Emerging Market Opportunities Advanced Reactors

Global Nuclear Energy Markets

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Reimagining Nuclear Energy

X-energy is reimagining nuclear's role in solving tomorrow's energy challenges

- X-energy was founded in 2009 to address the world's most serious energy challenges and make a lasting contribution to clean energy technology in the United States and around the world.

Dr. Kam Ghaffarian
Founder & CEO

"I began X-energy because the world needs energy solutions that are clean, safe, secure, and affordable. With so much at stake, we cannot continue down the same path."

-Dr. Kam Ghaffarian, Founder & CEO

Market Opportunities for Advanced Reactors

Utilities

- Compact, ultra-safe capacity that will replace retiring intermediate-sized (150 MWe-450 MWe) power plants to meet environmental mandates

Government

- Interest in power-purchase agreements with utilities for on-base, grid independent power aligned with emissions reduction goals

Industrial / Commercial Clients

- Able to support new industrial and commercial applications (e.g., petrochemicals, agriculture, desalination) for the first time

Global Competition is Increasing

China's HTR-PM plant is being constructed <u>today</u> to begin operations in 2017

Pressure Vessel Delivery & Installation

HTR-PM Construction Site

"This technology is going to be on the world market within the next five years," said Zhang Zuoyi, director of the Institute of Nuclear and New Energy Technology, Technology Review reported. *"We are developing these reactors to belong to the world."*

Strategic Roadmap for Advanced Reactors

Technology

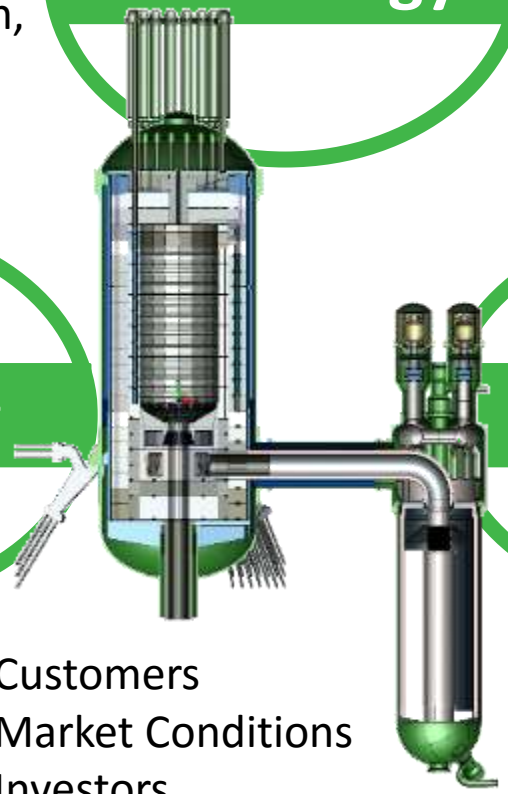
- Technology Maturity
- Critical Milestones Design, Development
- Analysis
- Test/Demos

Licensing

- Safety

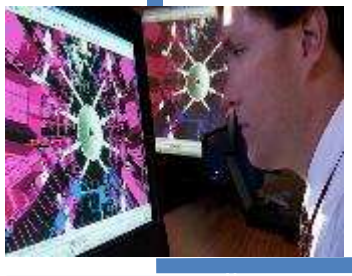
Economics

- Long lead items
- Manufacturing
- Construction
- Operations



- Customers
- Market Conditions
- Investors
- Site Selection

Advance Nuclear Reactors Development to Commercialization Cycle



<$10 M

$10s M

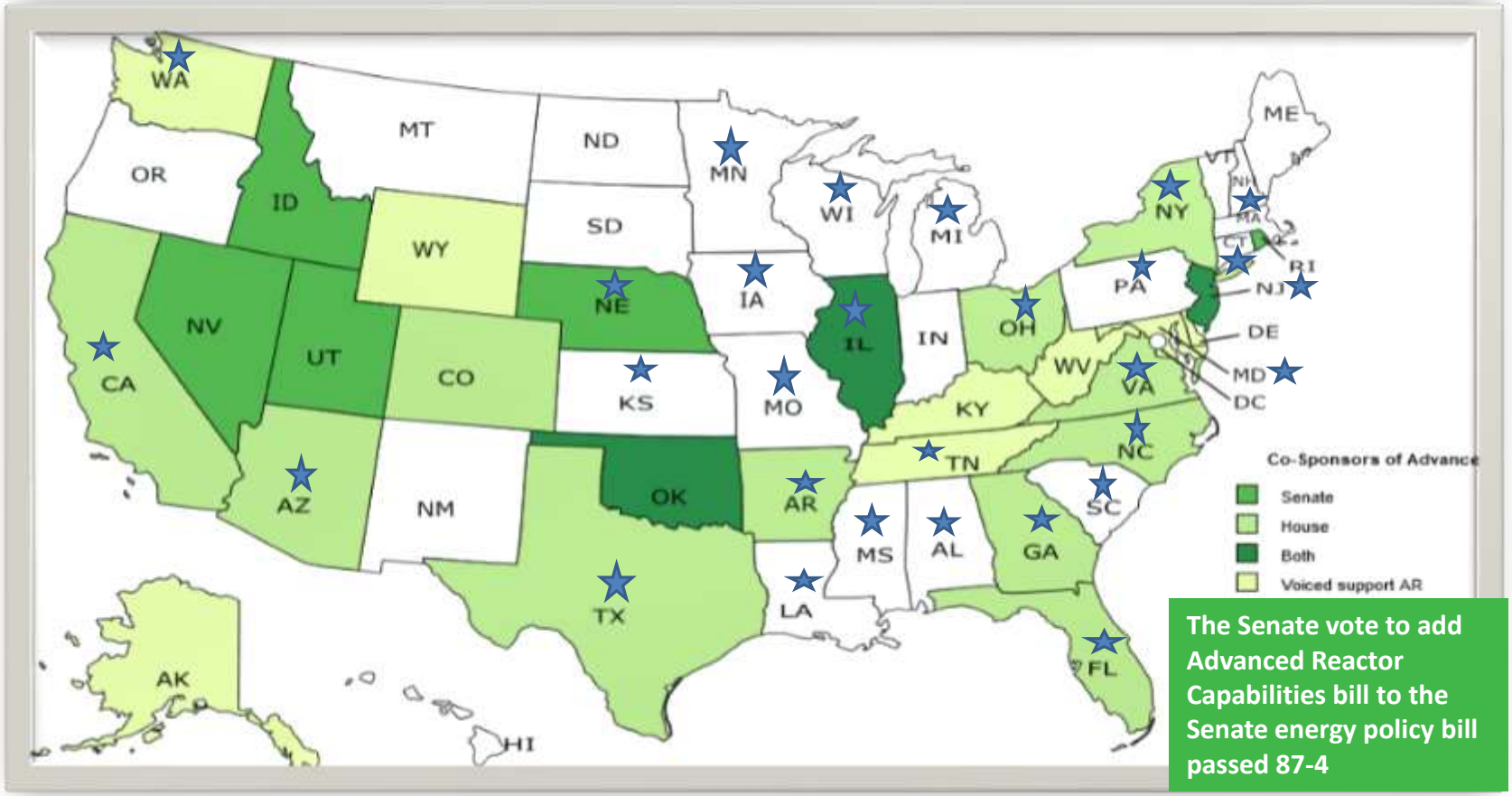
$100s – $700 M

$1-3 B

NRC DC/COLA License

Technical Maturity	• Initial Concept • Early testing • Technology validation	• Basic Design • Technology Demonstrations • White Papers/Topical Reports • Pre-Application mtg w NRC	• Development of DC Application • Site Selection • Long lead • Fuel development	• Prototype Reactor (full scale) - FOAK	• Reactor Operations
Financial Tools-Govt/Industry	Government Grants Lab expertise	Government Grants (Cost Share)		DOE Loan Guarantee Investment Tax Credit	Production Tax Credits
Legislation	NICMA		NEIMA NEIMA		
DOE Programs	Government Grants Lab Capabilities/expertise GAIN		SMR Technical Licensing (NuScale model)		

Congressional Support for Advanced Reactors Grows



The Senate vote to add Advanced Reactor Capabilities bill to the Senate energy policy bill passed 87-4

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