



# Policy Activities That May Affect Non-Light Water Reactors

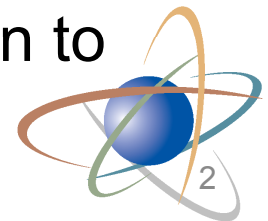
Anna Bradford

Chief, Advanced Reactor and  
Policy Branch

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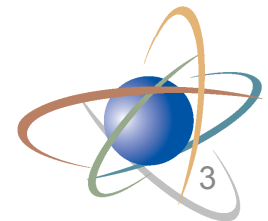
# Policy Activities

- Staff has been planning for small modular reactor (SMR) applications for several years
- In 2010, staff identified several critical policy issues that would benefit from assessment; for example,
  - Emergency preparedness
  - Fees
  - Source term
- NRC staff recognizes that many of these issues could apply to non-light water reactor (LWR) designs in the future
- The non-LWR community may want to pay attention to developments in these areas



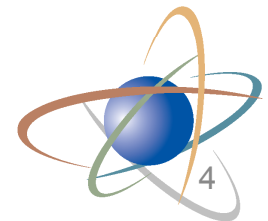
# Emergency Preparedness

- Options for Emergency Preparedness for SMRs and Other New Technologies (SECY-15-0077, 5/29/15)
  - Scope - Requested Commission approval for a rulemaking to revise regulations and guidance for emergency preparedness for SMRs and other new technologies such as non-LWRs, and medical isotope facilities
  - Proposes a consequence-based approach to establishing requirements as necessary for offsite emergency preparedness
  - Requirements would be commensurate with potential consequences to public health and safety and common defense and security at these facilities
  - The Commissioners approved this approach on August 4, 2015
  - Staff is drafting the plan and schedule



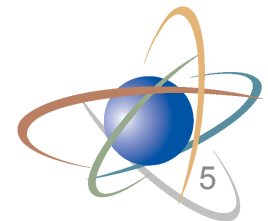
# Fees

- Proposed Variable Annual Fee Structure for Small Modular Reactors (SECY-15-0044, 3/27/15)
  - Scope – Requested Commission approval for a rulemaking to amend Part 171 of Title 10 of the Code of Federal Regulations to include a variable annual fee structure for SMRs
  - Currently 10 CFR Part 171 fees are allocated equally amongst operating power reactor licensees
  - Proposed rulemaking would allocate the annual fee for each licensed power reactor as a function of its licensed thermal power rating
  - The Commissioners approved this proposal on May 15, 2015
  - Staff is drafting the proposed rule for public comment



# Mechanistic Source Term

- Mechanistic source term has been discussed in various contexts over several years
  - SECY-93-092, “Issues Pertaining to the Advanced Reactor (PRISM, MHTGR, and PIUS) and CANDU 3 Designs and Their Relationship to Current Regulatory Requirements” (4/8/93)
  - SECY-03-0047, “Policy Issues Related to Non-Light Water Reactor Designs”
  - SECY-10-0034, “Potential Policy, Licensing, and Key Technical Issues for Small Modular Nuclear Reactor Designs” (3/28/10)
  - Next Generation Nuclear Plant Fuel Qualification and MST white papers and assessment reports
  - Commission memo on status of MST (6/20/14)
- Staff is preparing a SECY paper that will discuss details related to assessing MST appropriately



# Insurance and Liability

- Insurance and Liability Regulatory Requirements for Small Modular Reactor Facilities (SECY-11-0178, 12/22/11)
  - Scope - Informs Commission of the staff's approach to the resolution of issues concerning the applicability of insurance and liability regulatory requirements to SMRs
  - Mainly affects designs that are less than 100 MWe per module
  - NRC staff is preparing a comparative analysis of different designs to determine if an inequity exists between the treatment of reactors producing electrical power greater than 100 MWe and those with individual modules producing less than 100 MWe



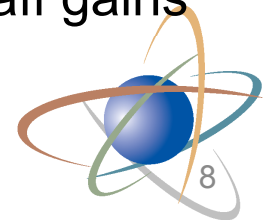
# Security Regulatory Framework

- Security Regulatory Framework for Certifying, Approving, and Licensing Small Modular Nuclear Reactors (SECY-11-0184, 12/29/11)
  - Scope – Inform the Commission on the results of the staff's assessment of the adequacy of the current security regulatory framework for certifying, approving and licensing SMRs and non-LWRs
  - Staff's preliminary conclusion is that the current security regulatory framework is adequate for non-LWRs, but limited information is available regarding designs and operations
  - As designs mature and details are available, the staff will assess the security and material control and accounting requirements to identify any regulatory gaps and potential policy issues



# Control Room Staffing

- Operator Staffing for Small or Multi-Module Nuclear Power Plant Facilities (SECY-11-0098, 7/22/11)
  - Scope – Inform Commission of staff's ongoing efforts for the resolution of the application of the NRC's on-site operator staffing requirements
  - Staff concluded that deviations from the NRC's current regulations should be addressed on a case-by-case basis using the exemption process
  - Staff also concluded that the current versions of NUREG-0800 Chapter 18 and NUREG-0711 provide adequate guidance for performing the exemption request evaluations
  - Need for a longer term approach will be evaluated as staff gains experience in licensing new designs





# Decommissioning Funding

- Decommissioning Funding Assurance for Small Modular Nuclear Reactors (SECY-11-0181, 12/22/11)
  - Scope - Inform the Commission of the staff's plans for ensuring that SMR licensees provide reasonable assurance that funding will be available for decommissioning SMRs
  - Design-specific features will influence decommissioning costs
  - The near-term approach is to consider allowing SMR applicants to deviate from existing regulations through exemption requests with supporting analysis
  - The long-term approach is to propose rulemaking based on the near-term exemption experience



# Fusion

- Regulation of Fusion-Based Power Generation Devices (SECY-09-0064, 7/16/09)
  - The NRC has regulatory jurisdiction over commercial fusion energy devices whenever such devices are of significance to the common defense and security, or could affect the health and safety of the public
  - Staff should wait until commercial deployment of fusion technology is more predictable before expending significant resources to develop a regulatory framework



# Other NRC Activities Related to non-LWRs

- GDC initiative
- Development of prototype guidance
- Revision of Regulatory Guide 1.206
- Update of the 2012 report to Congress on advanced reactor licensing
- Participation in ANS standards development for sodium cooled fast reactors and fluoride salt cooled high temperature reactors
- Participation in discussions with international regulators



# Concluding Remarks

- NRC activities related to SMRs or other new reactors may have applicability to non-LWR designs
- NRC activities specifically related to non-LWRs are commensurate with industry commercial maturity
- NRC encourages stakeholder participation and comments on its documents
- Industry can respond to RIS 2015-07
- Please subscribe to the NRC's GovDelivery service on the NRC webpage under "Advanced Reactors" to receive email notifications on non-LWR activities

