



NRIC

National
Reactor
Innovation
Center



Enabling the Success of Advanced Reactor Demonstrations

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NRIC is a national DOE program, launched in FY20



NRIC Enables Nuclear Reactor Tests & Demonstrations

- Authorized by the Nuclear Energy Innovation Capabilities Act (NEICA)
 - DOE-Office of Nuclear Energy; INL Nuclear Science & Tech
- Partner with industry to bridge the gap between research and commercial deployment
- Leverage national lab expertise and infrastructure
- Manage demonstrations to success



Vision: Enable commercial nuclear by 2030s

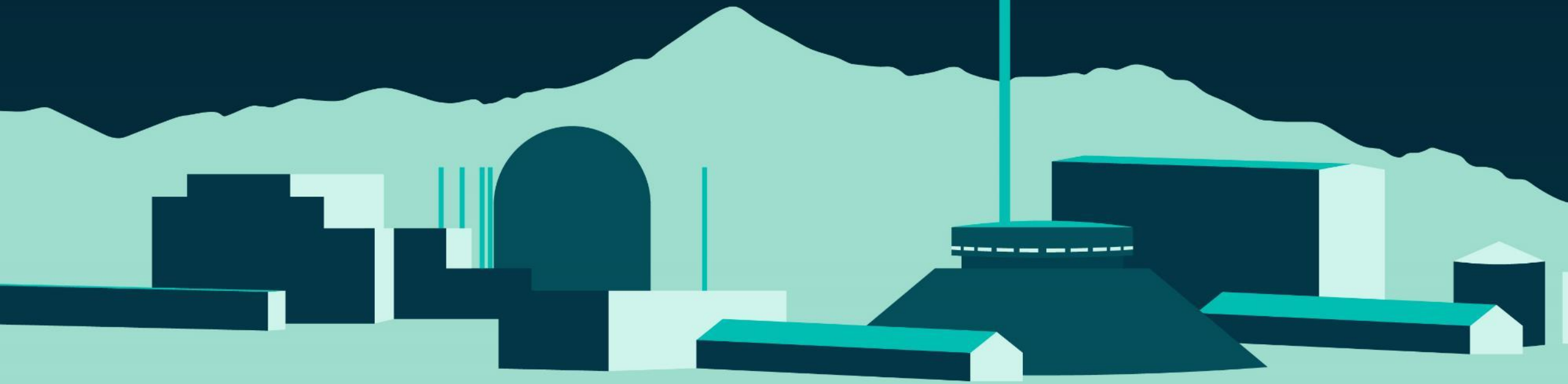


Collaborative Approach

NRIC is partnering regionally and nationally to support testing and demonstrations



Priority: Empowering Innovators




- Advanced Reactor Test Beds
- Experimental Facilities
- Virtual Test Bed
- Addressing Costs and Markets
- Regulatory Risk Reduction

- Planning Tools
 - NRIC Resource Team
 - Demonstration Resource Network (<https://nricmapping.inl.gov/>)
 - Siting Tool for Advanced Nuclear Development

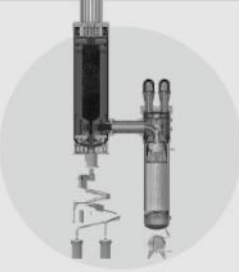
INL Participation in ARDP Projects

- 9 projects supported
- Scope range
 - Modeling & Simulation
 - Irradiation & PIE
 - Fuel design & fabrication
- ~\$175M – 7 years
 - \$1M - \$75M per project
- NRIC/INL Coordinator
- NRIC Deployed Digital Engineering and project management tools

Demonstration




Natrium Reactor
Sodium-cooled fast reactor + molten salt energy storage system
TERRAPOWER

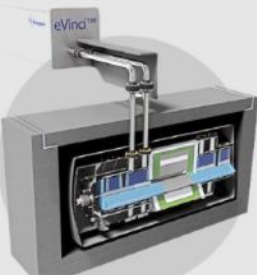


Xe-100
High-temperature gas reactor
X-ENERGY

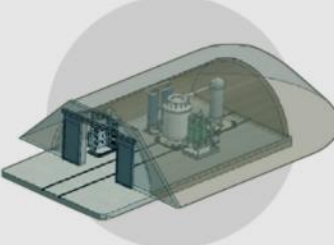
Risk Reduction




KP-FHR
Fluoride salt-cooled high-temperature reactor
KAIROS POWER



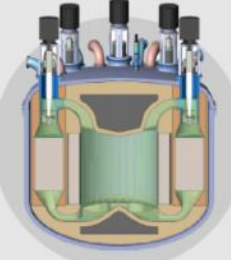
eVinci
Heat pipe-cooled microreactor
WESTINGHOUSE NUCLEAR



BWXT Advanced Nuclear Reactor (BANR)
High-temperature gas-cooled microreactor
BWXT TECHNOLOGIES

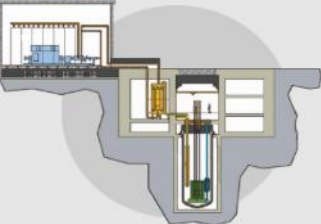


SMR-160
Advanced light-water small modular reactor
HOLTEC INTERNATIONAL




Molten Chloride Fast Reactor
SOUTHERN COMPANY

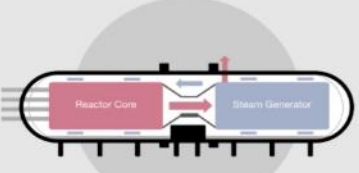
Concept Development



Advanced Sodium-Cooled Reactor Facility
ADVANCED REACTOR CONCEPTS



Fast Modular Reactor
GENERAL ATOMICS



Horizontal Compact High-Temperature Gas Reactor
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

NRIC200

- NRIC200 provides 200 hours of Subject Matter Expert (SME) support to nuclear innovators
- Hours can be spent at any national laboratory
 - Narrow and focused work scope on the path to advanced reactor demonstration
 - Can build into larger work scopes under alternate funding means
- Aid industry partners to match technical needs to capabilities within the Laboratory complex
- Lowers financial risk to applicants
- Allows new and smaller participants in the nuclear industry easy access to National Laboratory capabilities
- Cannot be used to supplement an existing DOE funded project
- NRIC publishes a public report at end of year with work scopes and customer feedback

GAIN Vouchers

- GAIN Vouchers started in 2016
- Since Inception
 - 86 vouchers awarded - 58 completed - 50 different companies
 - \$30.9M awarded to date
- GAIN Vouchers are open to support multiple areas for advanced nuclear technology developers.

#GAINAccess

#GAINAccess

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The U.S. Department of Energy's Office of Nuclear Energy established the GAIN initiative to provide the nuclear community with access to the technical, regulatory, and financial support necessary to move innovative technologies toward commercialization.

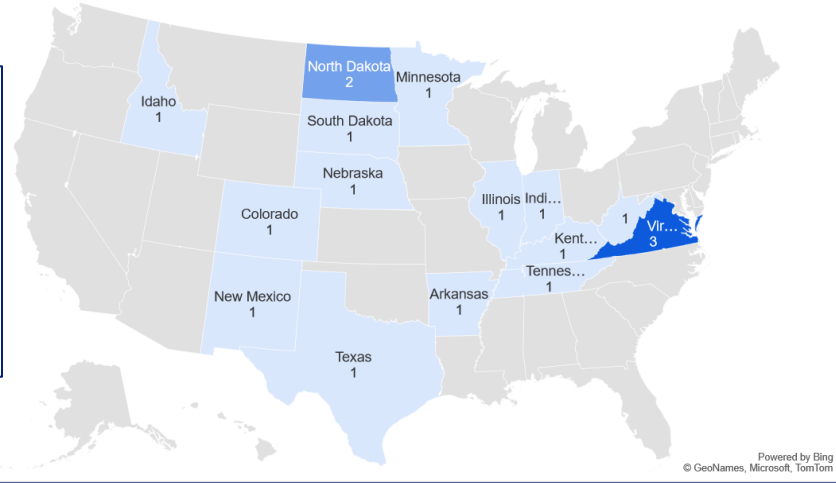
The NE Voucher Program is one way to provide industry with access to the unique research capabilities and expertise at DOE's national labs.



US Snapshot

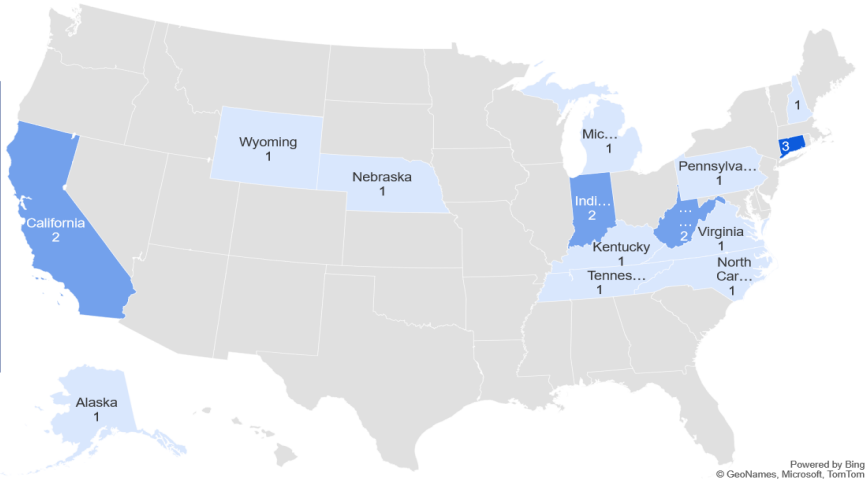
2023 Passed Legislation (15 states)

- Arkansas
- Colorado
- Idaho
- Illinois
- Indiana
- Kentucky
- Minnesota
- Nebraska
- New Mexico
- North Dakota
- South Dakota
- Tennessee
- Texas
- Virginia
- West Virginia



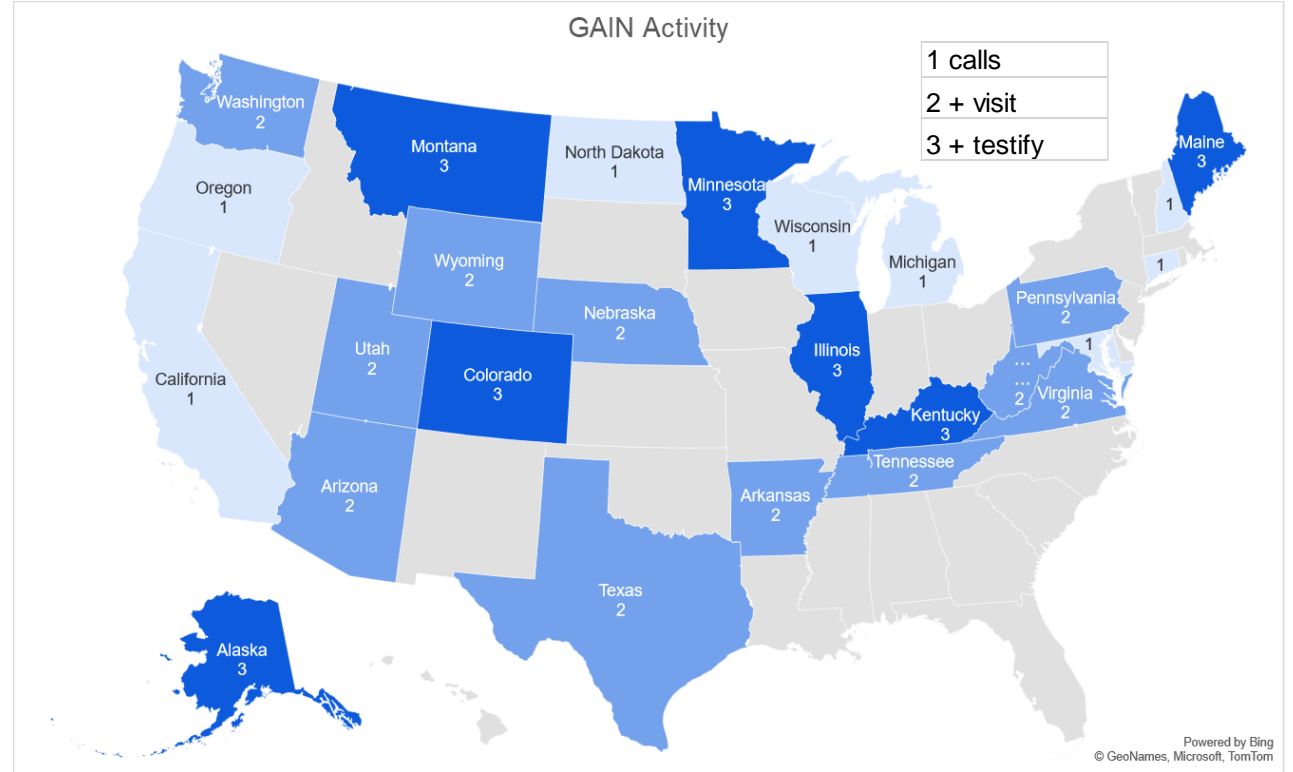
2022 Passed Legislation (14 states)

- Alaska
- California
- Connecticut
- Indiana
- Kentucky
- Michigan
- Nebraska
- New Hampshire
- North Carolina
- Pennsylvania
- Tennessee
- Virginia
- West Virginia
- Wyoming



GAIN Activity

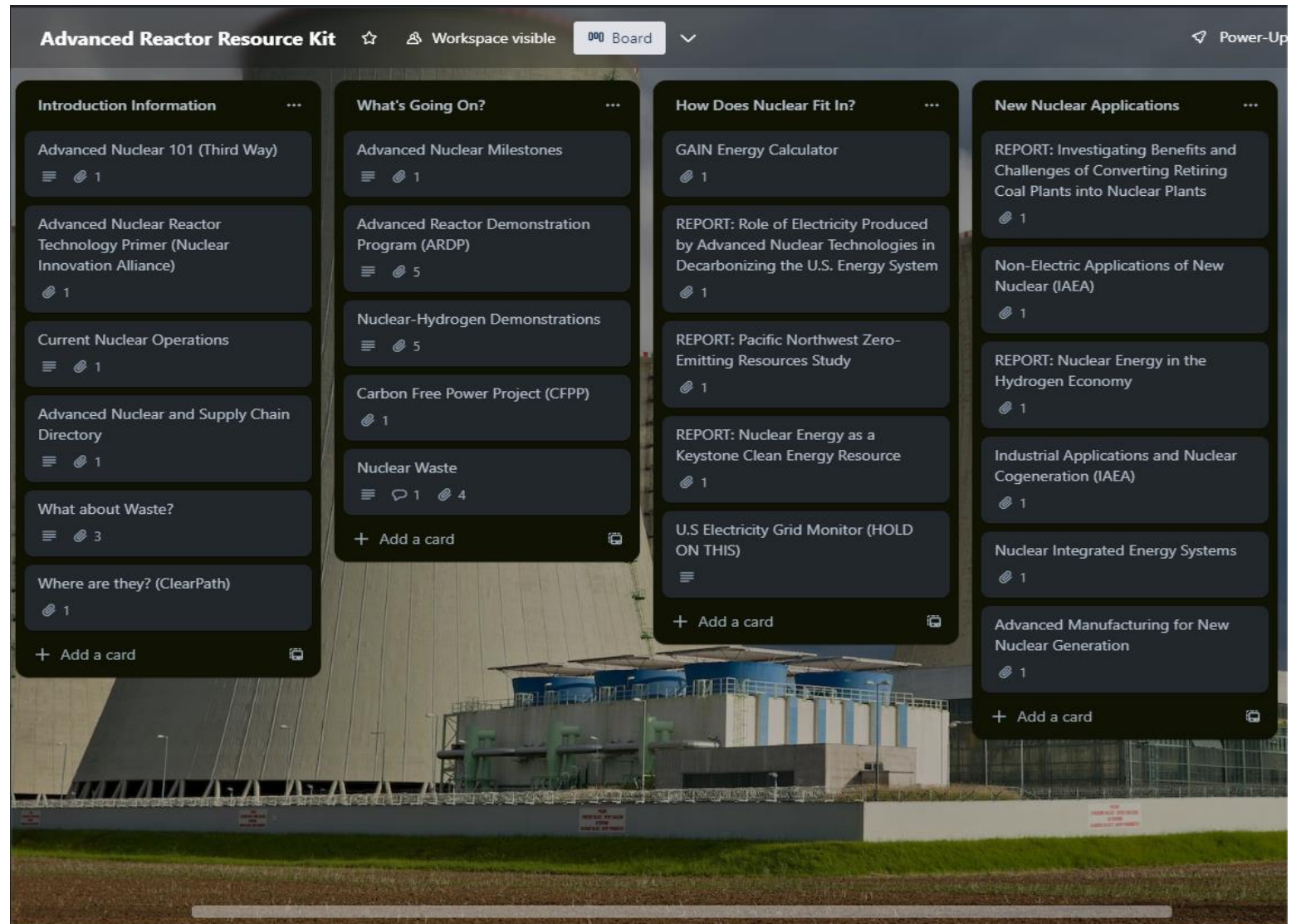
- 1 calls
- 2 + visit
- 3 + testify



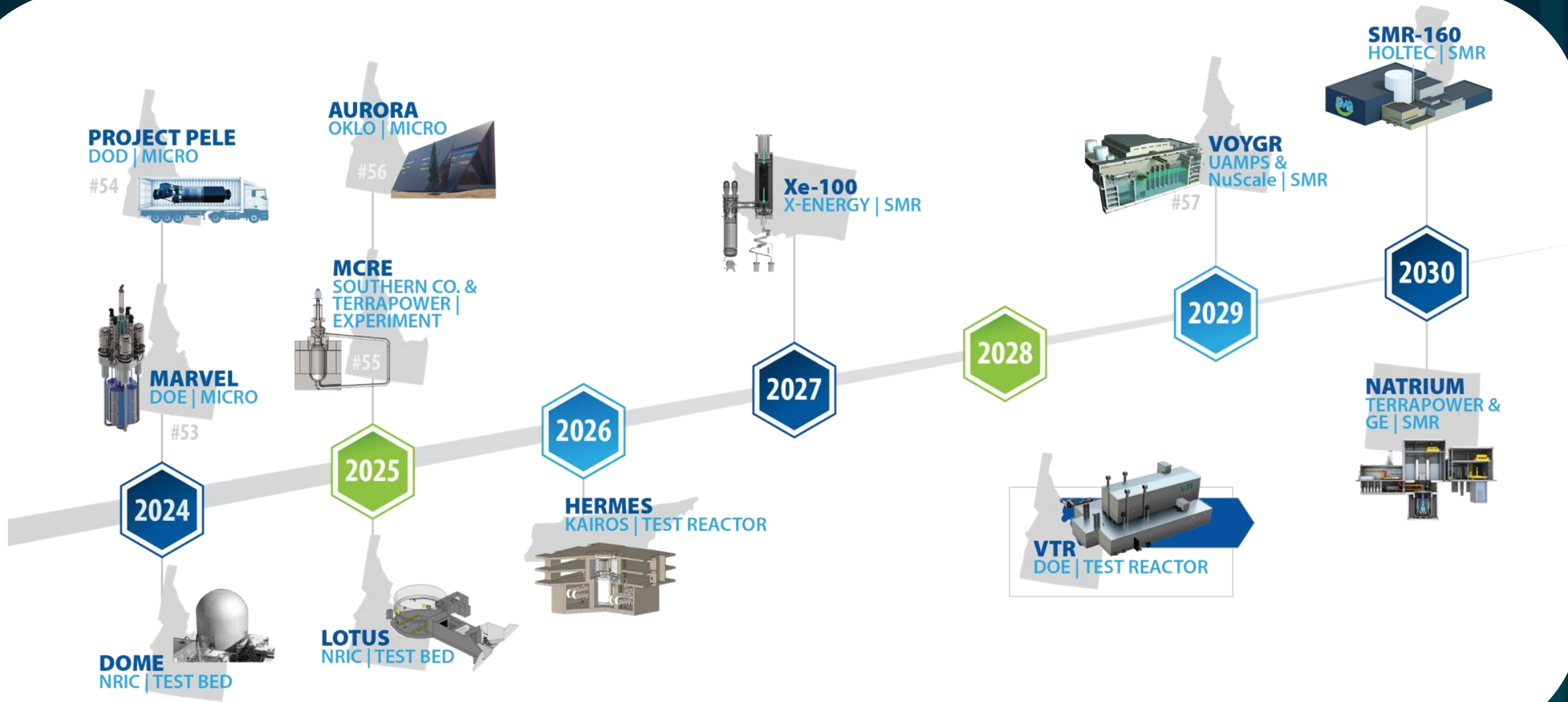
Successful Engagement: Our state/local partners...
 know the value of local/region assets
 become a better nuclear customer
 understand how to engage

Advanced Reactor Resource Kit

- Curated List of Resources
 - Publicly digestible
 - Variety of sources
 - Various Comms Modes
- Developed from our years in field
- Provides consistency in our response across team
- Allows us to add new information when available



Accelerating advanced reactor demonstration & deployment



Thank you!

Questions?

