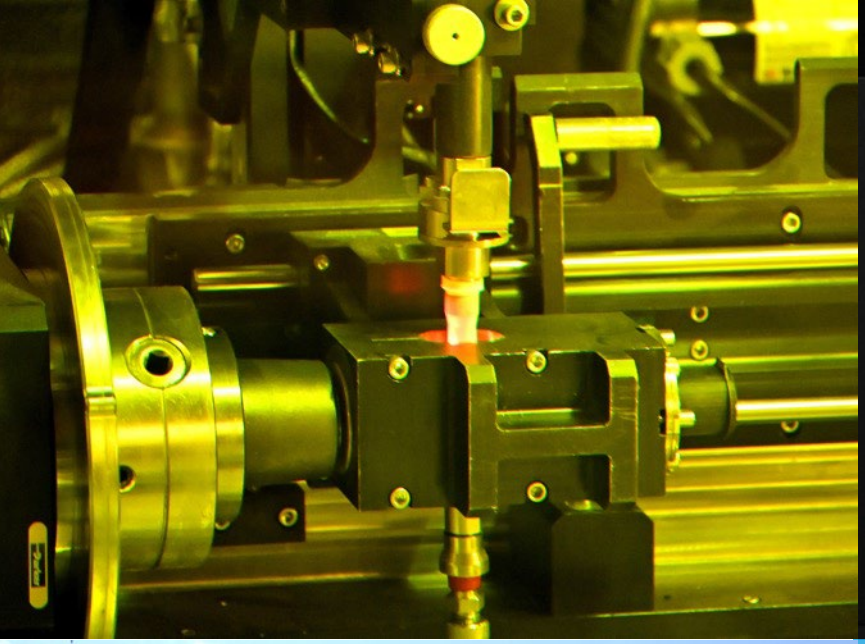

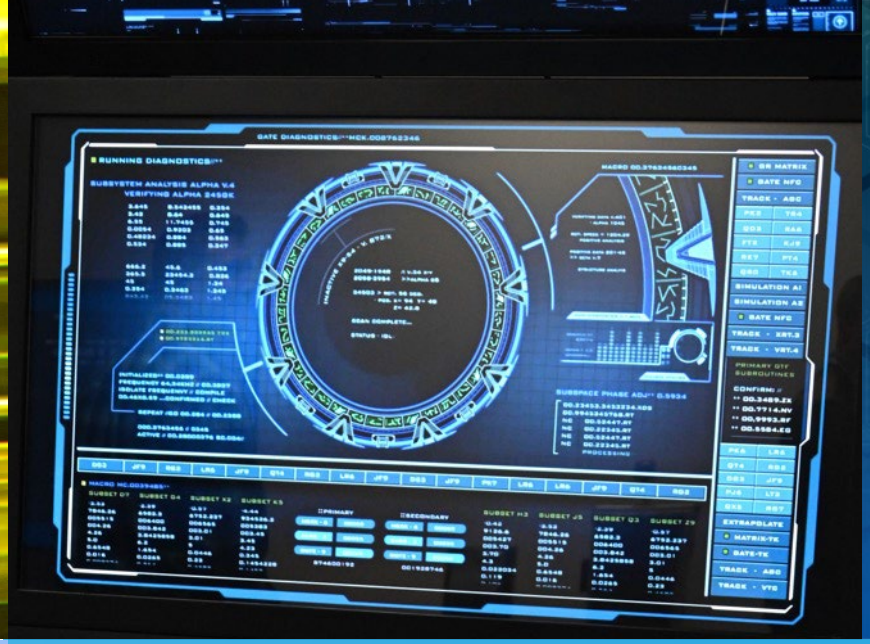

May 19, 2026

Jess Gehin
Associate Laboratory Director
Nuclear Science & Technology

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Nuclear Energy Launch Pad –

Accelerating the Path from Concept to Deployment

Industry Day

Battelle Energy Alliance manages INL for the
U.S. Department of Energy's Office of Nuclear Energy

Idaho National Laboratory

Nuclear Energy Launch Pad
Building on Pilot Program Success

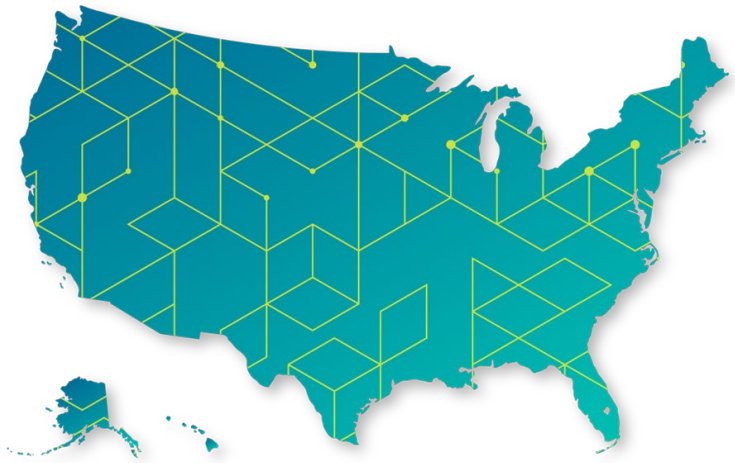
Purpose
- Fast-track the testing of advanced nuclear technologies
- Strengthen domestic nuclear infrastructure
- Enable pathway to commercial licensing

Scope
- DOE Authorization
- Advanced nuclear technologies
- Federal & non-Federal sites

Requirement
- Applicants bear life cycle cost of project
- Project must be based in United States

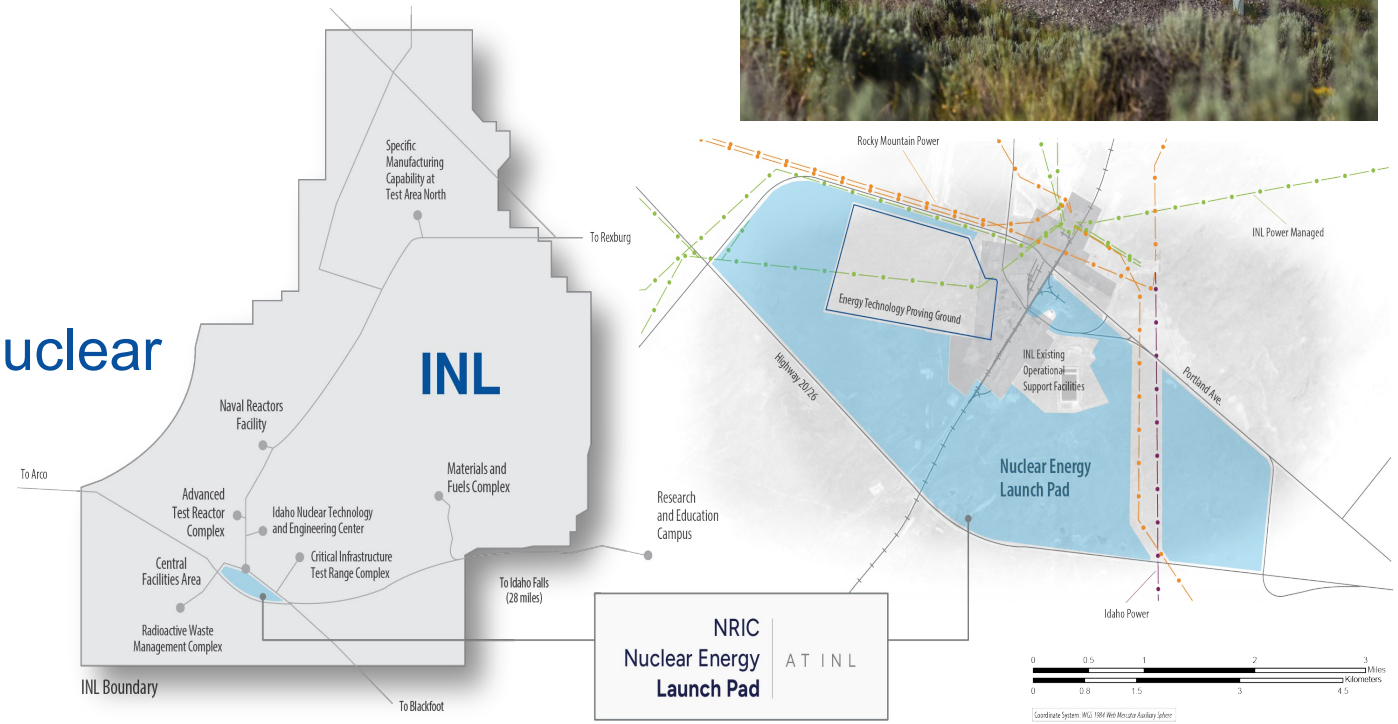
Collaboration
- NRIC/INL, DOE-ID, NE-4, NE-5, NRC, National Laboratories, and Universities

Two Pathways
- Launch Pad Idaho National Laboratory
- Launch Pad United States of America



Launch Pad INL

- ~2,000-acre site at reserved at INL
  - Located near INL's Energy Technology Proving Ground
- Proximity to infrastructure,
- Previously characterized site
- On-site access to INL's world-class nuclear expertise
- Shared infrastructure, facilities, and services through co-location



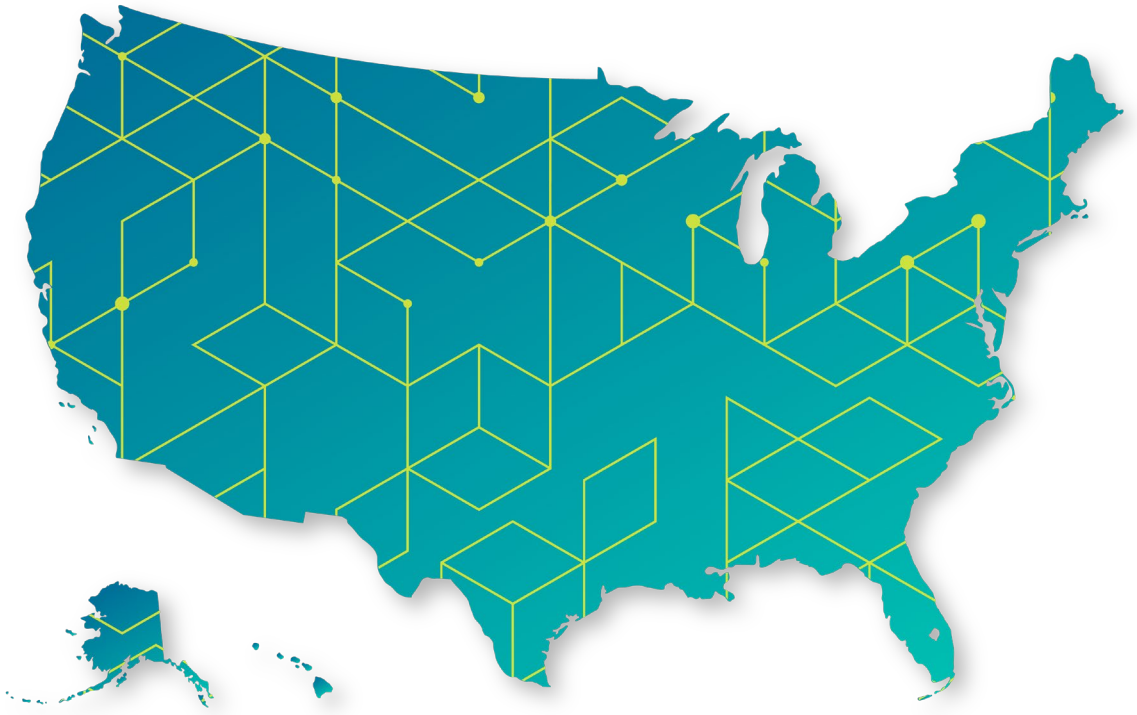
The Energy Technology Proving Ground

Driving multi-scale research programs

- A transformative research complex for at-scale research, energy innovation, and technology integration
- Modular, multiple test-bed research complex supporting nine integrated research areas
- Over $100M in investments *(in-hand & budgeted)* from DOE and industry partners
- Positioned as a cornerstone for U.S. energy innovation

Launch Pad U.S.A

- DOE-authorized deployments outside INL, at other DOE or non-federal sites.
- Offers flexibility to site across US, priority DOE authorization, and remote access to INL expertise



Roles & Responsibilities

DOE Office of Nuclear Energy

- Provide overall program direction and authority
- Oversee Concierge Team*
  - Developer resource comprised of senior leaders to deconflict and remove barriers
- Approve Project Selections
- Approves disposition path for used nuclear fuel and high-level waste

DOE-Idaho

- Provide Regulatory Authority
- Manage Other Transactional Authority (OTA) Agreements
- Approve Launch Pad Project Selections

National Reactor Innovation Center

- Organize the Launch Pad Program
- Build integrated project teams to support Launch Pad developers
- Coordinate with National Labs and Universities
- Develop, issue, and manage Request for Applications
- Provide Technical Program Manager for each project
- Issue Strategic Partnership Project with Developer
- Develop and manage website and communications

Developer

- Technology development and overall project execution
- Funding for project and for cost incurred by NRIC and any additional support needed for DOE Authorization
- Manage (or have an agreement with Battelle Energy Alliance) all Used Nuclear Fuel and High-Level Waste and other waste forms regulated under the Environmental Protection Agency

* For information regarding concierge team
Contact Brad Tomer at brad.tomer@inl.gov

Backup

Resource Center Upcoming

Subject Matter Experts List
UNIVERSITIES

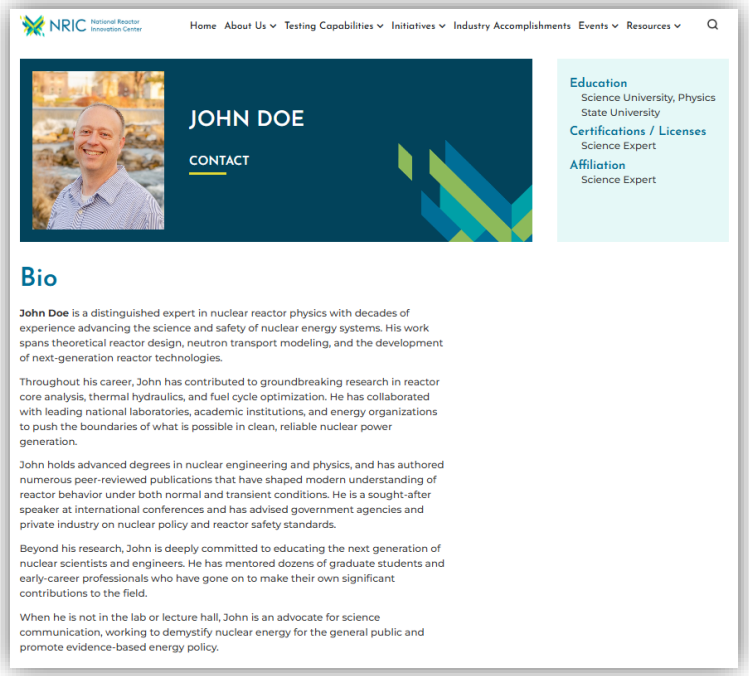
- Annual survey distributed to gather contact information, expertise areas, and experience
- Results will be used to develop an SME database for future collaboration

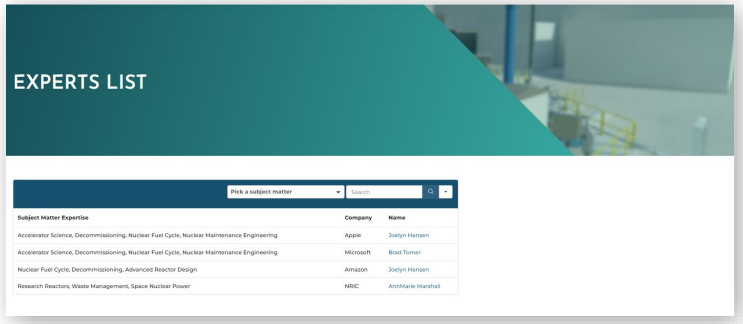
Capabilities and Siting Opportunities
NATIONAL LABS

- Lab factsheets that contain information about facilities, capabilities, and points of contact

Subject Matter Experts/Capabilities/Site Information
IDAHO NATIONAL LABORATORY

- Interface agreement templates; Siting & regulatory checklists; Menu of services; SME list





Launch Pad Pathway Comparison

	INL	USA
Primary Purpose	Centralized demonstration site at Idaho National Laboratory	Distributed demonstration sites across the United States
Siting Location	Idaho National Laboratory	Any suitable U.S. location outside INL
Land Availability	Dedicated land reserved for technology siting	Developer-identified or partner-provided sites
Site Characterization	Well-characterized sites with existing environmental and safety data	Site characterization dependent on selected location
Infrastructure & Services	Shared infrastructure, facilities, and services through co-location	Infrastructure varies by site; not shared through INL
Access to INL Expertise	Direct, on-site access to INL staff and facilities	Remote or project-specific access to INL expertise
DOE Authorization	Prioritized access to DOE authorization processes	Prioritized access to DOE authorization processes
NRC Licensing	Enables pathway to NRC licensing of projects	Enables pathway to NRC licensing of projects
Flexibility	Standardized, controlled environment	High flexibility to leverage unique regional or project-specific advantages
Ideal Use Cases	First-of-a-kind demonstrations, multi-project co-location with shared services, rapid access to infrastructure	Projects requiring unique siting conditions, partnerships, or regional advantages

Request for Applications Released April 29, 2026

April 29 - *Open for Applications*

MAY 19 - *Virtual Industry Day (Registration on NRIC website)*

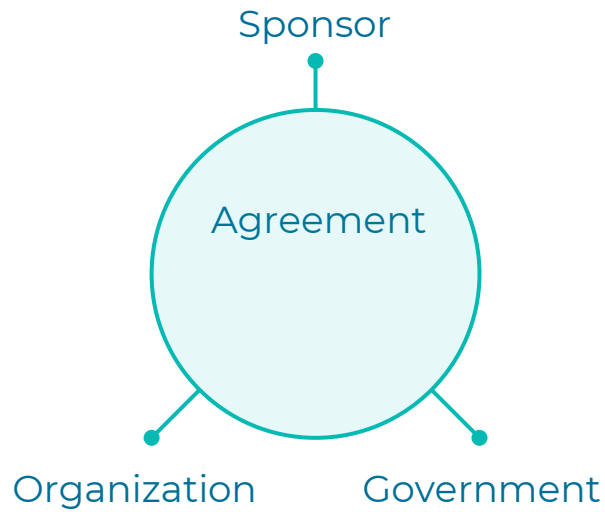
July 8 – *Begin evaluations of applications received to date*

- DOE/NRIC SMEs provide technical and readiness reviews
- Submit evaluations to DOE for approval

AUGUST *Selections announced and TPM assigned*

- Initiate agreement negotiations with Sponsors
  - Other Transactional Authority (OTA) – DOE-ID (DOE Contracts)
  - Strategic Partnership Project (SPP) – NRIC/BEA (Assigned TPM)
  - Other Local, State, Federal Agreements (as required) – (Developer responsibility)

RFA will remain continuously open after this initial release and evaluations will commence at a regular cadence



Launch Pad Initial Participants Announced April 27, 2026

RADIANT

General Matter

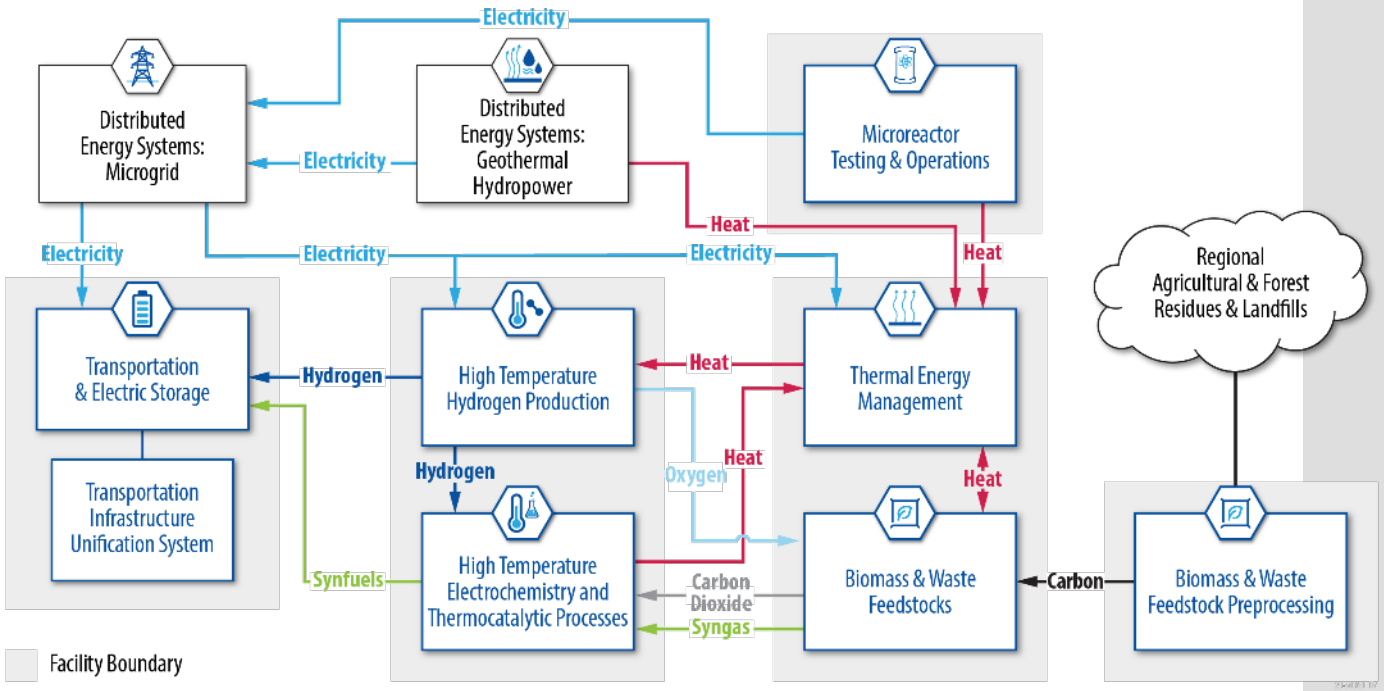
DEPLOYABLE.energy

NuCube Energy

Idaho State University

Proving Ground Integrated Research Areas

Driving Multi-Scale Research Programs



Research Nodes

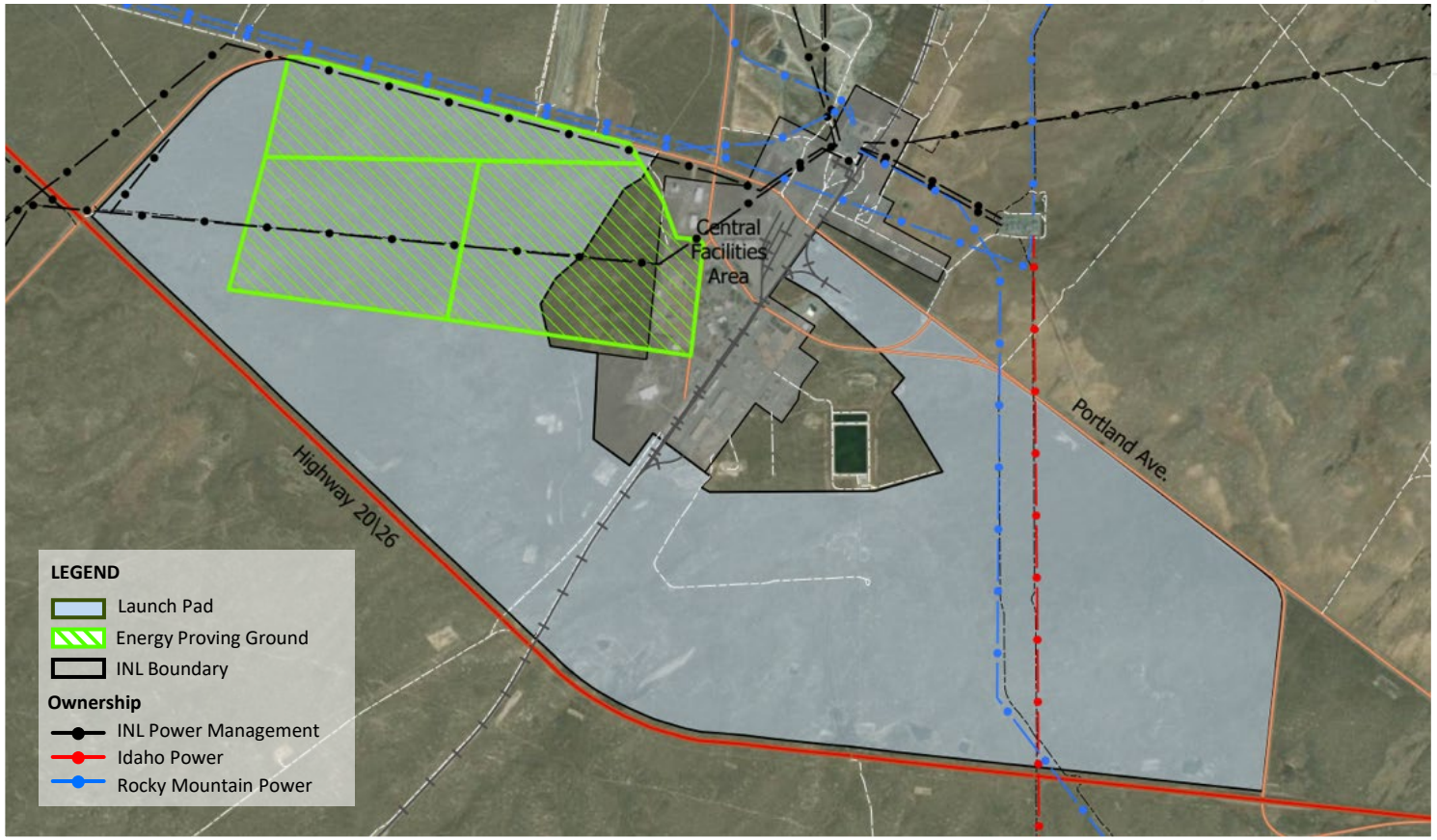
- High Temp. Hydrogen Production
- Thermal Energy Management
- Biomass & Waste Feedstocks
- Electro & Thermocatalytic Processes
- Transportation & Electric Storage
- Distributed Energy Systems
- Critical & Strategic Minerals & Materials
- Microreactor Testing & Operations

Interconnects

- Digital Engineering & Cyber Security
- Real-Time Power & Energy Analysis

Clearing Space for the Proving Ground

~540-acres expansion west of Central Facilities Area



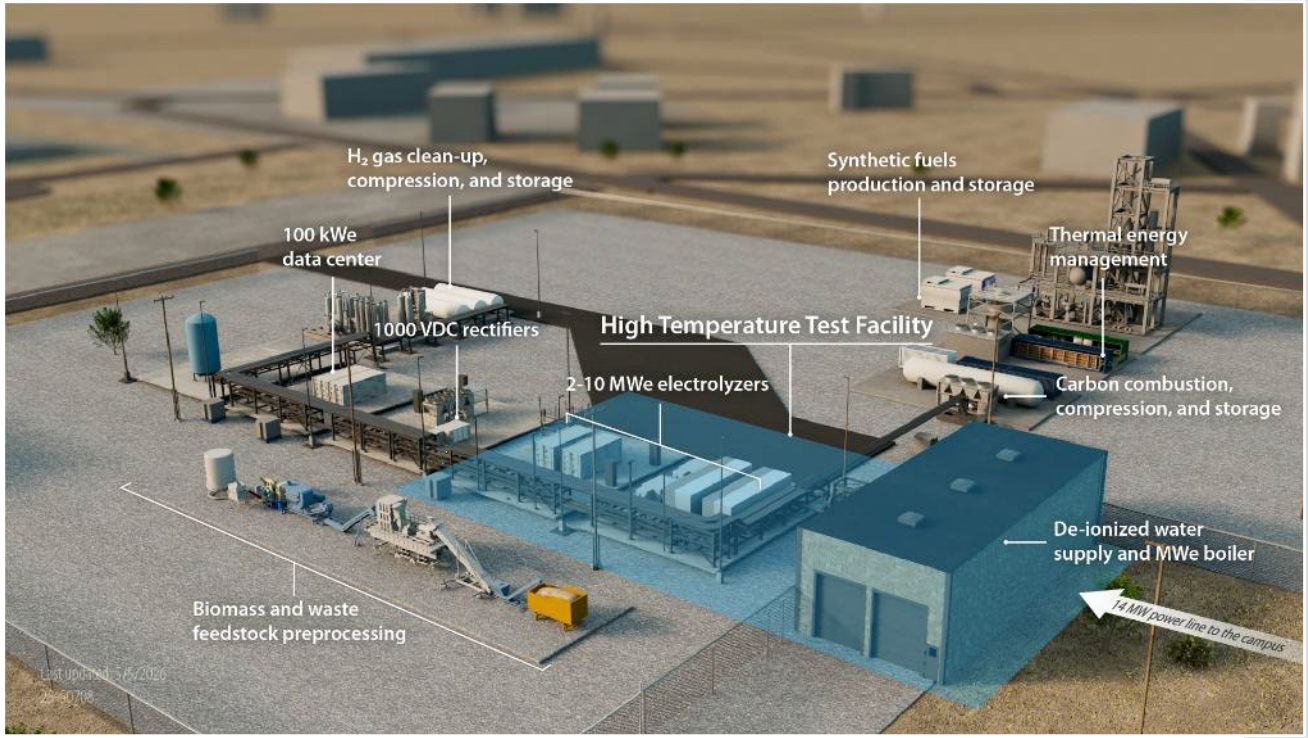
NEPA Actions

- Air Permit Authorization Determination
- Biological Studies
- Cultural Resources Assessment
- Documentation and Notification
- Finding of No Significant Impact (FONSI)

COMPLETION

Summer 2026

High Temperature Test Facility



Design and Authorization Process for Nuclear Facilities

Office of Nuclear Energy

Idaho Operations Office

Christian Natoni

Deputy Manager for Facilities, Programs and Partnerships

May 19, 2026

Executive Order Direction

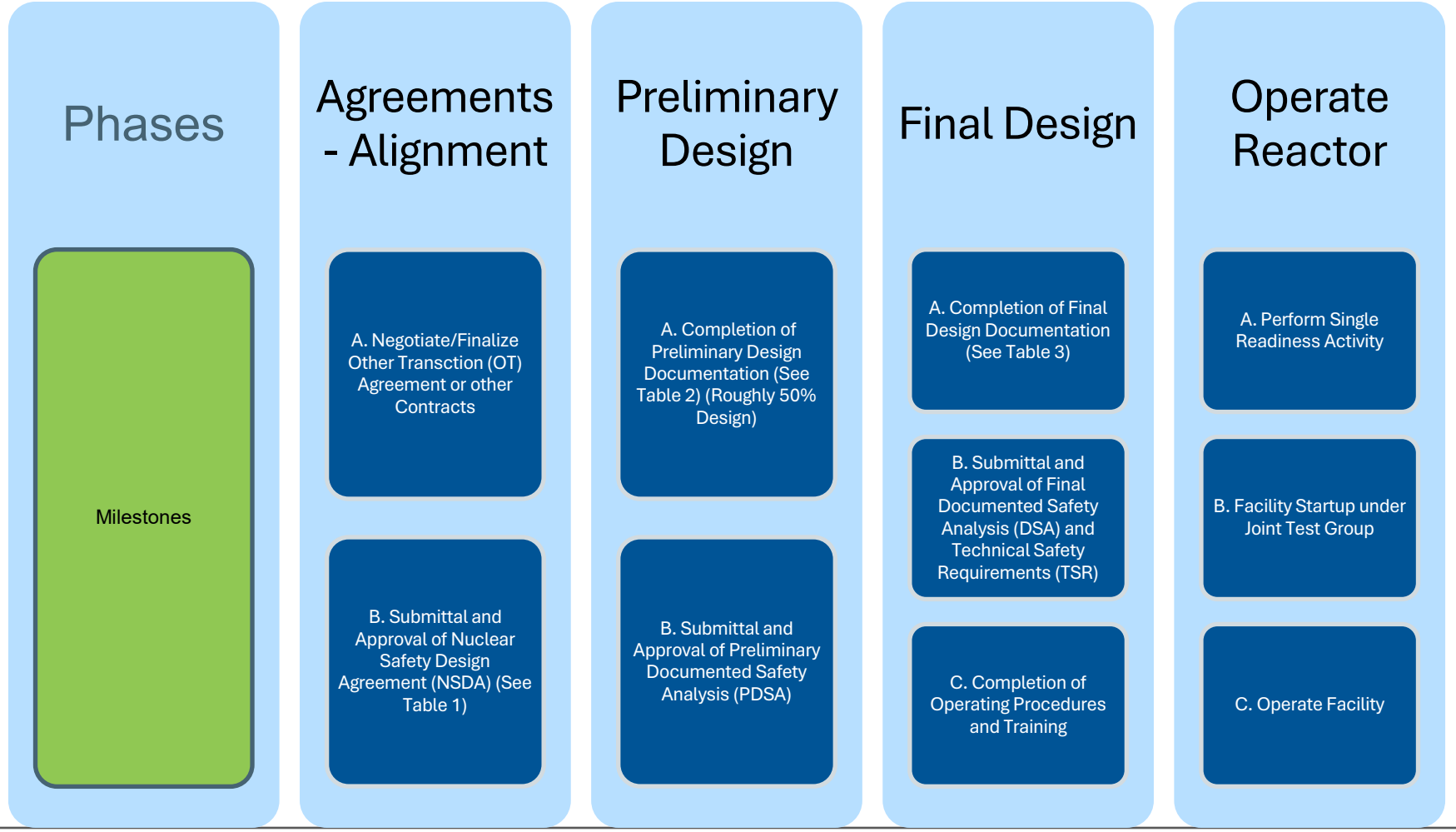
- In May 2025, 4 Executive Orders (EO) were signed to expedite nuclear energy in the U.S.
  - EO14301 (“Reforming Nuclear Reactor Testing at the Department of Energy”) states:
    - (1) “the Secretary shall take appropriate action to revise the regulations, guidance, and procedures and practices of the Department, the National Laboratories, and any other entity under the Department’s jurisdiction to significantly expedite the review, approval, and deployment of advanced reactors under the Department’s jurisdiction. The Secretary shall ensure that the Department’s expedited procedures enable qualified test reactors to be safely operational at Department- owned or Department-controlled facilities within 2 years following the submission of a substantially complete application;” and
    - (2) “The Secretary shall create a pilot program for reactor construction and operation outside the National Laboratories, pursuant to the Atomic Energy Act's authorization of reactors under the Department's sufficient control, including reactors ‘under contract with and for the account of’ the Department, in accordance with 42 U.S.C. 2140. The Secretary shall approve at least three reactors pursuant to this pilot program with the goal of achieving criticality in each of the three reactors by July 4, 2026.”
  - Other EO policy direction to unleash the Nation’s nuclear energy potential, including EO14154 (Unleashing American Energy), 14299 (Deploying Advanced Nuclear Reactor Technologies for National Security), and 14302 (Reinvigorating the Nuclear Industrial Base).

Overall Approach

Key Elements of Executive Order Implementation

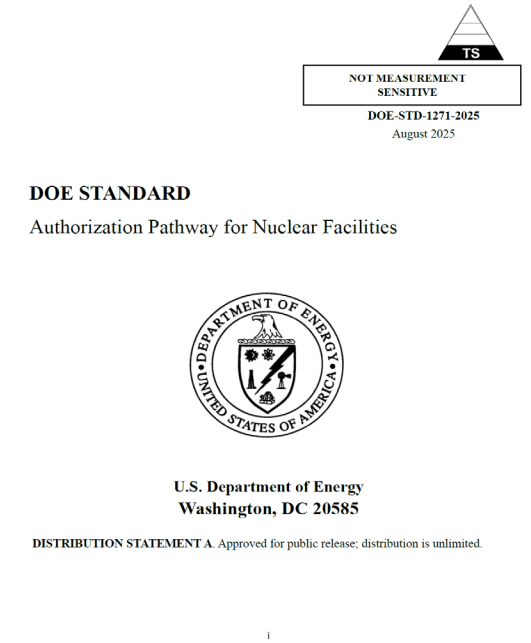
- Two new DOE Polices were created for onsite and offsite nuclear facilities (DOE P 420.2, and 420.3) that outlines NEs authorization policy and safety goals for NE Contractors
- Created a New Standard DOE-STD-1271 for authorization process. The process is compliant with 10 CFR 830
  - New Standard takes the best from DOE-STD-1189 and optimizes it for private vendors. Removes obstacles through Regulatory Reform for a faster authorization process.
- Regulatory Reform - Right sizing the Standards and Technical Requirements

New Authorization Process (DOE-STD-1271)



DOE-STD-1271

- Process starts with a signed contract with DOE through an Other Transactional Authority (OTA) Agreement (similar to M&O contract)
- Next is the Nuclear Safety Design
  - NSDA is an agreement between contractor and DOE on the applicable requirements that will be followed. Allows the contractor to suggest alternatives to DOE requirements.
  - NSDA is an agreement on design requirements, safety analysis approach, regulatory engagement process and key safety decisions for the design


TS

NOT MEASUREMENT SENSITIVE

DOE-STD-1271-2025

August 2025

DOE STANDARD

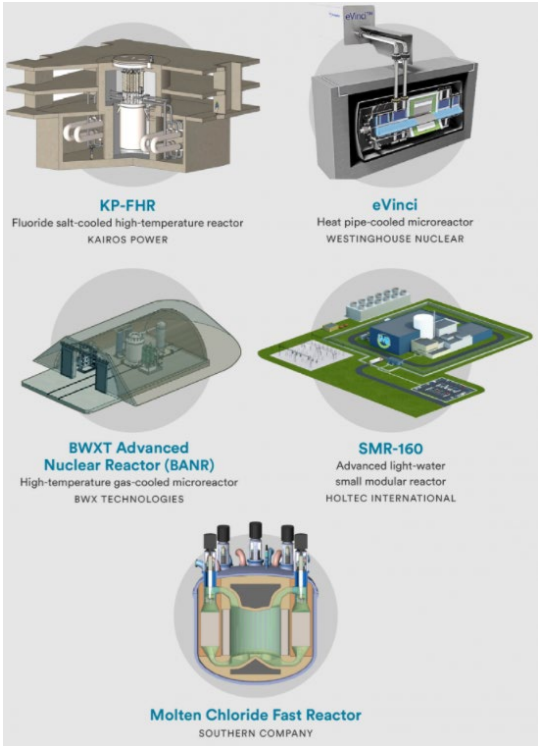
Authorization Pathway for Nuclear Facilities

U.S. Department of Energy
Washington, DC 20585

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

DOE-STD-1271

- Next Step is Preliminary Design
  - Contractor is responsible to have a preliminary design and encouraged to have a design review and invite DOE. DOE-STD-1271 outlines expectations (design needs to be at least 50%). Some areas are preliminary, some are scoping.
    - Preliminary Hazard and Accident Analysis
    - Structures, Systems & Component Classifications
    - Structures, System & Component designs
    - System performance analysis and calculations for demonstrating safety functions with performance criteria
    - Software design specifications/SDDs/Qualification Test Plans
  - Submittal of a PDSA for review and DOE approval. (Note: Construction for private entities may begin at the earliest point permitted by law)

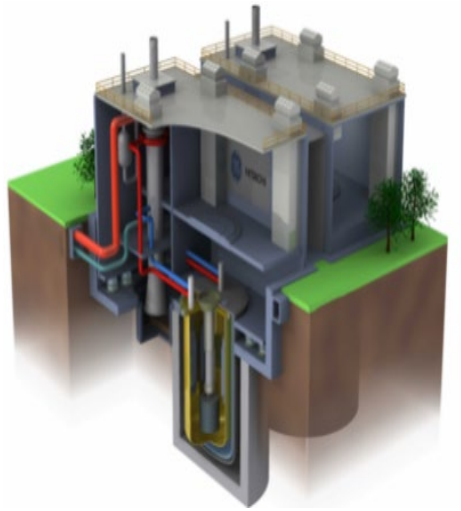


DOE-STD-1271

- Next Stage is Final Design
  - Final Design is achieved when the reactor or facility is substantially complete through construction, fabrication and assembly.
  - Final Design/construction is verified
  - Final DSA is submitted for review and approval.
- Final Stage is Operations
  - Readiness Review (NE O 425) is one DOE Readiness Assessment (1 week of document review, 1 week of onsite review, and 1 week of DOE readiness report preparation and submittal)
  - Facility operation will be through the guidance of a Joint Test Group with an approved Start-up Test Plan
  - Release for contractor operations

Other Nuclear Safety Changes

- Overall Changes to Orders/Standards, allow FEM/SBAA to approve exemptions/equivalencies, allows FEM/SBAA to make changes to NE Orders/Standards
- Regulatory Reform
  - 10 CFR 835 was revised to incorporate new dose limits, removed ALARA
  - 10 CFR 851 exempted NE from the Appendix A, will comply with OSHA
- Revision of DOE Orders for nuclear safety
  - Facility Safety - NE O 420.1 (updated FP, removed Cog System Engineer chapter, Updated NPH Chapter)
  - Quality Assurance - NE O 414.1 (updated contractor requirement expectations)
  - Hazard Categorization - NE STD 1027 (removed the detailed analysis for criticality segmentation)
  - NPH and Design Criteria - NE STD 1020 (started with 1020 in RevCom process, updated provisions in Section 9, updated provisions for off DOE site contractors)
  - Startup or Restart NE O 425.1 (Only one activity, 3 weeks, doesn't apply for HC-3)

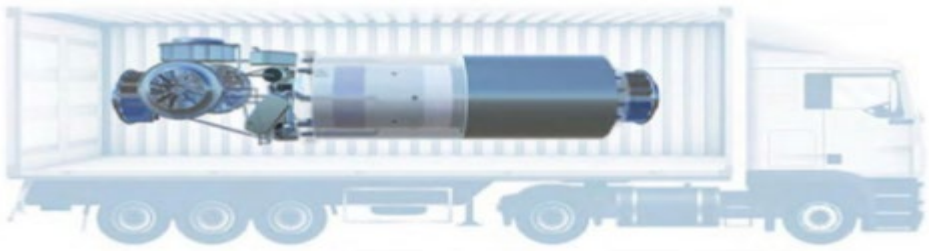


Program Requirements

- Emergency Management – NE O 151.1(streamlined requirements to support private sector, handled more at the Ops Office level)
- Contractor Assurance System – NE P 226.2, NE O 226.1, NE O 232.2 (increased reliance on CAS, only High-level events are reportable to local office and Issues management system)
- Conduct of Operations – NE O 422.1 (removed CRD “Detailed Attributes table. Allows alternative STD, IAEA, NRC)
- Personnel Selection, Qualification, and Training – NE O 426.2 (removed education & experience requirements)
- Maintenance Management – NE O 433.1 (streamlined requirements for a nuclear maintenance management program)

Program Requirements

- Waste Management – NE O 435.1 (requirements specific to DOE, removed EPA requirements, and OSHA reporting requirements)
- Radiation Protection – NE O 458.1, 10 CFR 835 (streamlined order, rule change proposes increased dose limits to public, removed ALARA)
- Security – NE O 470.1 (10 Orders to a single order. Allows the contractor to implement national requirements without amplification)
- Environmental, Safety and Health Reporting – NE O 231.1 (Streamlined ASER report)



U.S. DEPARTMENT *of* ENERGY | Office of Nuclear Energy

Pilot Program Lessons Learned

Christian Natoni

Deputy Manager for Facilities, Programs & Partnerships

Environmental Requirement Planning

- For projects located at DOE sites, ensure that the detailed requirements for environmental permitting and reporting are accounted for, as these projects are likely to contribute to DOE site wide permits managed by the M&O contractor.
- For projects located outside DOE sites, environmental compliance responsibilities fall under the jurisdiction of the respective state. However, DOE strongly encourages early attention to environmental requirements ahead of site construction and DOE authorization activities, for example, conducting cultural resource surveys and environmental sampling before any ground disturbance.

Facility Authorization

- DOE noted many vendors underestimated the significant effort required to implement a 10 CFR 830 program for their facilities, the Documented Safety Analysis / Technical Safety Requirements is only a fraction of the total work involved. USQ procedure, worker safety and health (electrical, fire protection, occupational medicine, etc.), radiological protection, environmental permitting (air, water, waste, cultural, natural resources, SHPO), Safeguards and Security, Emergency Management, building permits (AHJ inspections), QA programs, conduct of operations, training program, and contractor assurance are also needed for operations to complete DOE startup approval.
- Foreign Ownership, Control and Influence and Facility Clearance documentation need to start prior to OTA being signed. This would ensure FOCI and security concerns are identified early, including the development of the Safeguards and Security Program Plan

Document Submittals

- Artificial Intelligence is not a substitute for subject matter expertise and technical checking. Significantly deficient safety basis documentation and supporting technical references have been received. Large Language Models can become very good at providing inadequate submittals unless document content and quality is verified by appropriate human expertise.
- Vendor timelines were generally unrealistic. Vendors assumed their submittal would not require revision and/or multiple rounds of comments.
- Vendor input for NEPA document planning needs to be timely and adequately planned for project success.

Readiness Preparation

- DOE has seen a lack of understanding of what Documented Safety Analysis and Safety Management Program “implementation” means. The holistic horizontal and vertical roll down of requirements across the plant, its operational and administration staff and vendor documentation is critical for demonstrating readiness for nuclear operations. This lack of understanding has created delays and disjointed prioritization as the project has worked to turnover the plant to operations.
- For the preparation of readiness reviews, do conduct an internal independent assessment to determine the state of the plant’s readiness. The lack of this optional but critical step has demonstrated incomplete implementation of safety management programs and/or requirements missing and identified during the readiness activity.

Documentation and Contributory Funds

- The authorization to receive nuclear material authorization prior to Hazard Category 2 or 1 nuclear facility approval has been requested by vendors prior to approval to proceed with nuclear operations. Vendors need to explicitly understand what is required to possess nuclear material both from a NE O 425 and safeguards and security perspective.
- The used nuclear fuel final disposition planning approval must occur early in the process to ensure success for follow on deliverables.
- Formal contractor acknowledgement of the need to provide contributory funds and providing those funds to DOE in an expeditious manner have been key project success.

Authorization Planning & Supply Chain

- The vendor should provide more focus on the Nuclear Safety Design Agreement. DOE has seen that many vendors did fully not understand the requirements they signed up to.
- To further expedite progress, use of “page turn” meetings which helped establish real-time feedback on safety basis documentation. This review helped harmonize regulatory interpretation across the different entities involved in the review process.
- Early engagement with DOE NE-4 on feedstock procurement strategies and facilitated pathways for HALEU allocation.
- Risk mitigation plans should explicitly address potential supply chain vulnerabilities, emphasize robust supply chain assessments and contingency planning during the application phase.

Review and Management of Submittals

- Vendors which had a strong relationship with Idaho National Laboratory (INL) or previous DOE operations/M&Os experience were observed to have expeditious reviews durations because of their development of high-quality deliverables submitted for federal review. This highlighted the value of established collaborative relationships with organizations and staff knowledgeable of the Federal requirements.
- NE-STD-1271-2025 articulates review time frames (i.e. 45 days), Vendor requests to accelerate reviews and reduce durations will be the rare exception. Focus on high quality submittals and frequent DOE/BEA interactions to ensure expectations are understood and reviews are streamlined.

U.S. DEPARTMENT OF ENERGY | Idaho Operations Office

Other Transaction Authority (OT)

Jeff Fogg, Director

Contract Management Division
DOE Idaho Operations Office

What is OT?

- Legal agreement between DOE and a non-federal entity
- Generally defined by what it is not
  - Not a procurement/acquisition
  - Not a financial assistance agreement

What is OT?

- Flexible contracting vehicle
  - Not required to comply with many statutes and regulations that govern contracts and financial assistance agreements.
  - Some statutory requirements DO apply
    - Typically, those tied to funding – e.g. Civil Rights Act, Age Discrimination Act, Americans with Disabilities Act
  - Cost Share requirements from EPAct 2005 do apply

What does apply?

- Nonprocurement Suspension and Debarment
- Epact cost share requirements
- Epact merit review and competition requirements
- Federal Fiscal Laws – Annual Appropriations
- Statutory Program Authorizations
- Export Controls
- Lobbying restrictions
- National Environmental Policy Act

When to Use OT

- The use of traditional methods (i.e. contracts and financial assistance) must be considered before using OT agreements.
- DOE OT Guide: "OTs are one award method, but not a substitute for good acquisition and financial assistance practices. "

When to Use OT

- May be the best option for reaching new entrants and nontraditional contractors.
  - Challenge to meet accounting system requirements
  - Need more flexible intellectual property rights
  - Current way of doing business presents other difficult challenges

Benefits of OT

- Flexibility for DOE to adopt business practices that reflect commercial industry standards
- Fosters new relationships that may not have been possible with other approaches
- Agreement terms can be tailored to meet the specific needs of the government and the contractor
- Potentially quicker and cheaper project design and execution
- Allows for milestone payments that are tied to objective performance metrics/results

Questions