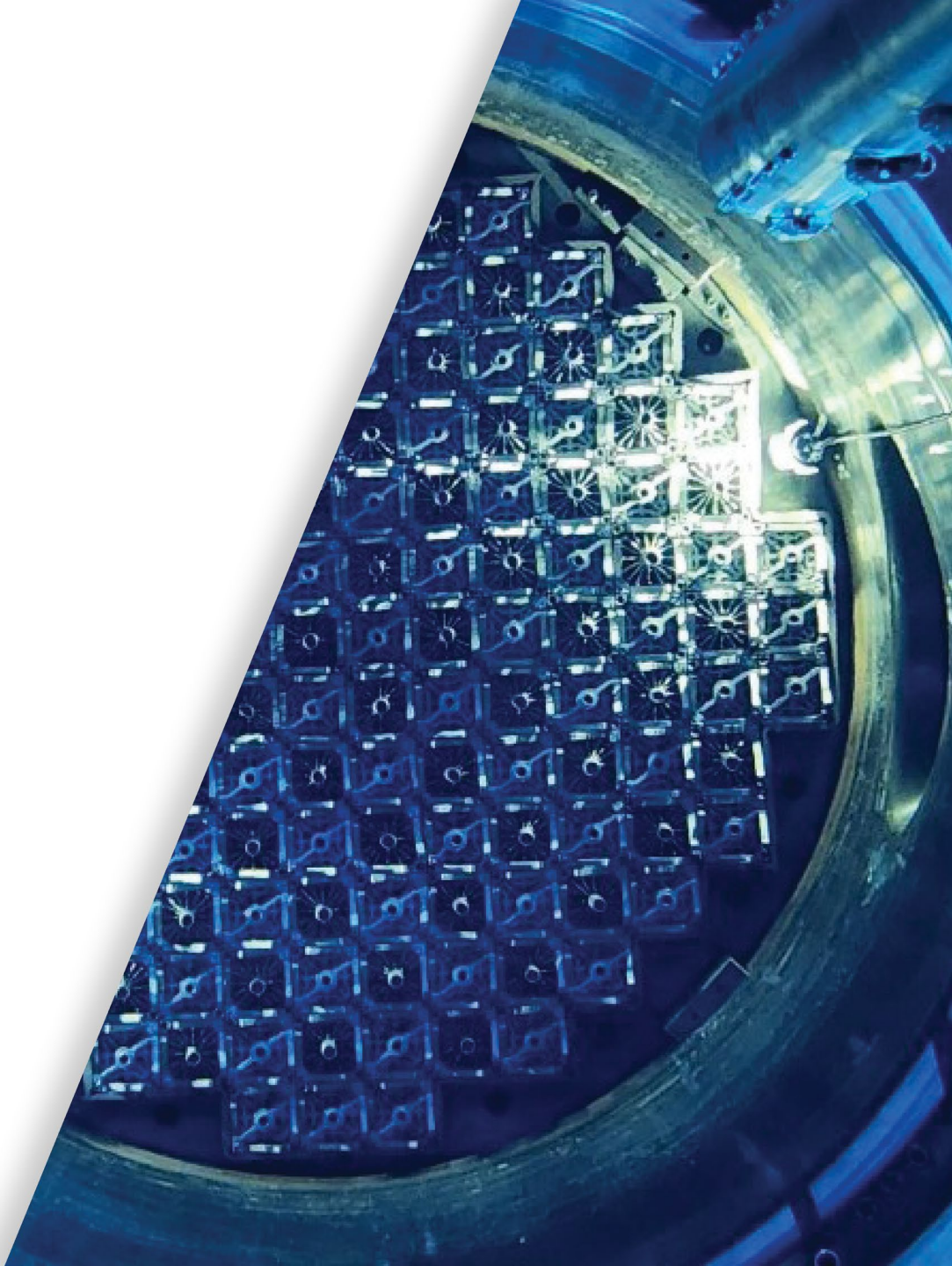
U.S. DEPARTMENT of ENERGY | Office of Nuclear Energy

Office of Nuclear Energy Reactor Pilot Program Update

Theodore J. Garrish
Assistant Secretary
for Nuclear Energy



ANTARES NUCLEAR

Type: Sodium heat pipe cooled thermal fission microreactor. Fuel is 19.75 wt% TRISO (Tri-structural Isotropic)

Location: Idaho National Laboratory, Building MFC-793

Path to Criticality

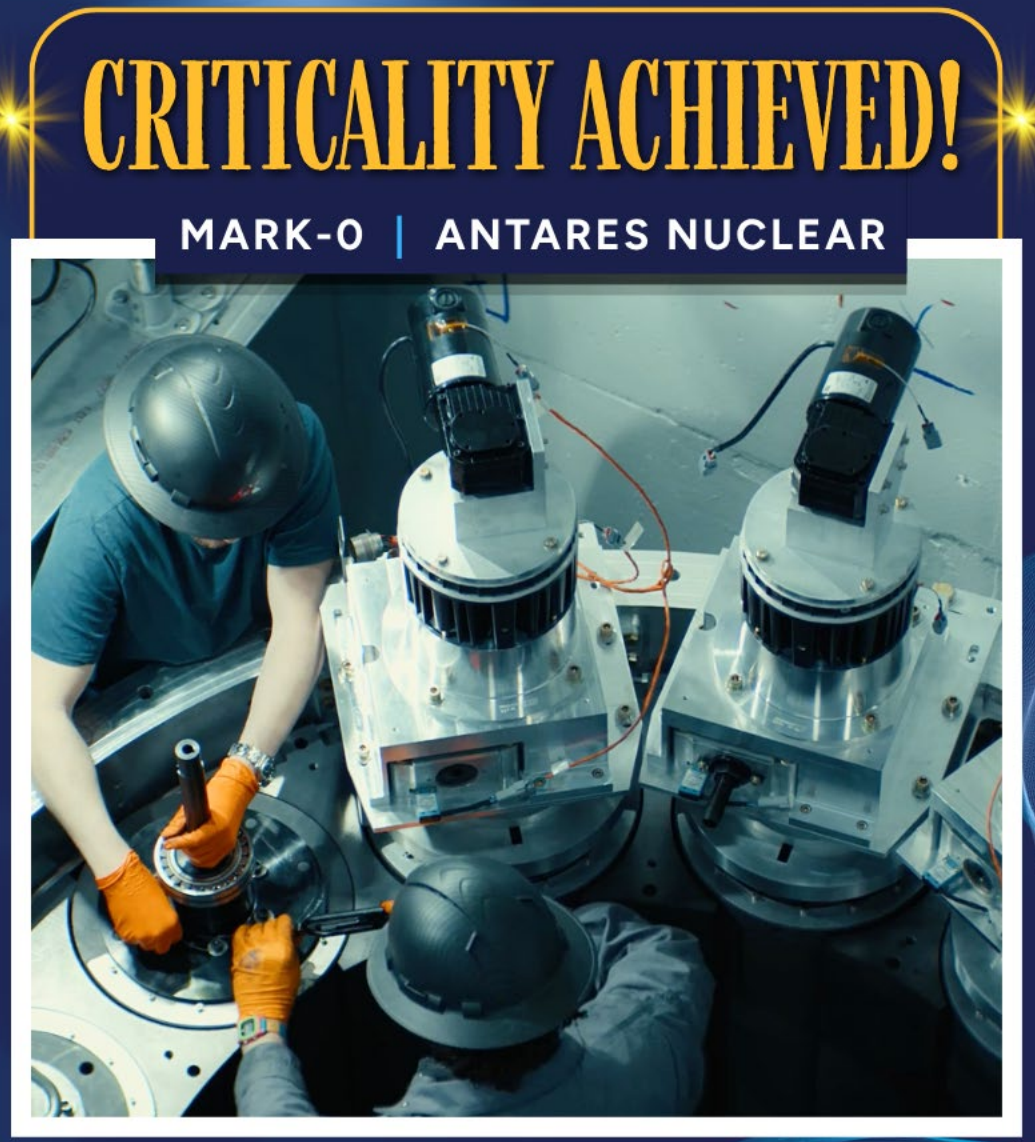
- Jan 2026 - Preliminary Documented Safety Analysis (PDSA) approved
- April 2026 – Documented Safety Analysis (DSA) approved
- June 4, 2026 – Criticality Achieved

Mark-0 Critical Assembly, <100 Watts thermal criticality

("zero"-power, dry- no coolant)

Plans beyond July 4th:

- Mark-1 electricity producing nuclear test in 2027 to demonstrate integrated performance after completion of individual system and sub-system tests (1 MW-thermal = ~270 KW-electric)
- Antares is building out >320k sq. ft manufacturing space in California + initial enduring test facilities at INL that will support initial customers, such as DOW, in 2028



VALAR ATOMICS

Type: High temperature gas-cooled reactor. Fuel is 19.75 wt% TRISO (Tri-structural Isotropic)

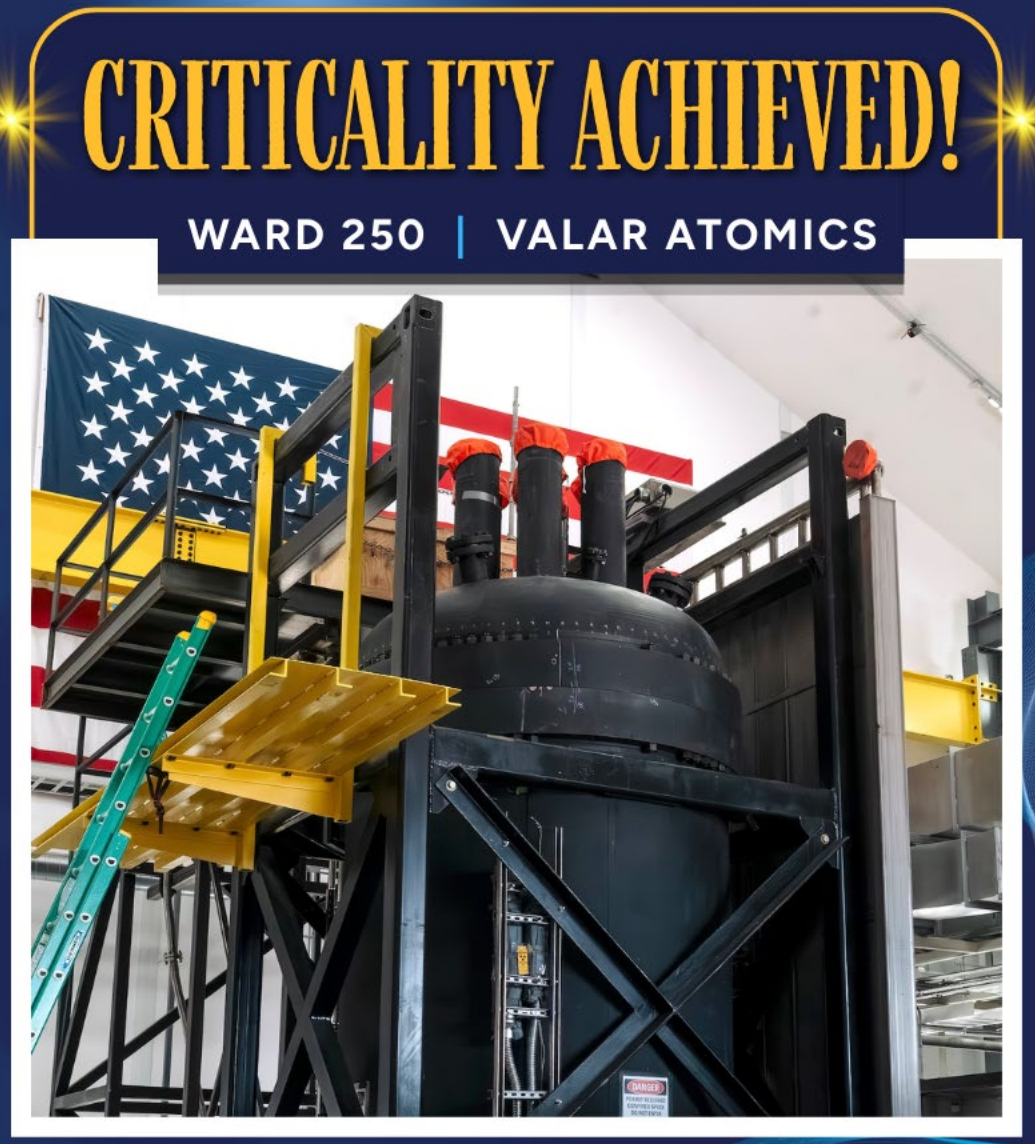
Location: Emery County, UT, at Utah San Rafael Energy Lab

Path to Criticality:

- November 2025 – National Criticality Experiments Research Center Demonstration
- February 2026 – Operation Windlord - airlifted a prototype micronuclear reactor (Ward 250) for the first time using C-17 Globemaster III aircraft
- February 2026 – PDSA Approved
- April 23, 2026 - DSA Approved
- June 18, 2026 – Criticality achieved (zero power)
- July 2, 2026 – full power 100 kWt full power achieved, electricity generation use to power NVIDIA Spark

Plans beyond July 4th:

- *2026 – 2027 - Additional higher power demonstrations (locations TBD)*



DEPLOYABLE ENERGY

Type: Water moderated low-power critical assembly variant of the 1MWe Unity Nuclear Battery microreactor under development by Deployable Energy. Fuel: <5 weight percent U-235 annular uranium dioxide fueled rods.

Location: Idaho National Laboratory, Materials and Fuels Complex, Neutron Radiography Reactor facility.

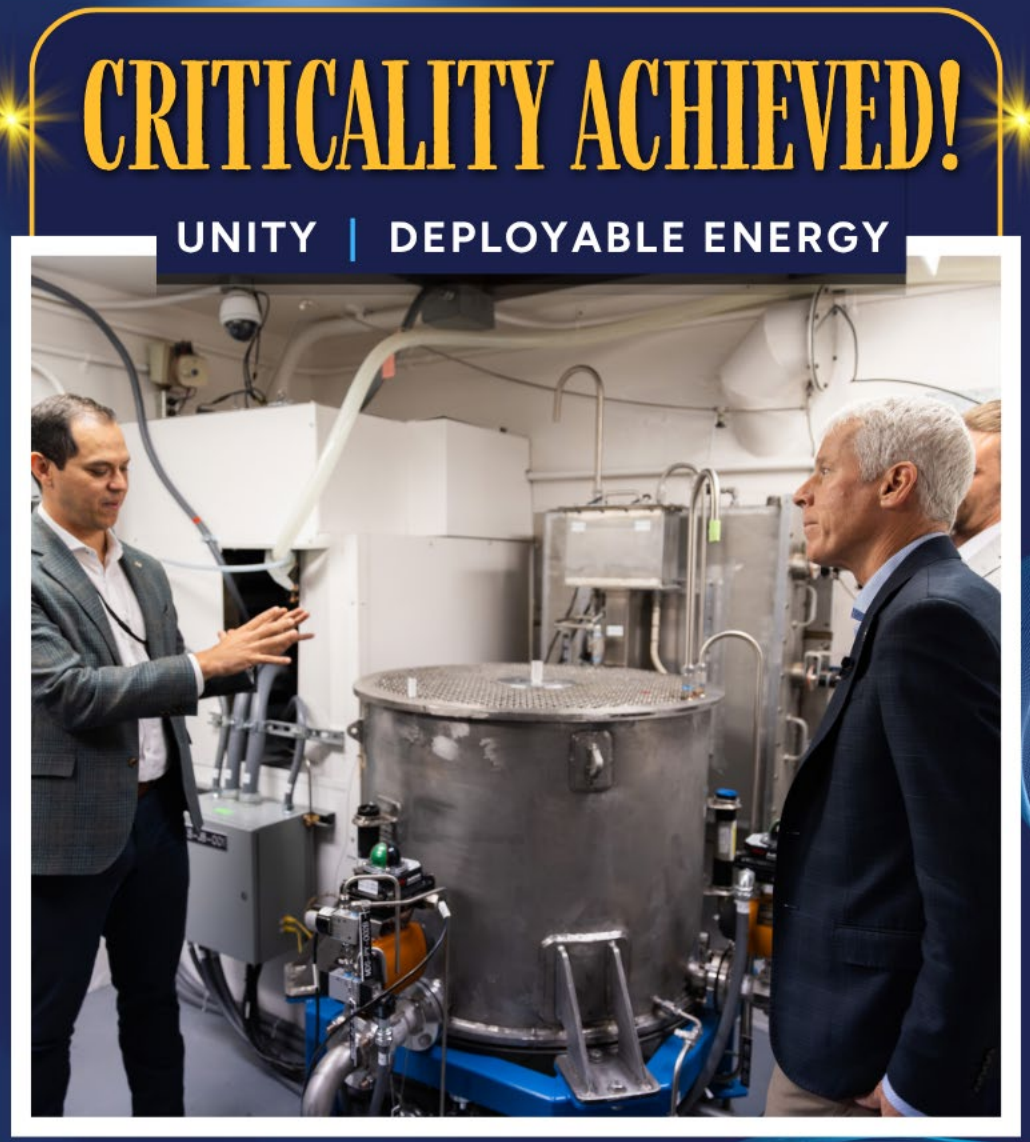
Path to Criticality:

- May 22, 2026- Preliminary Documented Safety Analysis (PDSA) approved
- June 11, 2026 – Documented Safety Analysis (DSA) approved
- June 30, 2026 – Criticality Achieved

Unity Critical Experiment is a <1 Watt thermal criticality (cold "zero"-power, no electrical output) test of a prototypical core

Plans Beyond July 4th:

- Reactor Physics testing including passive shutdown and decay heat testing 2026.
- Full Power and transient testing by July 4th 2027.
- Maritime Demonstrator by July 4th 2028



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AALO ATOMIC

Type: Liquid metal cooled thermal fission microreactor. Fuel is 4.95% enriched UO_2 (Uranium dioxide, same as current light water reactors)

Location: Idaho National Laboratory Building

Path to Criticality

- March 3, 2026 - Preliminary Documented Safety Analysis (PDSA) approved
- April 30, 2026 – Documented Safety Analysis (DSA) approved
- July 4, 2026 – Criticality Achieved

Critical Assembly Test <10 Watts ("zero"-power, dry (no sodium coolant), no electrical output).

Plans beyond July 4th:

- Full power test in 2027 (30 MW-thermal = ~10MW electric, enough heat for 20,500 12ft x12ft rooms)
- First commercial pod (multiple reactors) in partnership with GE Vernova and Urenco – 2028
- Aalo aims to build 1GW+ nuclear by end of 2030

THANK YOU!

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BACK UP SLIDES

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NUCLEAR ENERGY EXECUTIVE ORDERS

On May 23, President Trump issued four executive orders that direct the U.S. Department of Energy to take a leading role in unleashing the American nuclear renaissance.

KEY TAKEAWAYS

- Modernize nuclear regulations
- Streamline reactor testing
- Deploy reactors for national security
- Reinvigorate the nuclear industrial base

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Reactor Pilot Plant Selections

Aalo Atomics

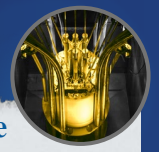
Aalo X

Idaho National Laboratory

10 MWe Sodium Thermal Reactor

Critical

Atomic Alchemy



Versatile Isotope Production Reactor (VIPR)

Site: TBD

15MWt pool type reactor

DSA Approved

Antares Nuclear

R1 Mark-0

Idaho National Laboratory

200-300 kWe Heat Pipe Reactor

Critical

Deep Fission

Gravity Reactor

Great Plains Industrial Park, Parsons, Kansas

25 MWt Pressurized Water Reactor

Last Energy

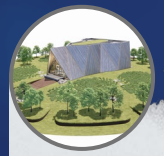
PWR-5

Texas A&M RELLIS Campus

5 MWe Pressurized Water Reactor

PDSA Approved

Oklo



Aurora

Idaho National Laboratory

50-75 MWe Sodium Fast Reactor

PDSA Approved

Oklo

Pluto

Site: TBD

60 MWt Sodium Fast Reactor

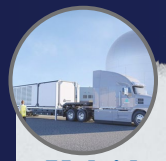
Natura Resources

MSR-1

Abilene, Texas

1 MWt Liquid-Fueled Molten Salt Reactor

Radiant Industries



Kaleidos Development Unit

Idaho National Laboratory

3.5 MWt Micro High Temperature Gas Reactor

PDSA Approved

Terrestrial Energy

TETRA

Site: TBD

200 Wt Graphite Moderated Uranium Tetra-Fluoride Reactor

Valar Atomics

Ward250

Emery County, UT

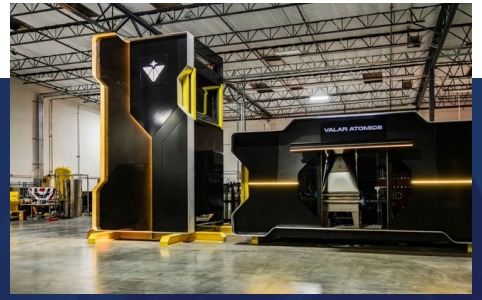
~250 kWt High Temperature Gas Reactor

Critical

DOE Advanced Nuclear Fuel Line Pilot Projects

1. Standard Nuclear*
2. Oklo Inc
3. Valar Atomic Inc
4. Terrestrial Energy Inc

*Authorized for HALEU Fabrication



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9 Key Takeaways from Executive Orders

01 Speed Up Reactor Licensing

Creates expedited pathway to approve reactors tested by DoD and DOE. Establishes NRC deadline to license within 18 months.

02 Add 300 GW by 2050

Expands capacity to 400 GW by 2050, including 5 GW of uprates, LPO for reactor restarts, & 10 new large-scale reactor builds.

03 Faster Reactor Testing

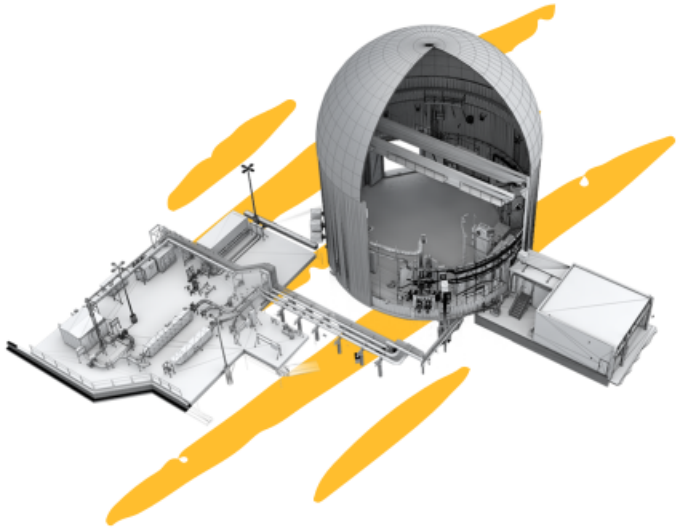
Launches new DOE pilot program to build and test three reactors by July 4, 2026.

04 Deploy for AI & Military

Directs DoD to build a reactor at a military installation within 3 years. Allows DOE to utilize authorities to authorize reactors for AI applications.

05 Explore Recycling

Instructs DOE to find ways to transfer commercial spent fuel to reprocessing and recycling facilities.



06 Ramp Up Fuel Production

Builds out U.S. nuclear fuel supply chain. Increases enrichment and deconversion services. Releases 20 metric tons of HALEU.

07 Bolster U.S. Workforce

Increases in apprenticeship and education opportunities. Increases access to R&D infrastructure.

08 Spent Fuel Management

Recommends national policy on spent fuel management and high-level waste that considers advanced fuel cycle.

09 Expand U.S. Exports

Produces strategy to increase financing for U.S. projects and promote nuclear trade.

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LAUNCH PAD INITIAL PARTICIPANTS ANNOUNCED APRIL 27, 2026

RADIANT

General Matter

DEPLOYABLE.energy

NuCube Energy

Idaho State University