

Nuclear Data Scoping Study

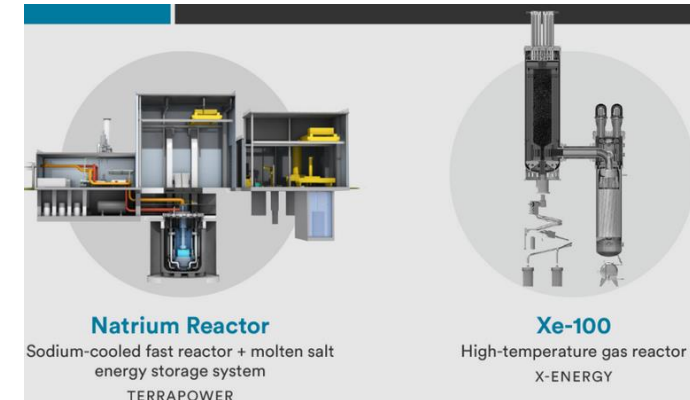
Identifying priorities and emerging needs



Focus on advanced reactor data needs

<https://www.energy.gov/ne/articles/infographic-advanced-reactor-development>

- Significant growth in energy reactor activities, including novel designs
 - Reactors sought by nations for energy and economic security
 - Industrial opportunities (e.g. AI data centers, heating, desalination) also increasing
 - Pressure to develop and deliver on an accelerated timeline
- Bolster the non-proliferation mission to meet the evolving energy landscape by identifying opportunities in nuclear data and data resources
 - Compile information from past and current studies, workshops, and agencies (e.g. WANDA, NRC, IAEA)
 - Identify synergies across agencies (e.g. NE, NA-10, NA-80)
- Deliver summary of recommendations and priorities April 2026



- Data and uncertainties
 - New fuel types, e.g. HALEU, Th, salts
 - New coolants, e.g. Pb, Na, F salts
 - Complex fuel cycles, transmutation
- Signature and safeguards challenges
 - Minor actinides and fission products
 - Neutron & gamma emission
- High temperature and chemical effects
- Validation and benchmarking

Identified six nuclear data themes relative to nonproliferation

- Activation/Inventory and decay data
- Fission characteristics: minor actinides and emissions
- Neutron scatter: fuels, structural, coolant materials
- Light element data: Li, Be, C, F; including thermal models
- Improve coverage/quality of uncertainties
- Benchmarks beyond criticality
 - Neutron, gamma, fission products for fuels and components

