



July 21, 2026 NRC Briefing Advanced Reactor Landscape – Fuel Development

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Domestic Deployments



- X-energy's subsidiary, TRISO-X, is expected to be **North America's first commercial advanced nuclear fuel fabrication facility**.
- The TX-1 facility will have sufficient production capacity to support the first 11 Xe-100 reactors at steady state operations.

TRISO·X



- Dow and X-energy will construct **the first grid-scale advanced nuclear reactor to serve an industrial site** in North America, funded through a 50/50 partnership with the U.S. Department of Energy.



- In 2024, Amazon took an equity position in X-energy and announced the option to bring more than 5 GWe of new Xe-100 projects online across the US by 2039.
- This 960 MWe project is **the first deployment under the 5 GWe total potential target**.



International Deployments

In September 2025, X-energy and Centrica announced an ~6 GWe deployment target, with the first site in Hartlepool, England, expected online in the mid-2030s.

- The agreement represents the first stage in a new trans-Atlantic alliance anticipated to mobilize at least \$54B in local economic value.
- Centrica will provide initial project capital for development.

Development Timeline

- 1 **September 2025:** X-energy and Centrica sign JDA; President Trump & Prime Minister Starmer announce as part of US-UK Tech Prosperity Deal.
- 2 **Mid-2030s:** Subject to regulatory approval, the first electricity generation would be expected in the mid-2030s.



TRISO Fuel

The U.S. Department of Energy describes TRISO fuel as “the most robust nuclear fuel on Earth,” which is why X-energy has invested in establishing it as the fuel of the future.

- **Tri-structural isotropic (TRISO) fuel has** a 60+ year demonstrated track record through prototype and full-scale reactors.
- **DOE has spent over \$500mm** developing, irradiating, and testing TRISO fuel, describing TRISO as melt-proof and proliferation resistant.
- **TRISO fuel retains waste and fission products** during all foreseeable adverse conditions, even worst-case accidents and natural disasters.

TRISO-X's Fuel Fabrication Process



TRISO-X: North America's First Commercial HALEU Fuel Fabrication Facility



TRISO·X

X-energy is building its first-of-a-kind TRISO-X Fuel Facility (TX-1) in Oak Ridge, Tennessee, through the U.S. Department of Energy's Advanced Reactor Demonstration Program.

- TX-1 construction began in October 2024.
- TX-1 is expected to begin operations in the first half of 2028 and will initially support 11 Xe-100 reactors, including Project Long Mott with Dow.
- TRISO-X received the first-ever Part 70 HALEU Fuel Fabrication License from the NRC in February 2026.







TX-1

TX-2

TRISO-X's Oak Ridge-based Next Generation Nuclear Fuel Fabrication Campus

TRISO-X's operations will create approximately 1,700 new jobs by 2030.



TX-1

5 MTU

~ 232 OPERATORS

~ 470 STAFF



TX-2

20 MTU

~ 1,000 OPERATORS

~ 1,140 STAFF



TX-L

R&D SUPPORT

~ 25 STAFF



Fuel Research and Development

Fuel Fabrication Pilot Facility



TRISO-X Fuel Fabrication Pilot Facility at Oak Ridge National Laboratory

- **Operational since 2016**
- Currently producing small batch quantities of fuel products
- Lease agreement is finite and equipment will need to be relocated from Oak Ridge National Laboratory



TRISO-X Laboratory (TX-L)



- Will serve as the 'laboratory' for future TRISO-X fuel development
 - Small batch manufacturing
 - Training
 - Continued R&D
- Proximity to fuel fabrication facilities TX-1 and TX-2 provides iterative learning opportunities
- Planning to use natural uranium under TDEC license