

# *Fission Vision: A Look at What's Next For Nuclear*

Hilary Lane

Senior Director, Strategic Partnerships

Annual NBBI Conference

May 13, 2024



# *Our Time Together...*



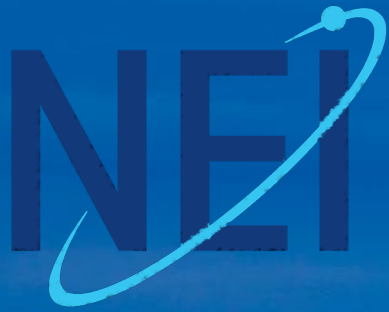
Current Fleet



Advanced Reactor Landscape



Advocacy and Opportunities



## THE NUCLEAR ENERGY INSTITUTE

is the **policy organization** of the nuclear technologies industry, based in Washington, D.C.

On behalf of its members, NEI is the **unified voice** of the nuclear energy industry on various **policy, technical, and regulatory issues**.

- **300+ MEMBERS IN 17+ COUNTRIES**



# 300+ Members



Nuclear Utilities



EPCs & Suppliers



Fuel Cycle



Decommissioning



National  
Labs



Investment &  
Financial Firms



Advanced  
Reactors



Universities



Law Firms



Consultants

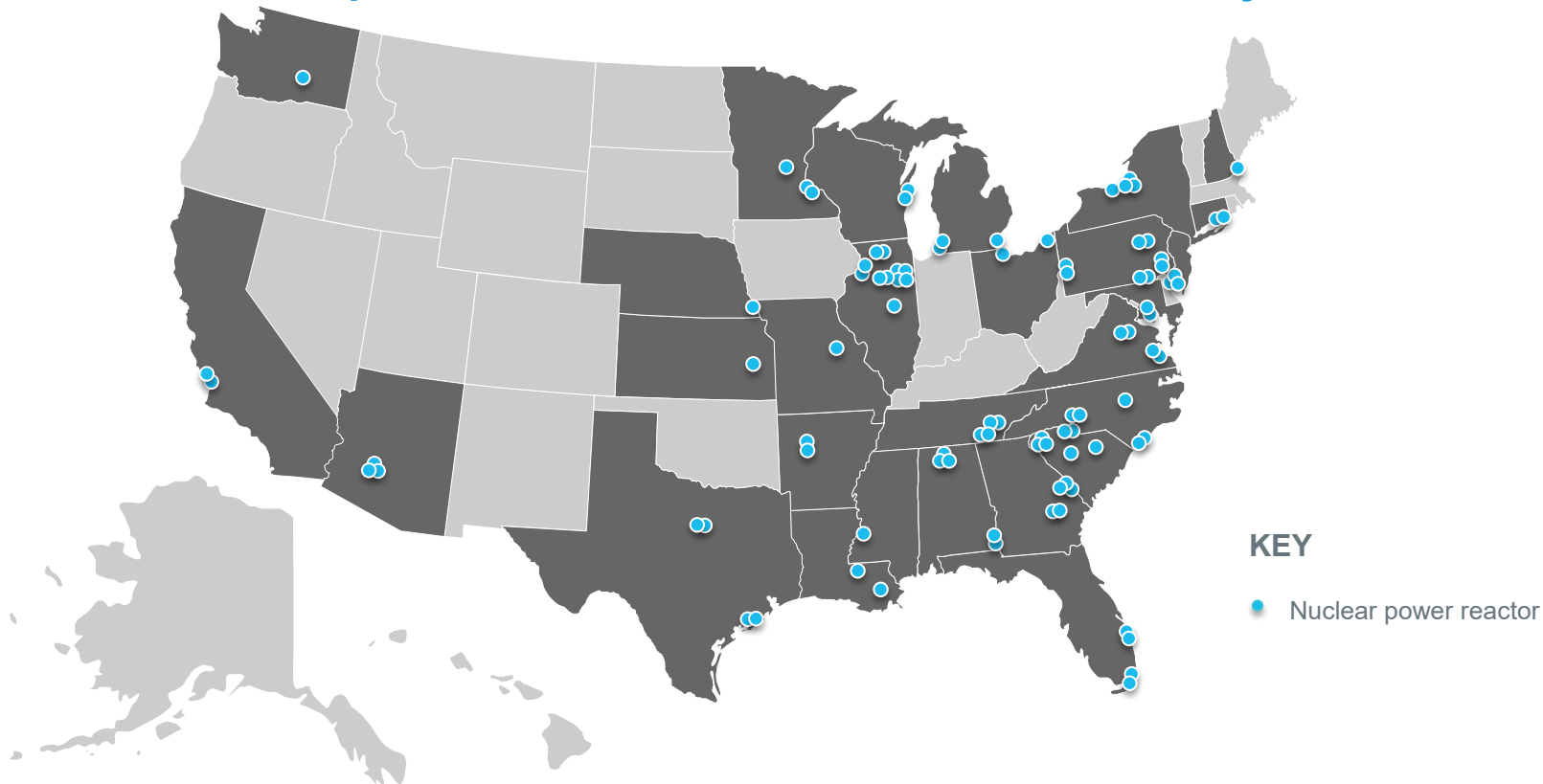


Labor Unions



NGOs &  
Think Tanks

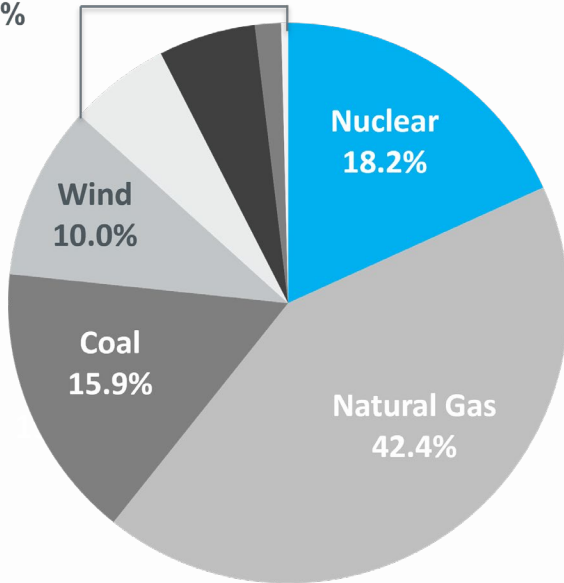
# Current Fleet: **93 reactors** at 53 plant sites across the country



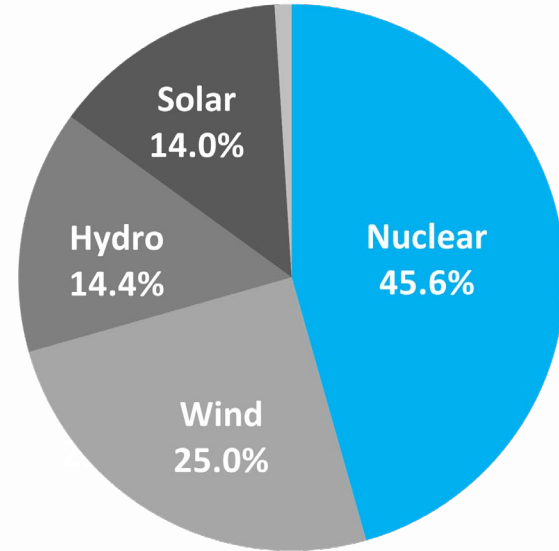
# U.S. Electricity in 2023

## Total Electricity (Left) vs. Carbon-Free Generation (Right)

Hydro – 5.8%  
Solar – 5.6%  
Biomass & Petroleum – 1.5%  
Geothermal – 0.4%

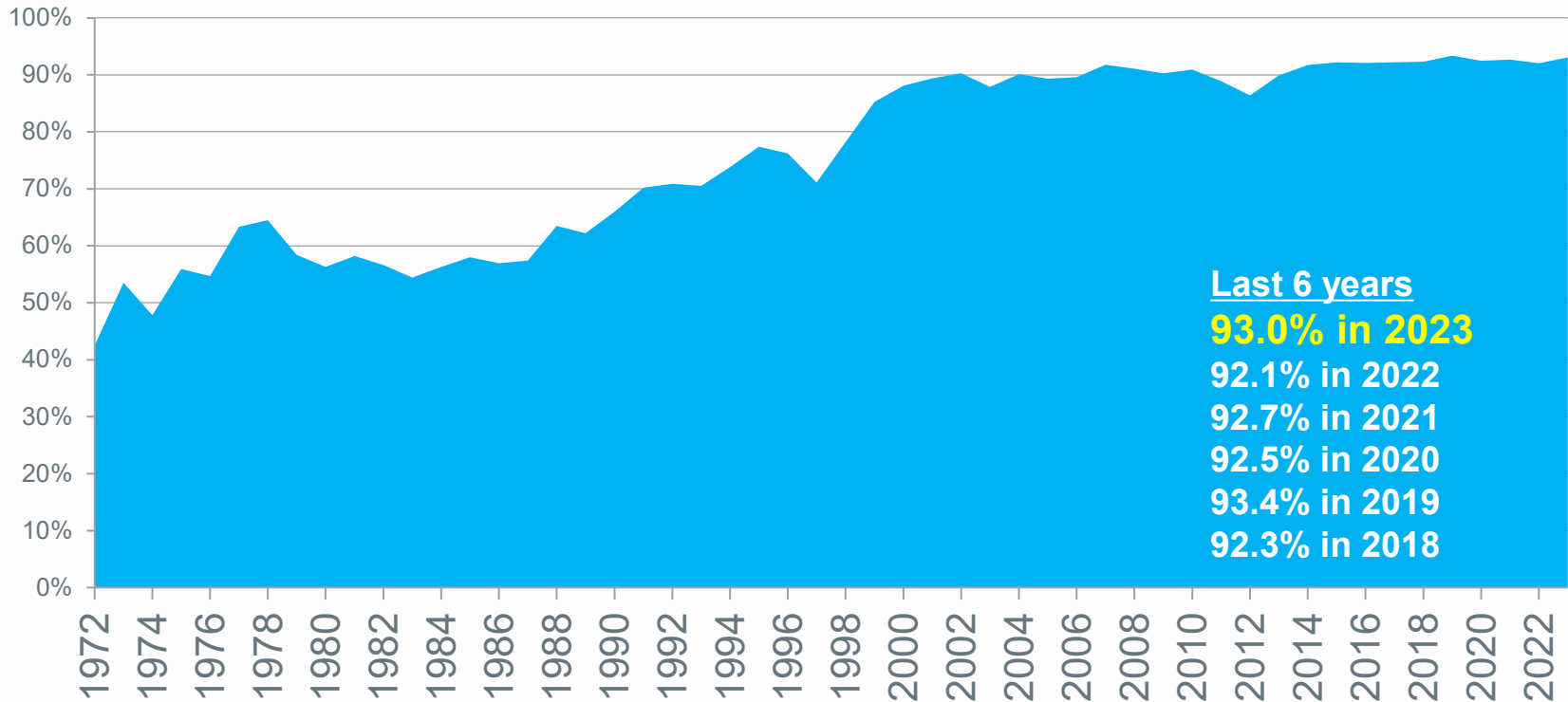


Geothermal  
1.0%



Notes: Includes small-scale solar.  
Source: U.S. Energy Information Administration  
Updated: February 2024

# Nuclear power's capacity factor averaged **above 90%** for more than 20 years



Last 6 years  
**93.0% in 2023**  
92.1% in 2022  
92.7% in 2021  
92.5% in 2020  
93.4% in 2019  
92.3% in 2018

# New Vogtle Units 3 & 4



**Waynesboro, GA**

Courtesy: Georgia Power

Two Westinghouse  
AP-1000 Reactors  
1100 MW(e) each



***Unit 3 in commercial  
operation, July 2023***

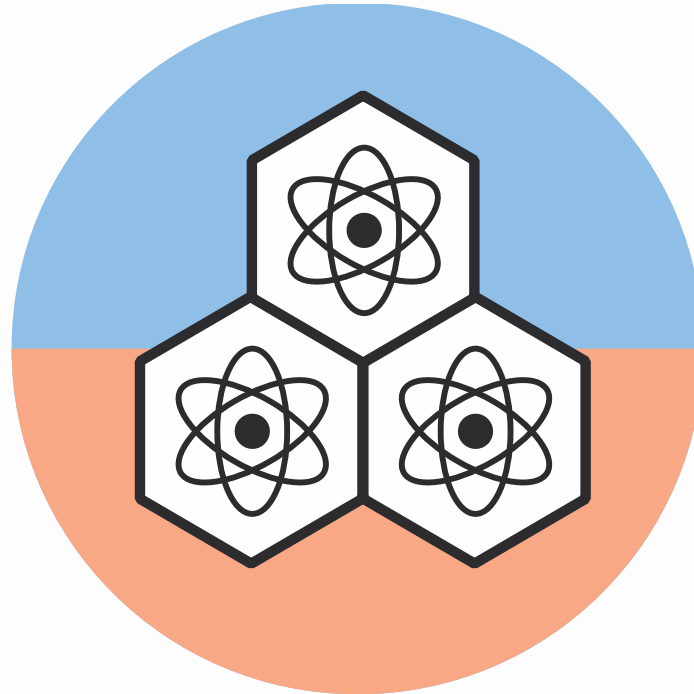
Unit 4 expected to enter  
commercial operation Q2,  
2024

First new power reactors  
built in U.S. in decades

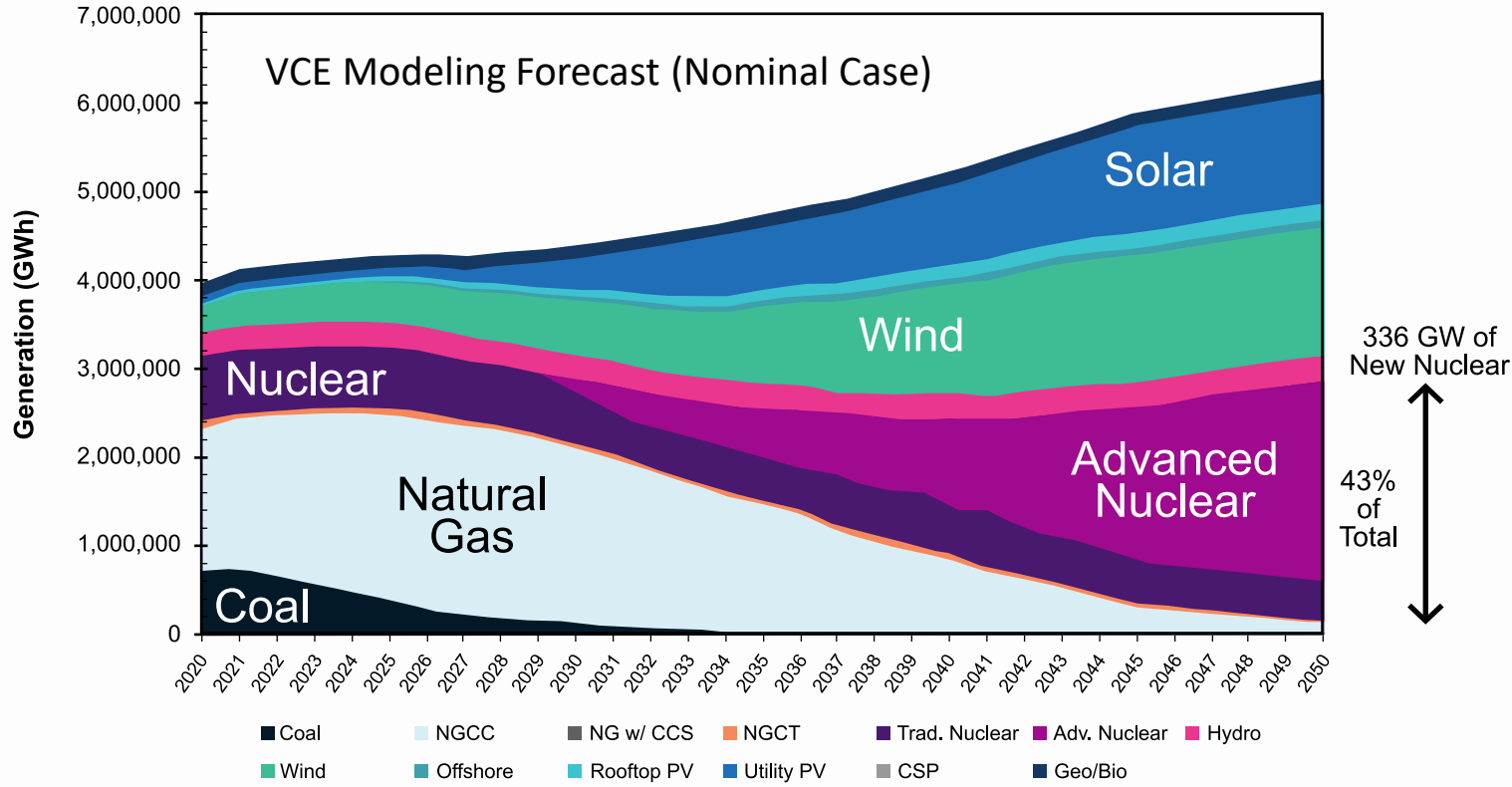
Four AP-1000 units already  
operating in China



# Advanced Reactors



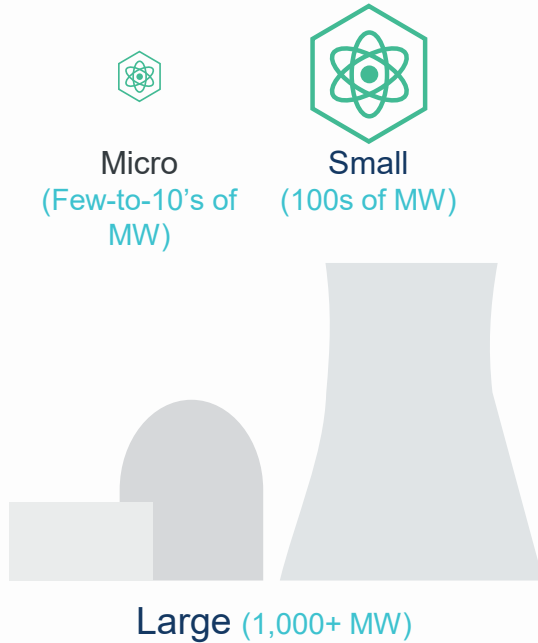
# U.S. Market Opportunity for Advanced Nuclear



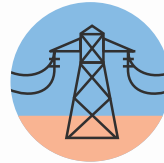
Source: Vibrant Clean Energy, *Role of Electricity Produced by Advanced Nuclear Technologies in Decarbonizing the U.S. Energy System* (June 2022), available at <https://www.vibrantcleanenergy.com/media/reports/>

# Advanced Nuclear's Potentially Versatile Applications

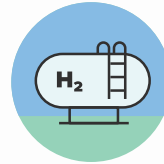
## Spectrum of Sizes and Options



## Variety of Outputs



Electricity



H<sub>2</sub> Hydrogen



Process Heat

## Multitude of Uses



Homes



Vehicles



Businesses



Aviation



Rail



Shipping



Concrete



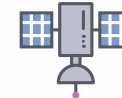
Steel



Factories



Water



Space



Fashion

# Advanced Reactor Developer Members



HITACHI



GENERAL ATOMS



HOLTEC  
INTERNATIONAL



TERRESTRIAL  
ENERGY



Kairos Power



NuCube  
Energy



LAST  
ENERGY



NUSCALE™  
Power for all humankind



Westinghouse



OKLO



EXODYS  
ENERGY



Muons, Inc.  
Innovation in Research



RADIANT



ZENO  
POWER SYSTEMS

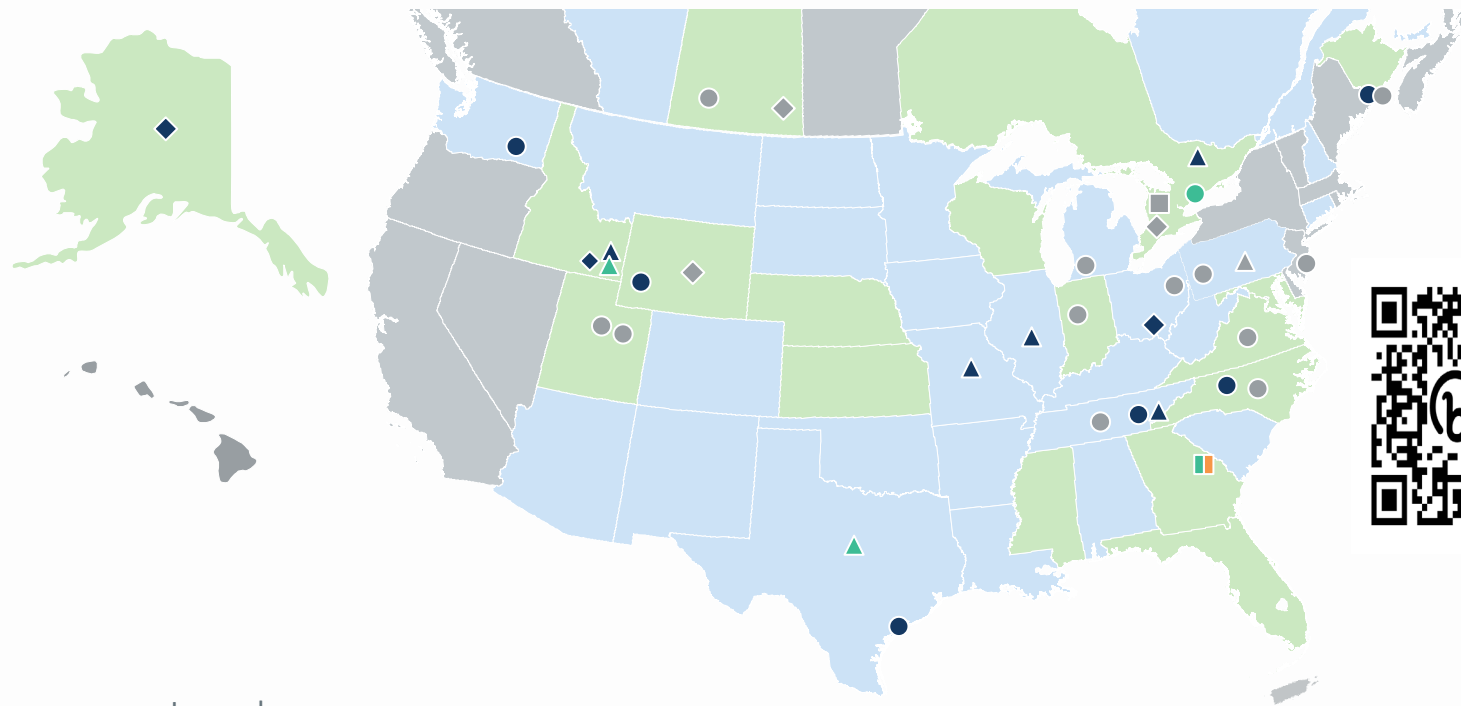
framatome

# Advanced Nuclear Deployment Plans

State support and projects that may be in operation by early 2030s



©2024 Nuclear Energy Institute



Learn more about new nuclear.

## Legend

- |  |  |                         |                              |
|--|--|-------------------------|------------------------------|
| State Actions – Substantive Incentives | State Actions – Supportive and Exploring |                         |                              |
| Considered project                     | Planned project                          | Under construction      | Operating                    |
| Large (1,000 MWe)                      | Small (<300 MWe)                         | Micro-reactor (<50 MWe) | University / Research / Test |

Updated 12/19/2023

# Joint NEI/EPRI North American Advanced Reactor Roadmap



01 First Mover Success

02 Fast Followers

03 Regulatory Efficiency

04 Siting Availability

05 Public Engagement

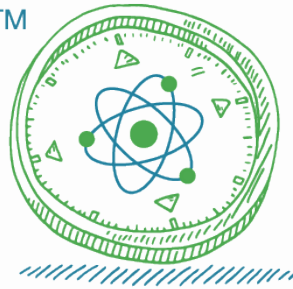
06 Supply Chain Ramp-up

07 Workforce Development

# Building The Pipeline



NAVIGATING™  
NUCLEAR  
Energizing Our World



Partners Include:

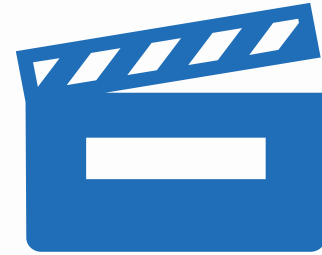


American Nuclear Society  
AMERICAN NUCLEAR SOCIETY

# Advocacy







# New Ad Campaign: *Nuclear for the Next Generation*

[https://www.youtube.com/watch?v=EmFtg\\_oVk0fA](https://www.youtube.com/watch?v=EmFtg_oVk0fA)



YOUNG FOR MY TIME NUCLEAR ENERGY INSTITUTE

A woman with long brown hair, wearing a blue and purple backpack, is seen from behind, holding a large sign. The sign has a yellow center with a pink border and the text "Mothers for Nuclear" written in black. She is walking in a city street with other people and buildings in the background. A red fire truck is visible on the right side of the street.

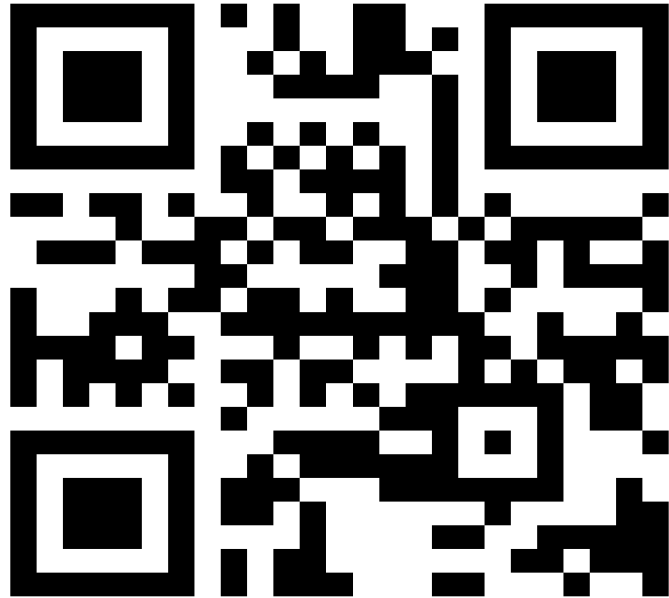
Mothers  
for  
Nuclear



mothers for nuclear

# Scan to Join Nuclear Matters Today!

NUCLEAR MATTERS®  [www.nuclearmatters.com](http://www.nuclearmatters.com)



# Federal Recognition of Nuclear's Value

## Bipartisan Infrastructure Law

### Civil Nuclear Credit Program

\$6B to support financially challenged plants

### Advanced Reactor Demonstration Program (ARDP) Funding

\$2.5B funding for two projects

### Nuclear Hydrogen Hub

\$8B total in the bill

## Inflation Reduction Act

### Production Tax Credit (PTC) for Operating Plants

Up to \$15 per MWh

### Technology-Inclusive PTC for Clean Electricity

\$30 per MWh

### Technology-Inclusive Investment Tax Credit (ITC) for Clean Electricity

30% + 10% in energy communities + 10% using U.S. components

### Clean Hydrogen Credit

\$3 per kilogram

### HALEU Availability Program

\$700 Million

# State Action for Nuclear Energy

## 2022

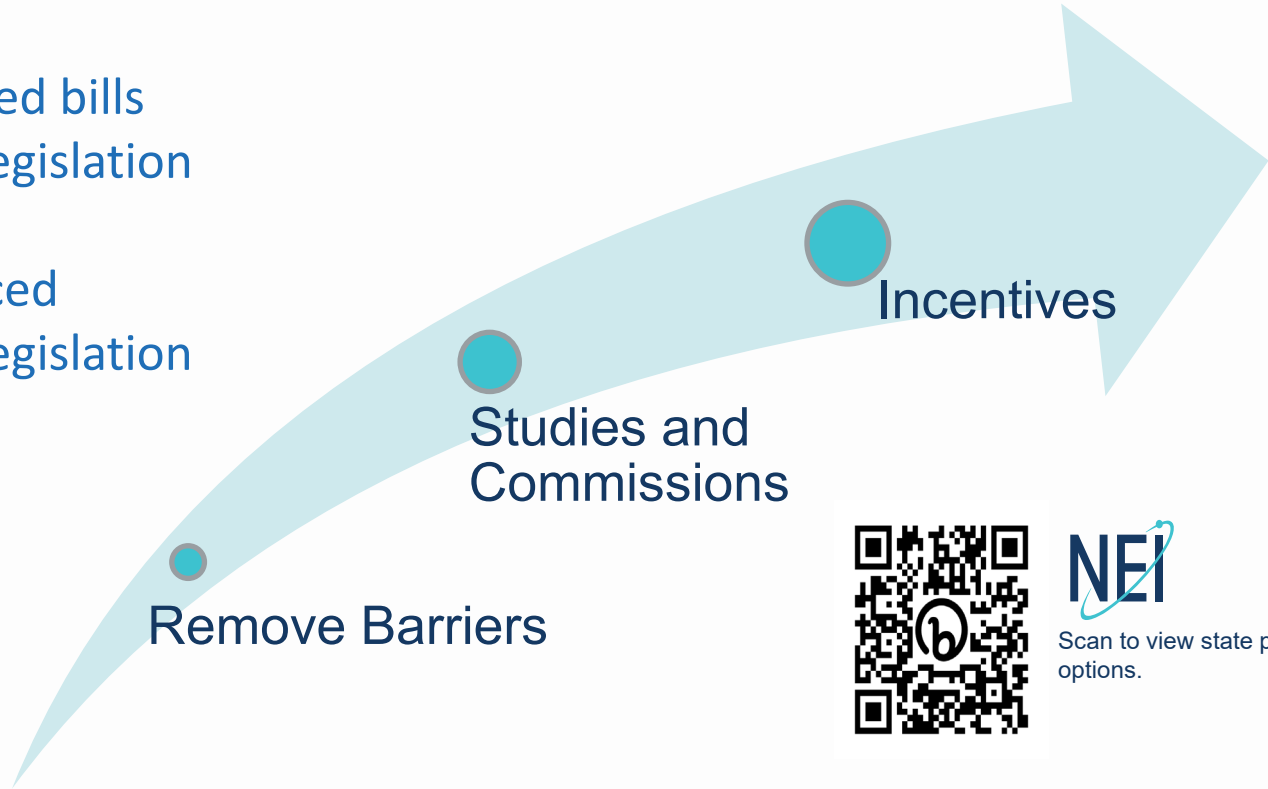
- 19 states introduced bills
- 12 states passed legislation

## 2023

- 200+ bills introduced
- 20 states passed legislation

## 2024 – Ongoing

- 25+ states
- 100+ bills



Scan to view state policy options.



# Nuclear Is POPULAR!



Isabelle Boemeke



Miss America 2023 ©2022 Nuclear Energy Institute



# Nuclear Is POPULAR!

## BRINGING FISSION TO FASHION

EP7



**RICKEY RUFF**

*“...that’s what led me to nuclear, actually. The whole world does not need more fashion brands...but what we do need is a way to make things more responsibly, more sustainably, that will actually help our planet...I want us to be as clean as possible.”*

**Rickey Ruff**

**Senior Global Brand Process & Operations Manager, Adidas**



#NUCLEARNOW

#NUCLEARNOWFILM

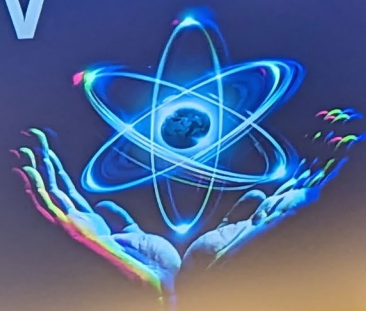
NUCLEARNOWFILM.COM



A N O L I V E R S T O N E F I L M

# NUCLEAR NOW

TIME TO LOOK AGAIN



<https://youtu.be/4c5RPk8F1Ik>

A N O L I V E R S T O N E F I L M

"AN INTENSELY COMPELLING,  
MUST-SEE DOCUMENTARY."

- Owen Gleiberman  
*Variety*

"THIS IS THE MOST  
INFORMATIVE FILM—  
EVER."

- James Hansen  
Director Climate Science, Awareness  
and Solutions, Columbia University



"A THOUGHTFUL AND  
REASONED ARGUMENT."

- Scott Roxborough  
*The Hollywood Reporter*

"A STRONG, CLEAR AND  
COURAGEOUS FILM.  
I ADMIRE IT FOR DEFYING  
ALL TRENDS."

- Werner Herzog  
*Filmmaker*

# NUCLEAR NOW

TIME TO LOOK AGAIN

[NUCLEARNOWFILM.COM](http://NUCLEARNOWFILM.COM)



MOSTRA INTERNAZIONALE  
D'ARTE CINEMATOGRAFICA  
LA BIENNALE DI VENEZIA  
Official Selection

1932 1937 2022

ABRAMORAMA

# Upcoming NEI Events- *Please join us!*



# Upcoming NEI Events- *Please join us!*

- Used Fuel Management Conference – May 7-9; Orlando, FL
- **\*\*Nuclear Energy Policy Forum – May 14-16; Washington, DC**
  - Tune in for the Annual “State of the Industry” speech
- National Nuclear Security Conference – June 18-20; Minneapolis, MN
- Radiological Effluents and Environmental Workshop – June 24-27; Minneapolis, MN
- Access Authorization and FFD – July 8-11; Salt Lake City, UT
- **\*\*Women In Nuclear – July 23-25; Pittsburgh, PA**
- Radiation Protection Forum – August 5-8, Kansas City, MO
- **\*\*Nuclear Energy Assembly – Sept. 10-12; Philadelphia, PA**

**\*\* Denotes Flagship Events**

# Thank You & Questions



[hml@nei.org](mailto:hml@nei.org)

