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NRC Public Meeting on the Nuclear Energy Innovation and Modernization Act (NEIMA) and Potential Impacts on Non-Power Reactors

Alexander Adams, Jr., Senior Project Manager
William B. Kennedy, Project Manager

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Purposes of the Meeting

- Explain the changes made by the Nuclear Energy Innovation and Modernization Act (NEIMA) to Section 104c of the Atomic Energy Act of 1954, as amended (AEA)

- Collect feedback from holders of Class 104c licenses for non-power reactors and other members of the public about the potential impacts of the changes to Section 104c of the AEA

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Meeting Agenda

10:30-10:45: Introductions

10:45-11:15: Presentation on the changes made to Section 104c of the AEA by NEIMA

11:15-12:30: Discussion of the potential impacts on existing non-power reactors from the changes to Section 104c of the AEA

12:30: Meeting adjournment

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Changes Made to Section 104c of the Atomic Energy Act by NEIMA

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Background

- Section 101, "License Required," of the AEA requires a non-power reactor to be licensed pursuant to either:
  - Section 103, "Commercial Licenses," or
  - Section 104, "Medical Therapy and Research and Development"
- All existing non-power reactors are currently licensed pursuant to Section 104 of the AEA
  - 31 non-power reactors licensed as research and development facilities under Subsection 104c of the AEA
  - 1 non-power reactor also licensed as a utilization facility for medical therapy under Subsection 104a of the AEA

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Background

- Section 104c of the AEA: **minimum amount of regulation**
- Section 103 of the AEA: **additional licensing requirements**
  - Environmental impact statement
  - Review by the Advisory Committee on Reactor Safeguards
  - Mandatory hearings
  - Fixed license terms not to exceed 40 years

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Background

- NRC implements its licensing authority for non-power reactors, in part, through the following regulations in Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR):
  - 10 CFR 50.22 for Class 103 licenses
  - 10 CFR 50.21 for Class 104 licenses
    - 10 CFR 50.21(a) covers licensing a utilization facility for use in medical therapy
    - 10 CFR 50.21(c) covers licensing a production or utilization facility useful in the conduct of research and development activities

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Background

- 10 CFR 50.22 states:

  "A class 103 license will be issued, to an applicant who qualifies, for any one or more of the following: To transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, or use a production or utilization facility for industrial or commercial purposes; *Provided, however*, That in the case of a production or utilization facility which is useful in the conduct of research and development activities of the types specified in section 31 of the Act, such facility is deemed to be for industrial or commercial purposes if the facility is to be used so that more than 50 percent of the annual cost of owning and operating the facility is devoted to the production of materials, products, or energy for sale or commercial distribution, or to the sale of services, other than research and development or education or training."

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NEIMA's Changes to the AEA

- NEIMA was enacted January 14, 2019
- Section 106, "Encouraging Private Investment in Research and Test Reactors," of NEIMA amended section 104c of the AEA in two ways:
  - First, NEIMA removed the words "and which are not facilities of the type specified in subsection 104 b."
  - Second, NEIMA changed the framework by which the NRC determines whether a utilization facility is licensed under Section 103 or Section 104c of the AEA by adding cost recovery criteria for the issuance of licenses for utilization facilities useful in the conduct of research and development.

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NEIMA's Changes to the AEA

- Section 106 of NEIMA amended Section 104c of the AEA to focus on how the costs to the licensee of owning and operating the facility are recovered rather than how much a licensee spends on commercial activities
- Prior to NEIMA, the AEA did not include such criteria, and the criterion specified in 10 CFR 50.22 was used to determine whether a facility was licensed under Section 103 or Section 104 of the AEA

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NEIMA's Changes to the AEA

- The NRC is now authorized to issue a license under Section 104c of the AEA for a utilization facility that recovers not more than 75 percent of the annual costs to the licensee of owning and operating the facility through sales of nonenergy services, energy, or both, other than research and development or education and training, and recovers not more than 50 percent of annual costs through sales of energy to others.

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NEIMA's Changes to the AEA

- In contrast, the current regulations in 10 CFR 50.22 do not limit cost recovery
- A Class 104c licensee could recover 100 percent of the cost of owning and operating the facility from the commercial activities listed in 10 CFR 50.22
- However, the licensee can't devote more than 50 percent of the cost of owning and operating the facility to the commercial activities listed in 10 CFR 50.22

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NEIMA's Changes to the AEA

- The new cost recovery criteria NEIMA added to Section 104c of the AEA amends the NRC's authority to issue licenses
- The NRC will apply the cost recovery criteria to the issuance of new Class 104c licenses and renewed Class 104c licenses
- Applicants for new or renewed Class 104c licenses must also comply with the requirements of 10 CFR 50.22 or be granted an exemption in accordance with 10 CFR 50.12, "Specific exemptions"
- The NRC can't exempt a licensee or applicant from the requirements of the AEA

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NEIMA's Changes to the AEA

- The NRC staff plans to update the guidance in Chapter 15 of Part 1 of NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors" during the next revision to address the new cost recovery criteria in Section 104c of the AEA

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Examples

Example 1:

- A licensee spends $10 each year to own and operate a 4-megawatt reactor
- Of the $10, the licensee spends $8 on research and development activities and $2 on commercial activities
- Each year the licensee earns $10 from the commercial activities and allows researchers to use the reactor's experiment facilities for free

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Examples

Example 1 (continued):

- According to 10 CFR 50.22, the facility would be licensed as a research and development facility under Section 104c of the AEA because it **devotes only 20 percent of the cost of owning and operating the facility to commercial activities**
- However, according to Section 104c of the AEA (which is the controlling legal authority), this facility would be licensed as a commercial facility under Section 103 of the AEA because it **recovers more than 75 percent of the cost of owning and operating the facility from commercial activities**

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Examples

Example 2:

- A licensee spends $10 each year to own and operate a 4-megawatt reactor
- Of the $10, the licensee spends $2 on research and development activities and $8 on commercial activities, including producing energy for sale
- Each year the licensee earns $4 from sales of energy, $3 from sales of non-energy services, and allows researchers to use the reactor's experiment facilities for free

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Examples

Example 2 (continued):

- According to 10 CFR 50.22, the facility would be licensed as a commercial facility under Section 103 of the AEA because it **devotes 80 percent of the cost of owning and operating the facility to commercial activities**
- However, according to Section 104c of the AEA (which is the controlling legal authority), this facility could be licensed as a research and development facility under Section 104c of the AEA because it **recovers only 70 percent of the cost of owning and operating the facility from commercial activities, and only 40 percent is from sales of energy**

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Examples

Example 3:

- A licensee spends $10 each year to own and operate a 4-megawatt reactor
- Of the $10, the licensee spends $7 on research and development activities and $3 on commercial activities
- Each year the licensee earns $3 from the commercial activities and allows researchers to use the reactor's experiment facilities for free

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Examples

Example 3 (continued):

- According to both 10 CFR 50.22 and Section 104c of the AEA, the facility would be licensed as a research and development facility under Section 104c of the AEA because it **devotes only 30 percent of the cost of owning and operating the facility to commercial activities** and **recovers only 30 percent of the cost of owning and operating the facility from commercial activities**

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Examples

Example 4:

- A licensee spends $10 each year to own and operate a 4-megawatt reactor
- Of the $10, the licensee spends $4 on research and development activities and $6 on commercial activities
- Each year the licensee earns $10 from the commercial activities and allows researchers to use the reactor's experiment facilities for free

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Examples

Example 4 (continued):

- According to both 10 CFR 50.22 and Section 104c of the AEA, the facility would be licensed as a commercial facility under Section 103 of the AEA because it **devotes 60 percent of the cost of owning and operating the facility to commercial activities** and **recovers 100 percent of the cost of owning and operating the facility from commercial activities**

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Questions?

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Discussion and Feedback on Potential Impacts of Section 104c of the AEA on Existing Non-Power Reactors

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Potential Impacts

- The changes Congress made to section 104c of the AEA through NEIMA apply to the issuance of renewed licenses for existing research and test reactors
- The NRC staff will review the license renewal application against the new cost recovery criteria in Section 104c of the AEA, as well as the criterion in 10 CFR 50.22
- Licensees that don't meet the cost recovery criteria in Section 104c of the AEA may have to be relicensed under Section 103 of the AEA

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Potential Impacts

- The changes Congress made to section 104c of the AEA through NEIMA did not address the applicability of the cost recovery criteria to Class 104c licenses issued before the enactment of NEIMA and that will not go through license renewal in the future
- The NRC could apply the new cost recovery criteria to these licenses or continue to apply only the requirements in 10 CFR 50.22

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Potential Impacts

- The NRC is considering whether to initiate a rulemaking to address the new cost recovery criteria in Section 104c of the AEA by amending its regulations in 10 CFR 50.21 and 10 CFR 50.22
- The NRC staff would benefit from a better understanding of the potential impacts on existing Class 104c licensees and how many existing licensees might be impacted by the changes to Section 104c of the AEA

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Additional questions?