eVinci™ Microreactor

The Next Generation Nuclear Research Reactor

Combining Research Flexibility with Campus-wide Heat and Power

The Westinghouse Solution

The **eVinci™ Microreactor** provides a cost competitive, flexible and resilient source of power and heat while enabling active nuclear research opportunities. The eVinci small size allows for flexible transportability and rapid on-site deployment.

Westinghouse combines new technology with over 60 years of nuclear design and engineering experience to support research applications.

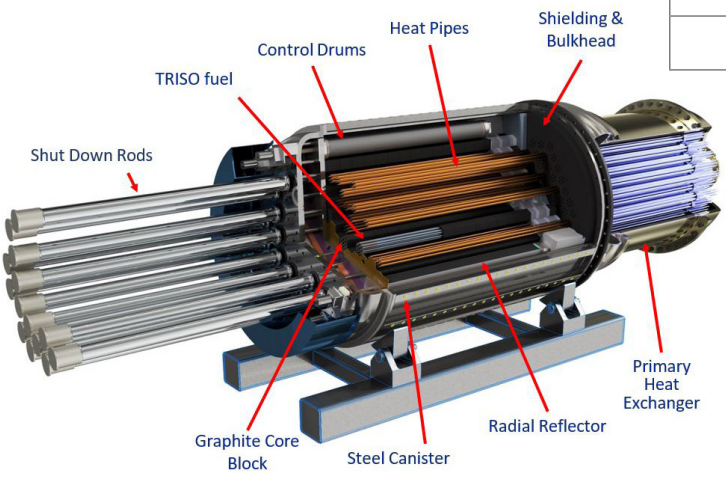
Key features:

- **5MWe and 6MWth at 150C**
- **8+ year fuel life**
- **Seamless pairing with existing grid**
- **Above ground installation with no water required for operation**
- **Compact, factory-built design allows for rapid and flexible installation**

eVinci Research Applications

1.0	**Neutron Activation Analysis (NAA)**
	1.1 Instrumental NAA (INAA)
	1.2 Prompt Gamma NAA (PGNAA)
2.0	**Radioisotope Production**
3.0	**Neutron Imaging**
4.0	**Testing**
	4.1 Instrument Testing and Calibration
	4.2 Neutron Irradiation
5.0	**High Temperature Research**
	5.1 Thermal Testing, Thermal Cycling, Thermal Aging
6.0	**Energy Applications and Demonstrations**
	6.1 Desalination Plants, Hydrogen Production, Vertical Farming
7.0	**Education and Training**
	7.1 Supporting Physics, Biology, Nuclear Engineering, Radiation Protection and Radiological Engineering programs
	7.2 Public Tours and Visits
	7.3 NPP Operator Training

eVinci Microreactor Advanced Nuclear Technology Design



Scan to take a virtual tour

www.westinghousenuclear.com

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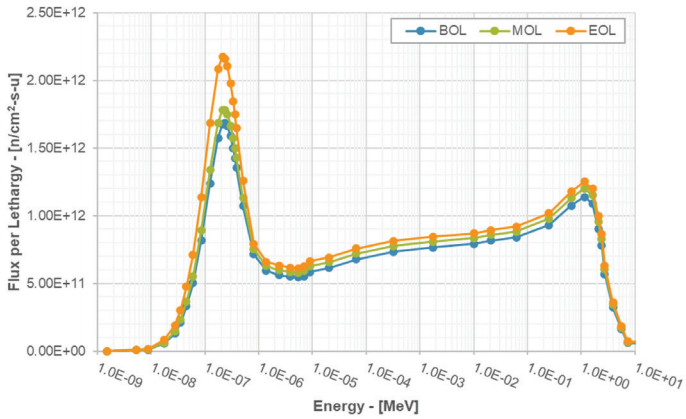
eVinci™ Microreactor

Offering Heat and Power Flexibility for your Research & Facility Operating Needs

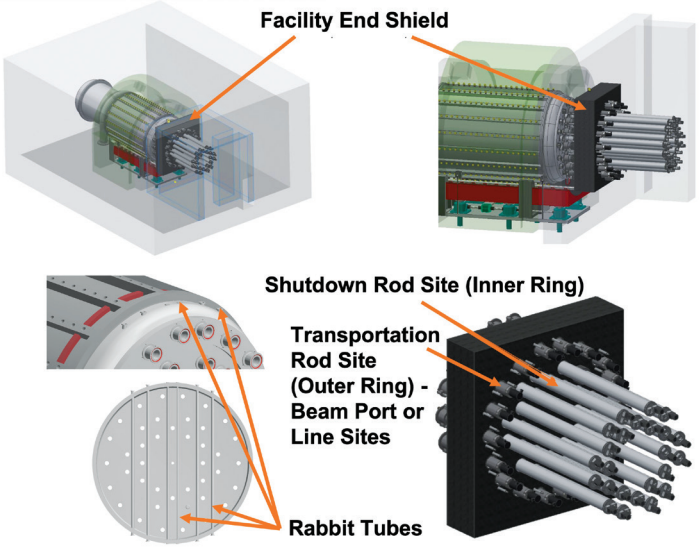
eVinci™ Neutron Flux Profile

The flux profile across the life of the eVinci reactor provides consistency and research flexibility



eVinci™ Flux profile across reactors life: BOL - beginning of life, MOL - middle of life, EOL - end of life

- **In-Core Flux** is on the order of **$1x10^{13}$ n/cm²**
- **Ex-Core Flux** is on the order of **$1x10^{10}$ to $1x10^{12}$ n/cm²** depending on location
- Current concept can accommodate **12 irradiation sites**, each ~5 cm in diameter
- Additional larger positions up to 12–15 cm in diameter can likely be accommodated with further core design changes



Plant Layout Concept

- **Large Irradiation needs:** Horizontal transportation safety rods will be removed and repurposed as beam ports or beam line sites
- **Small Irradiation needs:** Perpendicular vertical irradiation (**Rabbit Tubes**) tubes thread between shutdown rods on the reactor face can address different irradiation needs
- Shutdown rods remain in place for operational safety, along with supplemental custom shielding
- Due to shielding and safety design, room can be accessed for maintenance or upgrades to the facility
- Reactor can remain fully operational producing power and heat while enabling research reactor services

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