



U.S. DEPARTMENT OF  
**ENERGY**

# Small Modular Reactor Update

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DOE SR



*SRS Citizens Advisory Board  
Strategic and Legacy Management Committee Meeting  
June 5, 2012*

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**enterprise**·srs

# Purpose

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- Provide an update on the Small Modular Reactor (SMR) component of the Enterprise•SRS strategic plan
- Fulfill Strategic and Legacy Management Committee work plan requirement to provide strategic plan updates



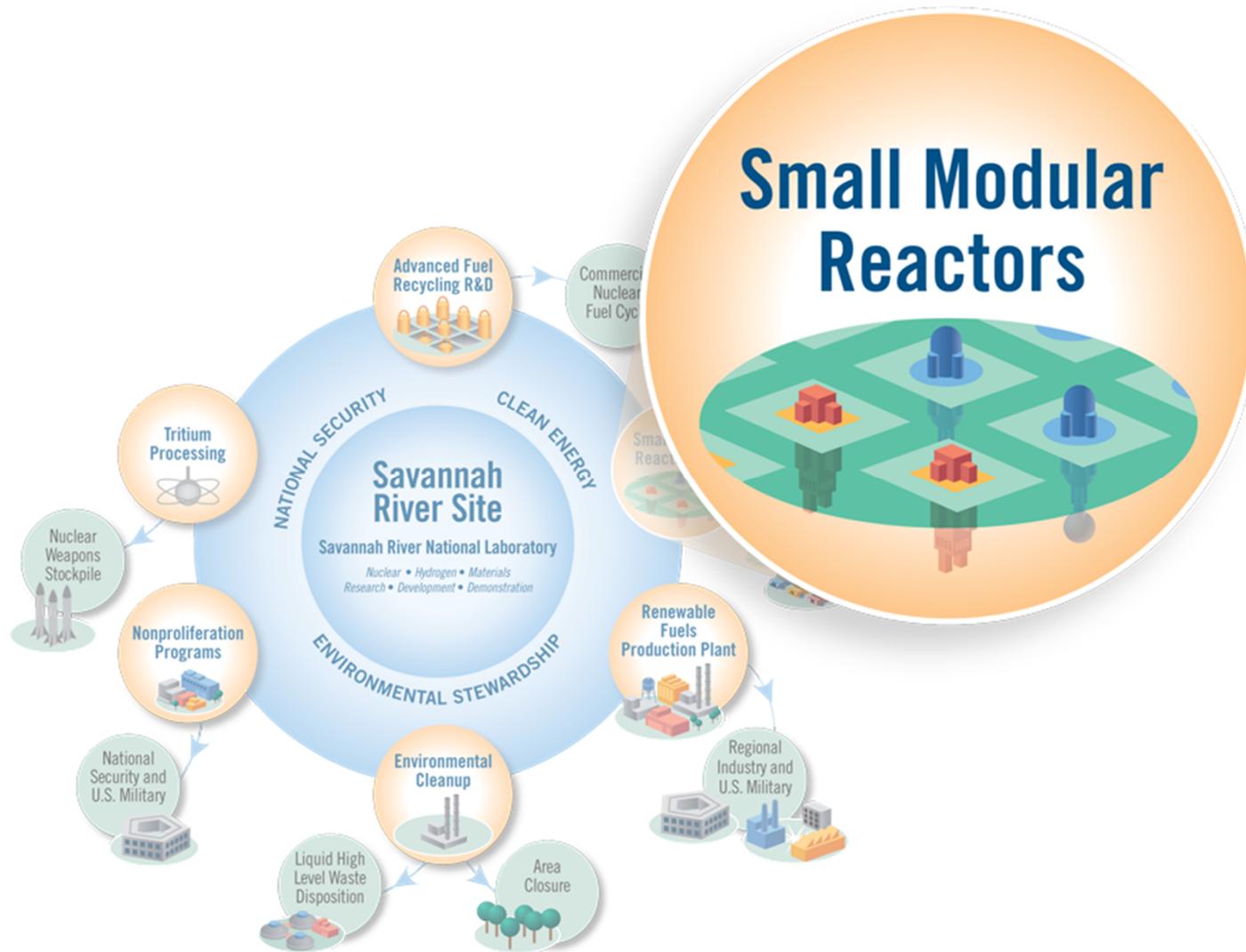
# What Are Small Modular Reactors?

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- Nuclear power plants that are smaller in size (300 megawatts or less) than current generation reactors
- Compact, factory-fabricated and easily transported by truck or rail to a nuclear power site
- Can be grouped together to form a larger nuclear power plant; additional modules can be added incrementally as demand for energy increases
- Can operate from two to 10 years without refueling
- Used for electricity generation and industrial process heat applications
- SMRs provide simplicity of design, enhanced safety features, and increased economy, quality and flexibility over conventional nuclear power plants.

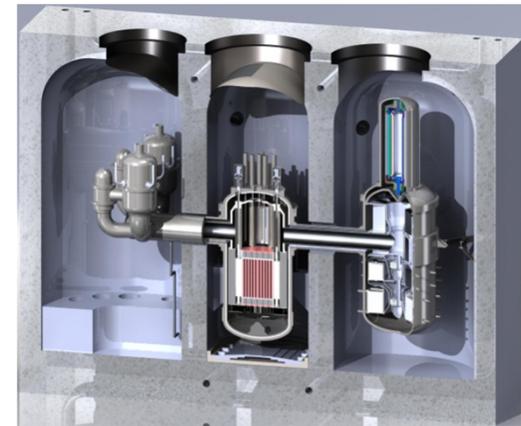


# SMRs: An Element of the Enterprise SRS Vision



# SMRs at SRS

- **SRS can demonstrate SMR technologies and fuel cycles.**
  - Large buffer area
  - Nuclear pedigree and infrastructure
  - Unique capabilities for fuel fabrication and processing
- **Opportunities and technical approaches for SMRs at SRS**
  - Developing and establishing manufacturing capability for SMR systems and components
  - Demonstrating the safety and reliability of the technology
  - Validate remote fabrication of reactor systems with minimal on-site construction
  - Provide operating experience and performance data
  - Provide clean energy supply for Site power needs
  - Demonstrating economic viability via power purchase agreements with customers



**Combines the technical expertise of Savannah River National Laboratory with the ongoing production and operations focus of our facilities**



# Advantages of SRS Deployment

- **Well characterized: 310 square miles**
- **Well-established framework for Federal and state environmental compliance**
  - Many proposed activities may be within established limits for existing programs
- **Cooling water available: two cooling lakes**
- **Transportation: rail system**
- **Utilities: located near north-south power grid**
- **Tested design, construction, project management support**
- **Tested used fuel management research and development through Operations**
- **Best in Class Operations and Safety**



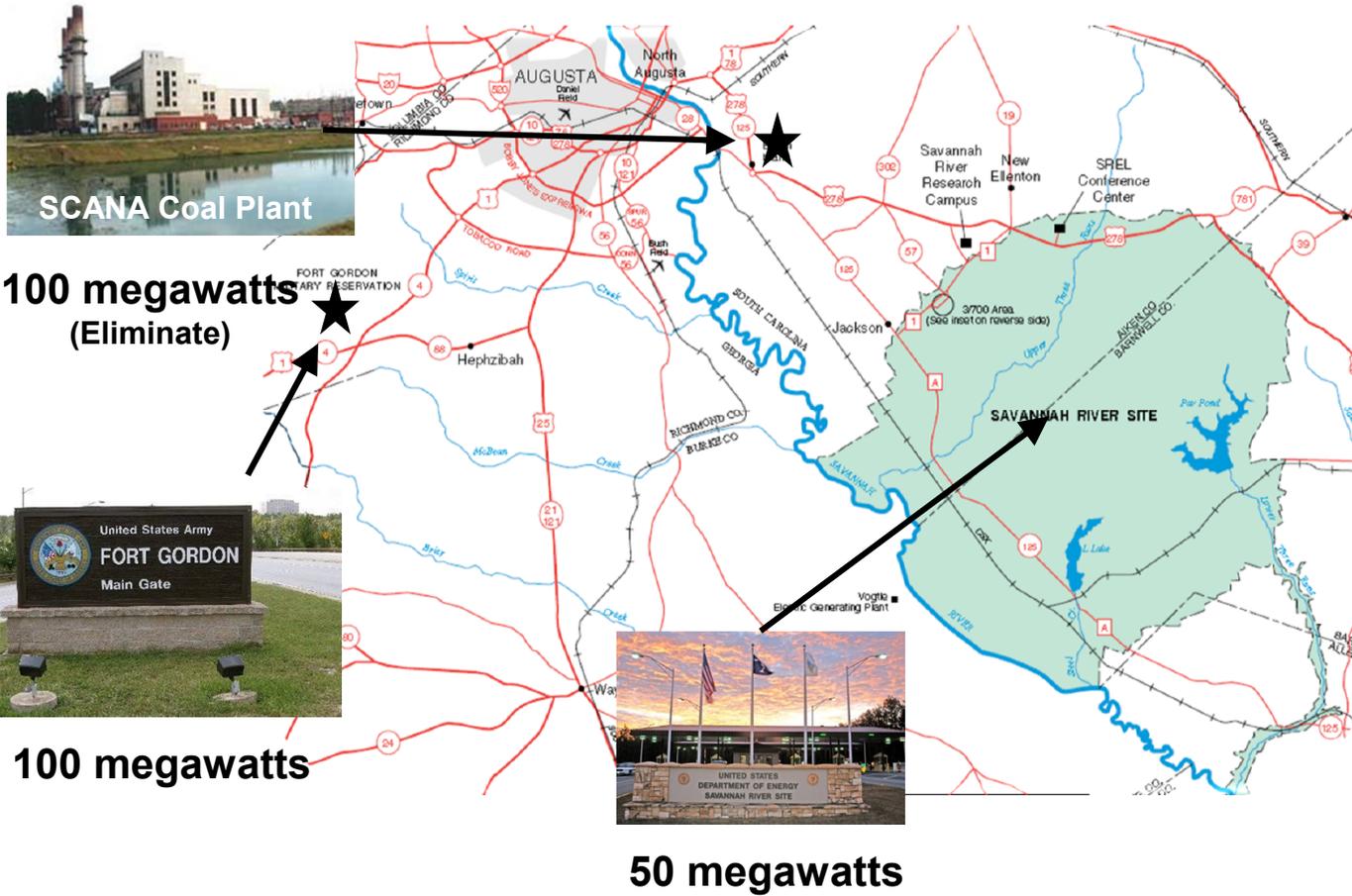
## Current Status

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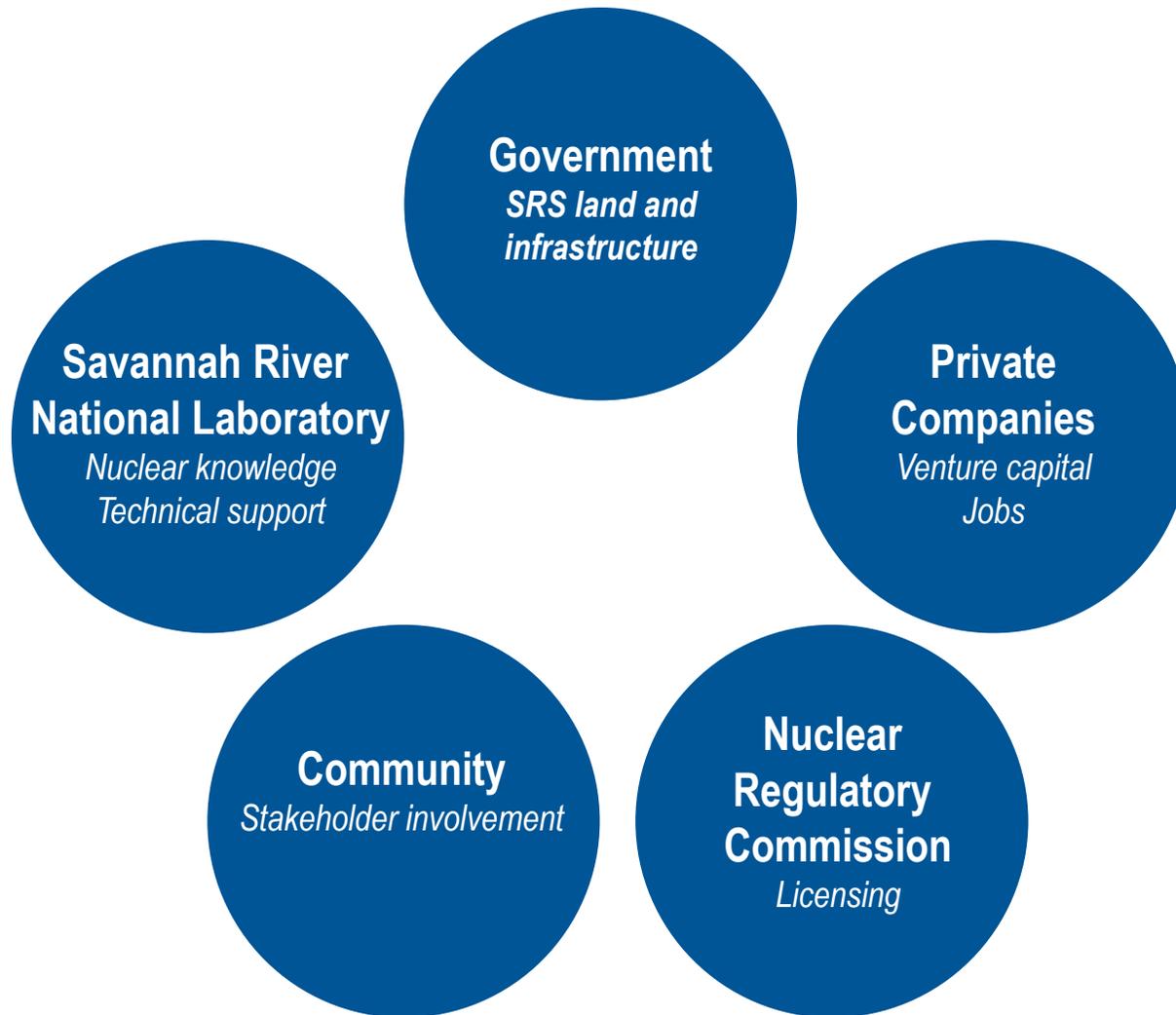
- **DOE Office of Nuclear Energy Funding Opportunity Announcement**
  - Issued March 22, 2012
  - Two awards for \$226M each
    - *5 year program*
    - *Cost match with industry*
  - Proposals were due May 21, 2012
    - Proposals submitted by *SMR and NuScale Power*  
Identified SRS as the site and SCANA as the operator
- **SRS is working with SMR vendors to facilitate their evaluation of SRS as a location for an SMR**



# Local Electricity Market



# Evolving Relationships for SMR Deployment at SRS



# SMR Test and Training Center Vision

- **SMR Test and Training Center intended to be a test bed for small modular reactors including simulator**
- **Small- to full-scale reactor vessels to conduct research/testing to support NRC licensing for commercial applications**
- **Support educational opportunities for tech schools and universities**



# Summary

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- **SMRs are a way to revitalize SRS assets**
- **SRS can effectively employ its unique capabilities and provide technical solutions that will advance this technology in the United States**
- **Opportunities for stakeholder involvement**

