



# Regulatory Preparedness for Advanced Reactors – ARDP Perspective

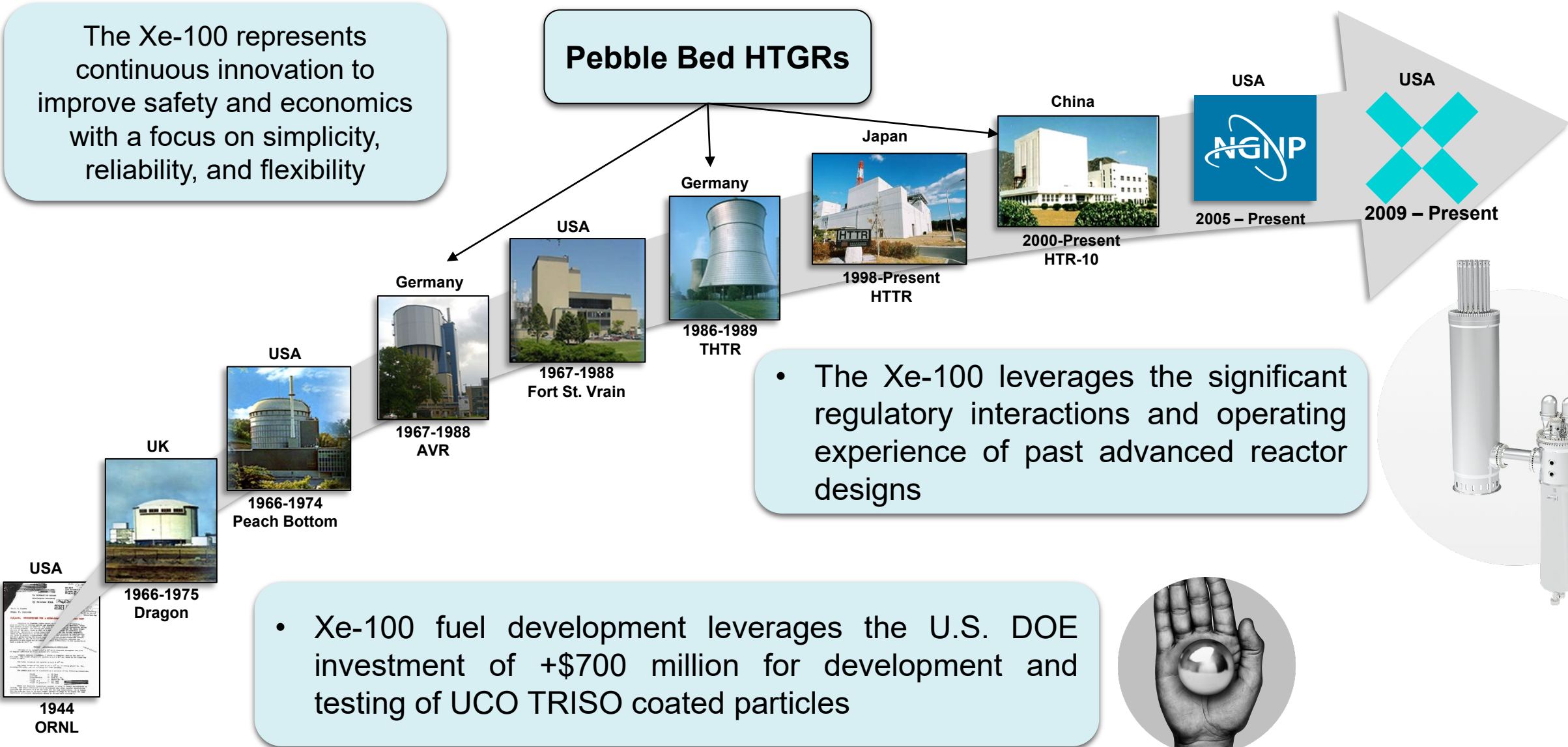
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April 13, 2021

The Xe-100 represents continuous innovation to improve safety and economics with a focus on simplicity, reliability, and flexibility

## Pebble Bed HTGRs



- The Xe-100 leverages the significant regulatory interactions and operating experience of past advanced reactor designs

- Xe-100 fuel development leverages the U.S. DOE investment of +\$700 million for development and testing of UCO TRISO coated particles



*Resolutions to all these challenges are in place and available for demonstration.*

- Mechanistic Source Term
- Functional Containment (Retention of Fission Products)
- Licensing Basis Event Selection
- Risk-informed Classification of Structures, Systems, and Components
- Performance-based Emergency Planning and Preparedness

*Challenges for efficient and timely advanced reactor deployment.*

- Alignment of expectations for PRA development through design and licensing
- Security by Design
- HALEU supply chain readiness

## *Fuel Fabrication and Production*

- X-energy's TRISO-X commercial-scale fabrication capability is producing high-quality coated-particle fuel today.

## *Fuel Transportation*

- Versa-Pak 55 containers ready for finished-product transport.

## *Fuel Qualification & Performance*

- The Xe-100 benefits from the DOE Advanced Gas Reactor Fuel R&D program activities like the 2019 EPRI-sponsored TRISO fuel performance topical report & 2020 NRC safety evaluation.

## *High Temperature Materials*

- Final endorsement of ASME BPVC Section III, Division 5 standard for High Temperature Reactors will provide confidence in associated design and analysis results.



**99.999% of Fission products Retained**  
These  $\approx$  1mm particles retain 99.999% of the fission products

