Addressing Advanced Reactor Technical Issues

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Advanced Reactor Industry Challenges

• Over 40 Advanced Reactor Vendors with 1.6 Billion in Private Capital
  – However, most of the vendors are start-ups
• Many technical hurdles are common to these vendors
• Government Agencies and National Labs are looking to support the industry but industry needs to provide guidance
• There is a new sense of urgency needed to accelerate the development of
What’s Needed

• A Vendor Neutral, Industry Driven Approach
• Determine common needs from AR Vendors
• Understand Current State of Technology
• Speaks with one voice to represent the Industry
• Understand the need for Urgency and Agility

“A ‘Builders’ Group”
Advanced Reactor Technology Council

• Advanced Reactor Technology Council (ARTC)
• Formed under the auspices of the United States Nuclear Infrastructure Council (NIC) and its AR Task Force
  – neutral
  – pro-industry
• The organization Members
  – advanced reactor vendors
  – Utilities (Future Owners)
Advanced Reactor Technology Council

- Responsive to the sense of **urgency** needed by the AR designers
- Provide **smart, agile** development that other organizations may not match
- A single entity representing the common technical needs of the Advanced Reactor industry
  - Reduce the cost of these technologies for individual vendors
  - Increasing the speed of development.

**Global Scope**
- Work closely with all responsible government
Relationship with the Industry

Advanced Reactor Technology Council (Designers, Future Owners)

NGOs

US NIC

Gov Agencies and Labs

Academic

AR Service providers
Technology Challenges

• Focus on specific short term and long term industry needs

• Modeling and Simulation
• Materials
• Fuel
• ...
Modeling and Simulation

- Need modern validated modeling tools to support new non-light water reactors:
  - Design
  - Validation
  - Evaluation (Support Regulator Process)

- Cost estimates for development and validation estimated between $50M and $100M US

- There is commonality in the specification of such tools between AR designs

- Existing tools may be brought into a modern context
  - Improved architectures
  - Coupling of codes to broaden scope
  - Modern user interfaces to facilitate practical use

- Over the 40 years of light water reactor design and deployment, many M&S tools were developed and Validated
Modeling and Simulation

Lets get started

• Initial Phase
  • Industry Needs Analysis
  • Current Technology Inventory (labs, etc.)
  • Requirements Specification and Research Results*
  • High Level Design, ROM Estimate and Project Plan

* Real Deliverables
Call for Members

• Need to Drive Solutions to Common Technical Issues
• Pooling Resources and Agile Approach will Speed Development
• A Unified Voice with the Industry's Sense of Urgency