



U.S. DEPARTMENT OF
ENERGY

**Nuclear Fuels Storage & Transportation Planning Project
Office of Fuel Cycle Technologies**

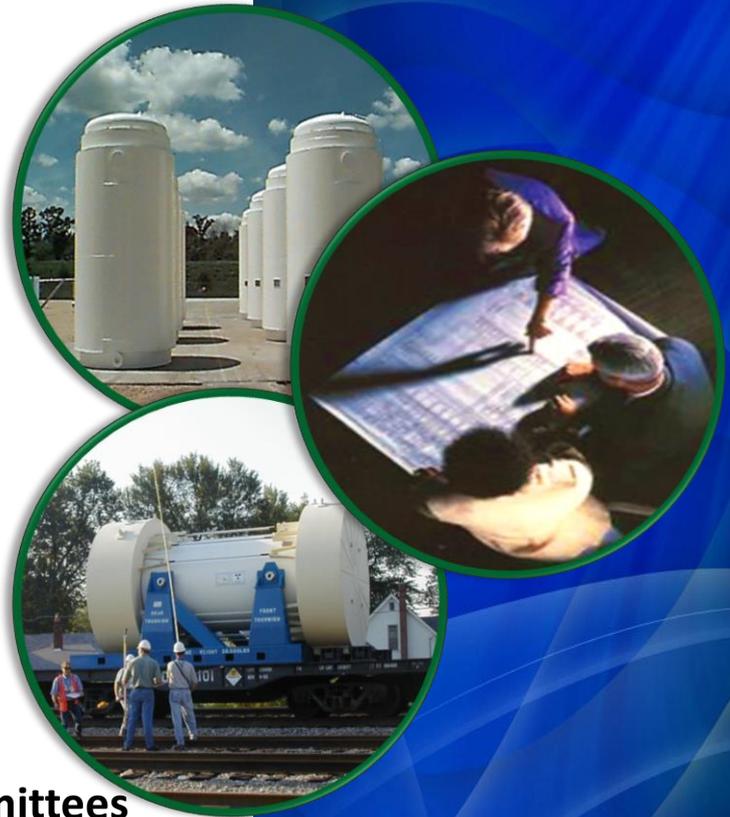
Nuclear Energy

Nuclear Fuels Storage and Transportation Planning Project: Program Status

Erica Bickford and Elizabeth Helvey

December 2014

**Winter Meeting of the Southern States Energy
Board Radioactive Materials Transportation Committees
Charlotte, NC**





NFST Presentation Overview

■ NFST Program Background

- Blue Ribbon Commission on America's Nuclear Future
- Administration's Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Waste
- Legislation

■ FY14 Activities and FY15 Proposal

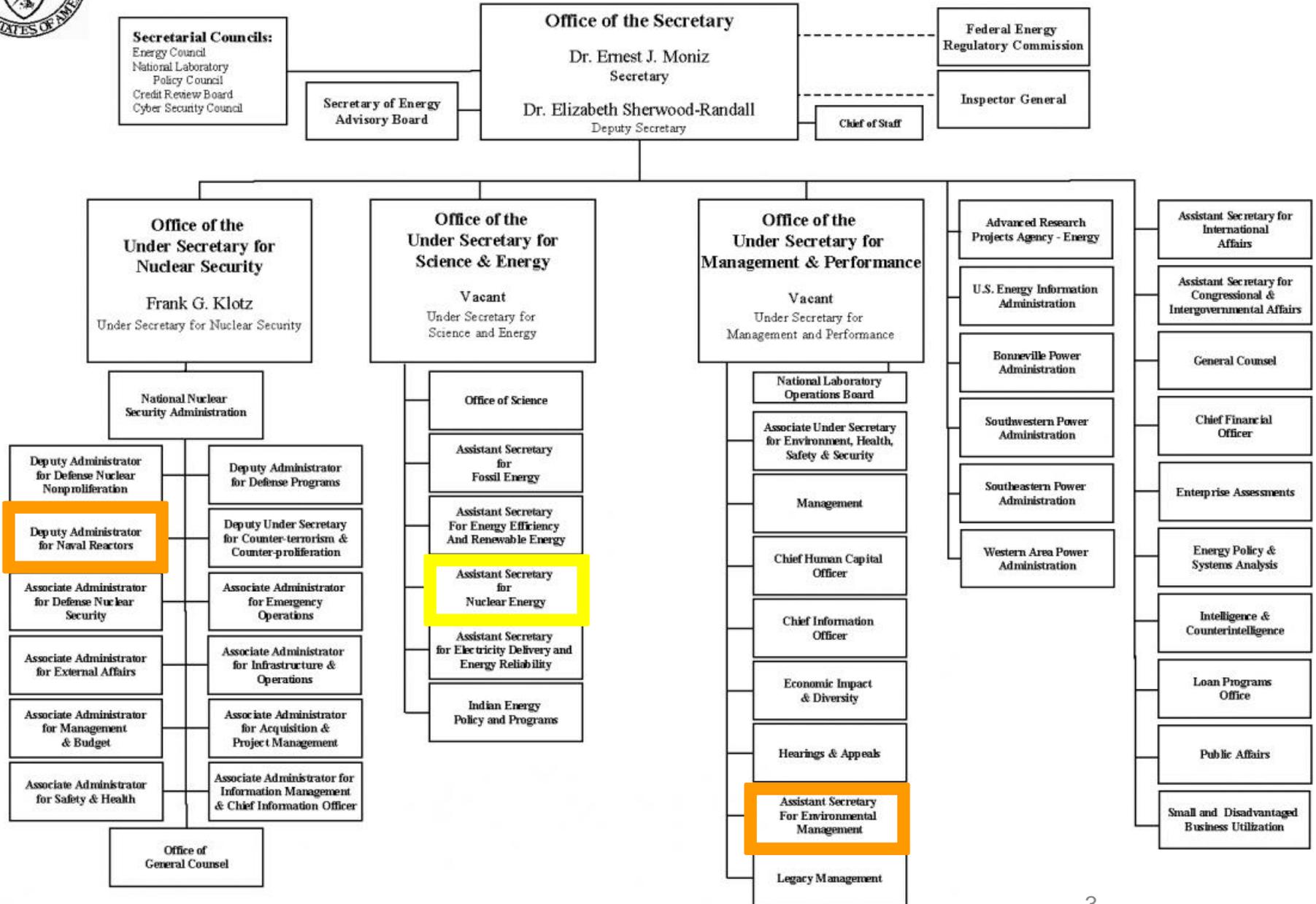
■ NFST Initiative Updates

- National Transportation Plan (NTP)
- Routing Tool Development (START)
- Preliminary Routing Analysis
- Section 180(c) Proposed Policy Implementation Exercise





DEPARTMENT OF ENERGY



NFST Established in 2012 to Plan for Interim Storage and Transportation

■ Mission

- Lay the groundwork for implementing an interim storage facility (ISF), including associated transportation, per the Administration's *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste*, and develop a foundation for a new nuclear waste management organization

■ Purpose

- Make progress on this important national issue
- Build foundation that could be transferred to a new waste management and disposal organization (MDO)

■ Activities

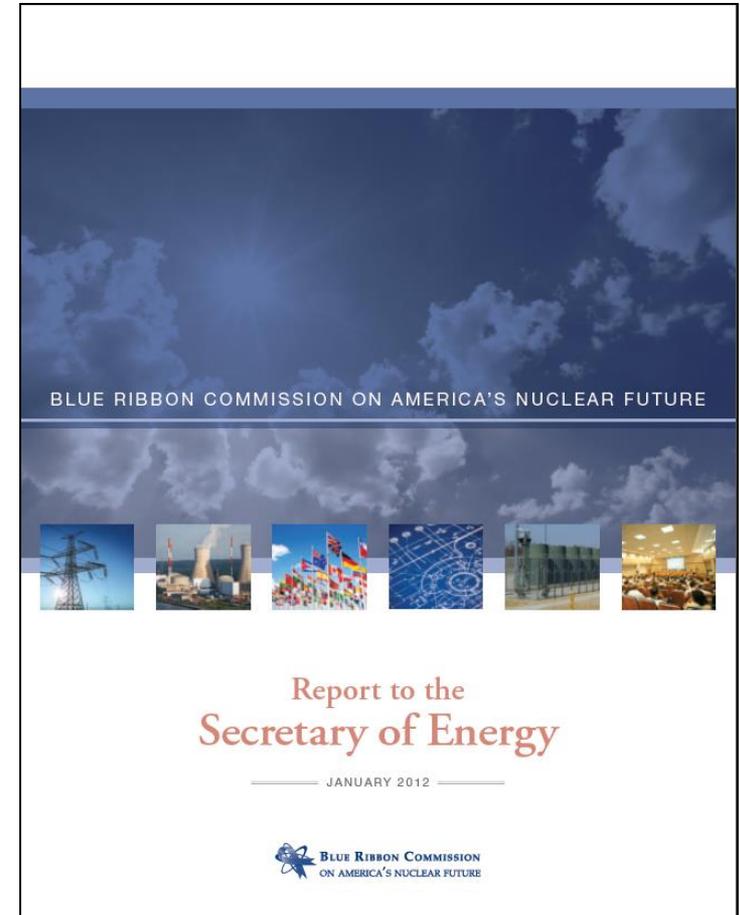
- Build upon Blue Ribbon Commission (BRC) recommendations
- Lay groundwork for implementing the *Strategy*
- Consistent with existing Nuclear Waste Policy Act (NWPA) authorities





Milestone Events

- **January 2012 - Blue Ribbon Commission final report issued**
- **October 2012 - Nuclear Fuel Storage and Transportation Planning Project formed**
- **January 2013 – Administration *Strategy* released**

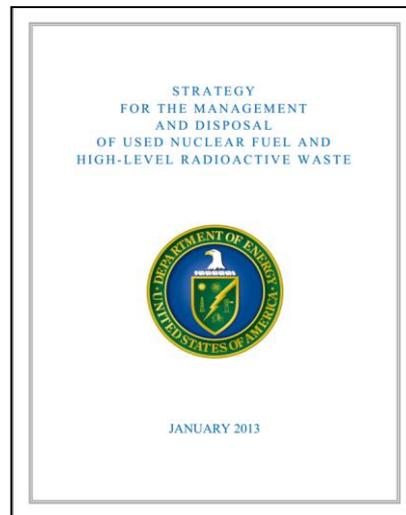


Transportation Collaboration between DOE and States and Tribes

- **The BRC Report (2012) endorsed the National Academy of Sciences (NAS) 2006 “Going the Distance” report and made the following recommendations**
 - Future programs should build upon the proven approaches of working with regional groups, states and tribes and other organizations to plan for transportation because bringing corridor jurisdictions together under the auspices of these groups allows issues to be identified and resolved by all parties.
 - Early implementation of the 180(c) program as currently defined in the NWPA should be initiated by DOE *even before* any potential storage or disposal site is identified.
 - DOE should finalize procedures for providing technical assistance and funds for training under Section 180(c) of the NWPA and provide such funding independent from progress on facility siting
 - Initial routes from shutdown sites can be identified and pilot training along those routes can begin
 - Substantial lead time is needed to ensure that planning and institutional arrangements are in place and tested by the time major shipments commence, including efforts to initiate interactions with state, local and tribal officials

Transportation Collaboration between DOE and States and Tribes

- **Administration's Strategy (2013) endorsed the key principles that underpin the BRC's recommendations**
 - Initiate prompt efforts to prepare for the eventual large-scale transport of used nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available
 - Engage in outreach and communication, route analysis, and emergency response planning activities consistent with existing NWPA requirements



Congressional Activity

- **Senators Wyden (D-OR), Murkowski (R-AK), Feinstein (D-CA), and Alexander (R-TN) introduced comprehensive, bipartisan nuclear waste legislation**

- **The bill, S. 1240 (Nuclear Waste Administration Act of 2013) would:**
 - Establish a siting process for storage and repository facilities that relies on consent agreements and Congressional ratification
 - Establish a new organization – Nuclear Waste Administration – run by a single Administrator and overseen by an Oversight Board
 - Address funding reform by creating a new Working Capital Fund in which fees are deposited and are available as needed

- **Path to passage is difficult to predict**

FY 2014 Funded Activities

- Complete an analysis for initial spent nuclear fuel (SNF) shipments from shutdown reactor sites
- Continue the evaluation of standardized containers for storage, transportation, and potentially disposal
- Continue to work cooperatively with the State Regional Groups and Tribes on transportation issues
- Update the National Transportation Plan to address initial shipments from shutdown reactors
- Continue to resolve issues related to Section 180(c)
- Continue the conceptual design for a generic storage facility and supporting transportation system

FY 2015 Budget Proposal

- **Administration - DOE is requesting \$30 million (including \$24 million from the Nuclear Waste Fund) for an integrated waste management system; activities to include:**
 - Support preliminary generic process development and other non-R&D activities related to storage, transportation, disposal, and consent-based siting
 - Prepare for large-scale transportation of SNF and high-level radioactive waste to a pilot interim storage facility with focus on SNF at shutdown reactor sites
 - Engage with State Regional Groups, Tribes and other stakeholders
 - Revise National Transportation Plan
 - Revise the proposed policy to implement Section 180(c) of the Nuclear Waste Policy Act
 - Refine routing studies
 - Initiate efforts according to hardware acquisition strategy (develop railcars per Association of American Railroads Standard S-2043)

FY 2015 Appropriations Bill

■ House Bill

- No funding provided for integrated waste management system activities
- Provides \$205 million for DOE and NRC activities associated with NRC's review of the DOE license application for a proposed repository at Yucca Mountain, Nevada
- \$6 million to support activities to design and certify a rail car(s) for use with licensed and anticipated transportation casks





FY 2015 Appropriations Bill

■ Senate Bill - \$89 million for UNF disposition; funds provided for:

- Siting, design, licensing, and construction of one or more consolidated storage facilities
- Financial and technical assistance associated with a consent-based siting process, including education, technical analyses and other support to entities considering hosting an interim storage facility (ISF)
- Incentive payments to entities with signed agreements with jurisdictions eligible under the general provision
- \$3M to design, procure and test industry standard compliant rail rolling stock in a timeframe that supports the transportation of spent fuel to the ISF

■ Senate bill includes provision on a pilot program

- “The Secretary is authorized, in the current fiscal year and subsequent fiscal years, to conduct a pilot program, through 1 or more private sector partners, to license, construct, and operate 1 or more government or privately owned consolidated storage facilities to provide interim storage as needed for spent nuclear fuel and high level radioactive waste, with priority for storage given to spent nuclear fuel located on sites without an operating nuclear reactor”

NFST Program Initiatives

Core Group Meeting August 2014, Denver, CO

■ Draft National Transportation Plan (NTP)

- Recent review by SRGs and Tribal members
- Working Group and Tribal webinars held in June and July

■ Nuclear Waste Policy Act Section 180(c)

- Discussed development of a 180(c) policy implementation exercise (formerly called “tabletop exercise”)
- ****Detailed discussion of the Exercise following this presentation****

■ Discussion of route planning

- New modelling tool, START, and its role in routing
- Preliminary routing activities

■ Current shutdown sites activities

- Update on additional information for first 9 sites
- Additional sites information gathering activities



Recent History of the National Transportation Plan

- Discussed NTP with Transportation Plan Working Group at National Transportation Stakeholder Forum (NTSF) in May, 2014
- Comments received from the Tribal Caucus and Nuclear Energy Tribal Leaders Working Group, Brotherhood of Locomotive Engineers and Trainmen, private sector (AREVA and Energy Solutions), Council of State Governments (Midwestern Office), Southern States Energy Board, Northeast High-level Radioactive Waste Transportation Task Force, Ken Niles, and Western Interstate Energy Board (draft)
- Webinars on NTP to review progress, report on comments, and provide update
 - June - Transportation Plan Working Group
 - July - Tribal Caucus and Nuclear Energy Tribal Leaders Working Group

Proposal for NTP Issue Resolution Papers

- Facilitate process for preparation of NTP
- Modeled after 180(c) issue papers
- Developed by DOE and the NTP Working Group
- May need sub-group(s) to work on specific issues
- Identify priority issues that inform the plan/resolve questions about shipment practices
- Post papers on NTP Working Group's Wiki site
- Possible development of pertinent issue papers as an NTP appendix

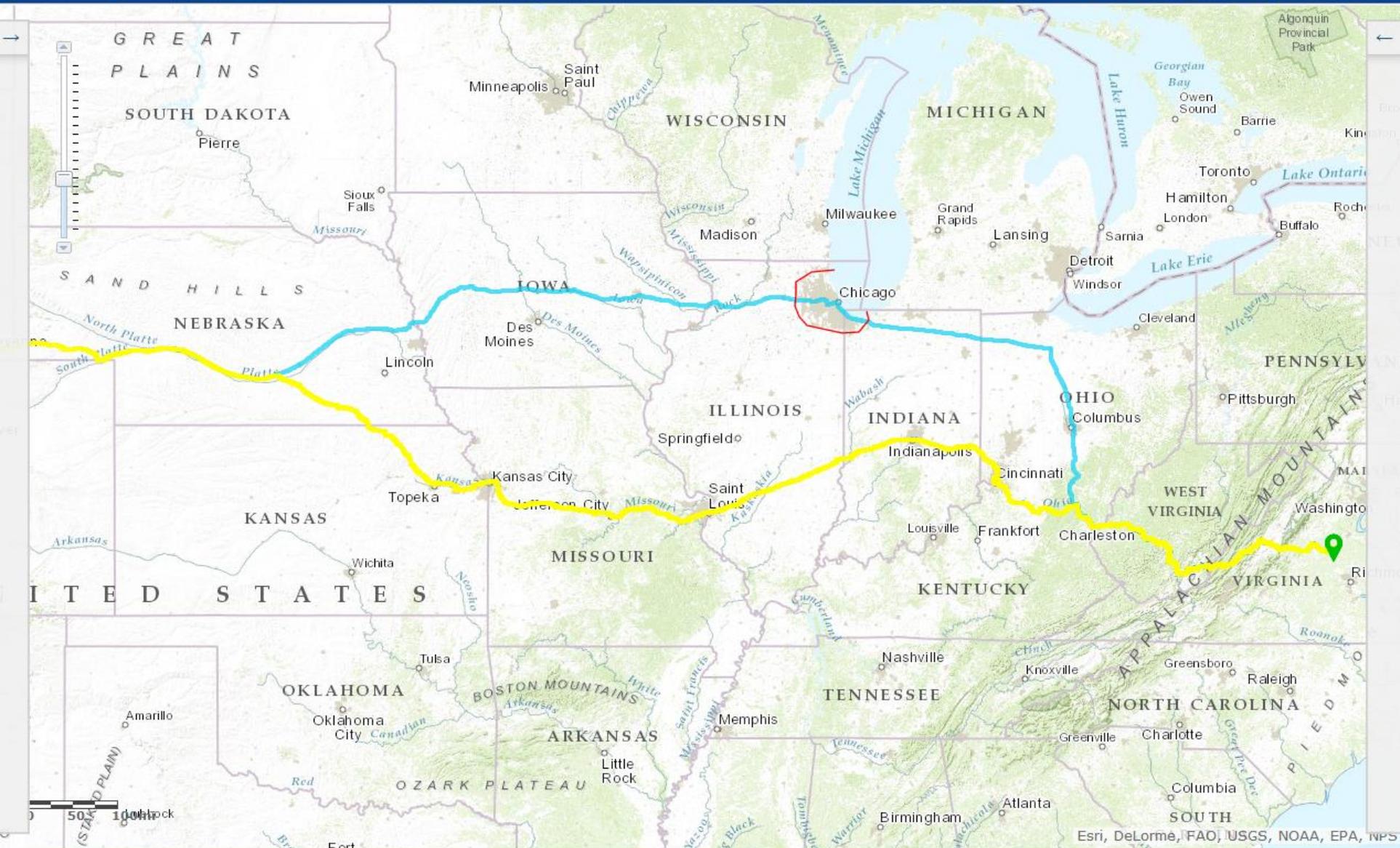
Draft NTP Work Plan Schedule

- Distributed Draft NTP April, 2014
- NTSF Working Group Session (initial feedback) May
- Working Group/Tribal transportation webinars June/July
- SRG/Tribal Core Group meeting August
- Discuss issues at SRG, Tribal Caucus mtgs. Fall
- Issue papers developed As needed
- Summary of comments with proposed revisions/resolutions Winter 2014/2015
- Webinar/meeting(s) to address NTP As needed
- Issue revised NTP Spring, 2015
- NTP Working Group discussion at NTSF May
- Second round of review/comments Summer
- Updated Draft Plan Fall

Stakeholder Tool to Assess Radioactive Transportation (START)



- **Web-based application using state-of-the-art geographic information system (GIS) data & analysis capability**
- **Includes consideration of:**
 - Rail, truck and barge transportation infrastructure & operations
 - Economic, safety, security & environmental routing criteria
 - Sensitive populations & land uses in proximity to route
 - Emergency response assets in proximity to route
- **NE's transportation decision-support tool will assist with:**
 - NTP and 180(c) Policy Development
 - Route selection process & preliminary routing analysis
 - Data collection at shutdown sites
 - Waste management systems integration





- **Late July, finalized agreement with Idaho National Lab to host the START tool**
 - Available to stakeholders now
 - Web link: <https://gis.inl.gov/start>
- **Version 1.1 user manual**
- **Training sessions being planned**
 - Atlanta, October 1, 2014 – Half day training held in conjunction with a meeting of the 180(c) Ad Hoc Working Group
 - December 2014 – In conjunction with the SSEB regional meeting
 - January 2015? - Possibly in conjunction with the Tribal Caucus meeting
 - NTSF 2015?
- **Supplemental webinar training also being considered**



Routing Analysis Methodology

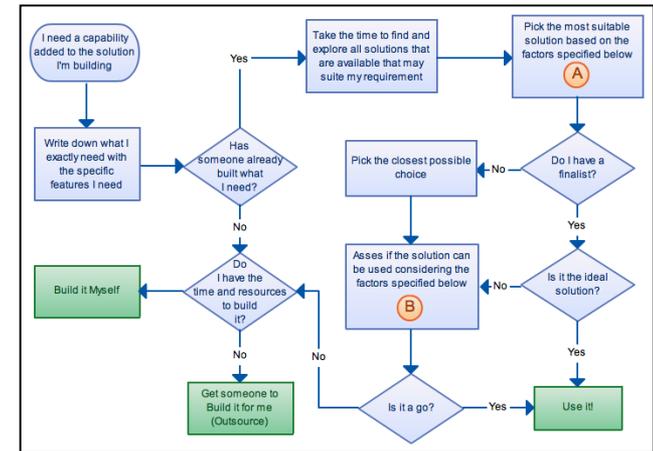
WHY DO ROUTE PLANNING NOW?

We do not have:

- A destination site
- Rail cars
- Spent nuclear fuel transportation casks

We do have:

- Information on the locations of the shutdown sites
- Information related to onsite and near-site infrastructure at shutdown sites
- Knowledge and experience gained from previous DOE shipments
- Transportation certifications for many casks
- Recommendations from Blue Ribbon Commission and National Academies of Science



Define a Standardized Routing Process

- Identify the methodology for route selection
- Identify the participants – States, Tribes, carriers, logistics contractors, etc.
- Identify regulatory authorities and standards (*DOT, FRA, NRC*)
- Discuss roles and responsibilities
- Propose methods for engagement (*NTSF, Core Group, SRG meetings, Tribal Caucus*)
- Ensure regulatory compliance for routing and safeguards
- Propose method for documenting agreements on issues

Define a Standardized Routing Process (cont.)

- Highlight decision points and opportunities for input from States, Tribes and carriers

****New Routing Working Group to begin spring 2015****



Section 180(c): 2012-14 Activities

- **NTSF 180(c) Working Group formed December, 2012**
 - Worked during 2013 to revisit issues in 2008 Federal Register Notice
 - Worked through 9 issues with 7 remaining
 - Tribal participants joined WG but additional consultations needed

- **States formed Inter-regional Team, October 2013**
 - Interim recommendations presented at NTSF May, 2014
 - Final recommendations delivered October, 2014

Section 180(c): 2012-14 Activities (cont.)

- **NTSF Tribal Caucus is now formed, NE has provided funding**

- **DOE looks forward to working with individual Tribal nations to further discuss proposed Section 180(c) policy**
 - Tribal Webinar on July 22, 2014 to discuss NTP, routing, Section 180(c), modeling tool, and other transportation issues
 - Tribal Caucus meeting in Atlanta, September 29, 2014

- **NTSF Working Group met at May, 2014 meeting**
 - All agreed to hold an exercise leading up to NTSF 2015 meeting
 - DOE is designing the exercise in consultation with the Working Group members (next presentation will discuss in detail)

Questions/Comments?

Contact Erica Bickford
Erica.Bickford@nuclear.energy.gov



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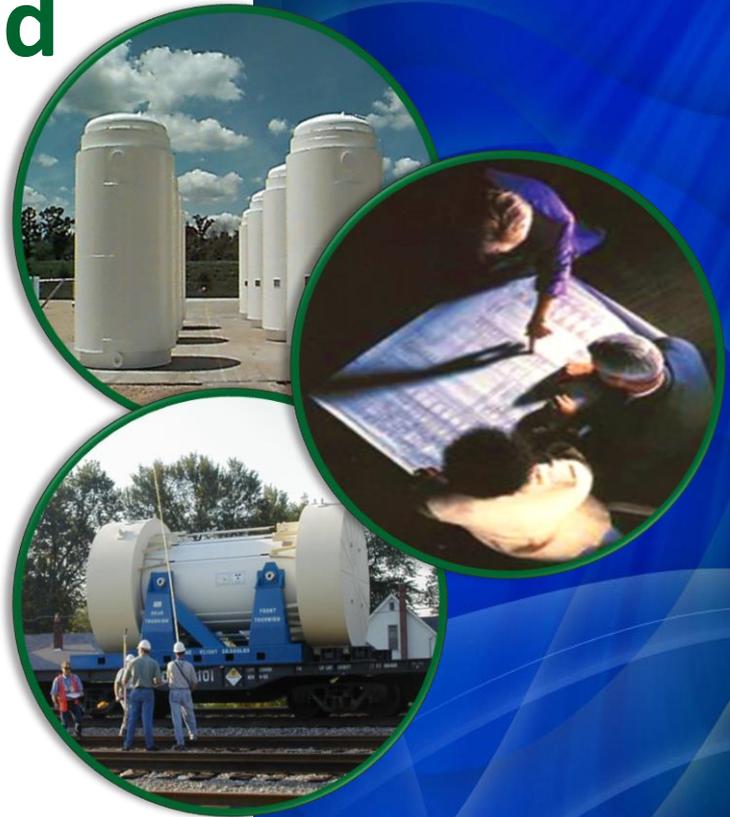
Section 180(c) Proposed Policy Implementation Exercise

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Section 180(c) Briefing Contents

- **Section 180(c) Mandate**
- **Section 180(c) History**
- **Exercise Background**
- **Exercise Purpose**
- **Scope of the Exercise**
- **Steps/Schedule of the Exercise**
- **Detail of Each Step of the Exercise**
- **Volunteer Time Commitment and Request for Volunteers**
- **Questions/Discussion**

Section 180(c) Mandate

Nuclear Waste Policy Act (1987 Amendments):

“The Secretary [of Energy] shall provide technical assistance and funds to States for training for public safety officials of appropriate units of local government and Indian tribes through whose jurisdiction the Secretary plans to transport spent nuclear fuel or high-level radioactive waste [to an NWPA-authorized facility].”

- The training shall cover procedures for safe routine transportation of these materials and procedures for dealing with emergency response situations.
- Covers all modes of transport

Section 180(c) History

- **DOE attempted to implement 180(c) during 1990's**
 - Stopped by budget cuts and program redirection in 1998
- **DOE resumed efforts to implement during mid-2000's**
 - Worked consultatively with the (TEC) Section 180(c) Working Group
 - Resulted in the 2008 Federal Register Notice

Section 180(c) History

- **Office of Civilian Radioactive Waste Management (OCRWM) program was halted in 2010 and Blue Ribbon Commission formed. The BRC recommended:**

“DOE should complete the development of procedures ... for providing technical assistance and funds (pursuant to Section 180(c) of the NWPA) for training local and tribal officials ...”

- **DOE began current attempt to implement Section 180(c) in 2012**
 - Section 180(c) Working Group
 - State’s Inter-regional Team in 2013-2014
 - Tribal Caucus received funding 2014

180(c) Exercise Background

- **NTSF 2013: The Section 180(c) Working Group endorsed the idea of holding an exercise to test the 2008 FRN**

- **NTSF 2014: The Working Group reaffirmed their interest in an exercise.**
 - Asked DOE to write the proposal and confer with States and Tribes
 - DOE wrote a proposal and discussed it at August and October meetings with State and Tribal officials

180(c) Exercise Purpose

Purpose:

- Develop a deeper understanding of the potential scope of and application process for Section 180(c) assistance.
 - ✓ Contribute to a data-driven discussion of the policy options to help inform decision-making
- Evaluate policy options where there is no consensus or the best option is not clear.

Scope of the Exercise

- 1. DOE writes generic mock grant application for Planning & Assessment activities**
- 2. Volunteers complete needs assessment and submit training funds request (two 2-year work plans)**
 - conduct the needs assessment using START and other tools
- 3. Mock Expert Review Panel reviews and scores work plans, DOE negotiates with volunteers, mock awards made**
- 4. Workshop at NTSF 2015 to present findings and discuss**
- 5. Post-workshop lessons learned report, leading to discussions on potential changes to Section 180(c) policy**

Steps/Schedule of the Exercise

December 2014:

- Volunteers identified (Tribes may join in January)
- DOE completes:
 - ✓ Mock Letter of Eligibility
 - ✓ Mock Funding Opportunity Announcement (FOA)
 - ✓ Generic mock grant application for planning activities
 - ✓ Forms Mock Merit/Expert Review Panel
 - ✓ Mock merit review evaluation of grant application

Steps/Schedule of the Exercise

January 2015:

- Identify Tribal volunteers
- Kick-off FOA webinar to answer questions, discuss scope and time commitment
- DOE writes mock grant FAQs, and posts them to the NTSF wiki site
- SRG staff meet with volunteer State staff (NCSL staff meets with interested Tribe staff)
- Additional webinar for Q&A on Needs Assessment (similar to a standard grant Q&A process)

Steps/Schedule of the Exercise

February 16, 2015:

- Volunteers submit two 2-year work plans/budget proposals consistent with:
 - ✓ Allowable activities list
 - ✓ Merit review criteria from 2008 FRN
 - ✓ Increment of need created by SNF shipments
 - ✓ State's existing emergency management and law enforcement infrastructure

Steps/Schedule of the Exercise

March 2015:

- Mock Expert Review Panel reviews work plans and funding requests (and discusses operational activities and funding requests)
- Award negotiations take place
- Final mock award amounts announced

April 1, 2015:

- Merit/Expert Review Panel selects Exercise volunteers to present at the NTSF workshop in May 2015

Steps/Schedule of the Exercise

May 2015:

- Prepare to participate in one-day NTSF workshop in Albuquerque, NM

May 11, 2015

- Participate in one-day NTSF workshop
- Selected applicants present their case studies
 - ✓ Discuss your experience with the Exercise
 - ✓ What worked, what you learned, what did not work

Steps/Schedule of the Exercise

Summer 2015:

- Participate in lessons learned review and discussion on potential policy changes to Section 180(c)

- After FY2015, NFST may design a full-scale pilot exercise of the Section 180(c) Revised Proposed Policy
 - The design of a full-scale pilot will incorporate the lessons learned from the 2015 exercise.

Volunteer Time Commitment

- Expect to spend 40-60 hours from January to May
- Travel to May NTSF meeting in Albuquerque, NM
- Expect to spend 10 -15 hours over summer of 2015 to contribute to lessons learned and recommendations on potential policy changes to Section 180(c)

Needed for the Exercise

- **One or two volunteers from the Southeast**

- **One volunteer for the Merit/Expert Review Panel**
 - Will only have one State official total
 - Not one from each region
 - We are looking for expressions of interest

Exercise Details

- Total Hypothetical Budget
- Funding Allocation Method
- Eligibility For Exercise
- Mock Number of Shipments
- Mock Route Selection Process
- Grant Application Flowchart

NOTE: For the purposes of the Exercise only, several adjustments have been made to address the short time period, and accommodate elements or processes of the 180(c) program that are unknown at this time.

“ Indicates consistent with 2008 FRN

* Indicates for the purposes of the Exercise only

Total Hypothetical Budget

For Purposes of the Exercise Only:

- **Depends on number of volunteers. At least one State and one Tribe from each SRG region but no more than two from each region**
- **2008 annual cost estimate for Section 180(c) in a full operations scenario was \$10 million (About 35 states + 35 tribes)**
- **The \$10 million will be scaled for number of volunteers**

Funding Allocation Method

- **Planning & Assessment Phase:**
 - Up to \$220,000 for one year”

- **Training Phase:**
 - Up to \$110,000 each year of eligibility”
 - Plus a variable amount allocated according to 2008 FRN formula” recently reaffirmed by the IRT
 - Volunteers will apply for dollar amount they need consistent with:
 - ✓ Allowable activities list* and merit review criteria”
 - ✓ Increment of need created by SNF shipments”
 - ✓ State’s existing emergency management and law enforcement infrastructure”
 - Applicant and DOE will negotiate award amount (*DOE standard grant practices*)

Funding Allocation Method

- **Year 1 Budget:**
 - ✓ Base funds for P&A (up to \$220,000 per applicant)”
 - ✓ For purposes of the Exercise, Year 1 occurs in December*
- **Years 2-5 budgets:**
 - ✓ Total budget minus base funds for Training (up to \$110,00 per applicant)”
 - ✓ Remaining funds will be allocated according to the formula”
 - ✓ Tribes will test two options:
 - a. Allocating remaining funds according to formula*
 - b. Set-aside % of remaining funds and allocate according to needs above base grant allocation”
 - ✓ For purposes of the Exercise, Years 2-5 occur in Jan. – Feb.*

Eligibility for Exercise

- **At least one and, no more than two, Tribes and States from each of the four SRG regions***

- **Prefer mix of:***
 - ✓ rural and urban
 - ✓ volunteer and professional emergency responders
 - ✓ at least one Tribe with low readiness

Mock Number of Shipments

- If volunteer has a shut-down site, use actual shipments estimated from that site.*
- *Years 1 and 2:* Assume 10 shipments a year*
- *Years 3, 4, and 5:* Assume 15 shipments per year for half of volunteers, 25 shipments each per year for other half of volunteers*
- **Mode:** Dedicated train is the default mode. Would like to evaluate at least one heavy haul truck-to-rail, and one barge-to-rail which will test intermodal process*

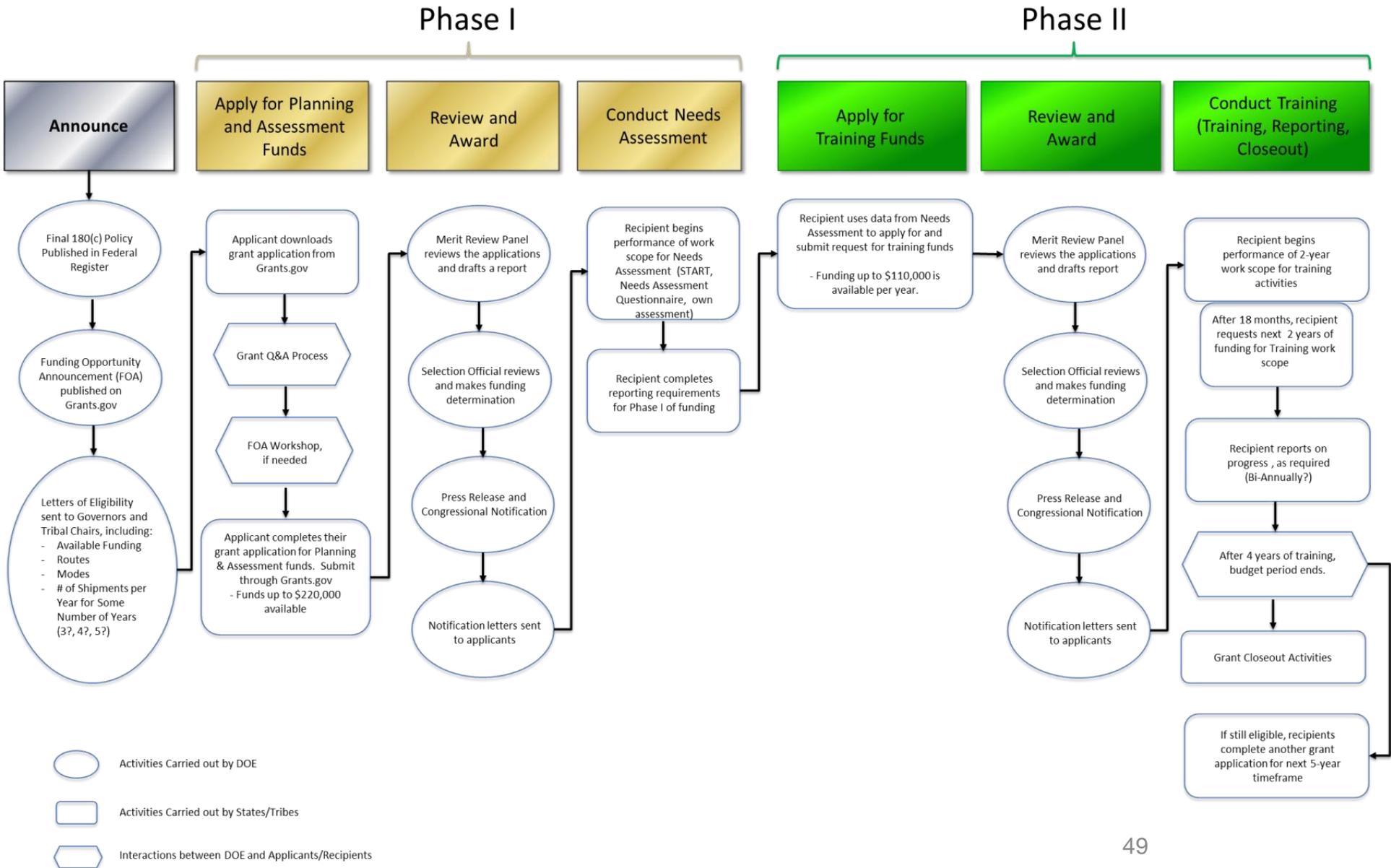
Route Selection Process

- **Volunteers select their own routes using START***
 - Volunteers may select more than one route.

- **Routes should be from:***
 - An originating site to a State's or Tribe's border
 - Border to border
 - *or* be at least 100 miles long within a State's/Reservation's borders

- **States or Tribes with shut-downs will also need to select the site of origin, identify the mode from the facility, and select the mode transfer point (if any).***

Grant Application Process Flowchart



What We Need From You

- **Volunteers to participate in the Exercise**
 - You may opt to participate as an observer but not complete any of the paperwork, negotiations, or NTSF presentation

- **Volunteers to participate in the Mock Merit/Expert Review Panel**
 - The panel will have only one state representative. They could be from any where in the US

Questions?

Contact: Erica Bickford
Erica.Bickford@nuclear.energy.gov