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)

- Nuclear: 17.9%
- Natural Gas: 39.3%
- Coal: 19.3%
- Wind: 25.6%
- Solar: 14.0%
- Hydro: 14.4%
- Geothermal: 1.0%
- Nuclear: 45.5%

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

Source: U.S. Energy Information Administration
Updated: February 2024
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

VCE Modeling Forecast (Nominal Case)

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**
- **Micro** (Few-to-10’s of MW)
- **Small** (100s of MW)
- **Large** (1,000+ MW)

**Variety of Outputs**
- **Electricity**
- **H₂ Hydrogen**
- **Process Heat**

**Multitude of Uses**
- Homes
- Vehicles
- Businesses
- Aviation
- Rail
- Shipping
- Concrete
- Steel
- Factories
- Water
- Space
- Fashion

Watch the video: [https://www.youtube.com/watch?v=7zN_YLg-roo](https://www.youtube.com/watch?v=7zN_YLg-roo)
Advanced Nuclear Deployment Plans
State support and projects that may be in operation by early 2030s

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

Updated 12/19/2023

Learn more about new nuclear.
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
New Ad Campaign:

*Nuclear for the Next Generation*

https://www.youtube.com/watch?v=EmFtgOVk0fA
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## 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

Current State Policies: https://www.nei.org/resources/reports-briefs/state-legislation-and-regulations

Scan to view state policy options.
Nuclear Is POPULAR!

Isabelle Boemeke

Miss America 2023
“…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
AN OLIVER STONE FILM

"AN INTENSELY COMPPELLING, 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 Renzborough
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
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

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