

Western States and Routing

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Western Interstate Energy Board



Who We Are

- Western Governors Association (WGA) serves 18 western states and 3 U.S.-Flag Pacific Islands (AK, AZ, CA, CO, HI, ID, KS, MT, NE, NV, NM, ND, OR, SD, TX, UT, WA, WY, American Samoa, Guam, & Northern Mariana Islands)
- Western Interstate Energy Board (WIEB) is an organization of 12 western states and 3 western Canadian provinces (AZ, CA, CO, ID, MT, NE, NV, NM, OR, UT, WA, WY, Alberta, British Columbia, & Saskatchewan)
- WIEB High-Level Radioactive Waste Committee is composed of 11 states and is co-chaired by Nevada and Oregon



WGA/WIEB Transportation Planning

- **WGA has adopted policy resolutions on NWPA/NWPAA implementation, private SNF storage, and DOE nuclear facilities cleanup**
- **WIEB is the NWPA/NWPAA arm of WGA**
- **WIEB High-Level Radioactive Waste Committee has been actively involved with HLW & SNF transportation issues since 1985**
- **New cooperative agreement with OCRWM**
- **WIEB High-Level Radioactive Waste Committee has provided testimony and correspondence to US NWTRB since 1990**



Current WGA Resolutions

- **Assessing the Risks of Terrorism and Sabotage Against High-Level Nuclear Waste Shipments to A Geologic Repository or Interim Storage Facility (Policy Resolution 04-02), June 22, 2004**
- **U.S. Department of Energy Waste Isolation Pilot Plant (WIPP) and Transportation of TRU Waste (Policy Resolution 03-08), September 15, 2003**
- **Private Storage of Commercial Spent Nuclear Fuel (Policy Resolution 03-16), September 15, 2003**
- **Transportation of Spent Nuclear Fuel and High-Level Radioactive Waste (Policy Resolution 02-05), June 25, 2002**
- **Department of Energy Facilities Cleanup Program Top-to-Bottom Review (Policy Resolution 02-05), June 25, 2002**

WGA resolutions are accessible on the internet at
http://www.westgov.org/wga_all_resolutions.htm



WGA Policies on Nuclear Waste Transport

- **The Governors' objective is safe and uneventful transportation of nuclear waste**
- **DOE must develop, in coordination with states and tribes, a comprehensive transportation plan to guide all transportation decisions**
- **DOE plan must address all needed transport-safety activities, including full-scale testing of shipping casks**
- **DOE must conduct a thorough review of the risks of terrorism and sabotage against repository shipments, in light of the events of September 11th, 2001**
- **Any private commercial storage facility for SNF must adopt, in consultation with corridor states, an acceptable transportation plan (WGA policy is that no such facility shall be located within the geographic boundaries of a western state without written consent of the governor of that state)**



Why Western States Are Concerned About Routing

- Western states are at “the end of the funnel” for shipments to Yucca Mountain or PFS
- DOE has not yet addressed western states’ concerns about advance planning for shipments to Yucca Mountain
- PFS has not yet addressed western states’ concerns about advance planning for shipments to a private storage facility



Affected Jurisdictions & Populations Along Yucca Mountain Routes

- Truck and rail routes could traverse up to 45 states, 700 counties, and 50 Indian Reservations
- More than 120 million people live in counties traversed by truck routes
- More than 100 million people live in counties traversed by rail routes
- More than 11 million people live within one-half mile (800 meters) of a potential highway route

*Source: Dilger & Halstead, Many Roads to Travel, WM'03,
February 2003*



Potential Repository Shipments Through Western States Transportation Scenarios Over 24 Years, 2010 - 2034

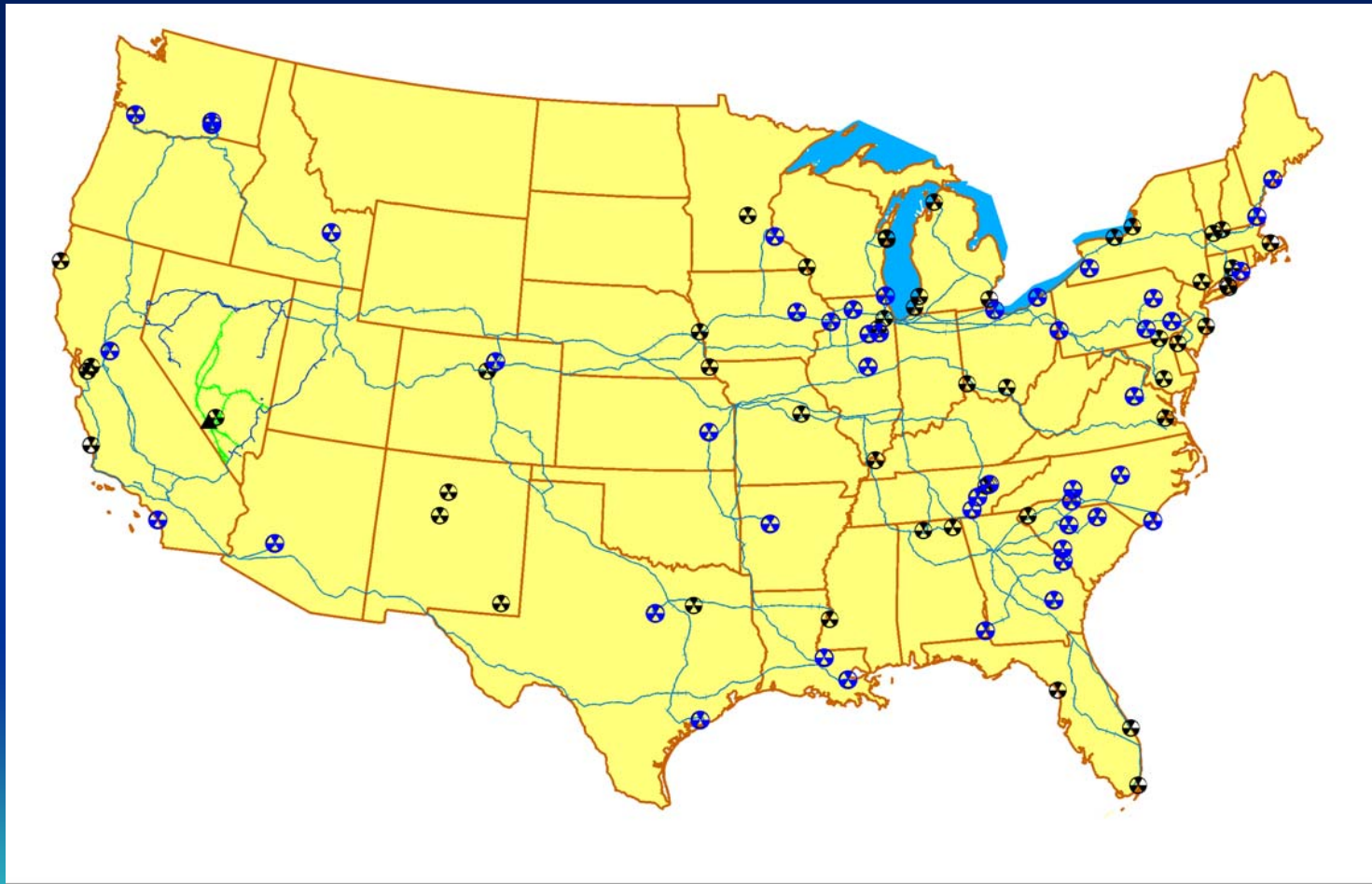
Mostly Rail: 10,725 Cask-Shipments (about 8 rail casks per week, shipped in 2-8 trains, plus about 1 truck cask per week; additionally there would be 2,000 + barge and/or heavy haul truck shipments from 24 reactors to rail connections)

Mostly Truck: 53,086 Cask-Shipments (about 6 trucks per day, plus 300 rail casks of naval SNF shipped from Idaho in 100-300 trains)

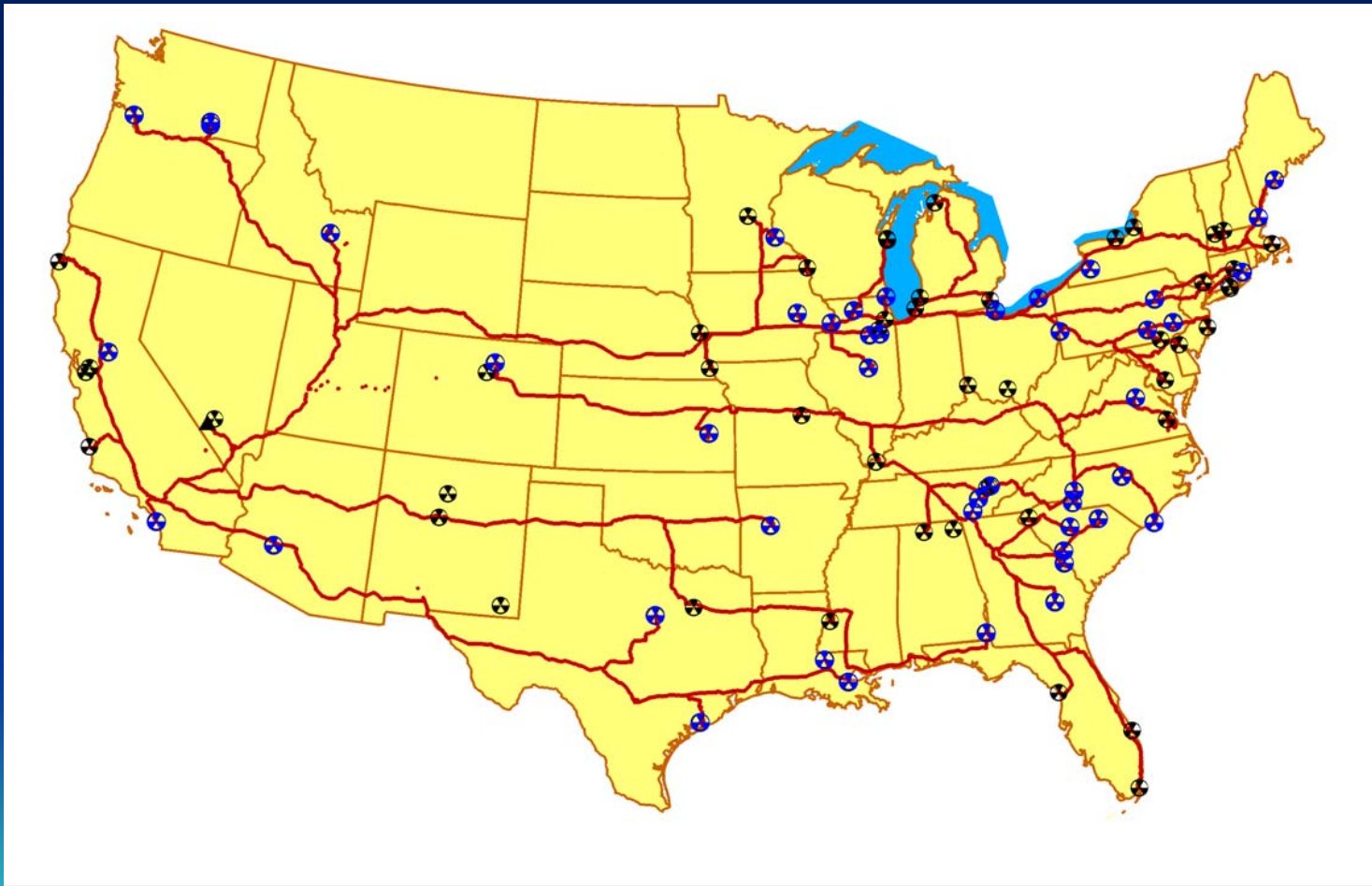
Source: DOE-EIS-0250, Appendix J



DOE “Representative” Rail Routes to Yucca Mountain



DOE “Representative” Truck Routes to Yucca Mountain



DOE Mostly Rail Scenario

Cask - Shipments Through WGA/WIEB States

AZ	2,224 (21%)	NM	952 (9%)
CA	1,464 (14%)	OR	649 (6%)
CO	8,085 (75%)	SD	32 (0.3%)
ID	1,082 (10%)	TX	952 (9%)
KS	4,310 (40%)	UT	10,213 (95%)
NE	8,793 (82%)	WA	616 (6%)
NV	10,725 (100%)	WY	8,519 (79%)

DOE Mostly Truck Scenario

Cask - Shipments through WGA/WIEB States

AZ	51,036 (96%)	NM	3,999 (8%)
CA	6,867 (13%)	OR	3,324 (6%)
CO	708 (1%)	SD	0 (0%)
ID	4,712 (9%)	TX	3,999 (8%)
KS	396 (1%)	UT	46,219 (87%)
NE	40,799 (77%)	WA	3,324 (6%)
NV	53,086 (100%)	WY	41,507 (78%)

WGA/WIEB Routing Goals

- Develop a sound methodology for evaluating optional mixes of routes and transport modes
- Early identification of routes in order to focus ER /inspectors/infrastructure/etc.
- Develop responsible criteria for selecting shipping routes and modes
- Timely and defensible routing analysis
- Limit the number of routes
- Promote route acceptance through risk-based and publicly acceptable criteria



Key Issues – Decision Process

- When to decide? - Four years prior to start of shipments
- Who decides? - Use National-to-local process
- Refine TRAGIS
- Develop methodology and criteria and finalize in a rule
- Apply route selection process
- Collaborate/negotiate with states
- Resolve potential discontinuities
- Identify routes in carrier contracts



Indicators of Risk

- DOE criteria: time in transit, shortest distance and population
- Other possible criteria:
 - Minimizing truck/rail accident rates
 - Minimizing ER time
 - Minimize cask recovery time
 - Avoid difficult to evacuate populations
 - Minimize transit through persistent bad weather
 - Avoid high hazards – high heat sources, steep slopes, high speeds
 - Avoid elevated roadways/overpasses/steep drop off



Other Potential Criteria (cont)

- Bridges vulnerable to failure
- Tunnels
- Steep grades/mountain passes
- Adjacent bodies of water/water immersion
- Environmentally sensitive areas
- Culturally sensitive areas
- Parallel tracks at high speeds
- Number of railroad carriers/interchange points
- Track classification/quality



Rail routing Issues

- No rail routing rule exists
- Railroad carrier route selection driven by profit and cost-effectiveness
- States not willing to have routing decisions turned over to the carrier



Other Issues

- The WIPP Model provides lessons for highway routing
- Conduct route-specific needs assessment – weather, high hazards, ER, time of day, safe havens, etc.
- Mitigation measures – time allotted to make improvements along a route



Current Uncertainties Regarding DOE Selection of Modes and Routes

- No DOE transportation plan
- No DOE decision on dedicated trains
- DOE currently allows rail carriers to select routes used
- Yucca Mountain site may not have rail access by 2010, by 2016, or ever; rail access construction cost uncertain
- 24 existing reactor sites could have difficulty shipping by rail, requiring use of barges, heavy haul trucks, and/or legal-weight trucks
- Utilities standard contract options affect DOE planning for pickup schedule and mode of shipments from each reactor
- Large number of truck shipments likely under mostly rail scenario, requiring route planning for both rail and truck

