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ENERGY

enterprise·srs: Update

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Citizens Advisory Board

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Purpose

- Provide a brief refresher of enterprise•SRS
- Share updates to the Strategic Initiatives driving enterprise•SRS



Our Nation and the World are Facing Complex Challenges

Safe clean energy.

Safeguarding and securing nuclear materials.

Maintaining our national security.

A clean environment.

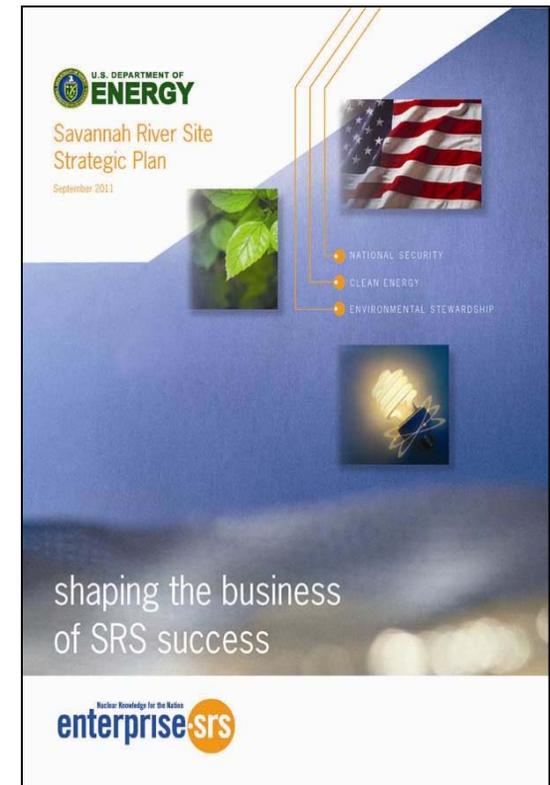
Leveraging science, innovation and technology.



What is enterprise•SRS?

enterprise•SRS was introduced as the site's strategic vision in the 2011 Savannah River Site Strategic Plan

enterprise•SRS is a transformational strategy for an enduring sustainable future for SRS



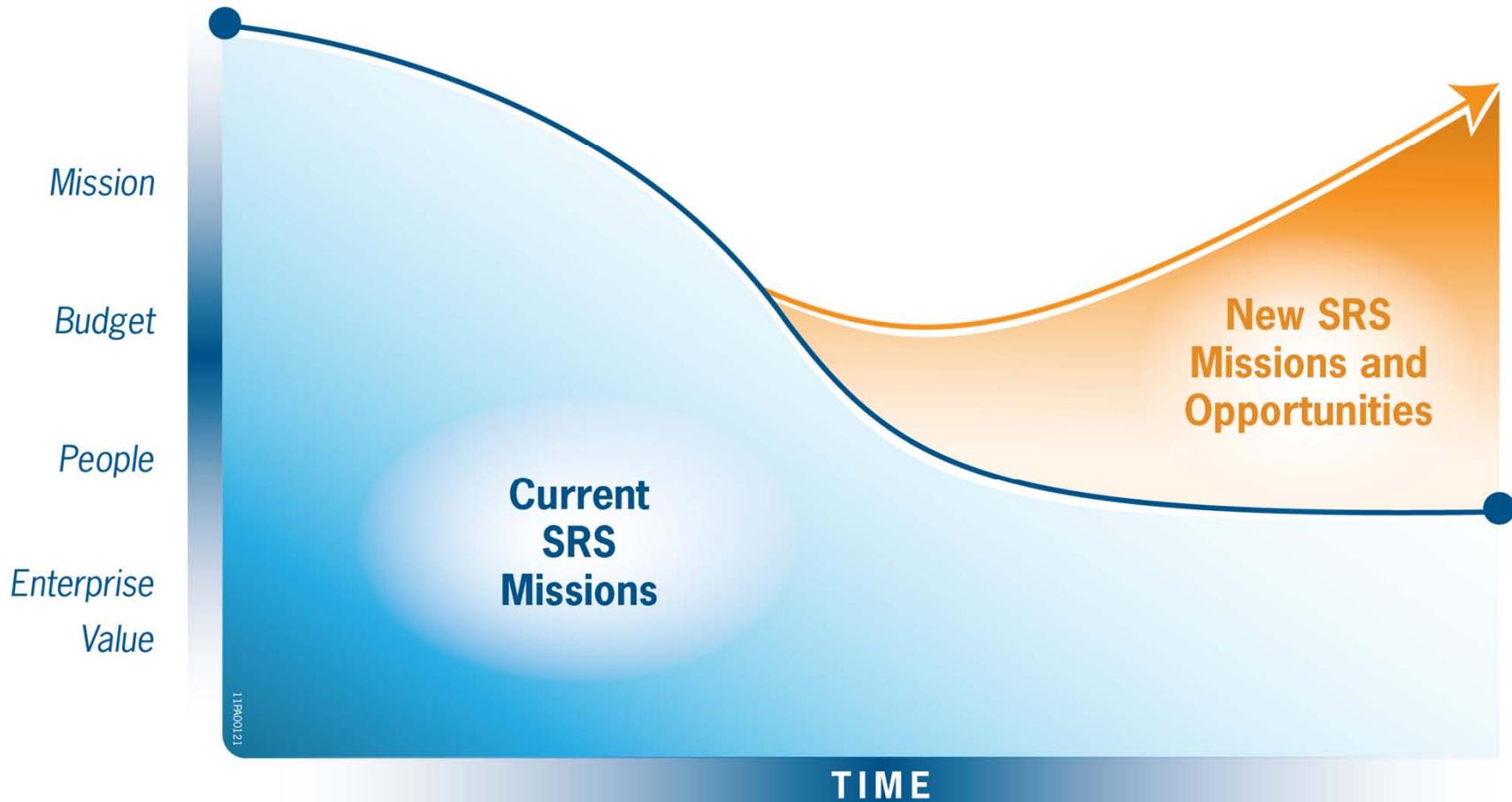
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Transformation

National Needs



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Success Measures for enterprise •SRS

Revenue

- Change the pre-enterprise “Closure Site” revenue curve
- Drive productivity improvement to free resources and lower costs
- New funding, new customers, increased market share, increased site utility, increased site capacity

National Reputation

Expanded Capability

National Interest

Long-term Mission Potential



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Strategy

- The enterprise•SRS strategy is to use those unique nuclear materials capabilities for the benefit of the nation
- Three global business segments have been identified, with SRNL as the growth engine



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Environmental Stewardship

- Waste Treatment
- Materials Stabilization, Disposition and Re-use
- Remediation and Cleanup
- Assessments and Verification



National Security

- Nuclear Defense
- Plutonium Technology
- Homeland Security
- Nonproliferation
- Nuclear Forensics



Clean Energy

- Hydrogen Production and Storage
- Nuclear Fuel Cycle R&D
- Renewable Energy Research
- Small Modular Reactors



Strategic Initiatives Listing- Original



National Security



Clean Energy



Environmental Stewardship

Enterprise•SRS Strategic Initiatives

- ● ● Center for Nuclear Materials Research
- ● ● Nuclear Fuel Cycle Initiatives
- ● ● Liquid High Level Waste Dispositioning
- ● ● Small Modular Reactors Deployment
- ● ● Nuclear Materials Disposition Paths
- ● ● Revitalization of Site Assets
- ● ● Helium-3 Supply
- ● ● Alternative Energy Projects
- ● ● Next Generation Cleanup Technologies
- ● ● Nuclear Forensics
- ● ● Tritium Infrastructure
- ● ● National Radioecology Expansion



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Strategic Initiatives Listing



National Security



Clean Energy



Environmental Stewardship

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Strategic Initiatives Listing



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Enterprise•SRS will continue to pursue asset revitalization as a cross-cutting effort, to help the Savannah River Site retain and grow our nuclear expertise and to repurpose and reuse our facilities and land, consistent with the DOE ARI task force efforts.



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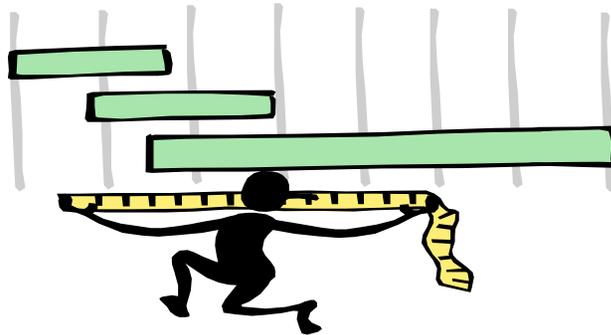
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We are making progress

- Multi-year plutonium (Pu) oxide production in H-Canyon
- Global Threat Reduction Initiative to return Swedish Pu
- Advising on cleanup after Fukushima nuclear disaster
- Supporting Hanford Waste Treatment Plant solutions
- Detecting radioactive materials in shipping containers
- Training police forces to detect radioactive sources



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We are making progress (cont)

- Agreements with Small Modular Reactor (SMR) vendors
- Assessing SMR capabilities to support DOE programs
- Received funding to return Canadian Used Nuclear Fuel
- Developing Americium-241 and Helium-3 isotope proposals
- Established National Center of Radioecology
- Enabled military tactical training exercises at SRS



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***Strategic Initiative:* Center for Nuclear Materials Research**

Establish and announce the formation of the Center for Applied Nuclear Materials Process and Engineering Research (CANMPER) to:

- Facilitate the use of SRS facilities and assets to deploy technologies and technical approaches in a nuclear operations “test bed” environment
- Develop innovative nuclear materials management and waste solutions & opportunities
- Facilitate multi-institutional partnerships to include SRNL, other national labs and federal programs, universities and private entities



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***Strategic Initiative:* Nuclear Fuel Cycle Solutions**

Develop solutions with what to do with spent fuel once it is discharged from a nuclear reactor

- Develop business case and pre-conceptual design package for dry fuel storage of L-Area fuel
- Begin pursuing partnerships with Office of Nuclear Energy and Office of Science
- Evaluate Blue Ribbon Commission Report for opportunities to support America's Nuclear Future



***Strategic Initiative:* Liquid High Level Waste Dispositioning**

Continue to successfully process HLW through advanced technologies while playing a strategic role in supporting solutions for the DOE EM complex & beyond

- Leverage SRS experience and success across DOE complex and beyond
 - SRS recognized for its expertise and as world-wide benchmark of effectiveness for management and tank waste treatment
- Identify and pursue regional, national, and global opportunities for engagement
- Utilize Savannah River National Laboratory to reach out beyond SRS



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***Strategic Initiative:* Small Modular Reactor Deployment**

Leverage DOE-SR assets, infrastructure and nuclear expertise to support the nations development, demonstration and deployment of US Small Modular Reactor technology

- Attract SMR companies to develop privately funded, NRC-licensed projects at SRS
- SRNL has teamed with SMR vendors for possible funding from DOE Office of Nuclear Energy SMR Funding Opportunity
(Announcement expected soon)



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***Strategic Initiative:* Nuclear Materials Disposition Paths & Reuse**

Deliver storage, processing, beneficial reuse and disposal opportunities for a wide variety of Savannah River, National and International Nuclear Materials

- Initiate plutonium production for Mixed Oxide Fuel Fabrication Facility
- Complete plans to process vulnerable Spent Nuclear Fuel
- Continue Research Reactor Fuel Receipts



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Strategic Initiative: Helium-3 Supply

Continue the utilization of SRS Tritium facilities to be the primary source of Helium-3 for the US

- Maintain current supply process
- Pursue potential new supplemental supply alternatives to alleviate US shortage of Helium-3



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Strategic Initiative: Next Generation Cleanup Technologies

Establish the Savannah River Site (SRS) as the national and international provider of applied environmental cleanup solutions

- Develop and export technical strategies to a broader range of customers (e.g., government and private industry). Examples include:
 - Active-to-passive environmental cleanup transition
 - Long-term Monitoring
 - In situ decommissioning concepts, approaches and facilities
- Provide technical assistance to Fukushima cleanup and remediation



Strategic Initiative: National Security Programs

Utilize Savannah River National Laboratory (SRNL) nuclear expertise to support National Security through:

- **Nuclear Forensics/ Intelligence Programs:** The FBI's primary laboratory for analyzing evidence with potential nuclear contamination.
- **Training, Testing & Evaluations:** Multiple venues for support of field simulation exercises utilizing SRS assets (former nuclear facilities, rail lines, lakes, river access points, heavily forested areas, access to radiological sources)



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Strategic Initiative: Tritium Infrastructure

Maintain role as United States' *Tritium Center of Excellence* by exercising and advancing Tritium knowledge and expertise

- Continue implementation of Tritium Responsive Infrastructure Modifications (TRIM) program



- Seek to centralize tritium work scope from other sites to SRS



***Strategic Initiative:* Expand National Center of Radioecology**

Reenergize the discipline of radioecology in the United States to provide a radioecology expertise pipeline to the future

- Create a network of academic and national laboratory researchers (NCoRE) to provide opportunities for attracting funding and executing research for SRS
- Leverage sixty years of research data and expertise to provide support for other enterprise SRS initiatives
- Bring together SREL and SRNL expertise to form a seamless collaborative partnership to address emerging national and international radioecology needs in the nuclear field



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Summary

- We are making progress.
- Current EM and NNSA missions are an integral part of the enterprise•SRS.
- The nuclear knowledge and expertise acquired from these missions will be leveraged to further benefit the nation and region in the areas of:

Environmental Stewardship
Clean Energy
National Security



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