable?	Example	Frequency
Distribution problem	Local	Not Very (probabilities only)	Seemingly Every House I Buy	1.5-2 per year
Cascading Grid Outages “systemic risk”	Many States	No	2003 US East Coast Blackout	?10 -20 years?
Supply/Demand Balance	Parts of Cities	Yes	California 2001?	1 in 10 years (goal)

# Is Reliability a Public Good?

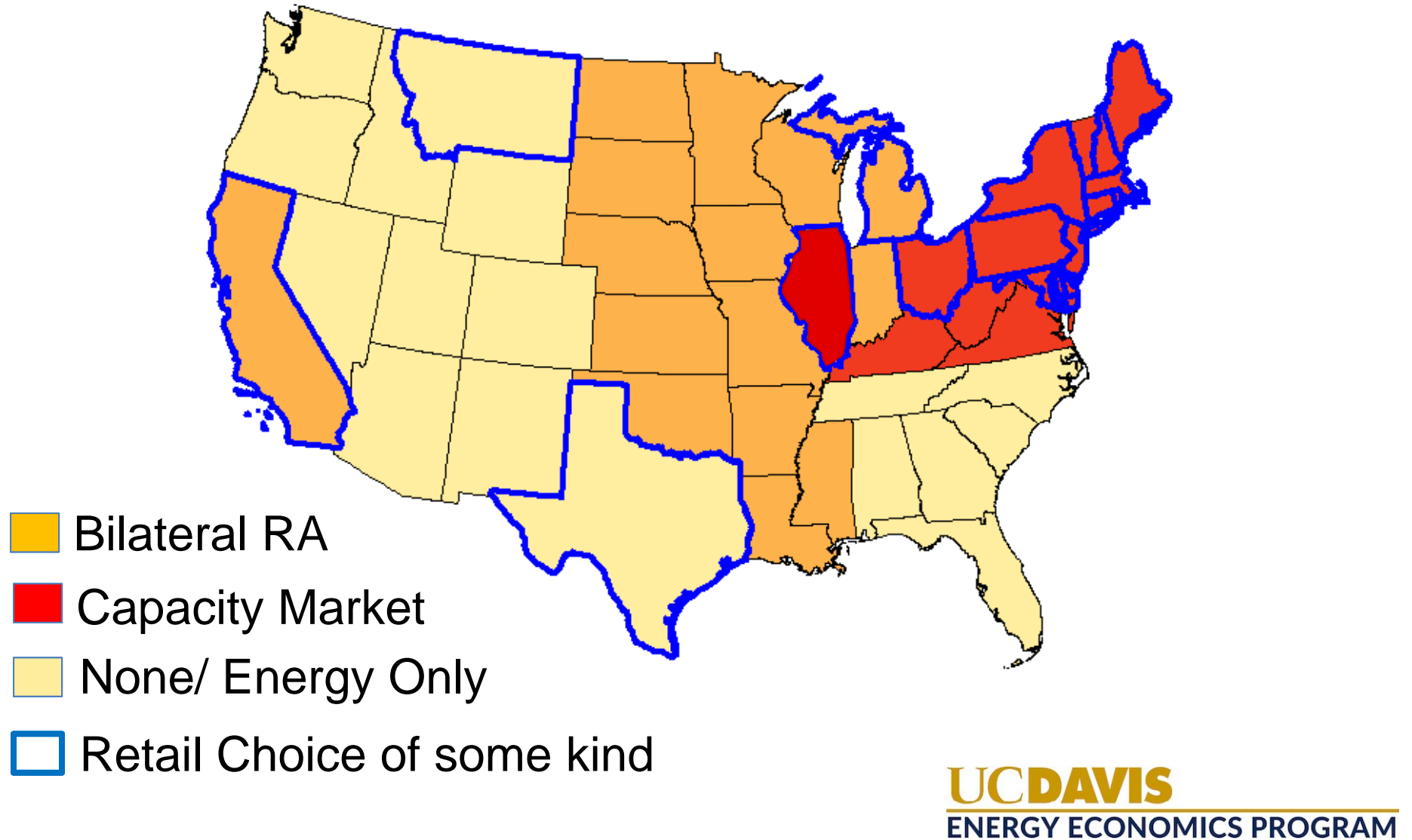
Name	Area Effected	Predictable?	Example	Frequency
Distribution problem <b>Mostly Yes</b>	Local	Not Very (probabilities only)	Seemingly Every House I Buy	1.5-2 per year
Cascading Grid Outages <b>Definitely Yes</b>	Many States	No	2003 US East Coast Blackout	?10 -20 years?
Supply/Demand Balance <b>Self Imposed</b>	Parts of Cities	Yes	California 2001?	<i>1 in 10 years (goal)</i>

# Reliability Does Pay, is it enough?



Sources: SNL Online and NOAA

# RA (capacity) policies applied across states with diverse regulatory status



# Changing Reliability Paradigms Requires Changing Capacity Policies

- What does one get when they buy “capacity”?
  - Increasingly difficult to identify (years in advance) where and how system will need units to perform.
  - Greater emphasis on generic “on demand” performance.
- RA Policies are either bifurcating capacity requirements (California) or emphasizing performance reward/penalties (PJM/ISO-NE)
  - Convergence between energy only and capacity markets?
  - Requires energy markets to reflect multiple forms of “scarcity”
- Fuel security requirements are a slippery slope
  - How far into managing a plant can ISO’s get?
  - Studies have shown procurement savings one of the areas of success for deregulation
- Ultimately incentives are what will drive performance

# Summary

- Focus policy regulatory activity on the true public good aspects of system reliability
  - Operating reserve standards, grid planning, etc.
- There are different channels to maintaining generation capacity
  - But all depend upon incentives for performance in the end
- Isn't the problem really the gas market?
  - Illiquid spot markets, non-responsive core demand

Thank You!