



Non-power Production or Utilization Facility (NPUF) License Renewal Rulemaking

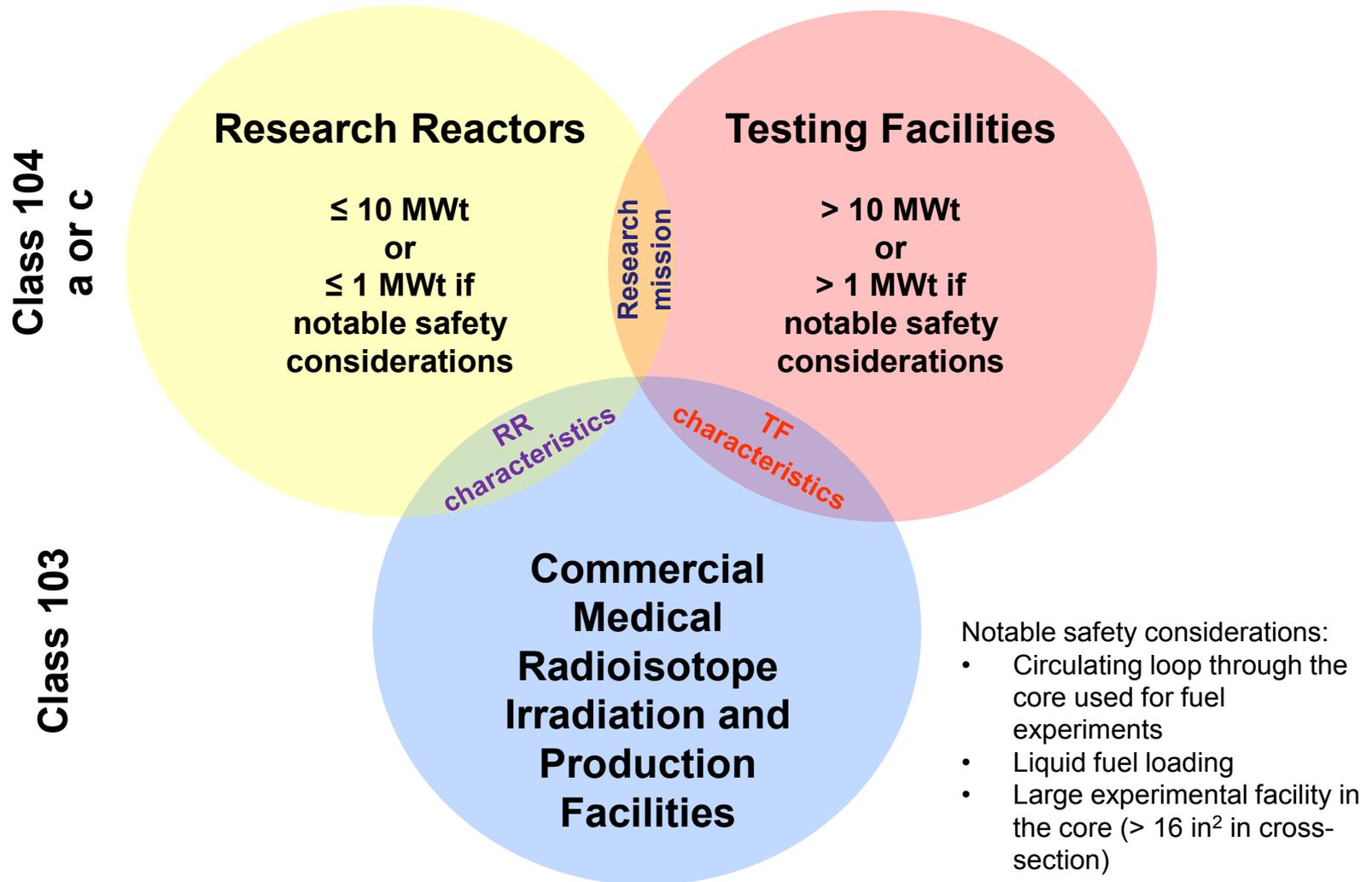
August 22, 2016

Purpose of the NPUF Proposed Rule

- Implement Commission direction to streamline the license renewal process by establishing a more efficient, effective and focused regulatory framework
- Fix existing short comings in regulations for non-power licensees

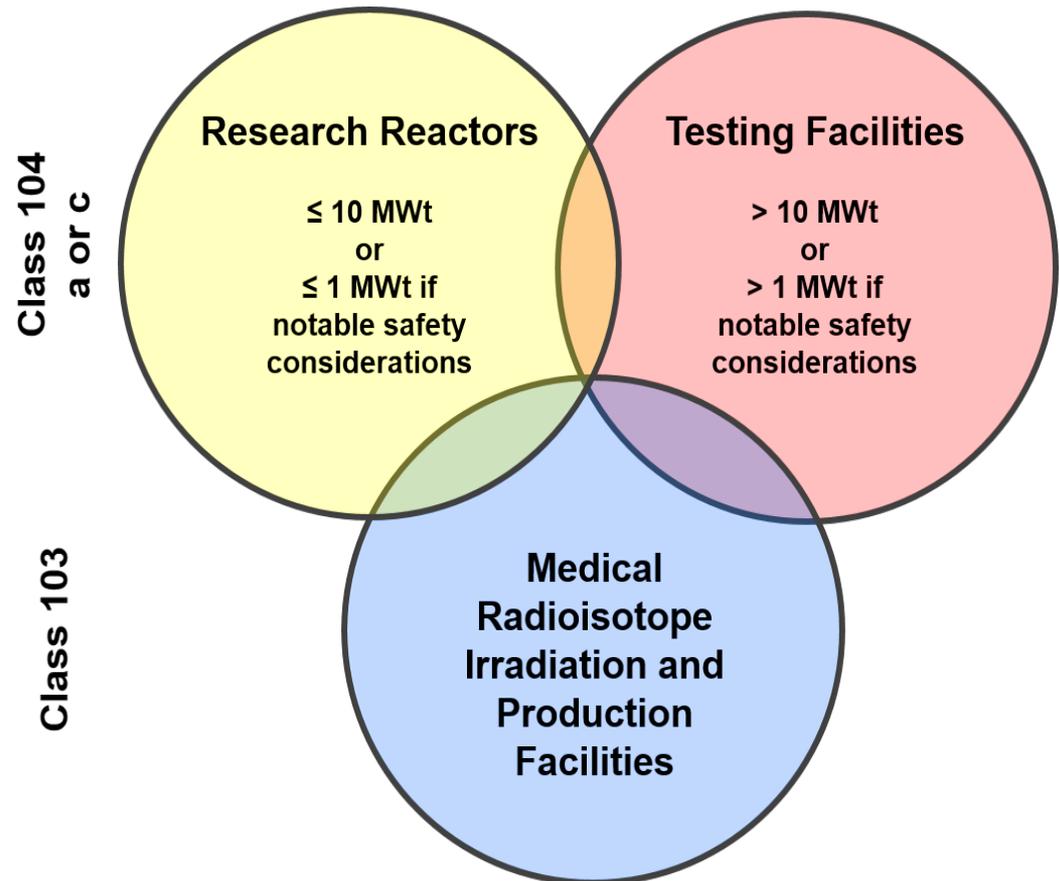
⇒ 9 rulemaking objectives

Relationship of NPUF Entities



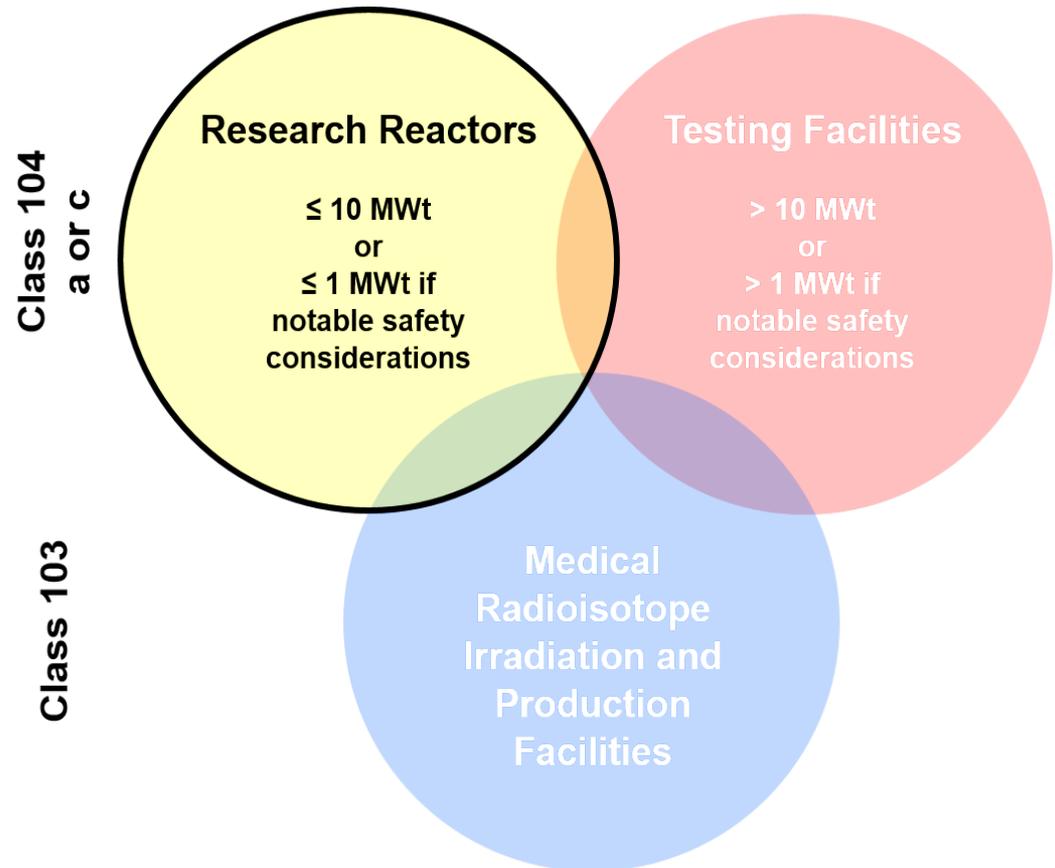
1. Create a Definition for NPUF

- Revise 10 CFR 50.2, Definitions, to establish a single term to capture all non-power facilities licensed under part 50
- Ensure clarity and consistency for the applicability of NPUF regulations



2. Eliminate License Terms

- Exempt Class 104a and 104c NPUFs, other than testing facilities, from 40-year fixed term in 10 CFR 50.51
- No license term specified in AEA for Class 104 NPUFs
- Consistent with AEA's minimum regulation standard
- Reduce burden for licensees and NRC, but maintains public health and safety



No Notable Safety Considerations

- Low power levels of 10 MWt or less
 - small fission product inventory
 - small radiological consequence for maximum hypothetical accident
- Low energy systems
 - low operating power and temperatures
 - minimal decay heat
- No significant aging considerations
 - simple designs
 - proactive aging management / aging-related surveillance requirements
 - loss of coolant is an analyzed condition
- Slowly evolving licensing basis
 - Very low number of design changes each year
 - Few rulemakings apply



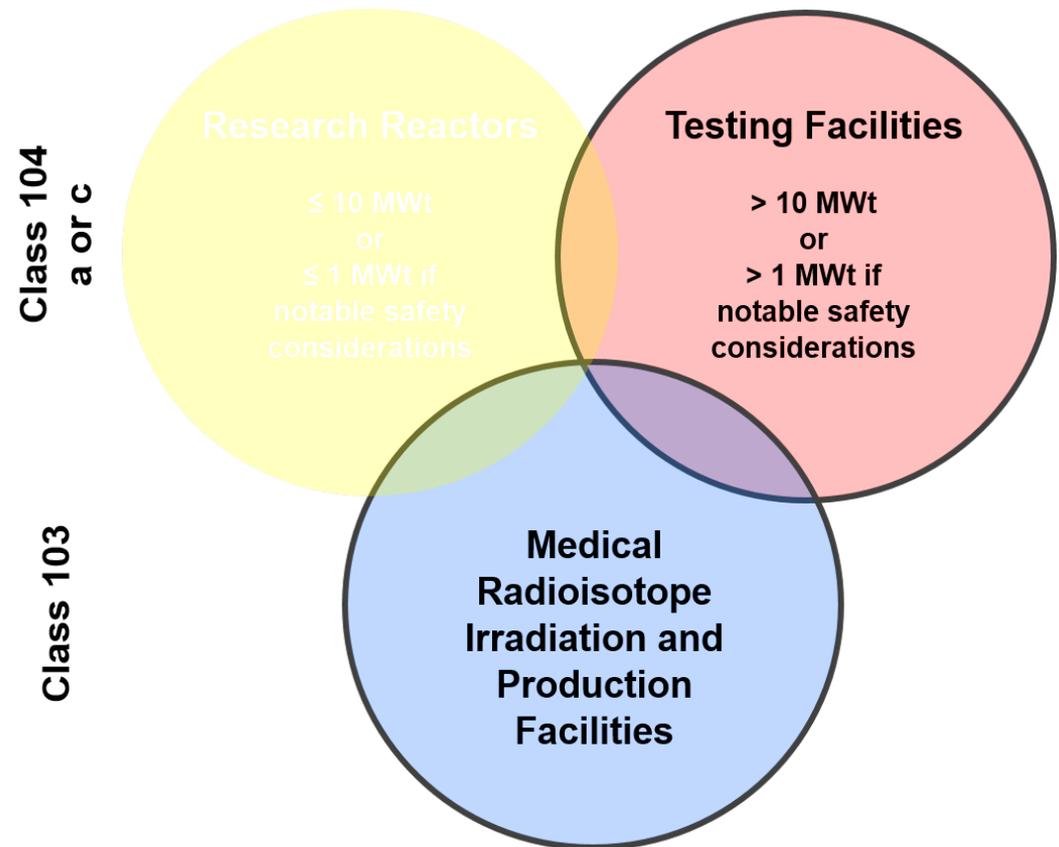
No Nexus between License Renewal and Safety

Class 104a or c, except testing facilities

- In light of the following measures:
 - NUREG-1537
 - License renewal under NUREG-1537
 - Inspection program
 - Technical specifications
 - Existing reporting requirements
 - Safety issues with SSCs
 - Maintenance activities
 - Proposed rule requirements

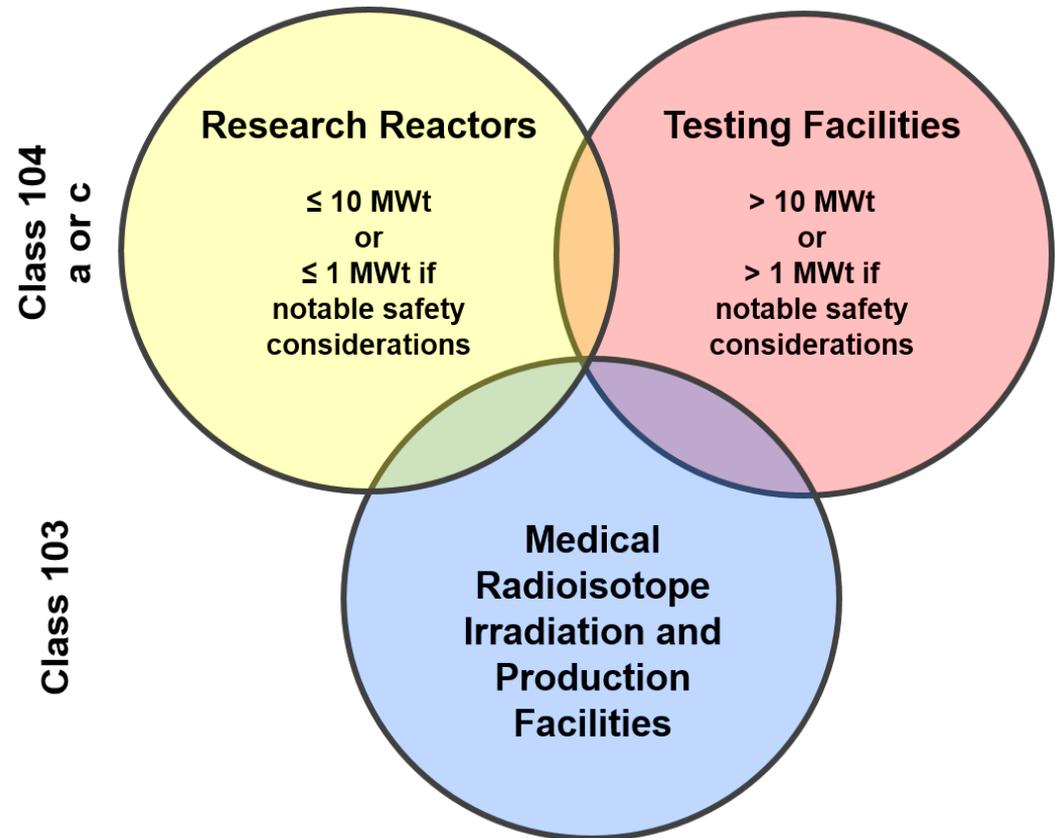
3. Define the License Renewal Process

- Consolidate license renewal requirements under 10 CFR 50.135 for testing facilities and NPUFs licensed under 10 CFR 50.22
- Clarify license renewal process
- Enhance regulatory efficiency



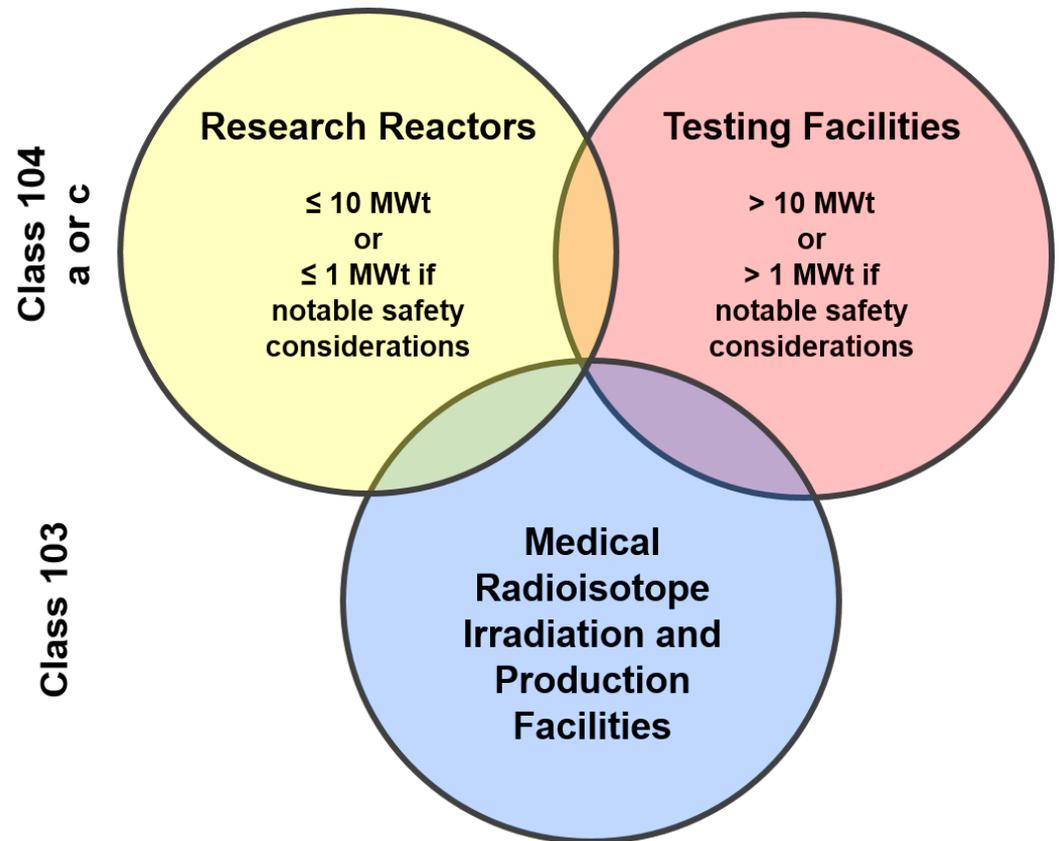
4. Require Updated FSAR Submittals

- Extend applicability of 10 CFR 50.71(e) to NPUFs
- Ensure timely documentation of changes to licensing basis
- Benefit knowledge management, NRC's inspection program, and licensee operator training and exams



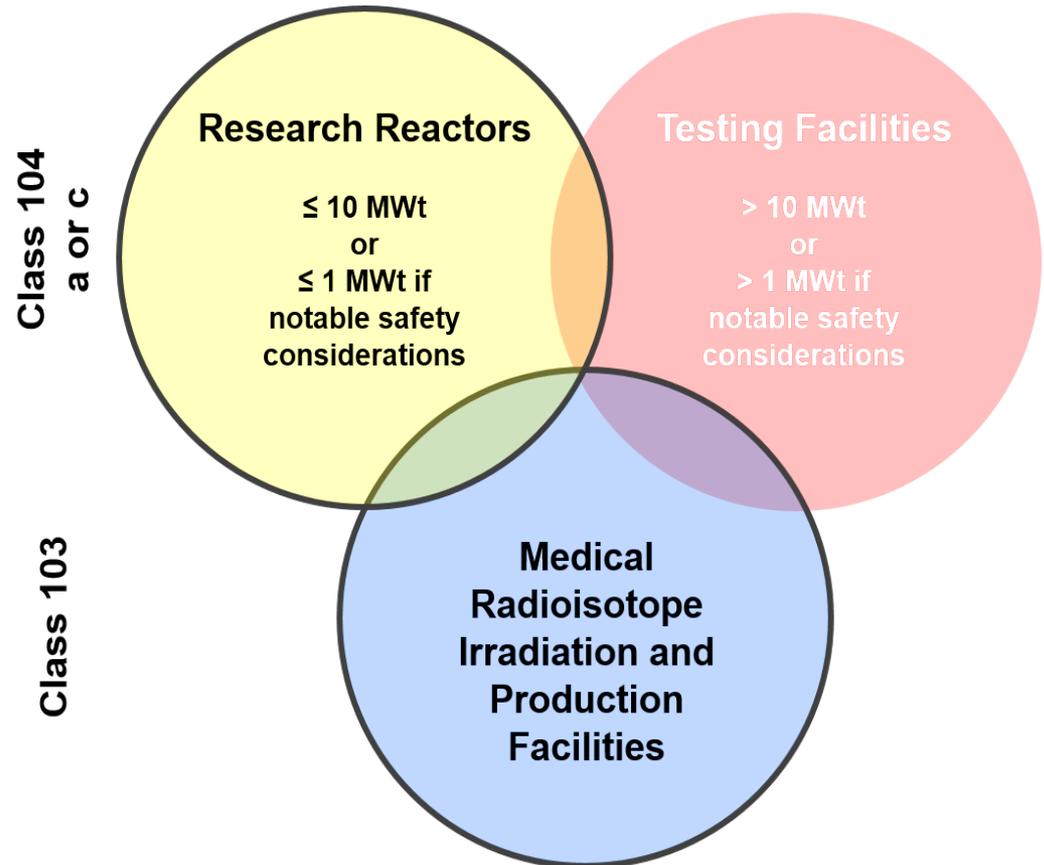
5. Amend Timely Renewal Provision

- Create two-year timely renewal for Class 103 and testing facilities and exempt Class 104a and 104c NPUFs, other than testing facilities
- 30 days in 10 CFR 2.109 is not a sufficient period of time for adequate assessment of license renewal application
- Two years would provide sufficient time and allow facility to operate under current license terms



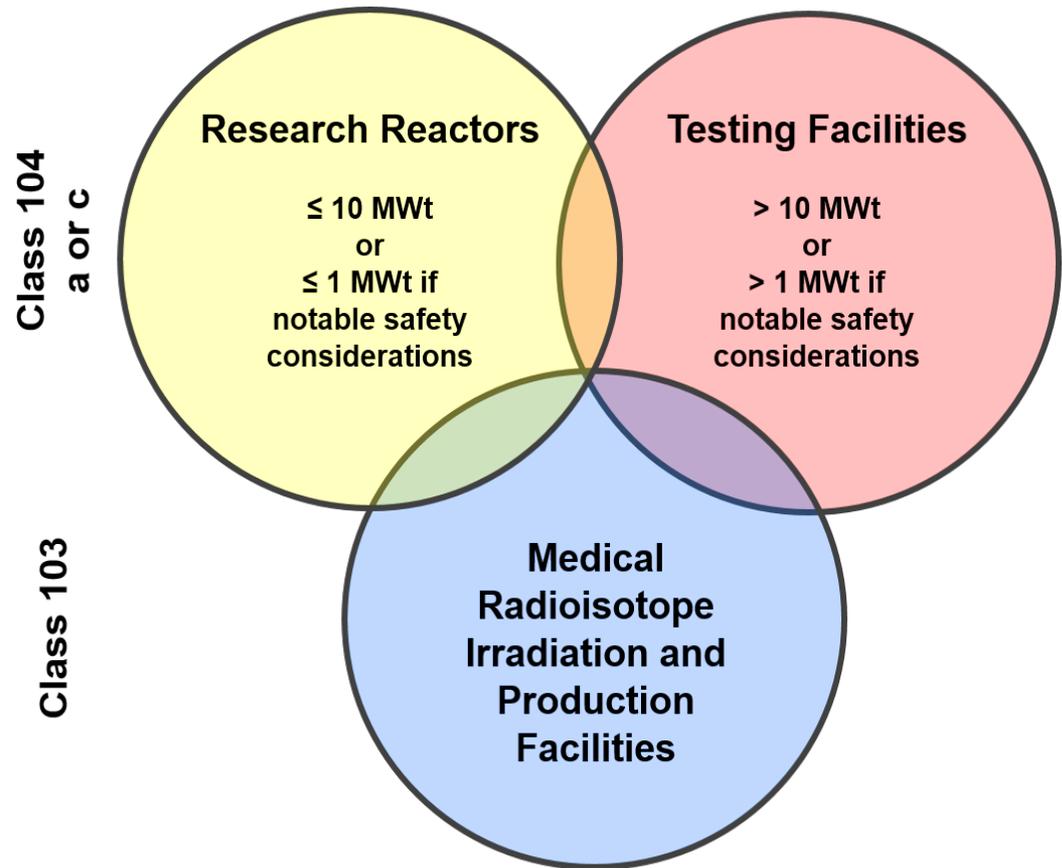
6. Provide an Accident Dose Criterion

- Create new accident dose criterion for NPUFs, other than testing facilities, in 10 CFR 50.34
- Part 20 public dose limits are unnecessarily restrictive as accident criteria
- Proposed criterion would align with early phase EPA PAG and provide adequate protection from unnecessary exposure to radiation



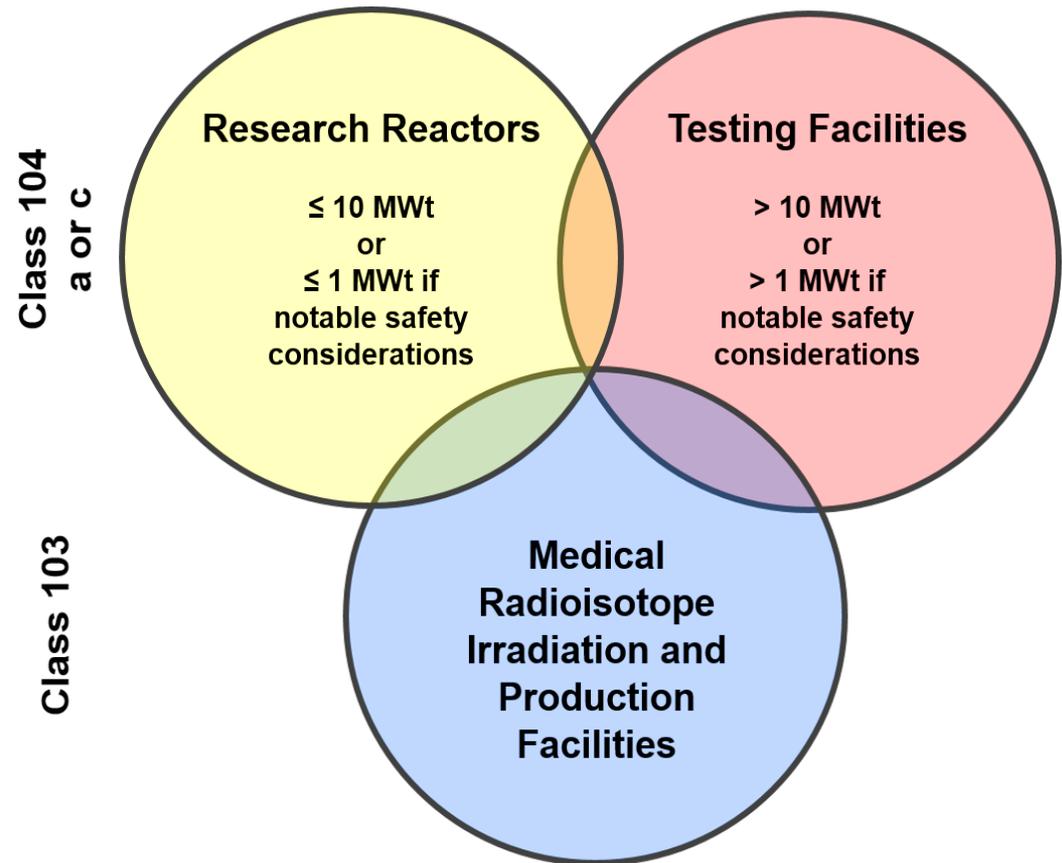
7. Extend Applicability of 10 CFR 50.59

- Extend applicability to NPUFs regardless of decommissioning status
- 10 CFR 50.59 currently is not applicable to NPUFs once fuel is moved offsite
- Avoid burden of issuing license amendments



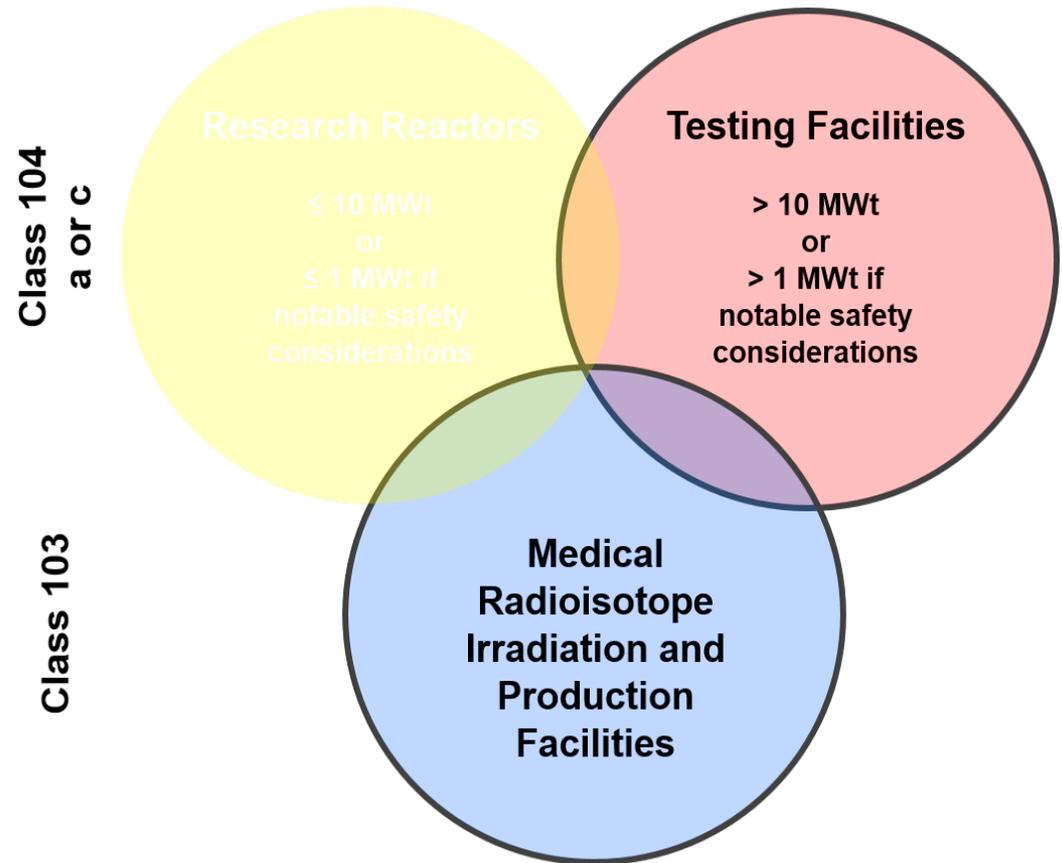
8. Clarify Existing Environmental Reporting Requirements

- Add requirement in 10 CFR 51.56 for NPUFs to provide an environmental report per 10 CFR 51.45
- Historically, NRC has relied on 10 CFR 51.41 to collect “environmental information”
- Improve consistency and clarify Part 51 requirements for licensing actions



9. Eliminate NPUF Financial Qualification Information Requirement

- Eliminate 10 CFR 50.33(f)(2) financial qualification requirement at license renewal only
- Primary means to ensure safety is through NRC's oversight and enforcement programs
- Reduce licensee burden without compromise to public health and safety



Summary of the NPUF Proposed Rule

- **Costs and Cost Savings (Undiscounted)**

	NRC	Licensee
Implementation Costs	\$720,000	\$140,000
Operations Costs	\$1.8 million	\$1.6 million
Cost Savings	\$12 million	\$5.5 million
Net Benefits (Cost Savings – Costs)	\$9.4 million	\$3.8 million

- **Total Net Benefit (Undiscounted): \$13 million**
 - 3 Percent discounting: \$8.9 million
 - 7 Percent discounting: \$5.3 million
- **Backfit Considerations:**
 - Section 50.109 does not apply to NPUFs
 - Section 50.109 not applied to this proposed rule

NPUF Proposed Rule Documents

The NRC staff will be requesting public comments on the following NPUF documents:

- *Federal Register* Notice
 - Draft rule language
- Regulatory analysis
 - Cost/Benefit calculation
- Environmental assessment
 - Finding of no significant environmental impact
- Draft Reg Guide DG-2006
 - Acceptable methods for updating FSARs

NPUF Rulemaking Schedule

- Proposed NPUF rule is expected to be issued for public comment in the fall of 2016
 - 75-day comment period
 - All supporting documents will be issued together
 - NRC staff will hold a public meeting during the public comment period
- Final NPUF rule should be issued early in 2018

NPUF Proposed Rule Summary

NPUF Proposed Rule Change	Class 103 Facilities	Class 104a Facilities	Class 104c Facilities	
	Commercial	Medical Therapy	R&D	Testing
1. Create a definition for NPUF	✓	✓	✓	✓
2. Eliminate license terms	N/A	✓	✓	N/A
3. Define the license renewal process	✓	N/A	N/A	✓
4. Require updated FSAR submittals	✓	✓	✓	✓
5. Amend timely renewal provision	✓	✓	✓	✓
6. Provide an accident dose criterion	✓	✓	✓	N/A
7. Extend applicability of 10 CFR 50.59	✓	✓	✓	✓
8. Clarify existing environmental reporting requirements	✓	✓	✓	✓
9. Eliminate NPUF financial qualification information requirement	✓	N/A	N/A	✓

Conclusion

- Eliminating licensing terms would reduce the burden on both the licensees and NRC staff
 - Allowed by the AEA
 - Minimum regulation on licensees
 - Continued oversight and inspections by NRC staff
 - Improved FSAR documentation
- Total quantitative benefit of the proposed rule: \$13 million
- Maintain the safe operation of the facility while protecting the public health and safety

QUESTIONS?



BACK UP SLIDES



The policy for regulation of Class 104 NPUFs is described in the Atomic Energy Act of 1954, as amended, Section 104a. and c.

Sec. 104. Medical Therapy and Research and Development

- a. ...the Commission is directed to permit the widest amount of effective medical therapy possible with the amount of special nuclear material available for such purposes and to impose the minimum amount of regulation consistent with its obligations under this Act to promote the common defense and security and to protect the health and safety of the public.
- c. The Commission is directed to impose only such minimum amount of regulation of the licensee as the Commission finds will permit the Commission to fulfill its obligations under this Act to promote the common defense and security and to protect the health and safety of the public and will permit the conduct of widespread and diverse research and development.



The policy for regulation of Class 103 NPUFs is described in the Atomic Energy Act of 1954, as amended, Section 103.

Sec. 103. Commercial Licenses

- a. The Commission is authorized to issue licenses to persons applying therefor to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, use¹⁰⁰ import, or export under the terms of an agreement for cooperation arranged pursuant to section 123, utilization or production facilities for industrial or commercial purposes.¹⁰¹ Such licenses shall be issued in accordance with the provisions of chapter 16 and subject to such conditions as the Commission may by rule or regulation establish to effectuate the purpose and provisions of this Act.

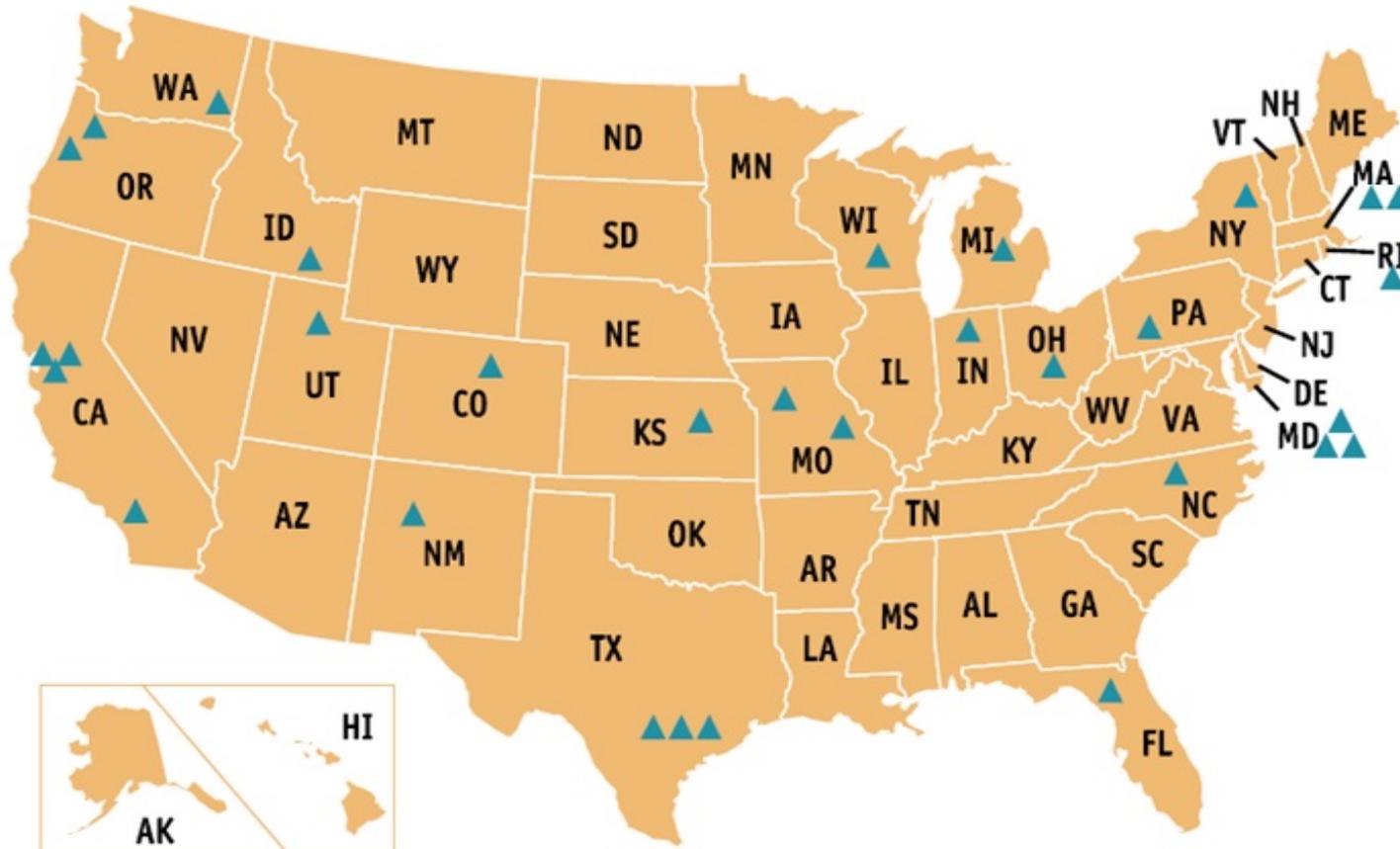
- c. Each such license shall be issued for a specified period, as determined by the Commission, depending on the type of activity to be licensed, but not exceeding forty years from the authorization to commence operations and may be renewed upon the expiration of such period.

Regulatory Definitions

- Non-power reactor means a research or test reactor licensed under § 50.21(c) or 50.22 of this part for research and development [*10 CFR 50.2 Definitions*].
- Research reactor means a nuclear reactor licensed by the Commission under the authority of subsection 104c of the Act and pursuant to the provisions of § 50.21(c) of this chapter for operation at a thermal power level of 10 megawatts or less, and which is not a testing facility as defined by paragraph (m) of this section [*§ 170.3 Definitions*].

- Testing facility means a nuclear reactor which is of a type described in § 50.21(c) of this part and for which an application has been filed for a license authorizing operation at:
 - (1) A thermal power level in excess of 10 megawatts; or
 - (2) A thermal power level in excess of 1 megawatt, if the reactor is to contain:
 - (i) A circulating loop through the core in which the applicant proposes to conduct fuel experiments; or
 - (ii) A liquid fuel loading; or
 - (iii) An experimental facility in the core in excess of 16 square inches in cross-section. [§ 170.3 Definitions]

U.S. Non-Power Facilities



- 36 licensed research and test reactors
 - 31 reactors operating in 21 States
 - 5 reactors permanently shut down and in decommissioning

U.S. Non-power Facilities

- Current fleet:
 - 30 research reactors and 1 testing facility
 - 25 academia
 - 3 private industry (Aerotest, GE, DOW Chemical)
 - 3 federal government (AFRRI, NIST, USGS)
- Licensed pursuant to 104(c) of the AEA, one facility also holds a 104(a) license
 - Minimum Regulation
- Power range – 5 Wt to 20 MWt
- Fuel types – TRIGA, AGN, plate fuel, one of a kind
- Staffing – small (1 or 2) to large (10 to 165)

Commission directed rulemaking

- The idea to eliminate license terms (or indefinite license term) was discussed in several SECY papers addressing license renewal for research and test reactors.
 - SECY-08-0161, Enclosure 1 –
 - license renewal streamlining options including an “Extended License Term” option which included the concept of indefinite terms
 - SRM for SECY-08-0161 states:
 - This long term plan should consider elements of the generic analysis approach, generic siting analysis, and the extended license term described in Enclosure 1 to SECY-08-0161.

Extended license terms

- SECY-09-0095, Enclosure 2 discusses extended license terms and explains that the staff needs to study the topic:

“The extended license term process could potentially provide significant benefit to RTR licensees while ensuring that the NRC continues to maintain adequate protection of the public and the environment.”