



BWXT

N U C L E A R
P O W E R E D

THE FUTURE OF SPACE

At **BWXT**, we're not just dreaming of distant worlds; we're building the technology to reach them with advanced nuclear reactors and fuel designed for deep space missions and lunar or Martian habitation. Backed by our two NRC Category 1 licenses and nearly seventy years of designing and delivering nuclear technologies, **BWXT** is innovating systems for in-space power and propulsion that are essential to the future of space exploration.

ON-ORBIT POWER

BWXT's on-orbit power systems provide between 10-250 kWe of continuous reliable energy across a variety of space applications. These on-orbit systems are crucial for high power energy generation and storage, as well as maintaining power needs during space missions.

Application:

- Orbital space stations, data centers, data storage, power distribution
- **Intelligence, surveillance, reconnaissance**

Flight Readiness: 2028 (Anticipated)

FISSION SURFACE POWER

BWXT's Fission Surface Power (FSP) system is a complete power plant designed to provide between 10-250 kWe of continuous and reliable power on the lunar or martian surface.

FSP is crucial to the nation's long-term goals of stimulating a lunar economy and supporting human operations on the Moon and Mars.

Application:

- **Lunar/Martian ISRU:** in-situ resource utilization, propellant generation, He-3 mining, remote prospecting, process heat
- **Human Space Exploration:** Site construction, surface habitat, rover sustainment

Flight Readiness: 2030 (Anticipated)



RADIOISOTOPE POWER

Radioisotope power systems (RPS) are crucial for powering spacecraft in environments such as deep space where solar power is insufficient. RPS converts the heat released from the radioactive decay of isotopes into electricity, allowing spacecraft to operate for decades without maintenance or refueling.

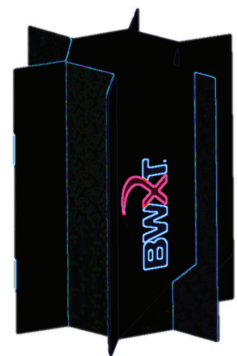
This technology has been instrumental in numerous NASA missions since the Apollo era, providing reliable power for scientific instruments and systems in the harshest of conditions.

Purpose: Provide passive and continuous heat (1-10 Wt) or power (1 We – 1kWe)

Application:

- Survive the night
- Deep space exploration
- GEO and cislunar space
- Resilient, radiation tolerant power generation

Flight Readiness: 2029 (Anticipated)



BWXT rendering

IS NUCLEAR POWERED.

NUCLEAR THERMAL PROPULSION

BWXT designs and builds Nuclear Thermal Propulsion (NTP) reactors that produce thrust by heating a propellant and expelling it through a nozzle. With higher efficiency and greater thrust than chemical propulsion, NTP provides agility and maneuverability, reducing travel time to Mars by up to 50%.

Working with NASA since 2017, BWXT proudly participated in the DARPA NTP program, in which we performed extensive materials and functional performance testing, stood up a full-scale fuel fabrication facility, and delivered an Engineering Design Unit for cold flow testing to Marshall Space Flight Center in early 2025.

Purpose: Exceeds Isp (375 – 900 s) of any storable or cryogenic chemical engine

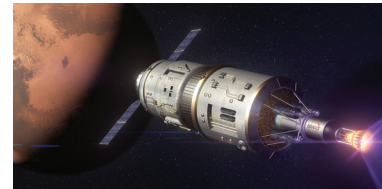
Application:

- Frequent cislunar transits
- Large crew or cargo to Moon or Mars
- Transit to distant locations
- Storable dV for rapid maneuverability for nearly unlimited endurance

Flight Readiness: 2028 (Anticipated)



NTP Engineering Development Unit (EDU) designed, built and delivered to Marshall Space Flight Center for cold flow testing



Flight to Mars (Rendering)

NUCLEAR ELECTRIC PROPULSION

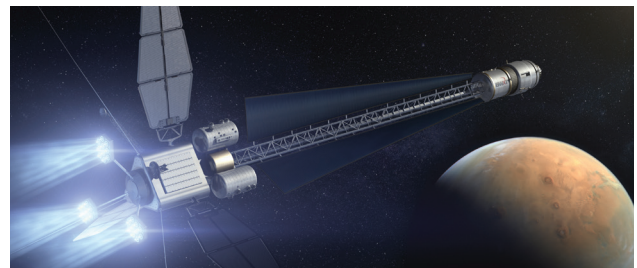
BWXT's nuclear power reactors can be utilized for nuclear electric propulsion (NEP). NEP is a technology that uses a nuclear reactor to power electric thrusters and generate high impulse.

NEP enables sustained planetary exploration by providing continuous power, independent of solar limitations. BWXT successfully completed fuel development and manufacturing for AFRL JETSON in 2025.

Application:

- **Transit:** Large cargo to Mars, maneuver without regret, cis-Martian cycling
- **Orbital maintenance:** station-keeping in GEO and cislunar space
- **Reconnaissance, Deterrence, Protection**

Flight Readiness: 2028 - 2032 (Anticipated)



Transport of cargo or crew (Rendering)

BWXT SPACE NUCLEAR HISTORY

1950's

Babcock and Wilcox explores nuclear energy applications, contributing to foundational concepts in NTP

1960's

Babcock and Wilcox contributes to the reactor design of the NASA SNAP program

1970's

Babcock and Wilcox provides reactor design and fuel fabrication services (Through 1990s)

2000's

BWXT provides reactor design and fuel manufacturing support for JIMO via Prometheus

2015

BWXT JV provided Operations, Maintenance, Test and Manufacturing Services at Stennis and Michoud Facilities (Through 2025)

2017

BWXT performs design, testing and nuclear fuel development for NTP systems via IRAD and NASA NTP projects (Through 2022)

2022

BWXT advances FSP conceptual design via IRAD and direct support of NASA FSP Phase 1 (Through present day)

2023 - Present

- BWXT optimizes NTP critical design through DARPA NTP and NASA NTP programs
- BWXT progresses NEP manufacturing readiness via IRAD and AFRL JETSON program
- > 3million² ft component & space nuclear manufacturing space across 6 sites
- Dedicated fuel fabrication & integration facility with Cat 1 NRC License

BWXT is building critical space technology with multiple fuel types and advanced nuclear reactors for on-orbit power, Moon and Mars energy infrastructure and habitation and deep space transportation for cargo and crewed missions.

Our space nuclear team has access to over 3 million² ft for nuclear manufacturing, assembly, integration and testing across six sites. Recent investments in equipment and facilities have significantly improved time-to-market with our ability to test and manufacture High Enriched Uranium (HEU) and High-Assay Low-Enriched Uranium (HALEU) based designs in our two NRC Category 1 licensed facilities.

BWXT is powering the future of space.

At BWX Technologies, Inc. (NYSE: BWXT), we are People Strong, Innovation Driven. A U.S.-based company with approximately 10,000 employees, BWXT is a Fortune 1000 and Defense News Top 100 manufacturing and engineering innovator that provides safe and effective nuclear solutions for global security, clean energy, nuclear medicine, space exploration and environmental restoration. BWXT owns and operates 17 manufacturing facilities globally, and its 14 strategic partnerships support the U.S. and Canadian governments at more than two dozen additional locations. For more information, visit www.bwxt.com. Follow us on LinkedIn, X, Facebook and Instagram.

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