

Licensing of Advanced Reactors

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The National Academy of Sciences
Committee on Laying the Foundation for New and Advanced Nuclear Reactors in the United States
Virtual Meeting #1

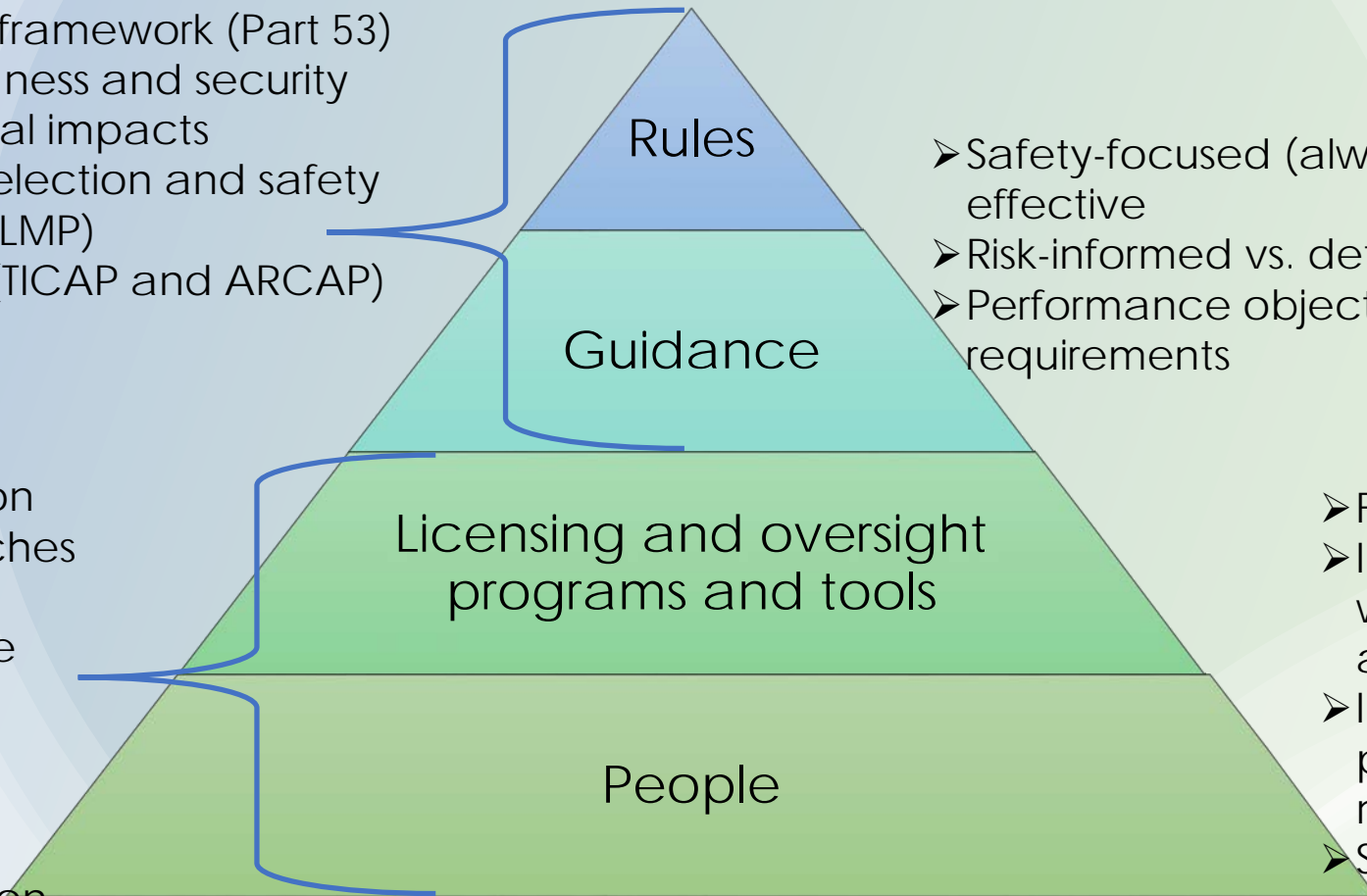
17 December 2020



USNRC is creating new paradigms to make **SAFE** use of nuclear technology **POSSIBLE**

- Technology inclusive framework (Part 53)
- Emergency preparedness and security
- Generic environmental impacts
- Design bases event selection and safety system classification (LMP)
- Application content (TICAP and ARCAP)

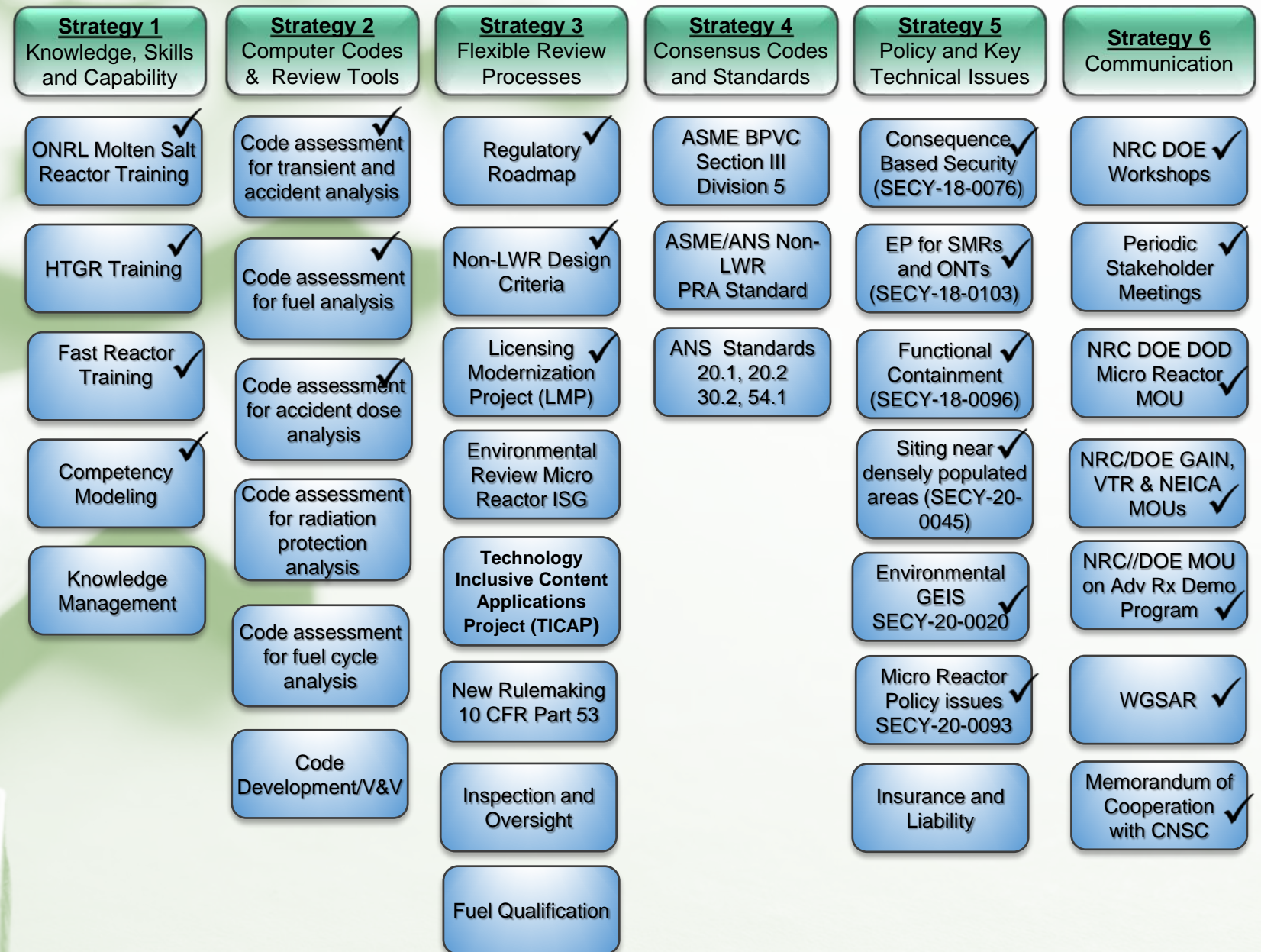
- Multiple licensing approaches
- Modelling and simulation
- New oversight approaches
- Hearing process
- Training and knowledge management
- Hiring critical skills
- Extensive stakeholder engagement
- International cooperation



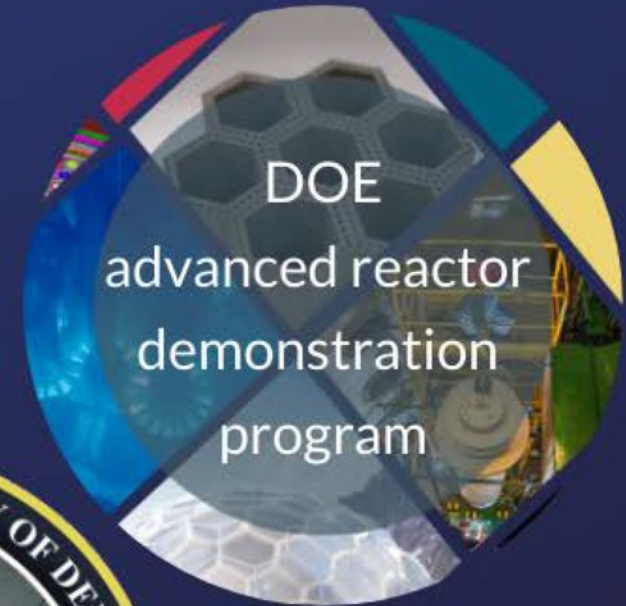
- Safety-focused (always first) and cost-effective
- Risk-informed vs. deterministic
- Performance objectives vs. prescriptive requirements

- Flexibility
- Integrated safety review with "core team" approach
- Improved resource performance and monitoring
- Safety-focused and enabling mindset

**NRC's
implementation
action plans
are ensuring
readiness in
important
strategic areas**



NRC is focusing on several priorities



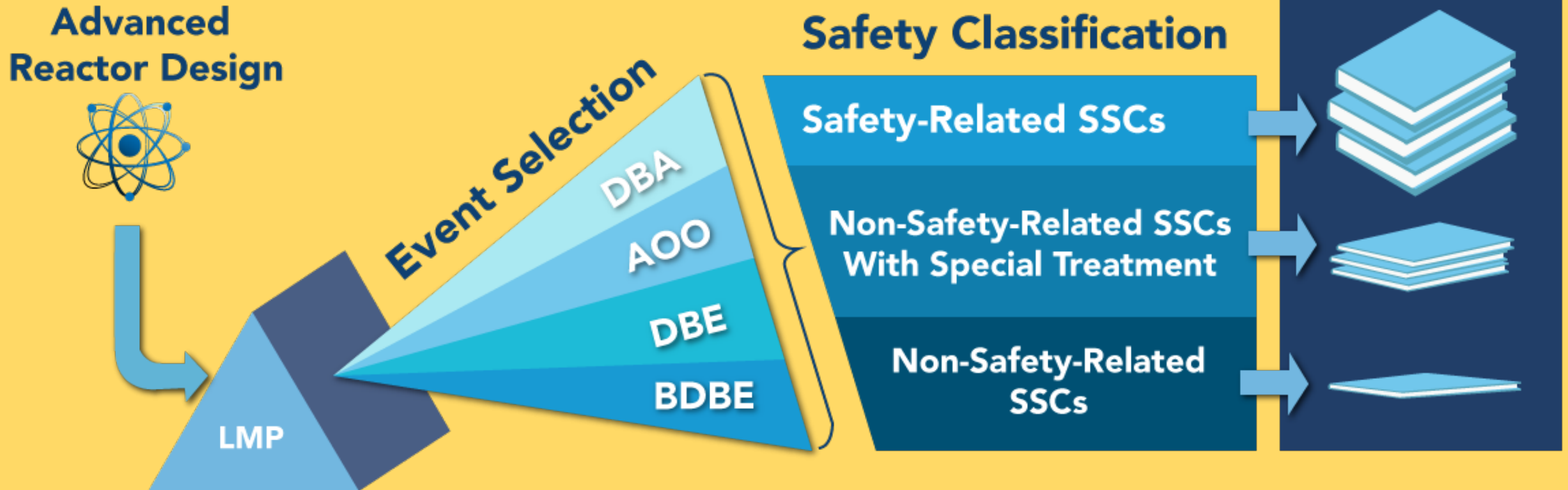
Part 53 Rulemaking by October 2024

- Technology-inclusive
- Risk-informed and performance-based
- Builds on current activities including the Licensing Modernization Project
- Safety framework that is clear, timely, predictable and resource-conscious
- Significant stakeholder engagement planned
- <https://www.regulations.gov/document?D=NRC-2019-0062-0011>

Licensing Modernization Project:

A risk-informed, consequence-oriented approach to establish licensing basis and content of applications

(see Regulatory Guide 1.233 <https://www.nrc.gov/docs/ML2009/ML20091L698.pdf>)



Atmospheric Sciences
Air Quality/Meteorology
Climate & Climate Change

**Demographics/
Socioeconomics/
Environmental Justice**

**Non-Rad
Human Health
and
Waste**

**Fuel Cycle/RadWaste/
Accident-SAMA**

Rad Health

**Terrestrial
Ecology**

**Transportation/
Land Use**

**Aquatic
Ecology**

**Archaeology/
Cultural Resources**

Alternatives

**Economics
(Benefits Assessment/
Need for Power)**

**Hydrologic Sciences
(Surface and Groundwater)/
Water Use and Competition**

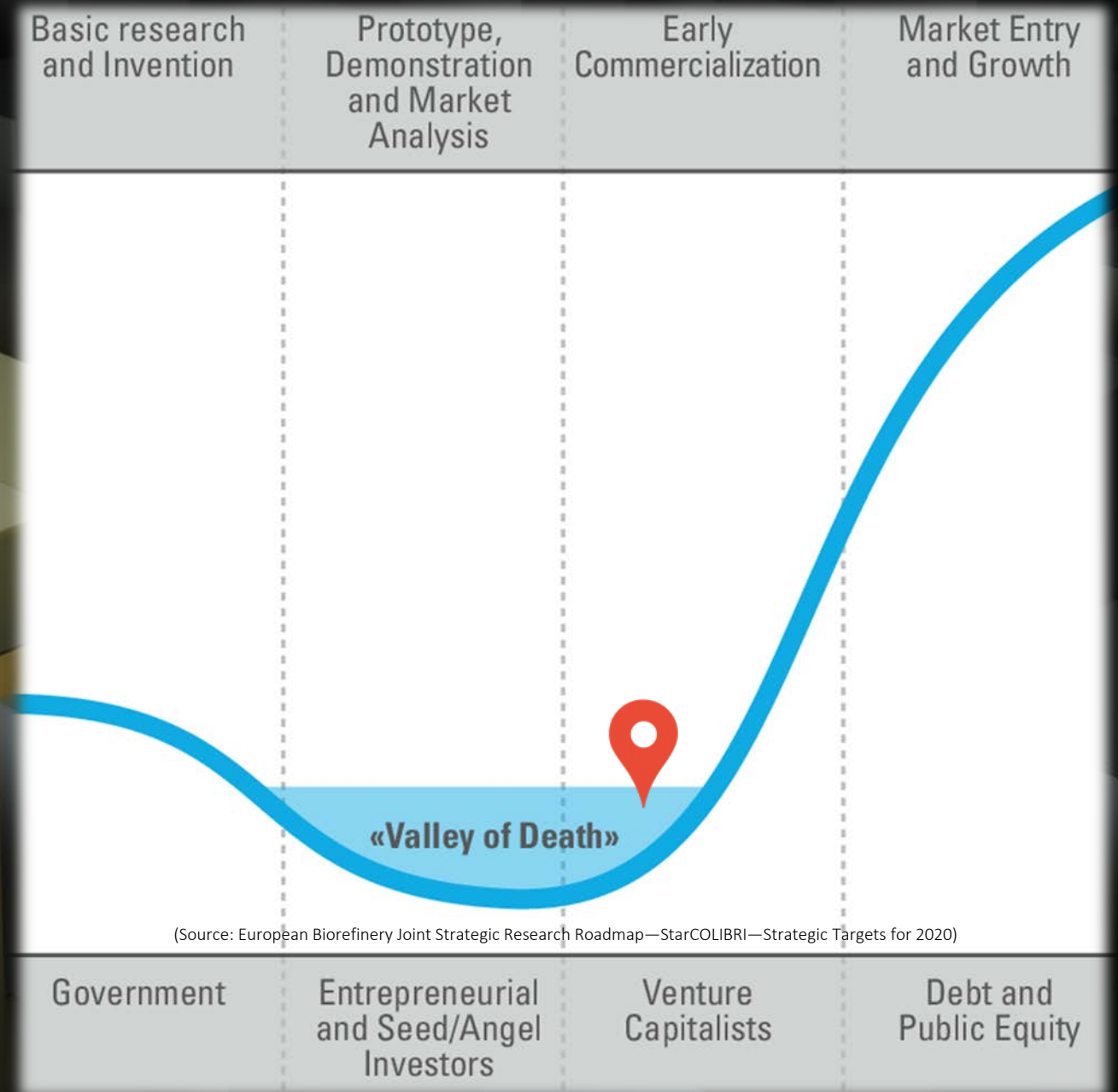
**Water
Quality**

**NRC is working to develop an
Advanced Nuclear Reactor
Generic Environmental Impact
Statement**

**Canada and the United States
are creating a new model for
regulatory reviews of
advanced reactors and small
modular reactors**



To move advanced reactor innovation beyond the “valley of death,” governments, industry and society must work together.



Thank you for your attention.
Looking forward to further discussion.

