

# Electricity Committee

**Up Next...**

**Subcommittee on  
Nuclear Issues - Waste Disposal**

**The Missing Piece?**

**A Discussion of the Role of Nuclear  
Energy in Climate Change Mitigation**

# **Subcommittee on Nuclear Issues - Waste Disposal**

## **The Missing Piece?**

**A Discussion of the Role of Nuclear  
Energy in Climate Change Mitigation**

## The Missing Piece? A Discussion of the Role of Nuclear Energy in Climate Change Mitigation

**Moderator:** Hon. Anthony O'Donnell, Maryland

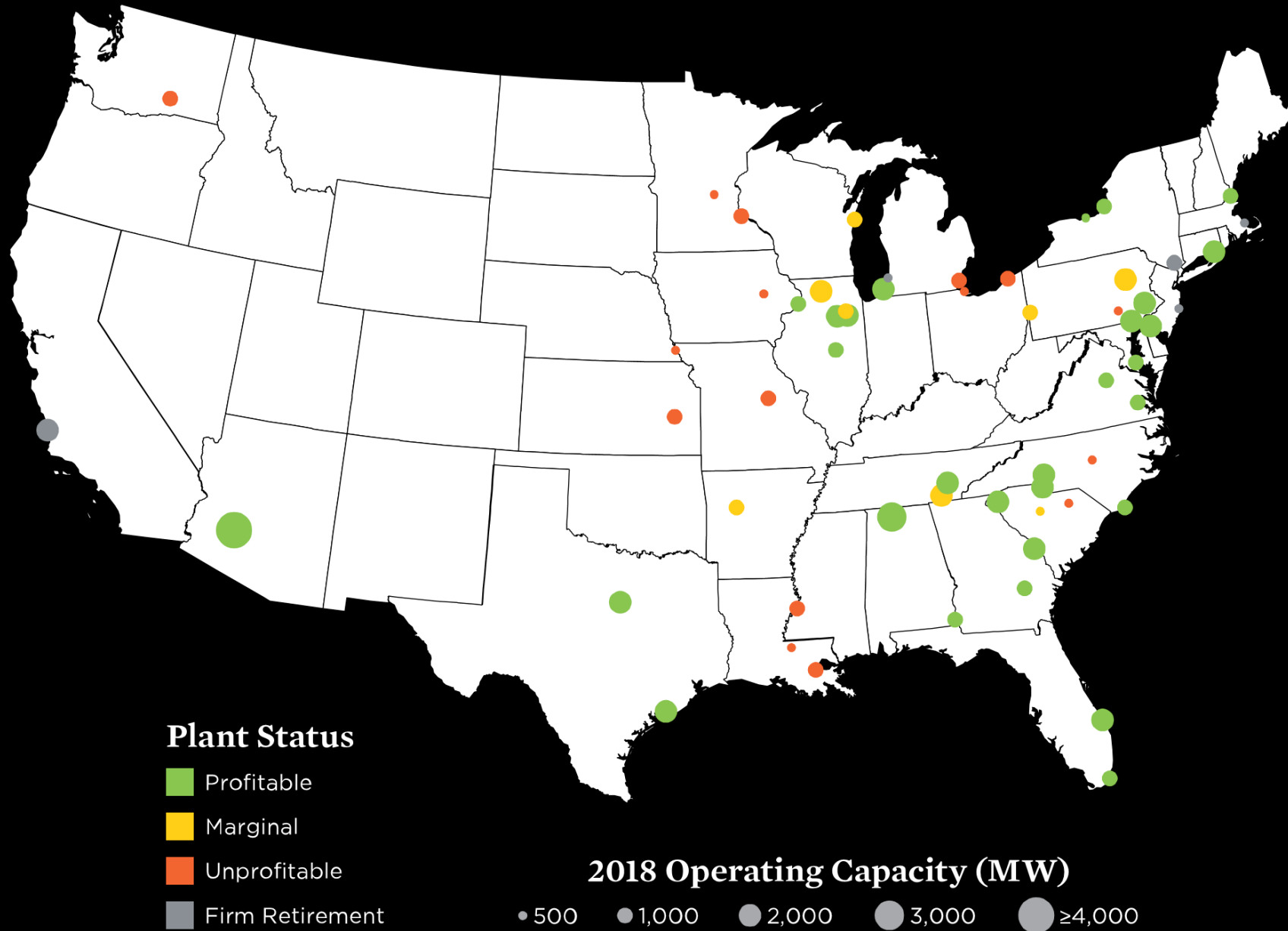
**Panelists:**

- John Parsons, Massachusetts Institute of Technology
- Steve Clemmer, Union of Concerned Scientists
- Doug Vine, Center for Climate and Energy Solutions

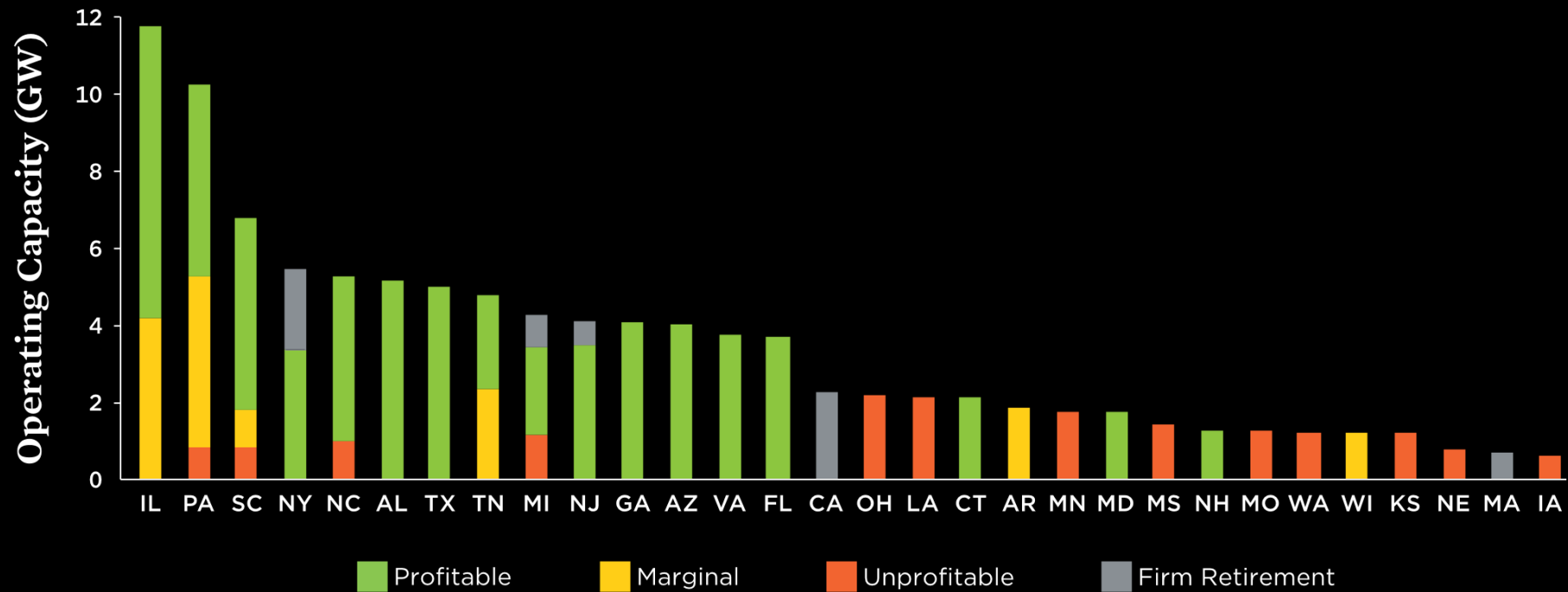
# The Nuclear Power Dilemma:

*Declining Profits, Plant Closures, and the  
Threat of Rising Carbon Emissions*

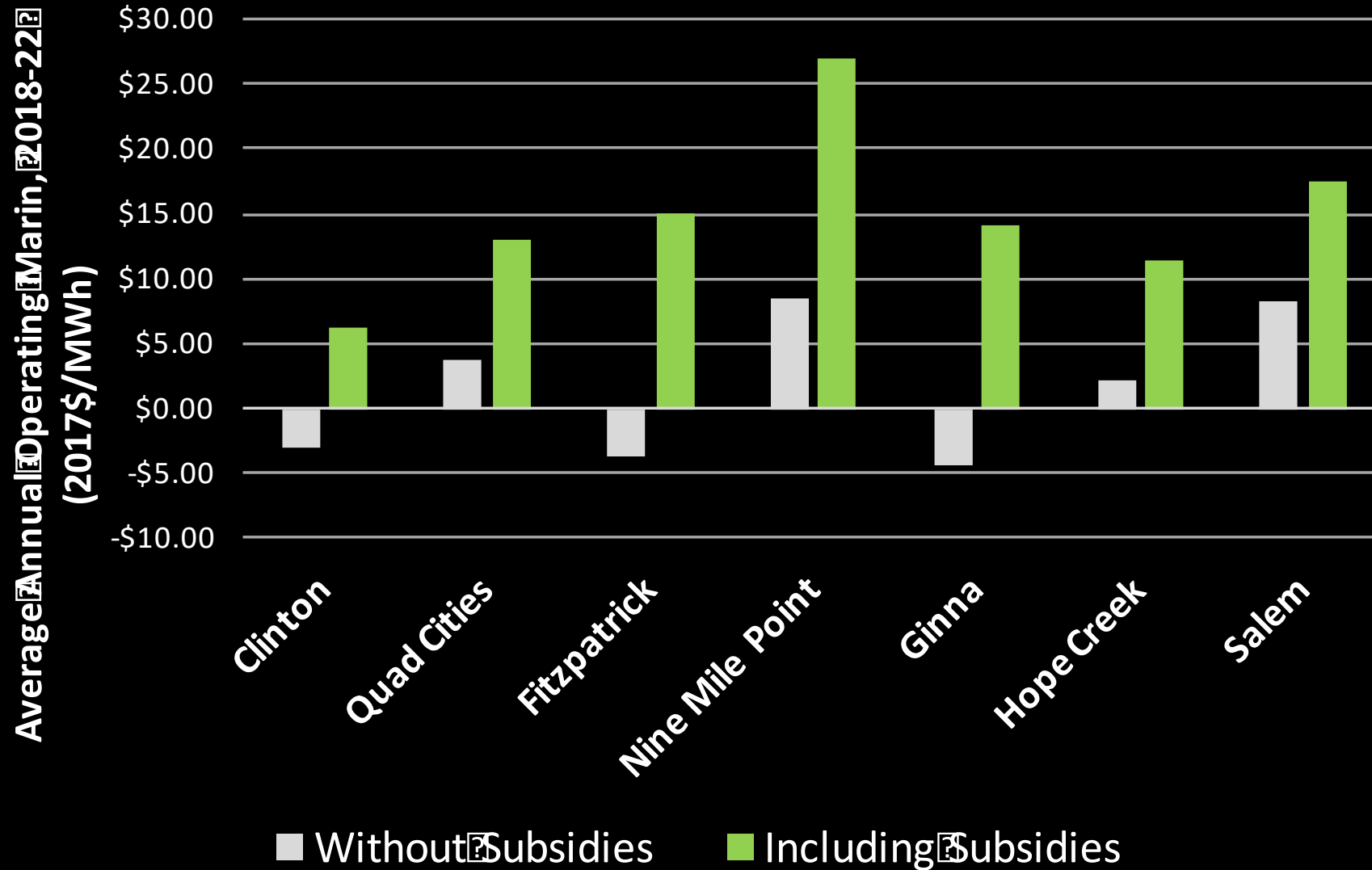
# US nuclear plants at risk of early closure



# 17 states have nuclear plants that are unprofitable or scheduled to close

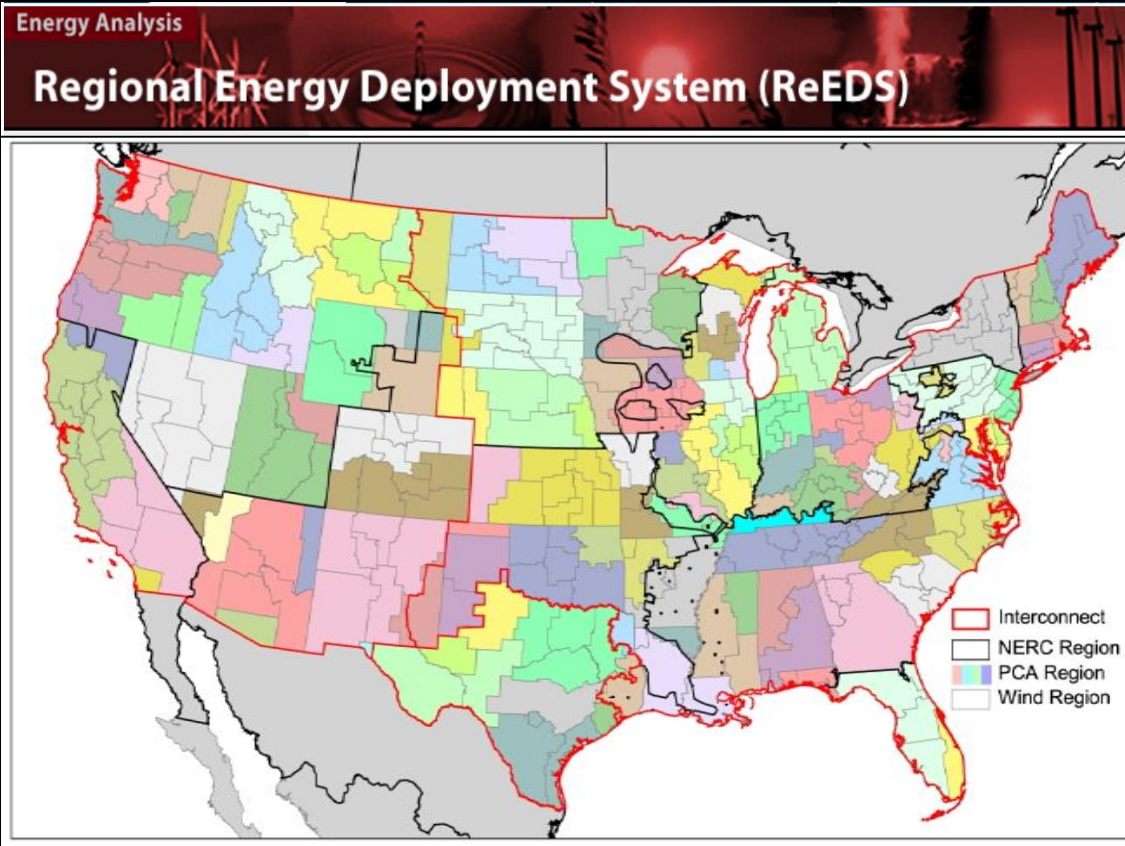


# State subsidies in IL, NY and NJ





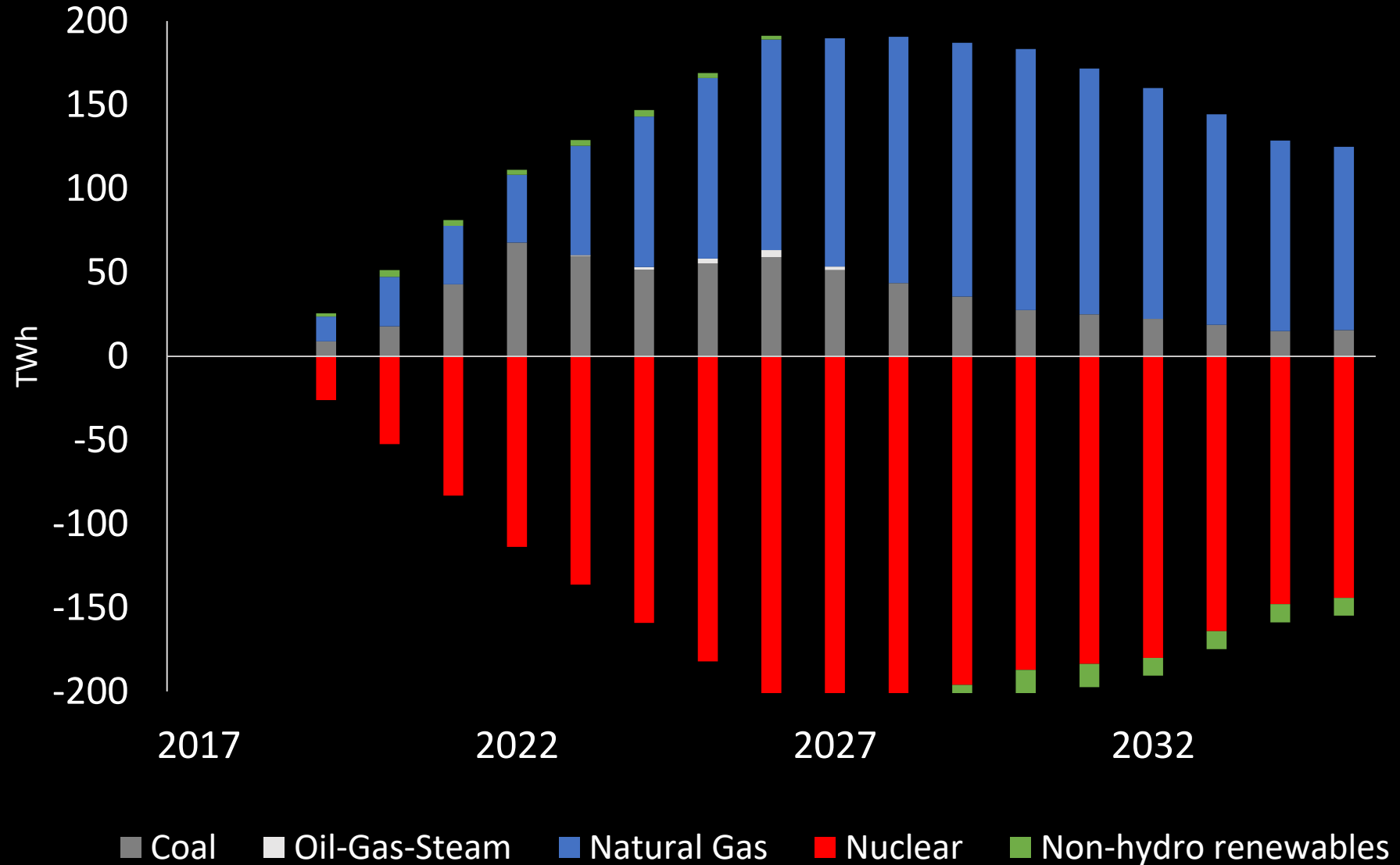
# Scenarios



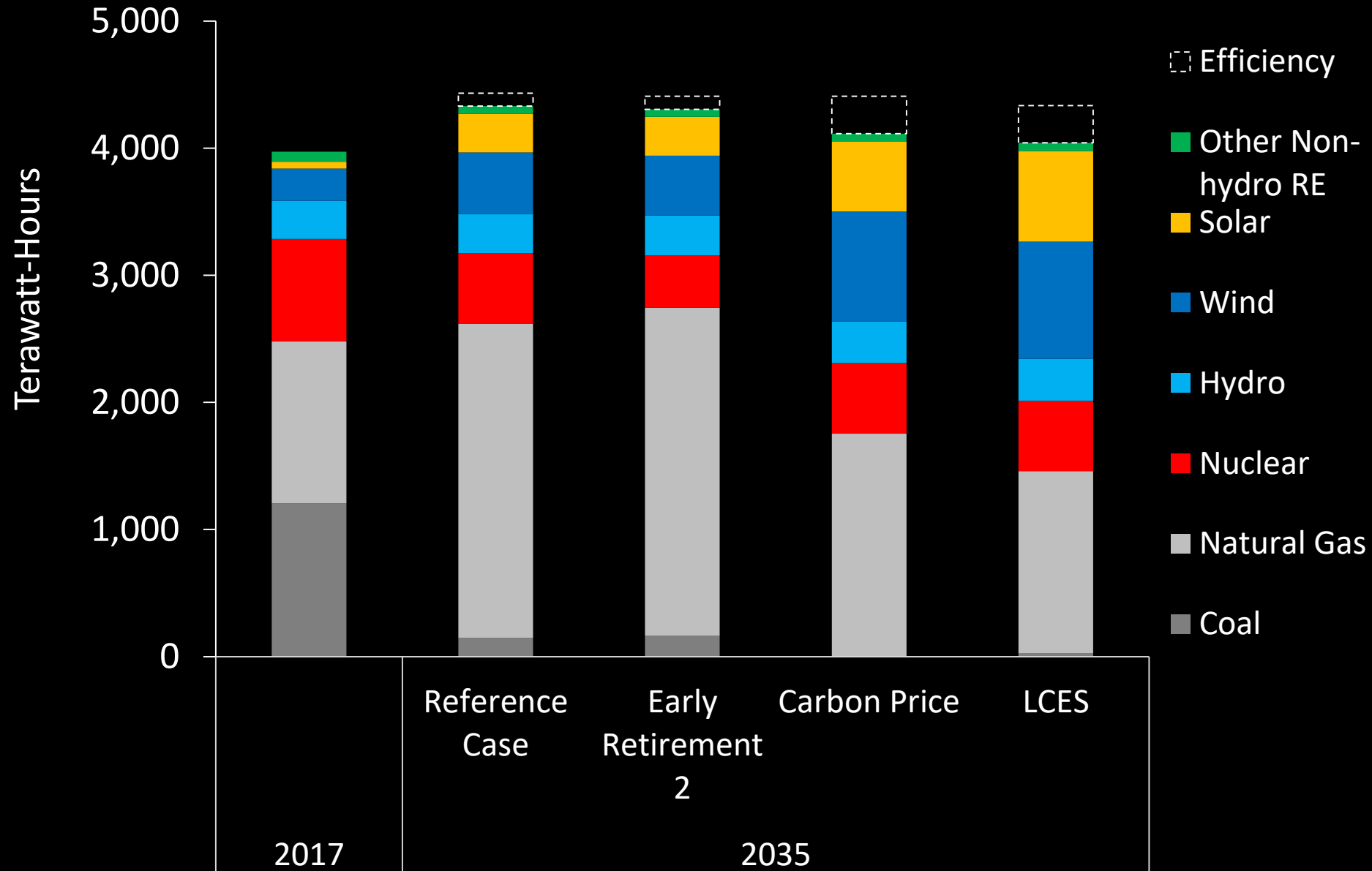
- Reference Case
- Early Nuclear Retirements Cases
- National Carbon Price
- National Low Carbon Electricity Standard

# Change in US Electricity Generation

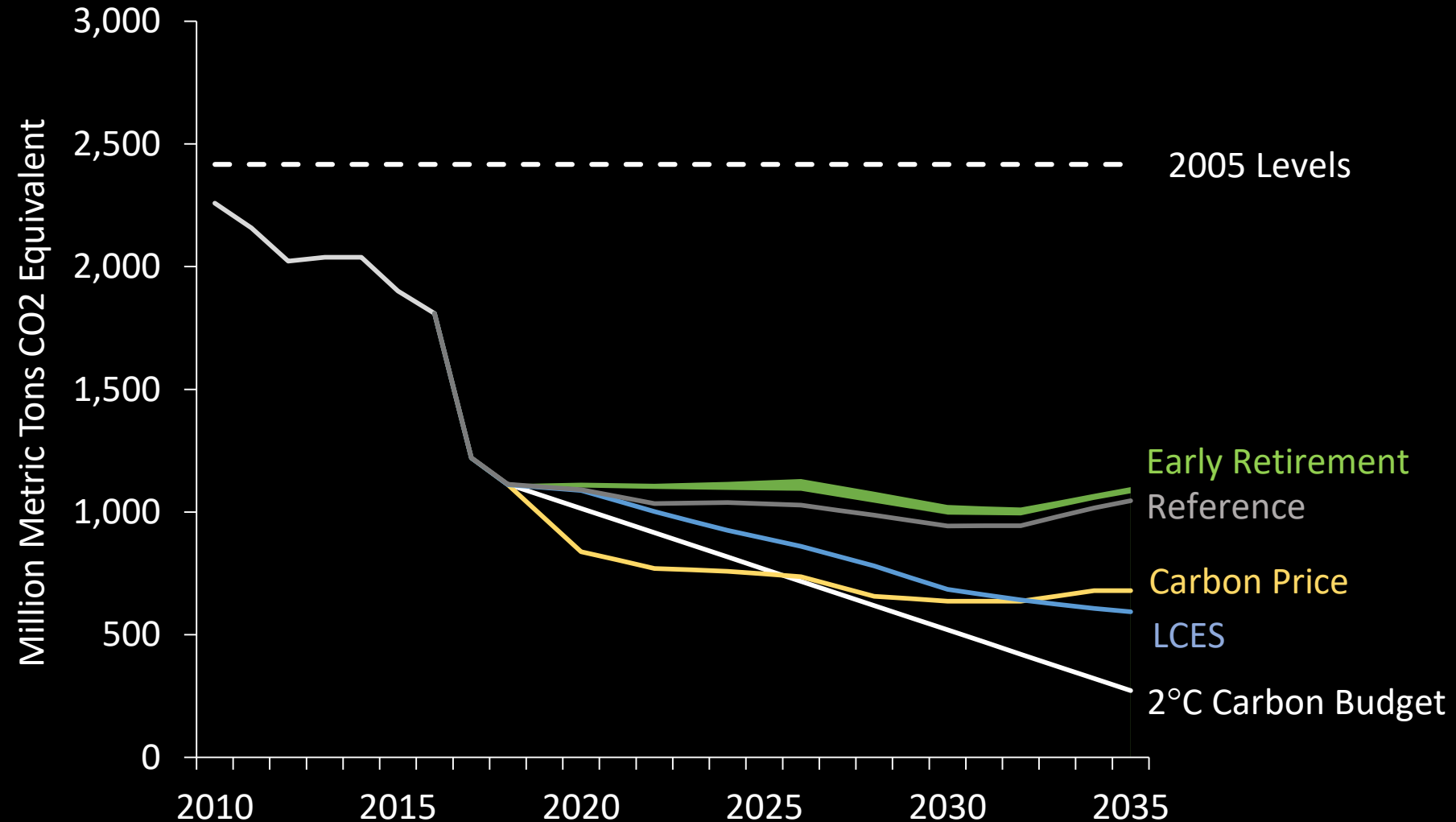
Early Retirement vs. Reference Case



# US Electricity Generation



# U.S. power sector CO<sub>2</sub> emissions



# Rating Reactor Safety Performance

Rating Reactor Safety Performance				
Routine NRC oversight				
<b>Column 1</b>	Meeting between owner and NRC Regional staff	Meeting between owner and NRC Regional staff	Meeting between owner and NRC Executive Director for Operations	Meeting between owner and NRC Executive Director for Oeprations
	NRC inspections of remedies	NRC oversight of owner self-assessment	NRC oversight of owner Improvement plan	NRC issues order to modify, suspend, or modify operating license
Performance indicators and NRC inspection findings (inputs) all GREEN	<b>Column 2</b>	Additional NRC inspections	NRC issues Demand for Information, Confirmatory Action Letter, or Order	
	No more than two WHITE inputs in any Stratetic Performance Area	<b>Column 3</b>	NRC team inspection	
		More than two WHITE inputs or one YELLOW input	<b>Column 4</b>	<b>Column 5</b> Unacceptable performance
			Repetitive Inputs or multiple YELLOW inputs or one RED input	

# Policy Recommendations

- Carbon price
- Low carbon electricity standard



# Conditions for Financial Support

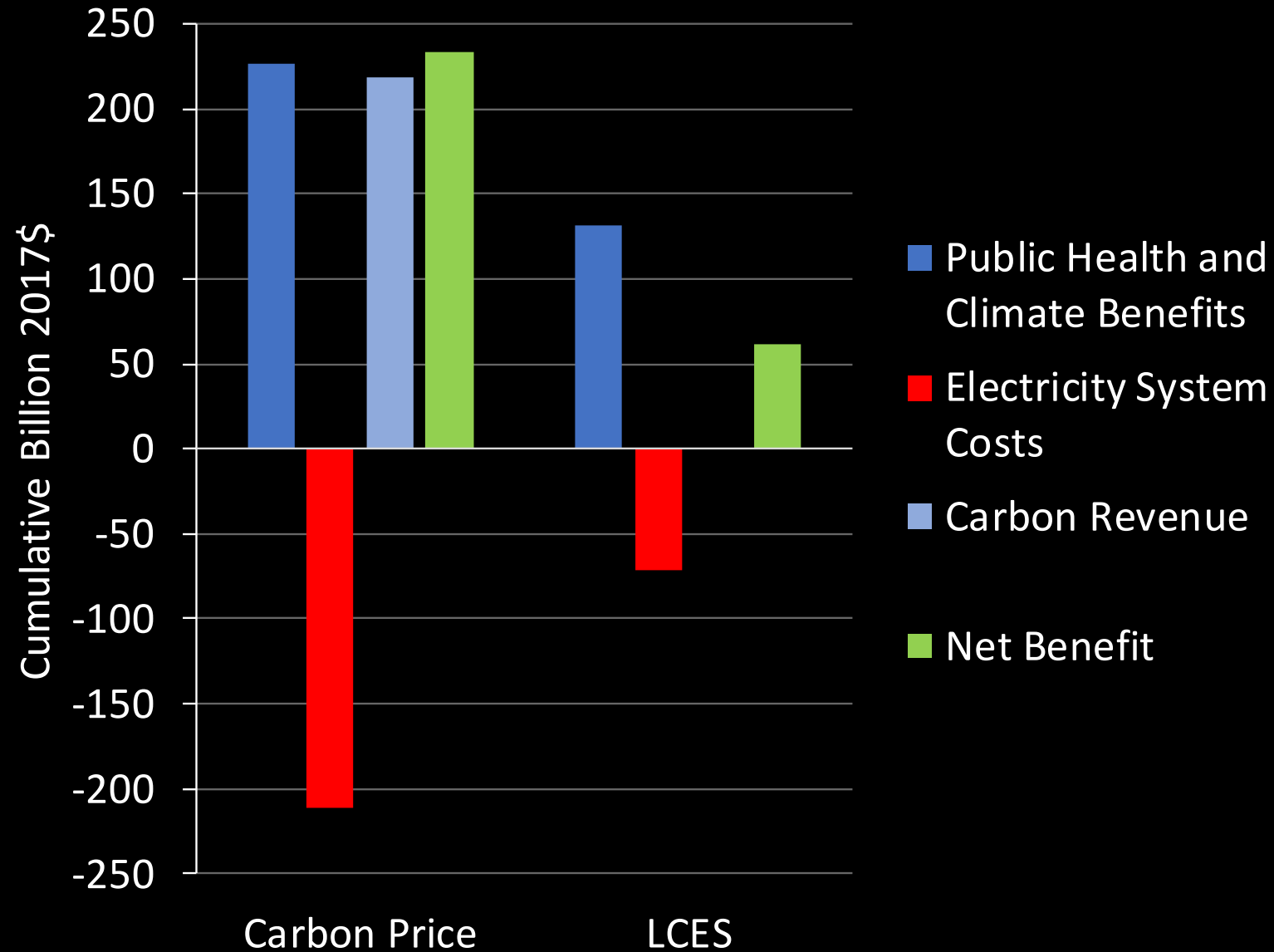


1. Ensure reactors meet strong safety standards
2. Require companies to open up books
3. Limit and adjust financial support over time
4. Strengthen renewable and efficiency standards
5. Develop worker and community transition plans

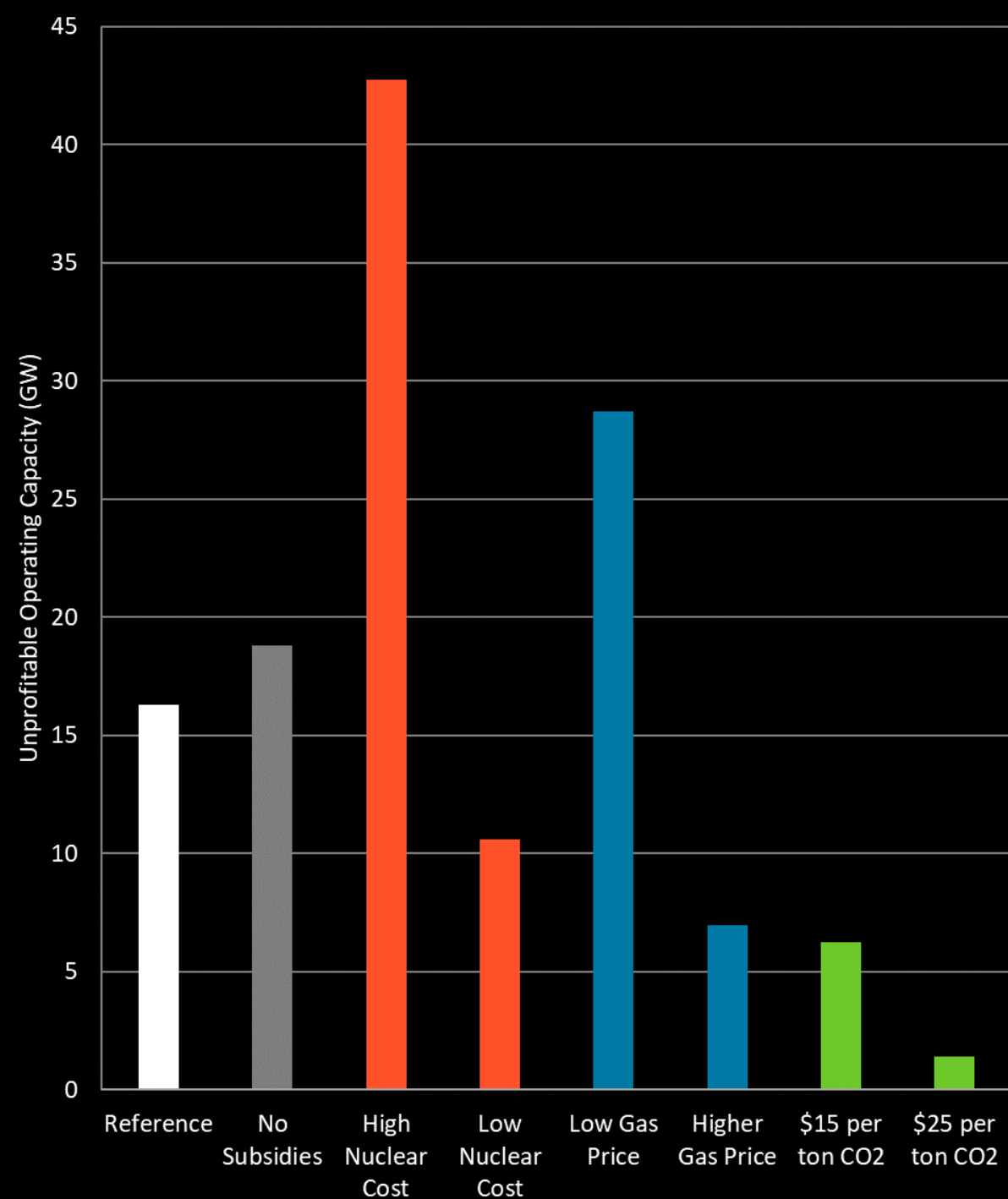
# Extra Slides



# Public health and climate benefits exceed the costs



Natural gas prices,  
nuclear costs, and  
CO<sub>2</sub> prices have a  
big impact on  
profitability



# ***The Missing Piece? A Discussion of the Role of Nuclear Energy in Climate Change Mitigation***

Presented by Doug Vine – Senior Energy Fellow

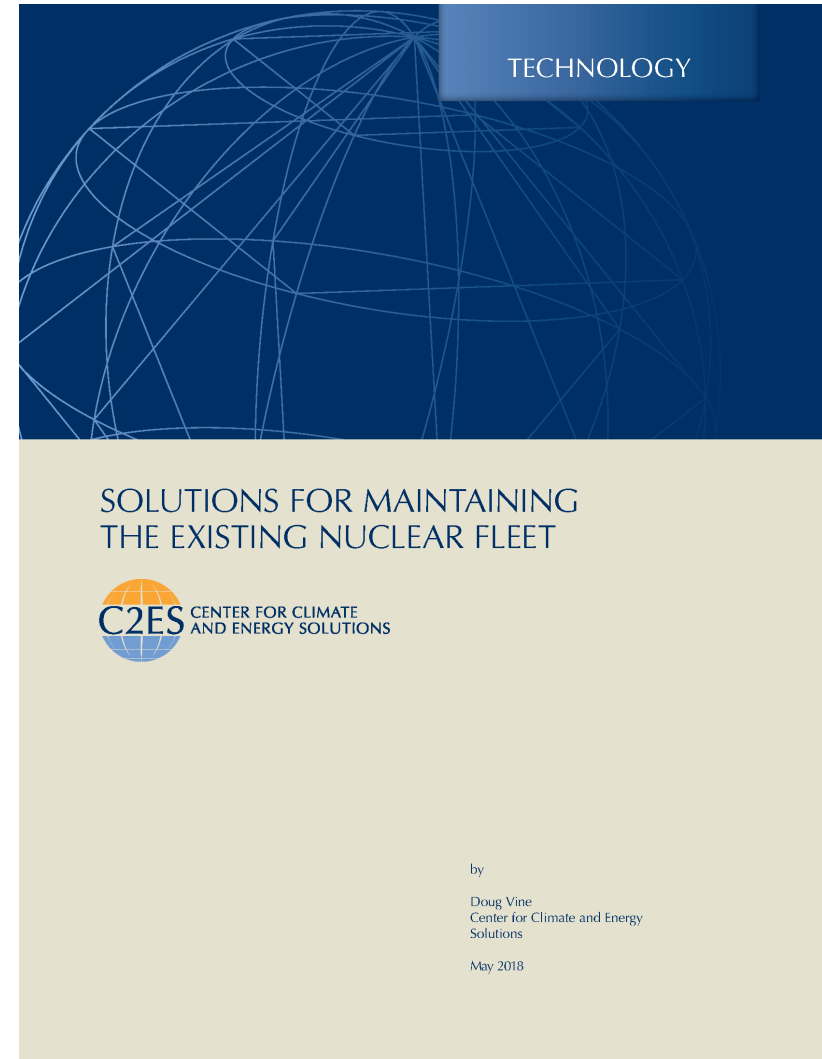


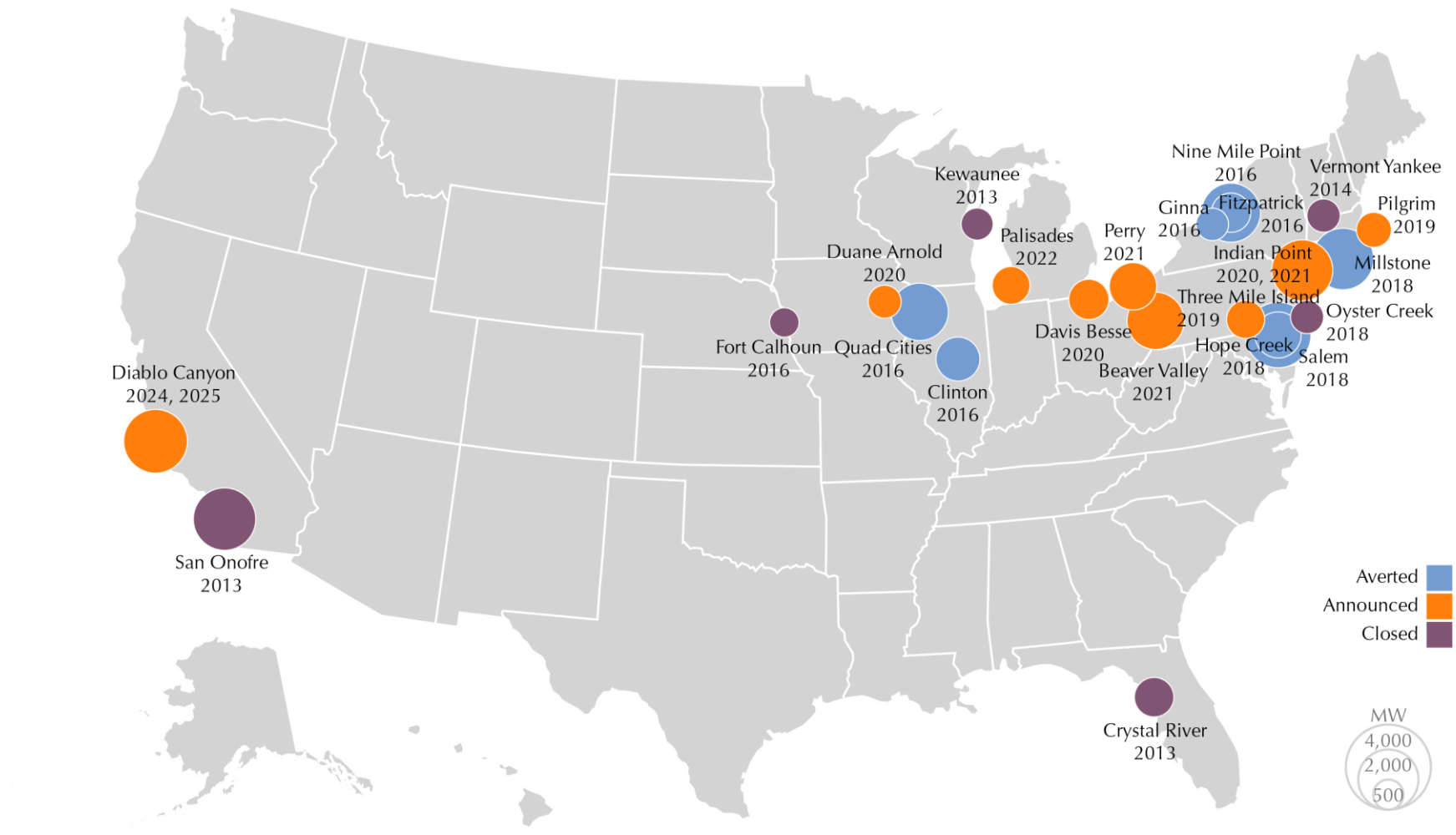
**C2ES.ORG**



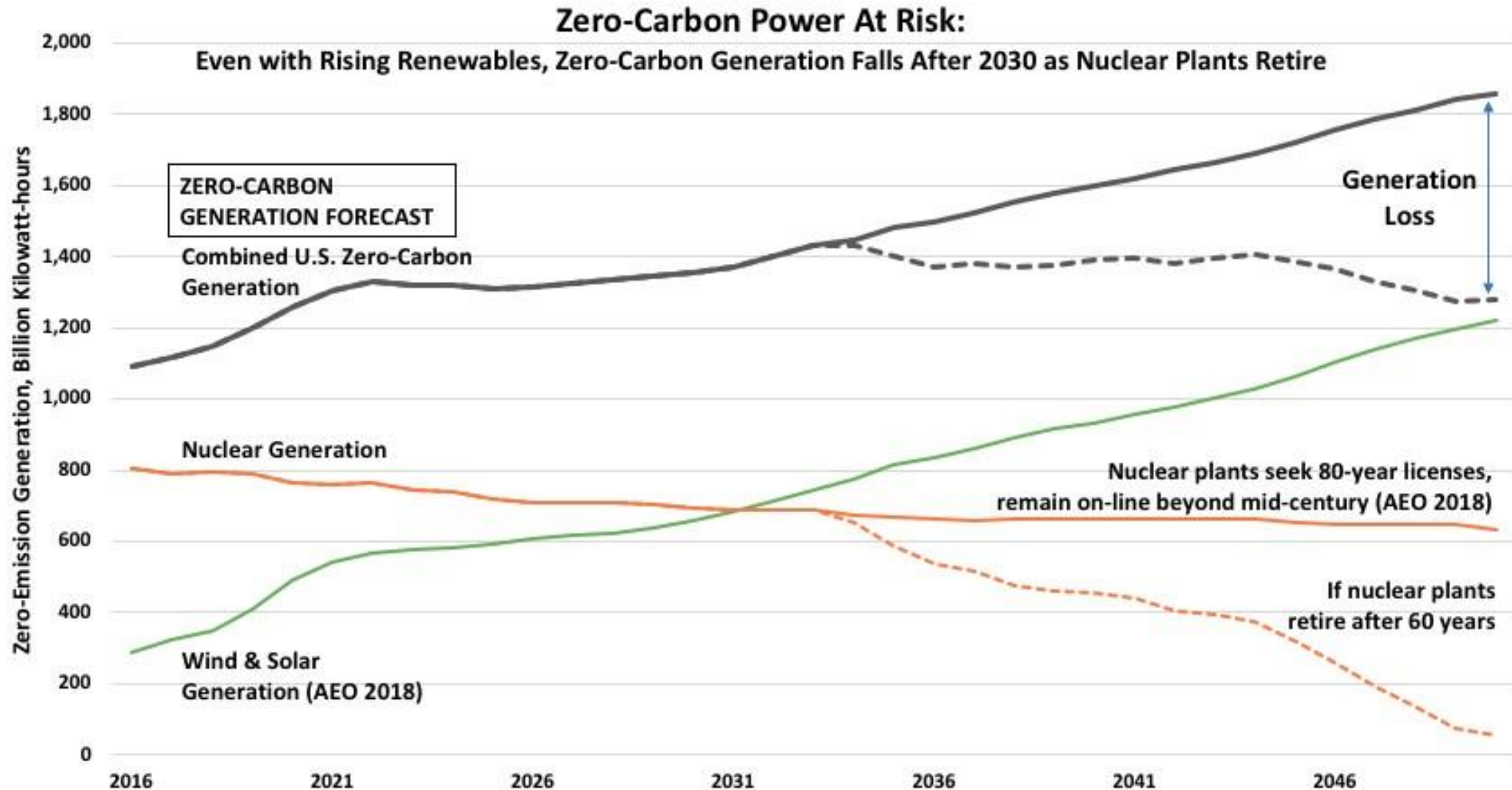
- **Independent, nonpartisan, nonprofit organization.**
- **Mission: To forge practical solutions to reduce greenhouse gas emissions, expand clean energy, and strengthen resilience to climate impacts.**
- **A key objective is a national market-based program to reduce emissions cost-effectively.**
- **Brings city, state, and national policymakers together with businesses and other stakeholders.**
- **Ranks regularly among the top environmental think tanks in the world.**

- <https://www.c2es.org/document/solutions-for-maintaining-the-existing-nuclear-fleet/>
- **We need existing nuclear power to meet our near- and long-term climate goals**
- **The existing reactor fleet is too large and provides too much clean energy to replace quickly**





# Why we need a zero-emission coalition





## **Doug Vine**

Senior Energy Fellow

**Doug Vine is a Senior Energy Fellow at the Center for Climate and Energy Solutions (C2ES). He supports the center's work on global and domestic energy production and utilization. Additionally, he focuses on topical energy issues including electric power, natural gas, and oil market developments.**

**Mr. Vine previously worked at Meridian Energy, New Zealand's largest electricity generator. He also worked for Genscape and Thomson Reuters Point Carbon, where he focused on U.S. regional electricity markets.**

**Mr. Vine holds an M.B.A from the Victoria University of Wellington. He also holds a Master of Science in systems engineering from Virginia Tech and Bachelor of Science in aerospace engineering from the University of Maryland.**

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FOR MORE INFORMATION

[C2ES.ORG](http://C2ES.ORG)

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