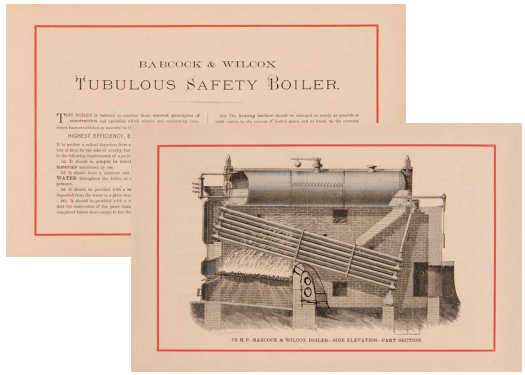
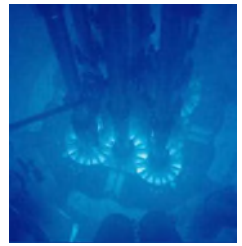
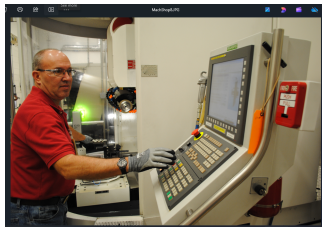
BWXT & Wyoming Opportunities in Advancing U.S. Energy and National Security

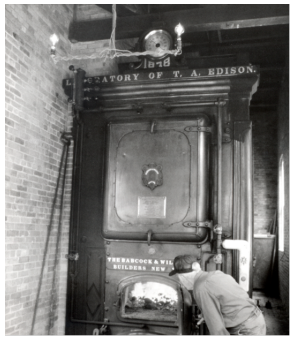
Joshua L. Parker, P.E., Sr. Dir. Advanced Nuclear Fuel

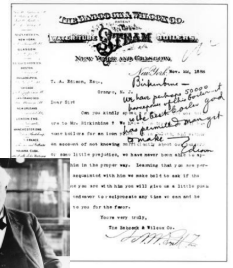
165-Year History of Innovation

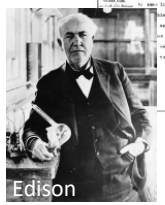


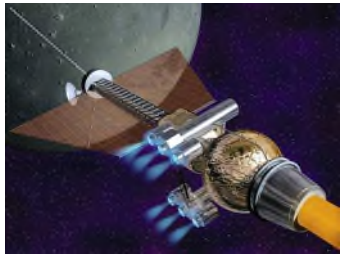


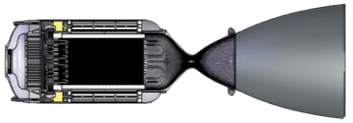


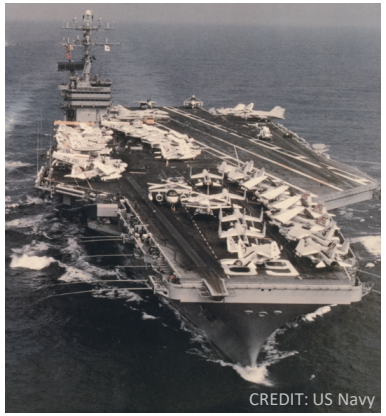


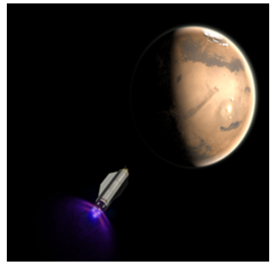












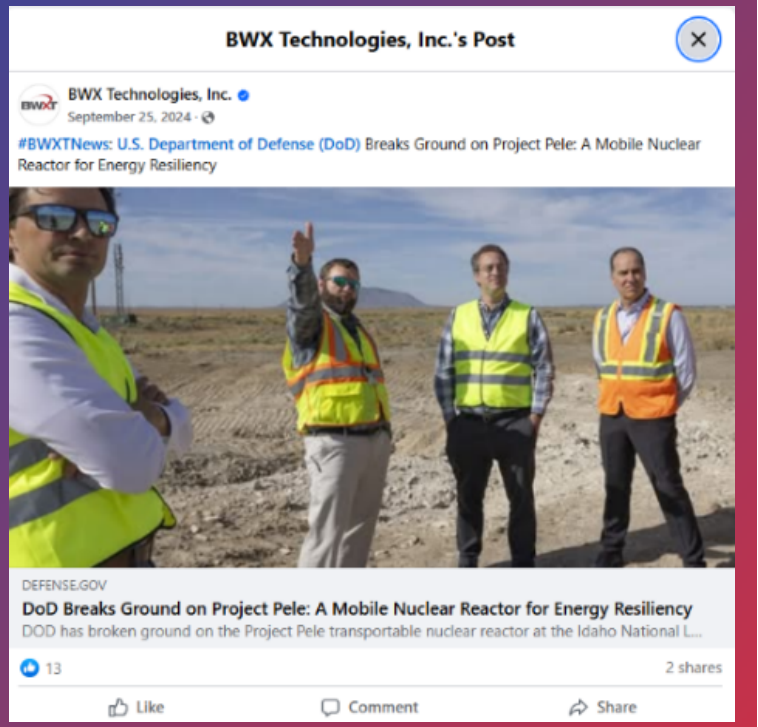
Boiler Era

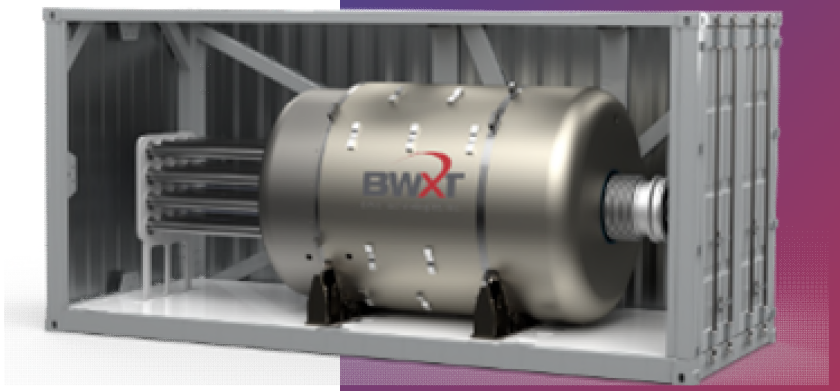
Nuclear Era

Project PELE

DOD Strategic Capabilities Office

- 1-5MW electrical power
- Removes unnecessary logistics tail
- Remote microgrid with direct connection
- Transportable via truck, train, plane



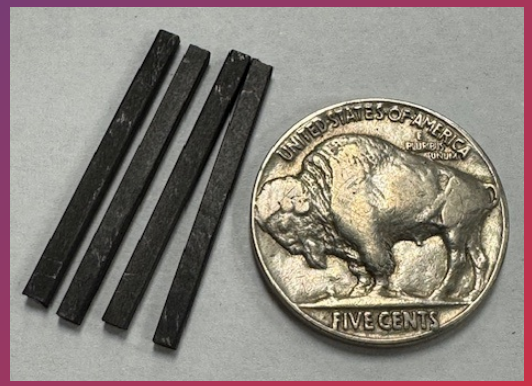


Ideal for ground stations, critical AI loads, remote outposts, recharge stations

BWXT Advanced Nuclear Reactor BANR

Resilient & reliable baseload energy

- 15MW electric or 50MW thermal
- Flexible power: electricity, heat, or co-generation
- On- and off-grid solution
- Consistent baseload no matter the conditions

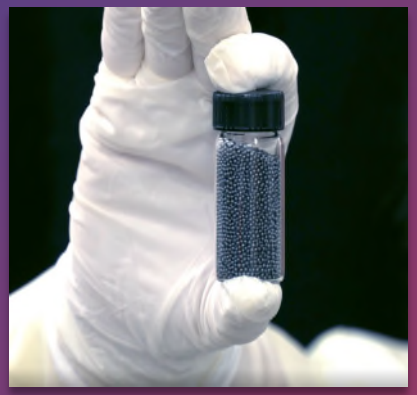


Ideal for mines, data centers and military installations

TRISO Nuclear Fuel

Most Robust Nuclear Fuel Today

- Ability to withstand high temperatures, resist corrosion
- Structure acts as its own containment system
- Ideal fuel for advanced reactor designs
- Comprised of uranium, carbon and oxygen



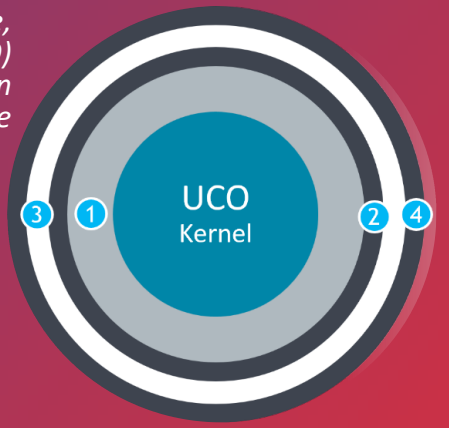
BWXT-made TRISO

Cross-section of a TRISO fuel compact, via ORNL

Newest BWXT space fuel facility

Preliminary Facility Aerial Renderings

Layers of TRISO particle, and the Uranium (UCO) kernel contained within the particle



Materials

- *Buffer*
- *Pyrolitic Carbon (PyC)*
- *Silicon Carbide (SiC)*

Fuel for Gen IV Nuclear Reactors

BWXT in Wyoming

May 2023

Wyoming Frontier Energy Summit 2023

February 2024

- End-user workshops
- Trona mines

June 2024

- WEA Phase II Award

July 2024

- TRISO

September 2023

BWXT Awarded Contract to Evaluate Microreactor Deployment for State of Wyoming

September 12, 2023

Effort Will Leverage U.S. Department of Energy Advanced Reactor Demonstration Program Achievements

LYNCHBURG, Va.--(BUSINESS WIRE)-- BWX Technologies, Inc. (NYSE: BWXT) today announced a two-phase, two-year contract with the Wyoming Energy Authority to assess the viability of deploying small-scale nuclear reactors in the state as a source of resilient and reliable energy to augment existing power generation resources.

BWXT Advanced Technologies LLC (BWXT) will execute the two-year contract in close consultation with the State of Wyoming and other Wyoming organizations and companies.

Under phase one of the contract, BWXT will work with Wyoming industries to define the requirements basis for nuclear applications of base heat and power needs of the trona mining operations within the state. BWXT will also perform engineering work to further the design of its integrated "BANR" microreactor system that can integrate into Wyoming's future power needs. This work will also include identifying areas where Wyoming's existing supply chain can demonstrate capabilities for reactor component manufacturing and support reactor deployment.

Based on the outcomes of the first phase of the contract, phase two of the contract will entail BWXT furthering the design basis of BANR to meet the specific needs of potential Wyoming end users. A demonstration of the capabilities of Wyoming manufacturers would also be performed to validate the supply chain activities completed in phase one.

Throughout both phases of the contract, BWXT will leverage existing U.S. Department of Energy Advanced Reactor Demonstration Program (ARDP) achievements through the company's collaboration with Idaho National Laboratory (INL) and other internal BWXT research and development investments. Through the ARDP, BWXT and DOE have been developing the BANR microreactor since 2021, and this effort in Wyoming represents an acceleration of BWXT's commercial nuclear development efforts.

"At the end of this project, the potential job-creation, manufacturing and industrial opportunities for nuclear power in Wyoming will be clearer, and we will have a roadmap for deploying microreactors in the state," said Joe Miller, BWXT Advanced Technologies LLC president. "When state and federal agencies work together with the private sector, we expect the economic and environmental benefits of nuclear innovations will be unlocked."

INL has been providing strategic and technical support to the State of Wyoming under a memorandum of understanding signed on May 4, 2022.

"BWXT and the State of Wyoming are leaders in forging innovative partnerships and innovative business frameworks that will help transform Wyoming's economy and help secure the nation's energy future," said Steven Aumeier, senior advisor for strategic programs at INL.

- BWXT awarded WEA Phase I
- Agreement with Tata Chemicals Soda Ash Partners LLC

December 2023

- First Supply Chain event in Gillette, WY

Supply Chain Events 2024

- Virtual webinar – Feb 2024
- Laramie – April 2024
- Casper – April 2024
- Rock Springs – June 2024
- Riverton – July 2024
- Cheyenne – Sept 2024
- Sheridan – Sept 2024

Educational Events 2024

- Gap assessments and support resources working with **Wyoming Manufacturing Works**
- College & high school education

BWXT in Wyoming

Research Agreements

- Department of Geology
- Department of Chemistry

BWXT-Approved Suppliers

Northland Industrial Specialties

Quality Assessment On-Site Reviews

Hardware Procurement

Market Demand

BWXT
47,021 followers
4mo •
#News #BWXTnews

Tata Chemicals North America
5,780 followers
4mo •
+ Follow

Tata Chemicals North America announces Letter of Intent (LOI) with BWXT to explore the deployment of eight BWXT Advanced Nuclear Reactors (BANR) in Wyoming

TATA CHEMICALS SODA ASH PARTNERS LLC

Tata Chemicals North America announces Letter of Intent (LOI) with BWXT to explore the deployment of eight BWXT Advanced Nuclear Reactors (BANR) in Wyoming

<Green River, Wyoming, 12 December 2024> Tata Chemicals North America announces its subsidiary, Tata Chemicals Soda Ash Partners LLC (TCSAP) has signed a letter of intent (LOI) with BWXT Advanced Technologies LLC (BWXT) to explore the deployment of up to eight nuclear microreactors. BWXT and TCSAP have been collaborating since September of 2023 on the feasibility of integrating BWXT's Advanced Nuclear Reactor (BANR) for electricity and industrial processing at TCSAP's

BWXT
BWX Technologies, Inc.