



# A Common Understanding of Terminology

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# Purpose

Provide a common understanding of reactor classification terminology important to licensing, including:

- Class 103 License
- Research and Development
- Research Reactor
- Prototype Facility
- Class 104 License
- Non-power Reactor
- Testing Facility
- Demonstration Facility



# NRC's Licensing Authority

## Atomic Energy Act, as amended (Act)

- Section 103 - licensing of reactor facilities for commercial or industrial purposes
- Section 104 - licensing of reactors for medical therapy, or for research and development



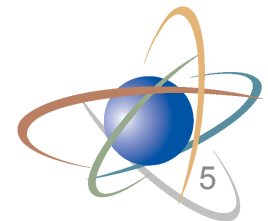
# NRC Licensing Terminology

*Research and development* means (1) theoretical analysis, exploration, or experimentation; or (2) the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstration purposes, including the experimental production and testing of models, devices, equipment, materials, and processes



# NRC Licensing Terminology

- *Non-power reactor* means a research or test reactor licensed by the NRC pursuant to the provisions of 10 CFR 50.21(c) or 10 CFR 50.22 for research and development
- Examples:
  - University research and teaching reactor – Section 104c pursuant to 10 CFR 50.21(c)
  - Commercial medical isotope production reactor – Section 103 pursuant to 10 CFR 50.22



# NRC Licensing Terminology

- *Research reactor* means a nuclear reactor licensed by the NRC under the authority of Section 104c of the Act and pursuant to the provisions of 10 CFR 50.21(c) for operation at a thermal power level of 10 megawatts or less, and is not a testing facility
- Examples:
  - Penn State University
  - Oregon State University



# NRC Licensing Terminology

- *Testing facility* means a nuclear reactor licensed by the NRC under the authority of Section 104c of the Act and pursuant to the provisions of 10 CFR 50.21(c) for operation at:
  - A thermal power level in excess of 10 megawatts;
    - One NRC-licensed test reactor - NIST



# NRC Licensing Terminology

*(Testing Facility continued)*

- A thermal power level in excess of 1 megawatt, if the reactor is to contain:
  - A circulating loop through the core in which the applicant proposes to conduct fuel experiments; or
  - A liquid fuel loading; or
  - An experimental facility in the core in excess of 16 square inches in cross-section
  - Examples include FFTF or the ATR





# NRC Licensing Terminology

- *Prototype plant* means a nuclear reactor that is used to test design features, such as the testing required under 10 CFR 50.43(e), is similar to a first-of-a-kind or standard plant design in all features and size, but may include additional safety features to protect the public and the plant staff from the possible consequences of accidents during the testing period

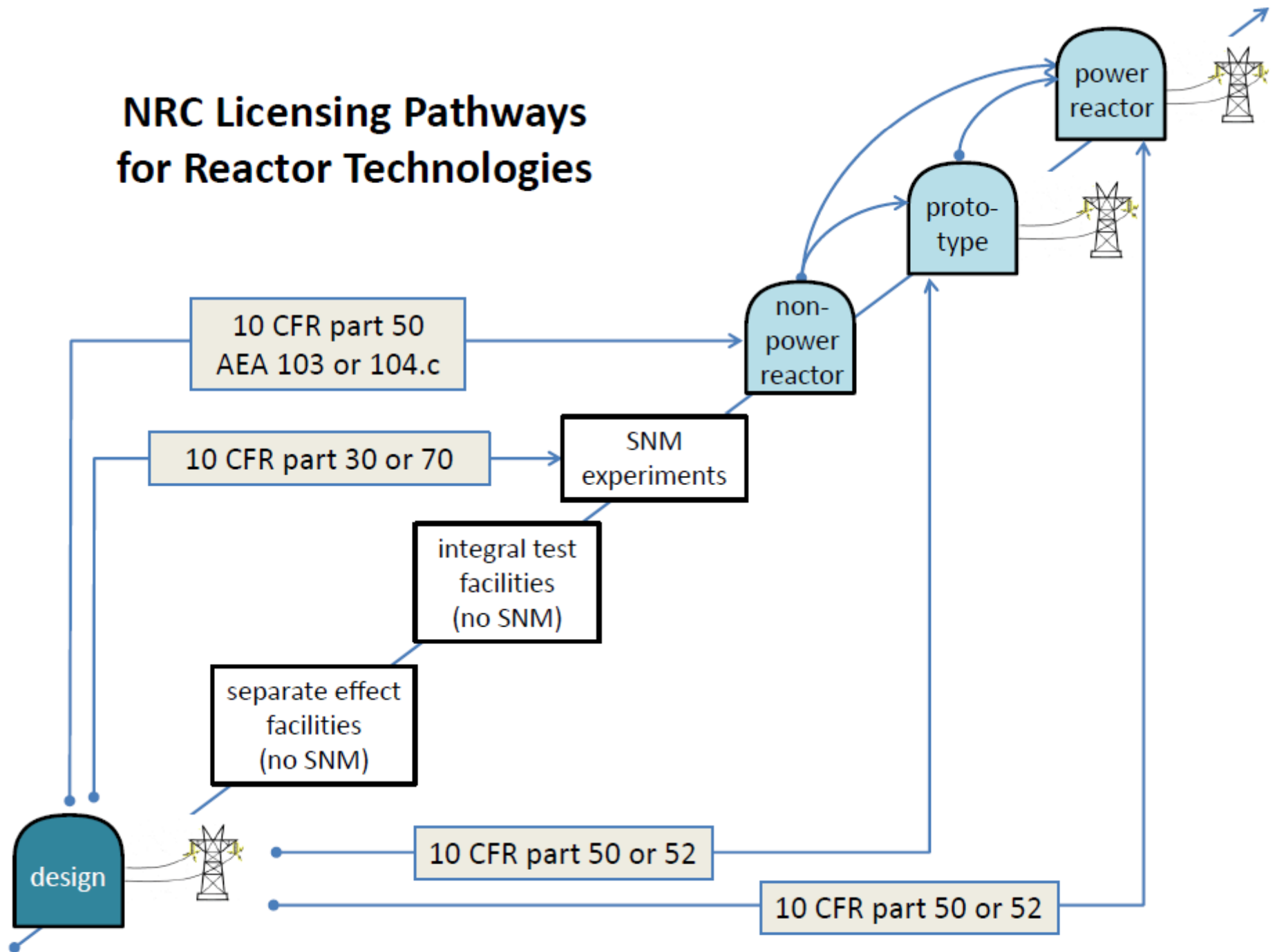


# NRC Licensing Terminology

- *Commercial Demonstration Reactor*
  - Not defined in NRC regulations
  - Likely resulted from power reactors that were part of the AEC Cooperative Power Reactor Demonstration Program
  - Licensed under Section 104b of the Act



# NRC Licensing Pathways for Reactor Technologies



# NRC Licensing Terminology

- Licensing under 104b of the Act
  - A 1970 amendment to Section 102 of the Act eliminated licensing under 104b
  - Requires specific authorization by law for use
  - Specifies licensing under Section 103 of the Act

