

# Nuclear Fuel Cycle Update

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# Electricity Demand

Current Capacity = 1TW 2050 Capacity = 1.5 TW

<u>Current Source</u>	<u>Current %</u>	<u>2050 Source</u>	<u>2050 %</u>
Coal	50%	Coal	33%
Natural Gas	20%	Natural Gas	20%
Nuclear	20%	Nuclear	39%
Hydro	7%	Hydro	5%
Renewables	3%	Renewables	3%

# Nuclear Supply Challenge to Meet 2050 Demand

- In the next 20 years
- Replace 34 reactors
- Build out 50 new reactors by 2050

# Challenges for the Back End of the Nuclear Fuel Cycle

- Fukushima Risk Awareness
- Unpacking Fuel Pools
- Removal of dry casks from highly populated areas
- Central Interim Storage Facility
- Geologic Repository
- Dry Cask Storage Limits
- Financing

# Blue Ribbon Commission

## Recommendations

- Mined Geologic Repository
- Centralized Interim Storage
- Private/Public Corporation to Manage Waste Fund
- Willing Community, Willing State with Appropriate Geologic Medium
- Testing of the Medium

# Yucca Mountain Status

- Court Decision Pending
- Requires World's Supply of Titanium for Drip Shields
- Questions about Porosity
- Questions about Seismic Stability
- Nevada is Opposed

# Repository Options

- Granite, Clay, Tuft, Salt
- Process
  - Research Sites' Performance
  - Peer Reviewed Testing Approach
  - WIPP Could Serve as Testing Site for Salt
    - Testing Proposal Completed
    - 6 Years to Complete
    - Performance Assessment
    - Supplemental EIS
    - NRC Licensing

# Interim Storage Option

- Need Pilot Facility
- How to Construct, Transport, Load/Unload
- Container Metallurgic Research



# Financing

- Nuclear Waste Fund Generates \$780 Million annually
- Presently Scored as Revenue
- Balance in Fund Collected \$26 Billion
- Industry Lawsuits Predicted to be \$15-\$50 Billion
- Judicial Settlement Fund Paying Lawsuits
- Need Non-Political Solution
- Solution is Private/Public Partnership

# DOE Complex Clean-Up

- 17 Sites Cleaned Up So Far
- Big Sites Remaining: Hanford, SRS, INL, Oakridge
- Large Amounts of High Level Waste
- Solution for Clean Up is the Same: Geologic Repository

# State Legislators Can Drive Solution

- Understanding Clean Up Issues
- Close Interaction with their Congressional Delegations
- All being on the Same Page