

Office of Storage & Transportation Update

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U.S. Department of Energy
Office of Storage & Transportation

Southern States Energy Board
Joint Meeting of the Radioactive Materials Transportation
Committee and the Transuranic Waste Transportation
Working Group
Orlando, FL
December 10, 2024



Disclaimer

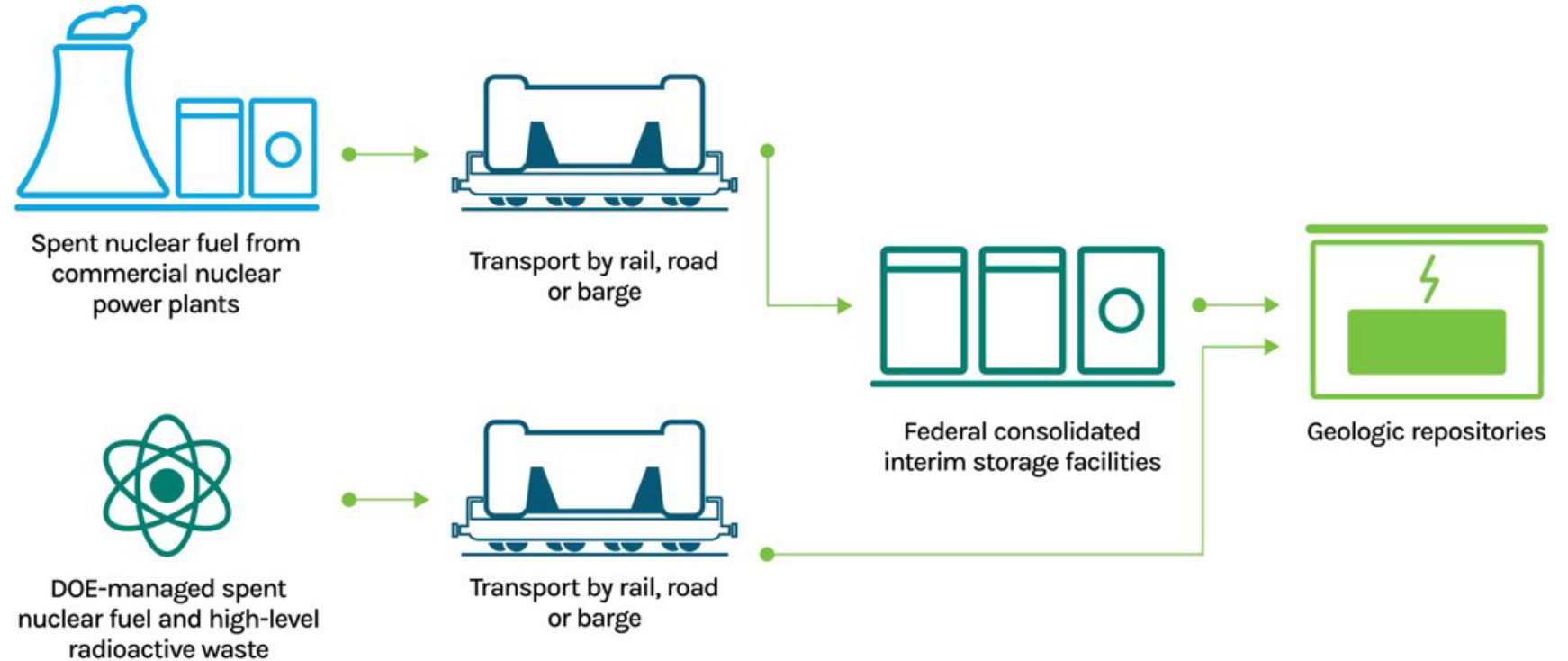
This is a technical presentation that does not take into account contractual limitations or obligations under the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (Standard Contract) (10 CFR Part 961).

To the extent discussions or recommendations in this presentation conflict with the provisions of the Standard Contract, the Standard Contract governs the obligations of the parties, and this presentation in no manner supersedes, overrides, or amends the Standard Contract.

This presentation reflects technical work which could support future decision making by the U.S. Department of Energy (DOE or Department). No inferences should be drawn from this presentation regarding future actions by DOE, which are limited both by the terms of the Standard Contract and Congressional appropriations for the Department to fulfill its obligations under the Nuclear Waste Policy Act including licensing and construction of a spent nuclear fuel repository.

Integrated Waste Management System for SNF & HLW

- Storage facility(ies)
- Transportation capability
- Disposal facility(ies)
- Interfaces



Spent Fuel & High-Level Waste Disposition Current Program Priorities

2024

Consent-Based Siting
/Public Outreach



2025 Issue an Expression of Interest

Design of Consolidated Interim
Storage Facility



2025 - 2031 Work toward CD-1, analysis of federal consolidated interim storage facility (CISF) design alternatives

2026 Establish the International Center of Excellence for the Research of Spent Nuclear Fuel (SNF) and conduct spent fuel research & development (R&D)

Transportation of
Spent Nuclear Fuel

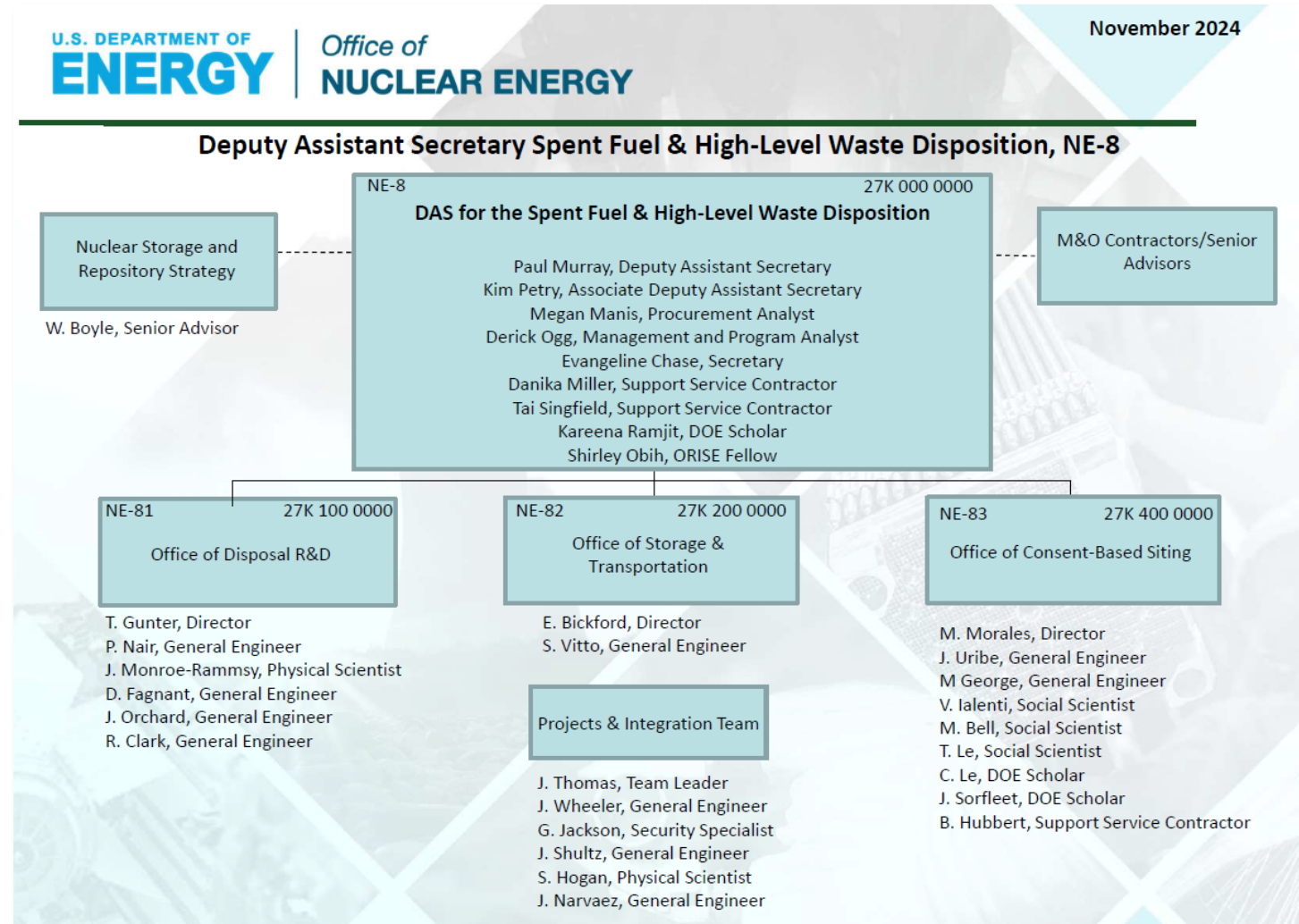


2040

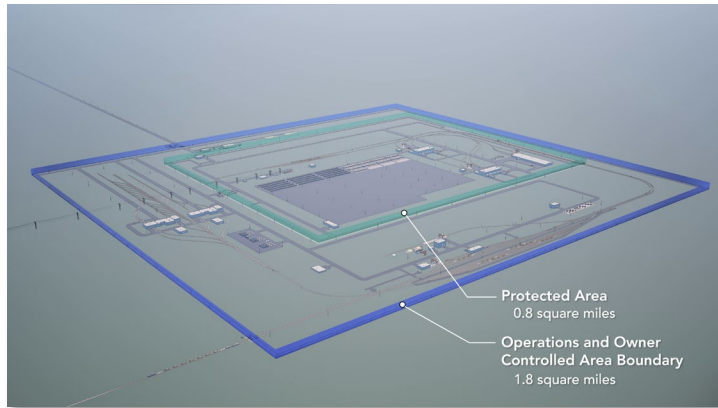
2027 Move high burnup research cask to DOE Facility
2028 - 2031 Conduct Package Performance Demonstration (PPD)*
2034 Build out transportation infrastructure for spent nuclear fuel
2038 - 2040 Begin transporting SNF to federal CISF

April 2024 Reorganization

- Hired Jay Thomas as Team Leader for Projects & Integration team
- Created the new Research and Innovation team
 - Transfers CISF storage related research to new team
 - Focuses on CISF operations support
- Research & Development (R&D) Projects – moving
 - High burnup fuel assemblies – post irradiation examination
 - Road Ready Demonstration
 - Considerations for advanced reactor SNF



Office of Storage & Transportation Priorities



Federal consolidated interim storage facility (CISF)/capital acquisition CD-1 and supporting activities



Package Performance Demonstration (PPD) *part of CISF project*



The High Burnup Research Cask (HBURC) Project and supporting activities

FY24 – Key Accomplishments

- Consolidated Interim Storage Facility:
 - CD-0 (project approval)
 - Request for information (RFI) issued for engineering, project management and integration
- Package Performance Demonstration:
 - RFI issued to solicit feedback
- Transportation hardware:
 - Atlas railcar consist – Association of American Railroads (AAR) approval
 - Fortis – car body fabricated
- Transportation operations:
 - Site evaluation reports (February 2024)
- HBURC – Procured impact limiter fabrication



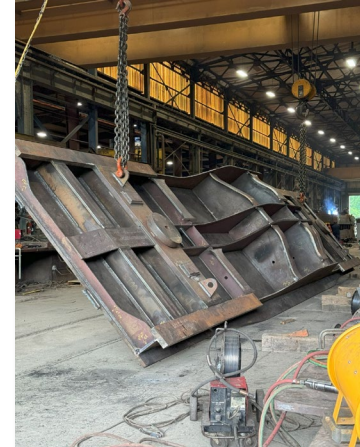
DOE Seeks Input on Federal Consolidated Interim Storage Facility for Spent Nuclear Fuel

Request for Information Responses Due Sept. 5, 2024

The U.S. Department of Energy (DOE) issued a request for information (RFI) to identify industry partners interested in contributing to the development of federal consolidated interim storage facilities for the management of spent nuclear fuel. DOE is also seeking information from parties interested in providing engineering design, project management, integration, and other services needed to build and manage consolidated interim storage facilities.

DOE is seeking input on the following key areas:

- Improvements to the draft performance work statement
- Technical assessment of the work scope and marketplace options



WHAT ARE WE DOING?

DOE is requesting responses to the RFI from sources capable of providing information, feedback, or services. The RFI is organized to gather input across multiple categories:

- Category A: Stakeholder Input and Feedback
- Category B: Cask Vendors
- Category C: Testing Facilities, Sites, and Services to Conduct Demonstrations
- Category D: Instrumentation, Data Collection, and/or High-Resolution Videography Services
- Category E: Miscellaneous Questions for Potential Vendors and Service Providers

WHY ARE WE DOING IT?

This RFI is intended to inform interested parties of DOE's preliminary plans for a PPD and gather feedback from stakeholders and potential suppliers. The responses will help the DOE assess interest and inform decisions regarding a potential PPD. Additionally, the feedback may identify parties and resources that might have interest in responding to a future Request for Proposal (RFP). This RFI is not a solicitation, but a way for the DOE to gauge interest, capacity, and capability in preparing for a potential PPD. DOE will ultimately decide how to proceed subject to the constraints of authorization, funding appropriations, and practical/technical feasibility.

WHEN ARE WE DOING IT?

Submission Deadline:
Please submit your response by **5:00 PM MDT on**

WHO SHOULD RESPOND?

DOE welcomes responses to the RFI from a wide range of sources, including parties with an interest in SNF transportation who can provide feedback on what kind of demonstrations DOE should conduct and other related information. In addition, we invite input from potential suppliers that could provide products and/or services for a proposed PPD. This includes cask vendors, testing facilities/sites to conduct demonstrations, and potential vendors to provide instrumentation, data collection, and/or high-resolution videography services. Responses are welcome.

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May 28, 2024
File: 205.240

Ms. Erica Bickford
Director, Office of Storage & Transportation
NE-40/Forestal Building
U.S. Department of Energy
1000 Independence Ave., S.W.
Washington, DC 20585

Subject: DOE Atlas Railcar Consist Conditional Approval: Multiple Car Test, Post-Test Analysis, and Final Report Approval

Dear Ms. Bickford,

The AAR Equipment Engineering Committee (EEC) has accepted the performance of the DOE Atlas Car Consist, including the Atlas Car, Buffer Car, and Escort Vehicle, under AAR Standard S-2043. This acceptance includes the following acknowledgements:

- Satisfactory performance during Multiple-Car Tests required by S-2043 paragraph 6.0 (Multiple Car Tests) through paragraph 6.3.4 (Demonstration Run) based on MXV Rail Report P-23-030
- Satisfactory Post-Test Analysis as required by S-2043 paragraph 8.0 (MXV Rail Report P-23-031)
- Satisfactory Final Report required by paragraph S-2043 9.0 (MXV Rail Report P-23-035)

The exceptions noted in TCI Report No. P-23-030 were discussed by the EEC during their May 16, 2024 virtual meeting, and comments can be summarized as follows:

- Stop Distance Tests, test train at maximum and minimum test loads
 - Car to Car Jerk Rates: The exceptions were not a concern for safety.
- Stop Distance Tests, Atlas Car at minimum test load
 - Wheel Slip: The wheel slip exception that occurred on the Atlas Car during an empty car stop test was not a concern for safety, as it only happened on one axle during one out of six minimum test load/emergency application/wheel-rail runs. The event did not completely stop the wheelset from rotating, so the event could not have led to a slid flat. Also noted was that the car had previously demonstrated producing satisfactory brake ratios.
- Buff and Draft Curving Test: Buffer Car
 - Maximum vertical and lateral car body accelerations that exceeded the criteria on the buffer car were very short in duration, were not supported by visual or other data measurements, and are not thought to accurately represent the physics of the situation.

FY25 Budget – Continuing Resolution

- Used Nuclear Fuel Disposition R&D:

- Disposal R&D
- HBURC shipment
- Research and Innovation team R&D



House Mark
 \$47M
 (\$27M / \$20M)

Senate Mark
 \$47M

- Integrated Waste Management Systems:

- Consent-Based Siting
- Tribal & State Transportation Cooperative Agreements
- Consolidated Interim Storage Facility Project
- Package Performance Demonstration
- Systems Engineering and Analysis



House Mark
 \$25M

Senate Mark
 \$53M

FY25 Key Activities – CISF and PPD

CISF:

- Conceptual design (CD-1)
- Associated research & development for transportation and storage



PPD:

- Review responses from the RFI
- Develop the Request for Proposal (RFP)



FY25 Key Activities – HBURC and Transportation Hardware

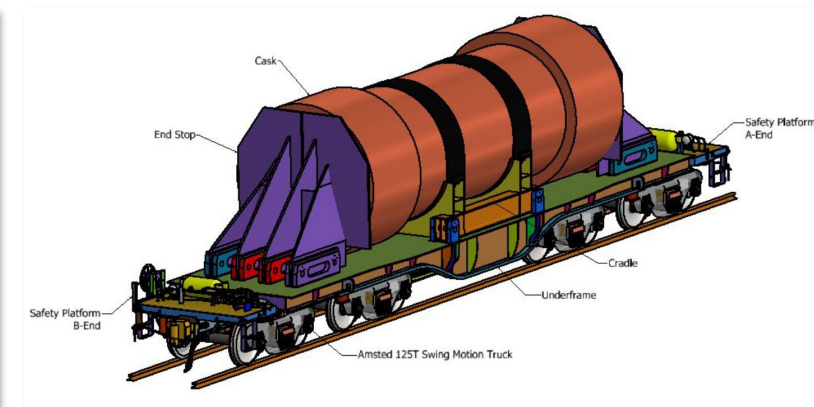
HBURC Shipment:

- NEPA documentation development
- Integrated Safety and Security Monitoring System (ISSMS)
- Impact limiter and cradle fabrication



Transportation Hardware:

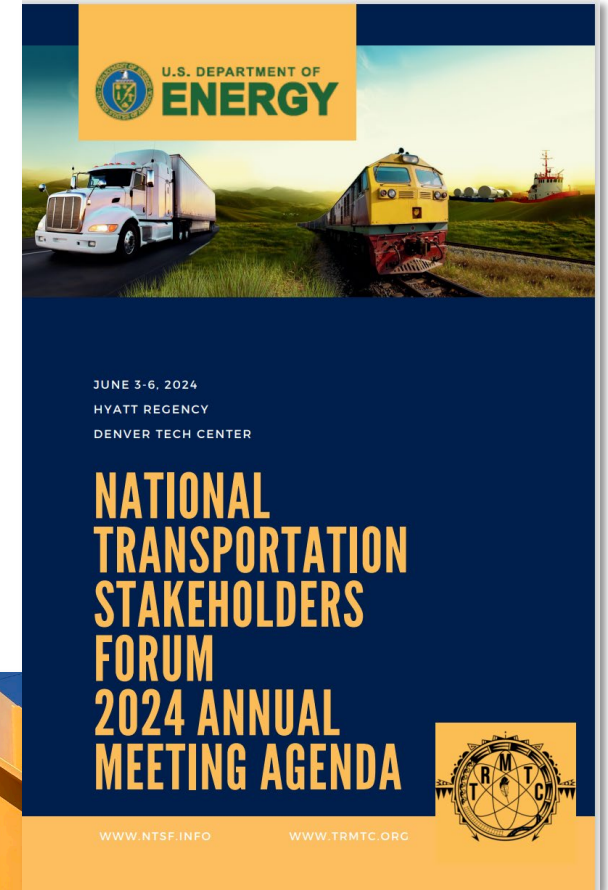
- Atlas rail car supplemental testing
- Fortis rail car – bi-span bolster fabrication



State & Tribal Engagement

- National Transportation Stakeholders Forum (NTSF) Ad Hoc Working Groups:
 - SNF Rail/Routing
 - Section 180(c)
 - SNF Management – Communications and Outreach AHWG

- Transportation Core Group
 - Washington DC March 19-20, 2024
 - Boston Sept 11-12, 2024
 - Hosted by CSG-ERC



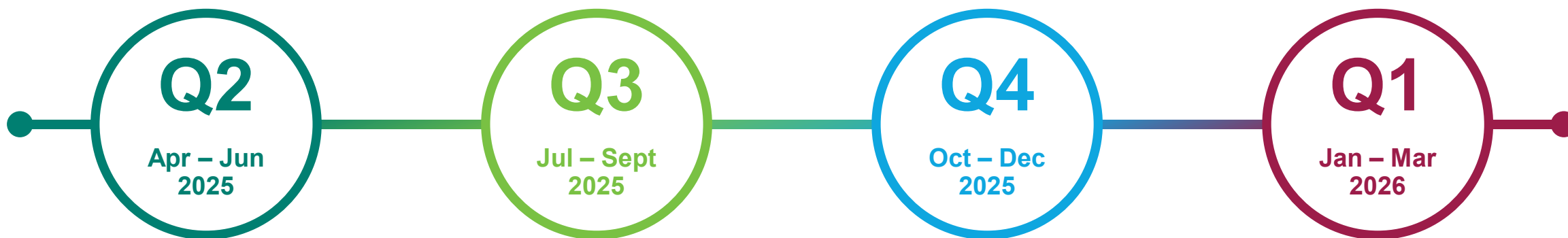
Consent-based Siting Program

Mission

The mission of the Office of Consent-Based Siting is to facilitate inclusive community engagement and elicit public feedback on consent-based siting, management of spent nuclear fuel, siting of one or more federal consolidated interim storage facilities, and development of a consent-based siting process that can be applicable to siting other Department of Energy nuclear facilities.



Consent-based Siting Near-term Roadmap



PUBLISH KEY DOCUMENTS

Includes:

- Site Screening Criteria document
- Revised CBS Process document
- Federal Register Notice for EOI

ISSUE EXPRESSION OF INTEREST

Includes:

- EOI application requirements
- DOE evaluation criteria and technical assistance (TA)
- Process for 3rd party independent reviews

ISSUE EQUITY FUNDING

Includes:

- Promotes equity funding to disadvantaged communities / Tribes
- Provides TA to complete EOI application

DOE REVIEWS EOI APPLICATIONS

Includes:

- Conduct 3rd party independent reviews
- Down-select qualified sites on a rolling basis
- Qualified communities receive TA to make Phase 3 determination


THANK YOU



U.S. DEPARTMENT OF
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Office of
NUCLEAR ENERGY

SPENT FUEL & HIGH-LEVEL
WASTE DISPOSITION

A blurred, high-speed photograph of train tracks curving into the distance under a bright, hazy sunset sky. The tracks are dark and lead the eye towards the horizon. The sky is a mix of orange, yellow, and blue, with some clouds. The overall mood is one of forward motion and transition.

TIME FOR QUESTIONS AND DISCUSSION

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SPENT FUEL & HIGH-LEVEL
WASTE DISPOSITION