



ARC-100 Advanced Reactor

Meeting the Near-term Deployment Challenge

February 2016

The ARC-100 SMR

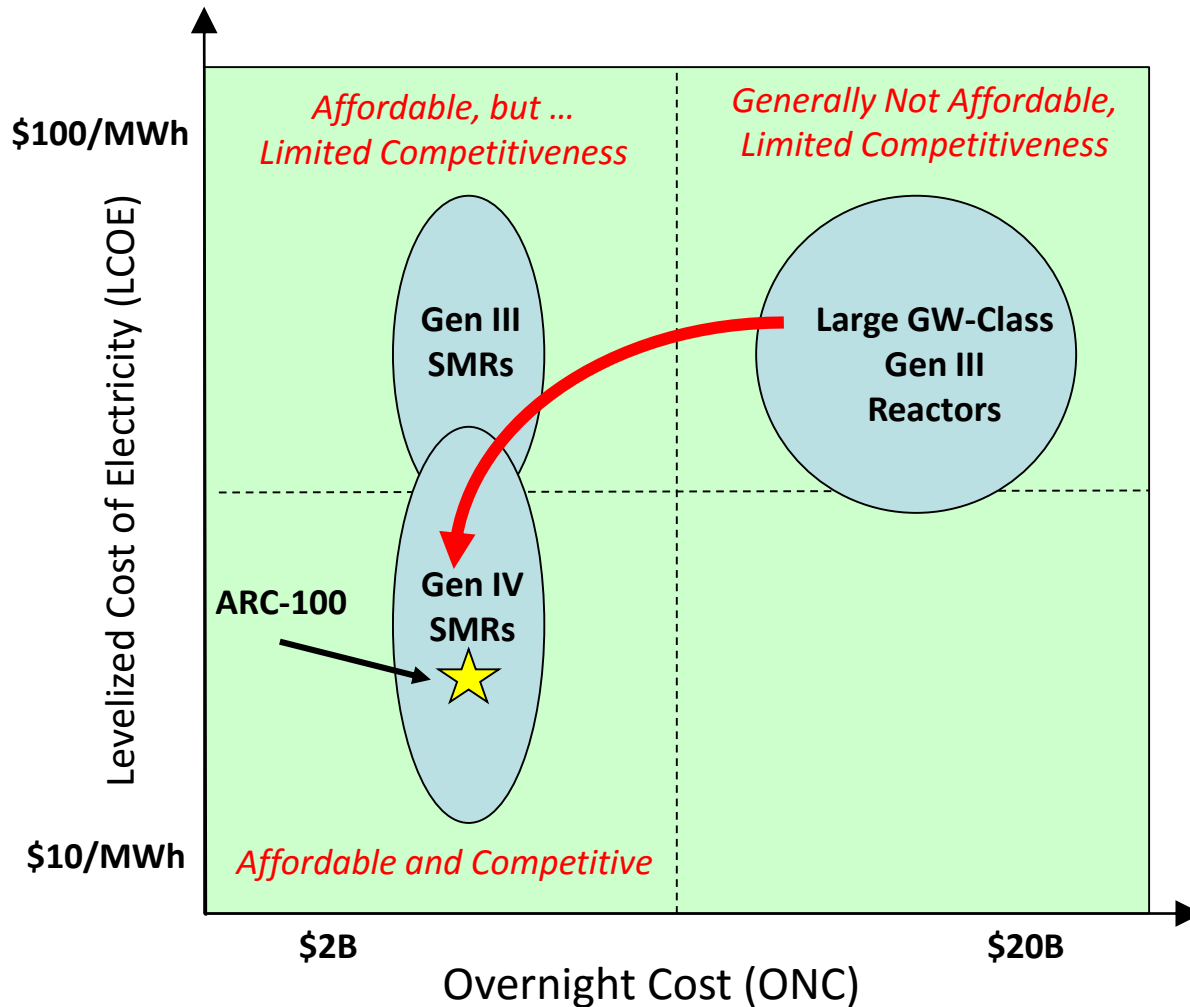
What is it?

- 100 MWe Sodium-cooled Fast Reactor (SFR)
- Extrapolation of 20 MWe Argonne EBR-II
- 20-yr fuel cycle, using U-Zr metallic fuel
- Inherent “walk-away” safety performance

Why is it relevant?

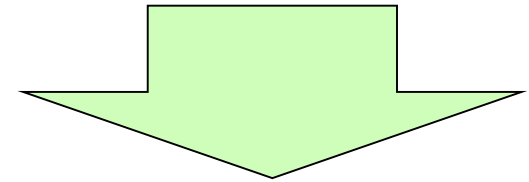
1. Competitive: Breaks LCOE barrier
2. Proven: 30 years of prototype operation
3. Secure: Addresses fuel and proliferation





Simple = Competitive

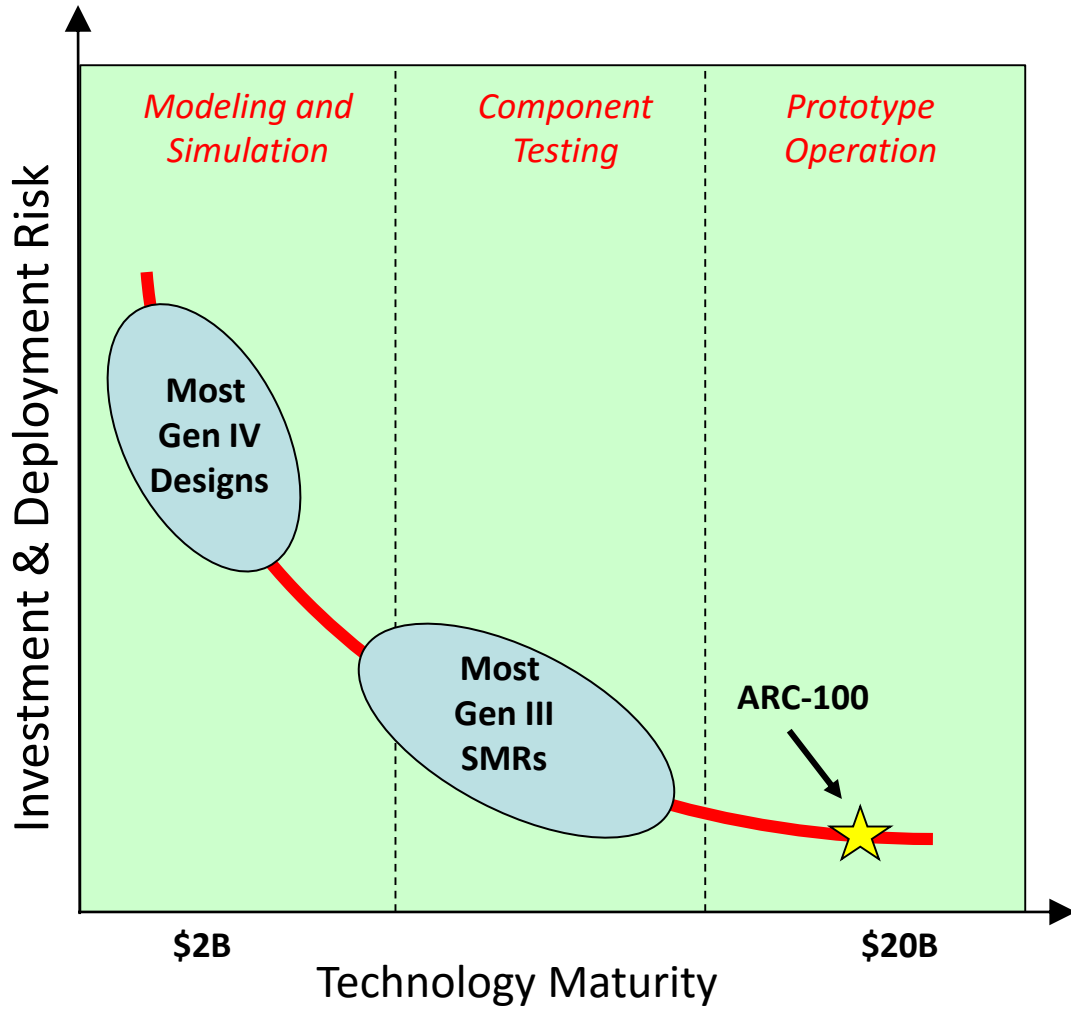
- ~50% of ONC in NI
- # safety-systems = cost



ARC-100: "Back to Basics"

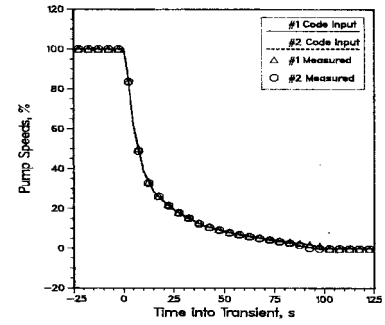
- Atmospheric reactor system
- No ECCS
- Fully passive DHRS
- ATWS self-protection

ARC-100: Fastest path, Lowest risk path to deployment?

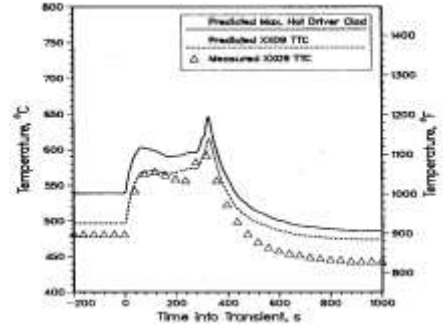


45 transient tests conducted without damage to fuel or core structures:

Pump coast-down without scram...

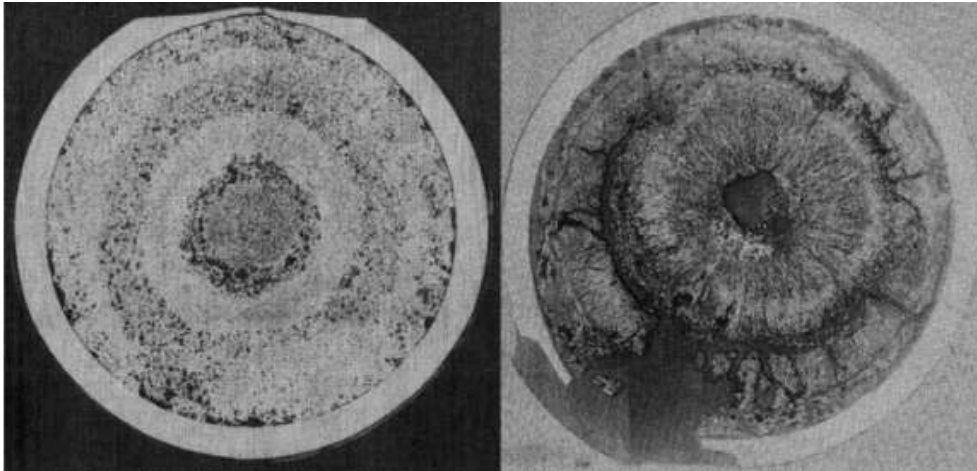


... causes transient temperature rise



Robust Fuel Performance

- Data base bounds normal ops and accidents
- Metallic fuel resolves challenges with oxides
- No fuel-coolant interaction issues



Secure Core Design

- 20-yr fuel cycle, 17% enrichment
- Very high burnup
- “Semi-closed” core design
- No on-site refuel equipment
- No separation of pure Pu
- Opportunity to burn LWR fuel

Demonstrated ability to address LWR fuel cycle challenges