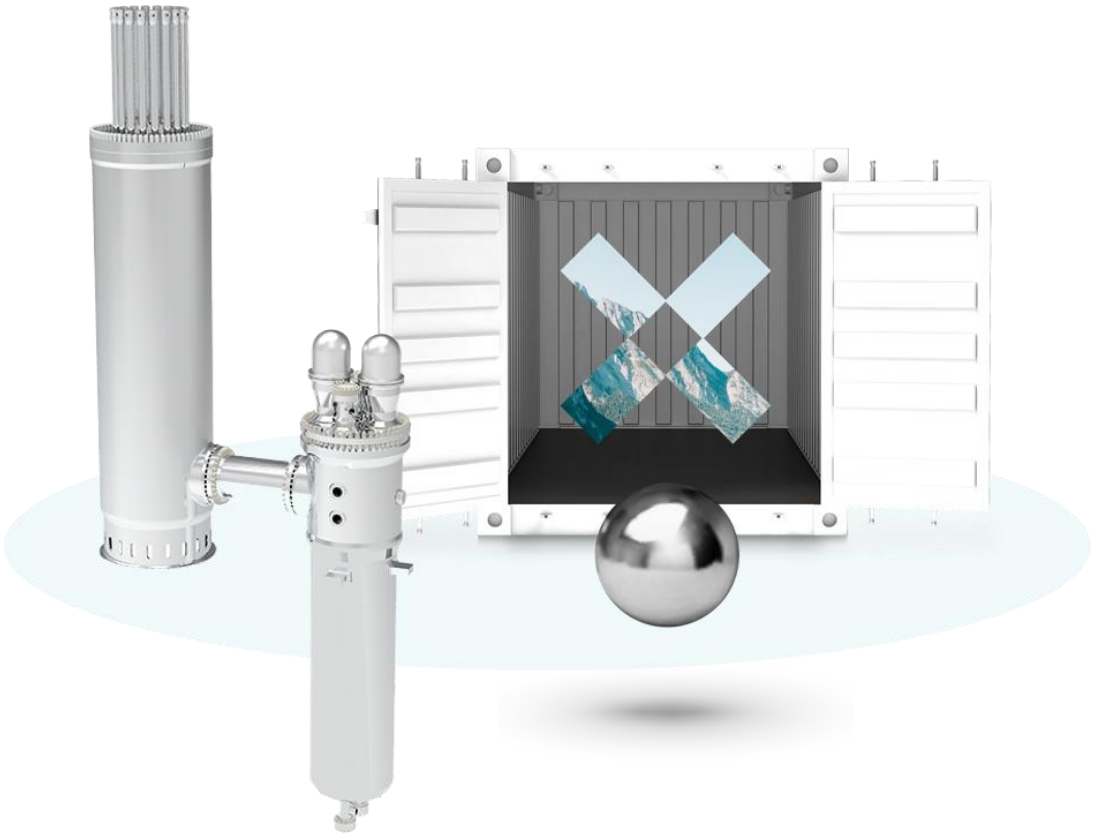
Introduction

October 2022

We design & build reactors and the fuel that powers them



Reactor: Xe-100

We’re focused on Gen-IV High-Temperature Gas-cooled Reactors (HTGR) as the technology of choice, with advantages in sustainability, economics, reliability and safety.

Reactor: Xe-Mobile

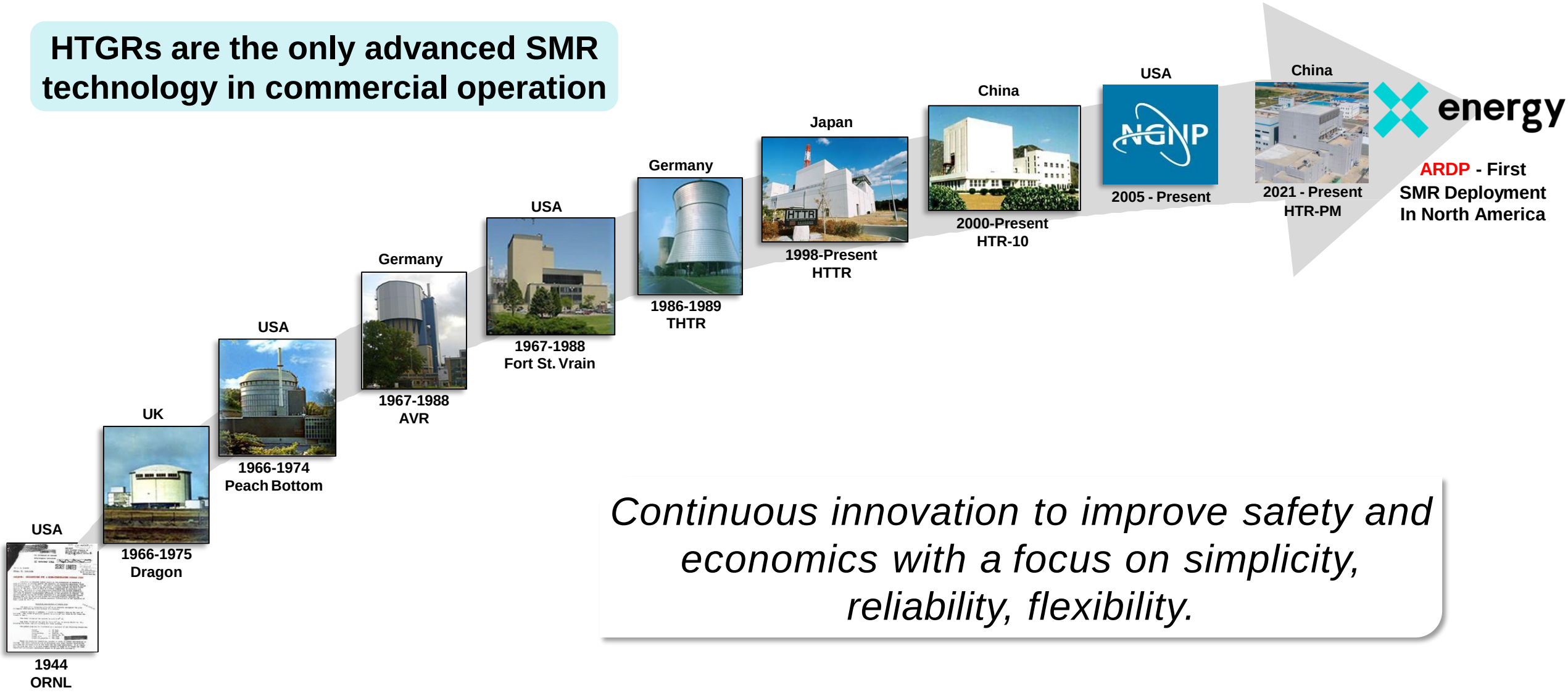
To address the need for ground, sea and air transportable small power production. We’ve developed reactor concepts with potential civilian government, remote community and critical infrastructure applications.

Fuel: TRISO-X

Our reactors use tri-structural isotropic (TRISO) particle fuel, developed and improved over 60 years. We manufacture our own proprietary version (TRISO-X) to ensure supply and quality control.

We've Pinpointed the Technology & Revolutionized its Approach

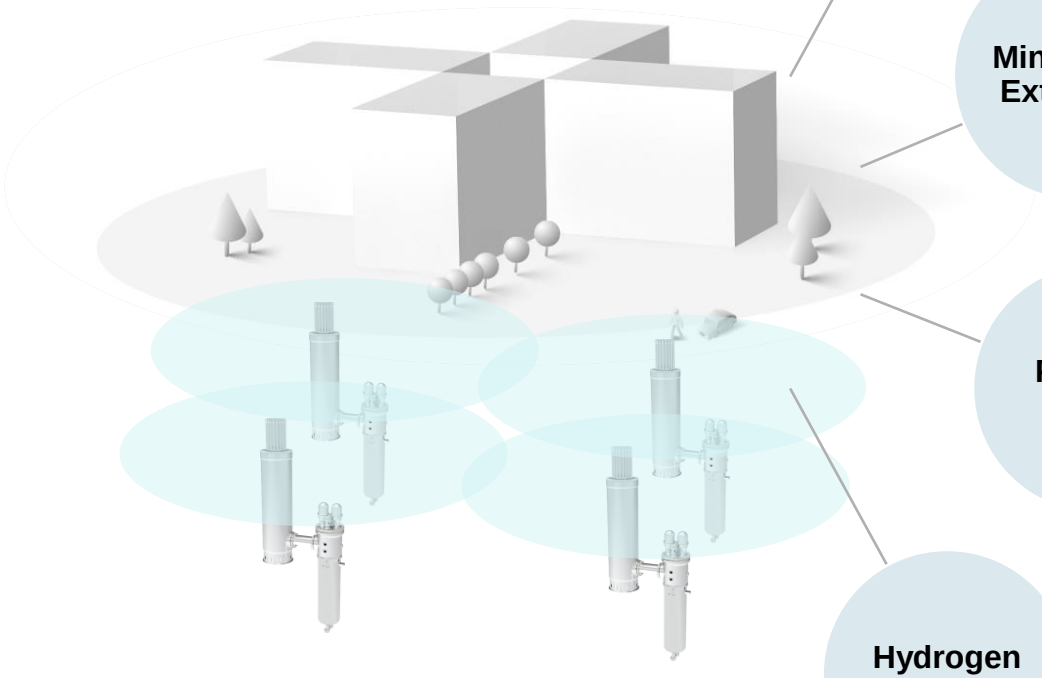
HTGRs are the only advanced SMR technology in commercial operation



Continuous innovation to improve safety and economics with a focus on simplicity, reliability, flexibility.

A Versatile Clean Energy Solution

We want to be a key partner in moving to an innovative and zero-emissions future



Electricity Generation

- Reliable electricity for grid
- Integrates with Renewables
- Facilitates transition to electric vehicles
- Power for remote communities

Mining / Oil Extraction

- Process heat and steam (565°C) for SAGD
- Steam & electricity for mining operations

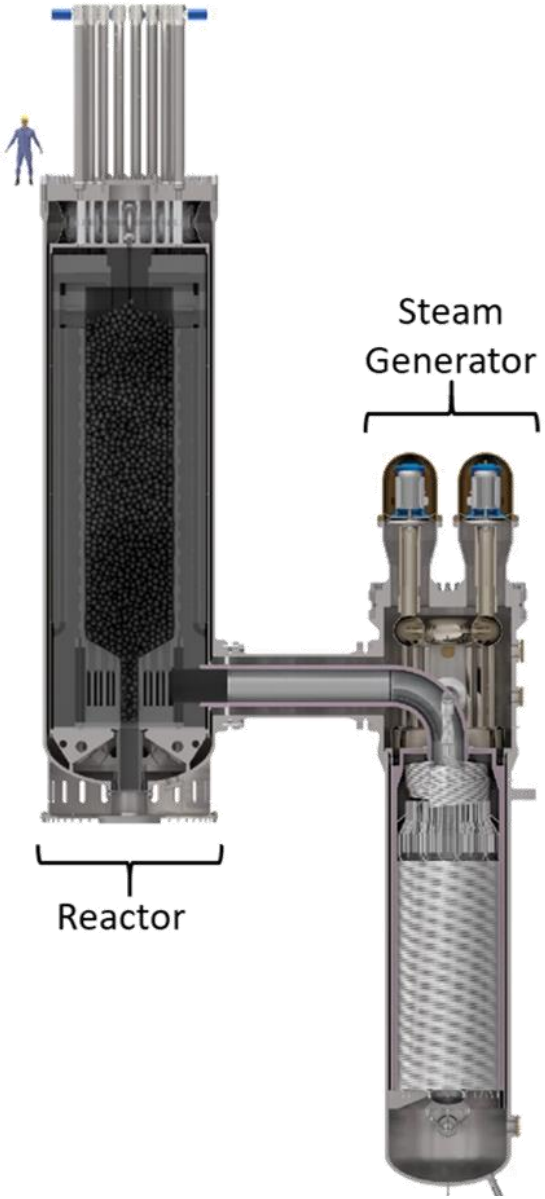
Process Heat

- Chemical processing and heavy industry
- Co-generation
- Heat for sustainable food production
- Desalination

Hydrogen Production

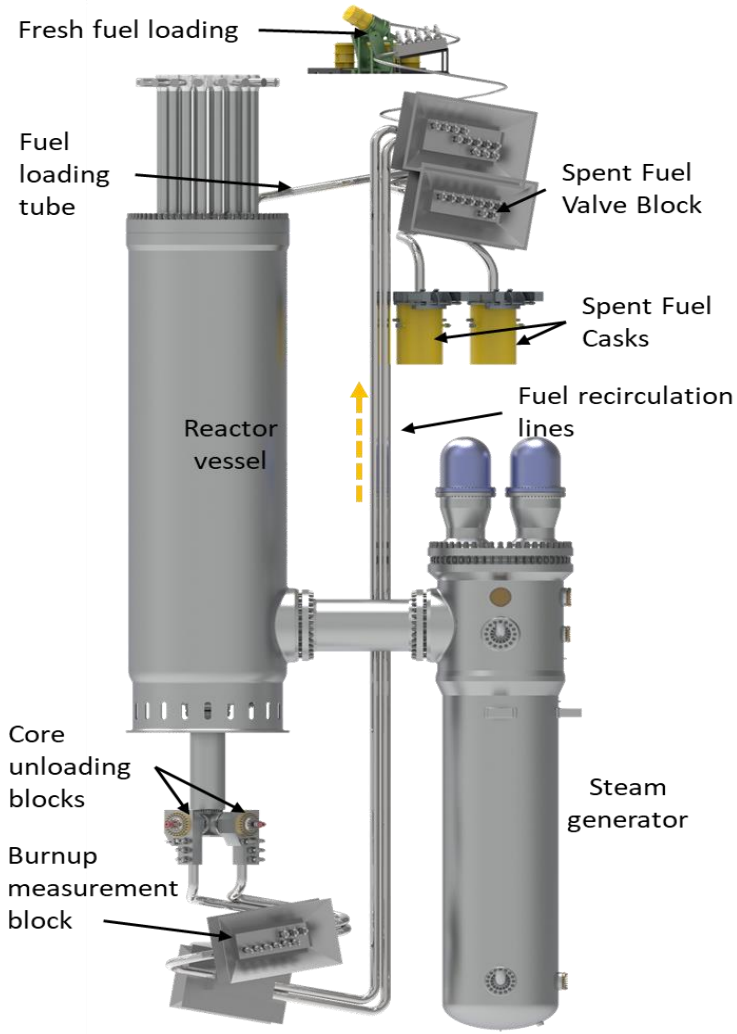
- Production of carbon-free hydrogen
- Enabling the hydrogen economy for transportation, diesel replacement (e.g., agriculture equipment), etc.

Simple Design



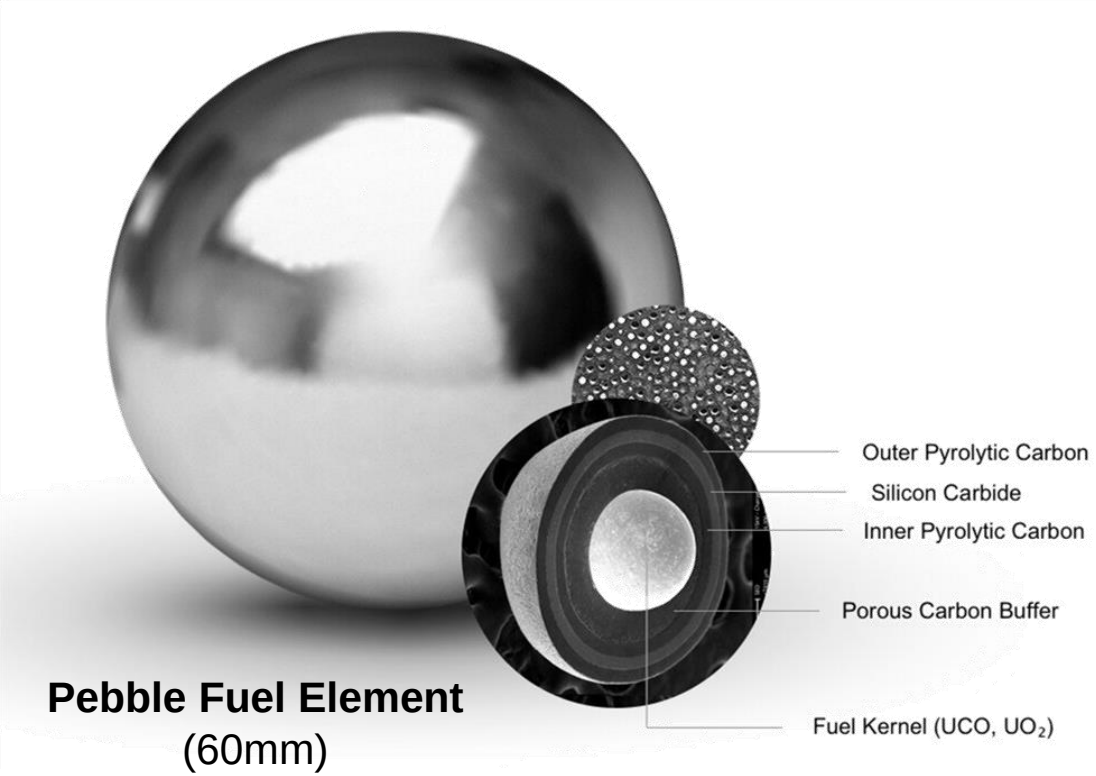
Key Technical Specifications

- High Temperature Gas-Cooled Reactor (HTGR)
- 200 MWt Pebble Bed Reactor
- 80 MWe reactor (320 MWe 4-pack)
- 15.5% enriched HALEU
- 60-year design life
- Helical Coil Steam Generator
- Super-heated Steam at 565˚C/16.5 MPa
- Multi pass fuel cycle (average 6 passes, 3.5 yrs)
- Continuous online re-fueling
- Burnup up to ~ 170 000 MWd/t
- Ramp rate of 5% per minute, up or down, between 40% - 100% power



TRISO-X Fuel

Physics, not mechanical systems, ensures 100% walk-away safety



Pebble Fuel Element
(60mm)

TRISO Element
(~1mm)

"The most robust nuclear fuel on Earth"
- U.S. Department of Energy

- We manufacture our own proprietary TRISO encapsulated fuel (TRISO-X) to ensure supply and quality control.
- Leveraging more than US$300M of DOE investment and research.
- 40+ years of prototype and full-scale demonstration reactors.

Why is this important?

- Inherent safety
  - ✓ The fuel cannot melt
  - ✓ Proliferation-resistant
  - ✓ Zero releases during waste storage

Mockup Plant Control Room - 4 Reactor Modules

TRISO-X Fuel Fabrication

TRISO-X Pilot Facility inside Oak Ridge National Lab, public/private partnership with X-energy

- ✓ **April 2022:** TRISO-X confirms Oak Ridge Horizon Center for first commercial Advanced Reactor Fuel Fabrication Facility in North America. *Receives outstanding community support.*
- ✓ TRISO-X Submits first ever HALEU-based Fuel Fabrication Facility License Application to the US-NRC.
- ✓ Bringing game changing TRISO fuel to market, scheduled for commissioning and start-up as early as 2025
- ✓ >400 local jobs and attract an investment of ~$300M, building off investments to date of over $75M.

Partnerships

- The DOE selected X-energy as part of their Advanced Reactor Demonstration Program (ARDP) to speed the transition of next generation nuclear reactors.
- X-energy was also selected to deliver a commercial plant and TRISO-X fuel fabrication facility.
- The program provides 50% cost share on all costs to deliver the first plant.

- X-energy and Dow Chemical announced their intent to collaborate on using Xe-100 technology to provide process heat and power by 2030.

- X-energy are supporting OPG, a Canadian nuclear operator to pave the way for Xe-100 deployments for industrial applications.
- An Xe-100 in Ontario will be a significant SMR deployment in Canada.

Commercial Solutions

Working with clients and partners to develop the right solution for each project

- Flexibility in commercial models
- Considerations for Build-Own-Operate with partner(s)
- Strategic partnerships (design development, construction, operations)
- Client and project dependent

Questions

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