

NRC's Overall Vision and Strategy for Non-Light-Water Reactors

Amy Cubbage
Sr. Project Manager

Outline

- Vision and Strategy
- Implementation Action Plans
- Overview of Readiness Activities
- Pre-application Reviews

What's Happening in Industry?

- Dozens of companies are working on a variety of non-light water reactor designs including:
 - High Temperature Gas-cooled Reactors (HTGR)
 - Molten Salt Reactors (MSR)
 - Sodium-cooled Fast Reactors (SFR)
- There are also many non-LWR interest groups including, NEI, NIC, NIA, etc.

What's happening at the NRC?

Transitioned from Planning to Execution

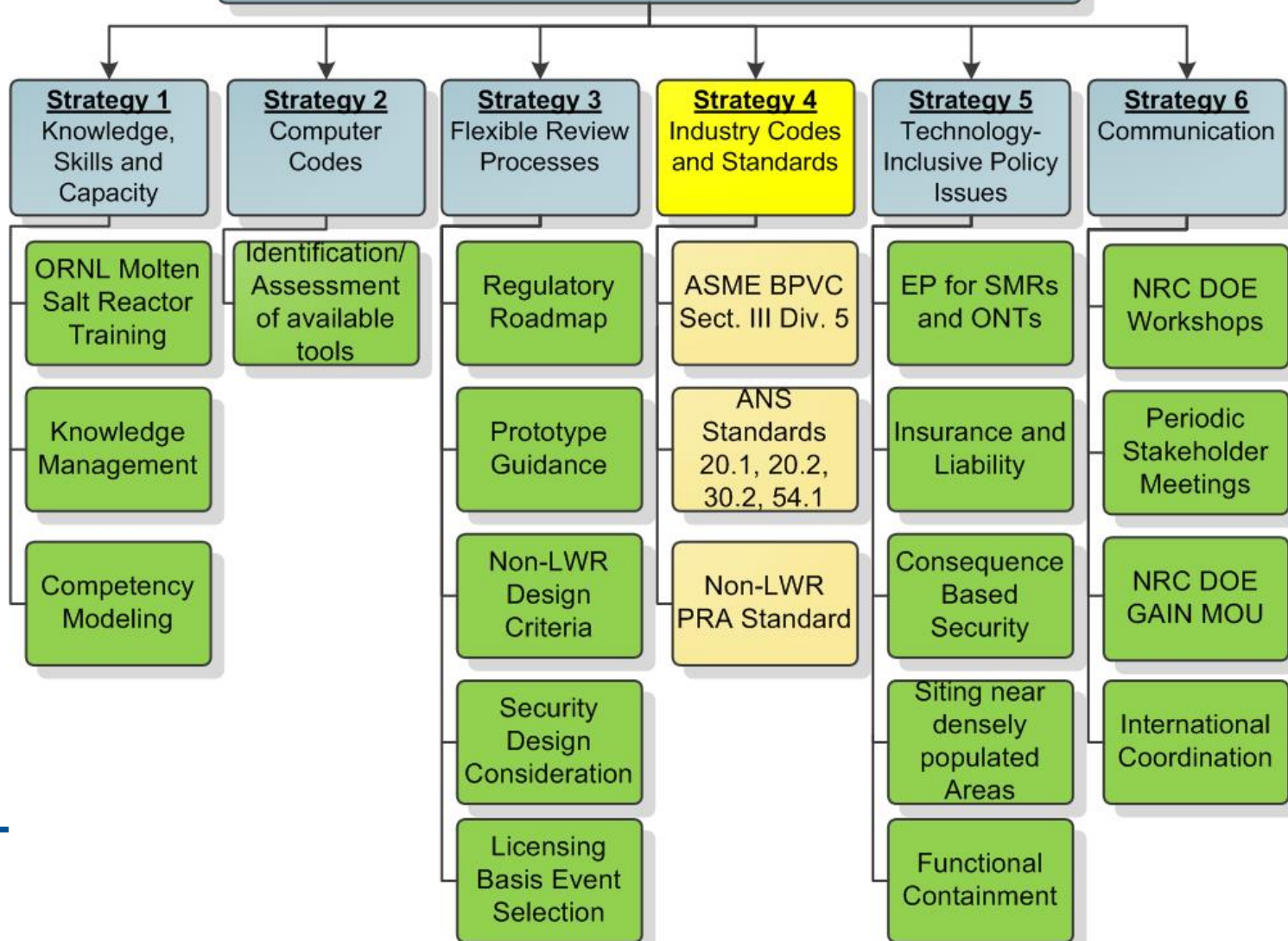


Implementation Action Plans

- The IAPs are planning tools
- Three Timeframes
 - Near-term (0-5 years)
 - Mid-term (5-10 years)
 - Long-term (>10 years)

Executing the Vision

Near-Term Implementation Action Plan



Advanced Reactors - Overview

Developer	Design	Power	Technology
Oklo Inc.	Oklo	<10 MWt	Compact Fast Reactor
Transatomic Power	Transatomic	~1250 MWt	Molten Salt Reactor
Terrestrial Energy	Integral Molten Salt Reactor (IMSR)	400 MWt	Molten Salt Reactor
X-Energy	Xe-100	125 MWt	Modular High Temperature Gas-Cooled Reactor (Pebble Bed)
Terrapower	Molten Chloride Fast Reactor (MCFR)	~2000 MWt	Molten Salt Reactor

DOE Cost Share Program and GAIN Vouchers

- **Southern Company Services** – partnering with TerraPower, Electric Power Research Institute, Vanderbilt University, and Oak Ridge National Laboratory to perform integrated effects tests and materials suitability studies to support development of the Molten Chloride Fast Reactor.
- **X-energy** – partnering with BWX Technology, Oregon State University, Teledyne-Brown Engineering, SGL Group, Idaho National Laboratory, and Oak Ridge National Laboratory to solve design and fuel development challenges of the Xe-100 Pebble Bed Advanced Reactor.
 - X-energy also entered into an MOU with Southern Company after the DOE cost share was awarded.
- **GAIN Vouchers** - Awards made in 2016 and 2017
 - OKLO, Terrestrial, Transatomic, Elysium, Kairos, Etc.

Summary

- Vision and Strategy sets high level goals and objectives to achieve readiness
- We have transitioned from planning to execution
- Broad and evolving landscape poses challenges
- Stakeholder involvement is key