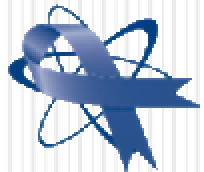


# Key Elements of the Final Report of the Blue Ribbon Commission on America's Nuclear Future

Albert Carnesale

March 1, 2012



**BLUE RIBBON COMMISSION**  
ON AMERICA'S NUCLEAR FUTURE

# Origins and Purpose

- Blue Ribbon Commission on America's Nuclear Future established by the President's Memorandum for the Secretary of Energy on January 29, 2010
- Charge to the Commission: Conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle and recommend a new strategy
- Deliver recommendations to the Secretary of Energy by January 29, 2012

# Commission Members

- **Lee Hamilton**, Co-Chair – Director of the Center on Congress at Indiana State University, former Member of House of Representatives (D-IN)
- **Brent Scowcroft**, Co-Chair – President, The Scowcroft Group, and former National Security Advisor to Presidents Ford and George H.W. Bush
- **Mark Ayers**, President, Building and Construction Trades Department, AFL-CIO
- **Vicky Bailey**, Former Commissioner, Federal Regulatory Commission; former Indiana Public Utility Commissioner; former DOE Assistant Secretary for Policy and International Affairs
- **Dr. Albert Carnesale**, Chancellor Emeritus and Professor, UCLA
- **Pete V. Domenici**, Senior Fellow, Bipartisan Policy Center; former U.S. Senator (R-N.M.)
- **Susan Eisenhower**, President, Eisenhower Group, Inc.
- **Chuck Hagel**, Distinguished Professor at Georgetown University; former U.S. Senator (R-NE)

# Commission Members

- **Jonathan Lash**, President, Hampshire College; former President, World Resources Institute
- **Dr. Allison Macfarlane**, Associate Professor of Environmental Science, George Mason University
- **Dr. Richard Meserve**, President, Carnegie Institution for Science and Senior Counsel, Covington & Burling LLP; former Chairman, U.S. Nuclear Regulatory Commission
- **Dr. Ernest Moniz**, Professor of Physics and Cecil & Ida Green Distinguished Professor, MIT
- **Dr. Per Peterson**, Professor and Chair, Department of Nuclear Engineering, University of California-Berkeley
- **John Rowe**, Chairman and CEO, Exelon Corporation
- **Dr. Phil Sharp**, President, Resources for the Future, former Member of the House of Representatives (D-IN)

# Nuclear Waste: What's the Problem?

- America has been trying to figure out what to do with spent nuclear fuel and high-level waste since the 1960s
- Under current law, the federal gov't was supposed to start taking spent fuel by 1998, more than a decade ago
- Utility ratepayers have been paying for a solution that hasn't materialized while taxpayers face growing, open-ended liabilities
- The waste isn't going anywhere because we simply have no place to put it—and trust in the federal government's competence to manage this problem is all but gone



**Congress and the Administration must act to move beyond the current impasse**

The waste exists.

We have an ethical, legal, and financial responsibility to manage and dispose of it safely, at a reasonable cost, and in a reasonable timeframe.

This was the driving impetus for the Commission. It is the basis for our shared sense of urgency about seeing our recommendations implemented.

# Overview of 8 Key Recommendations

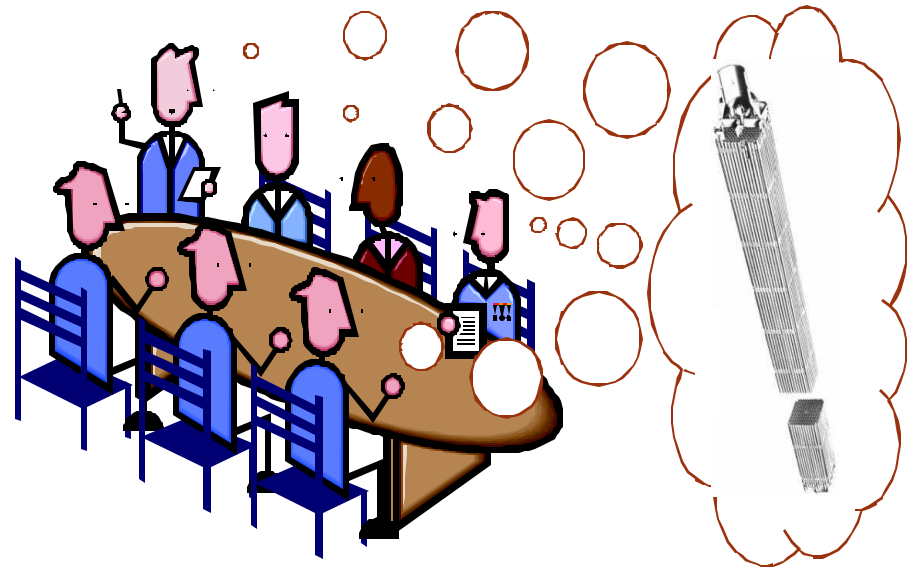
1. A new, consent-based approach to siting and development



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# Overview of 8 Key Recommendations

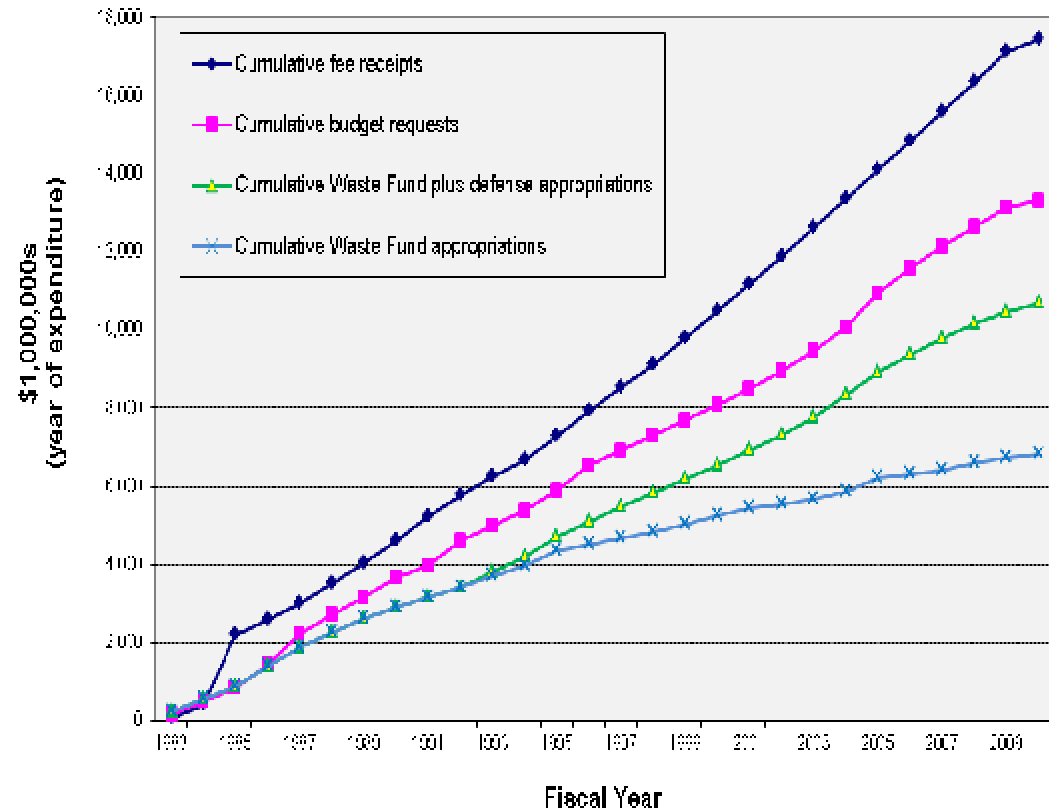
2. A new organization dedicated solely to implementing the waste management program and empowered with the authority and resources to succeed





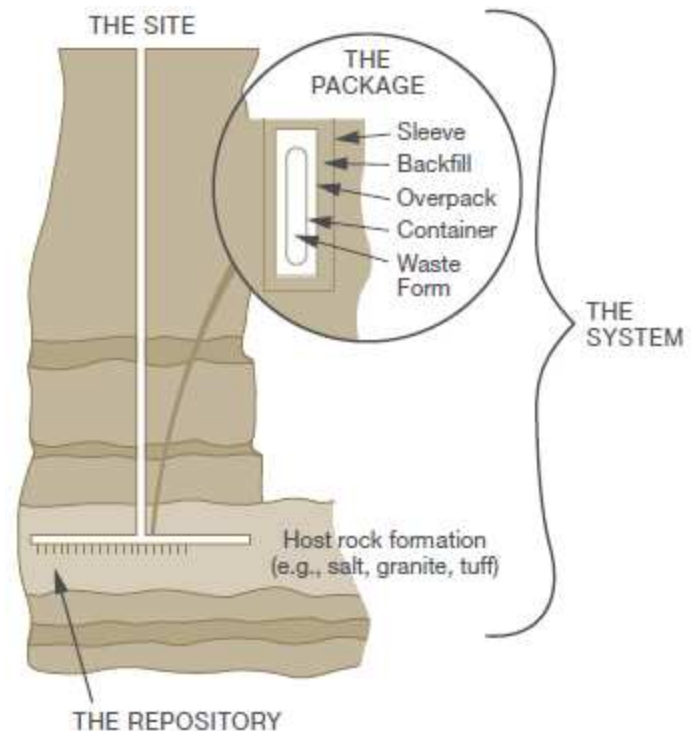
# Overview of 8 Key Recommendations

3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management



# Overview of 8 Key Recommendations

4. Prompt efforts to develop one or more geologic disposal facilities



# Overview of 8 Key Recommendations

5. Prompt efforts to develop one or more consolidated storage facilities



# Overview of 8 Key Recommendations

6. Prompt efforts to prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available



# Overview of 8 Key Recommendations

7. Support for continued U.S. innovation in nuclear energy technology and for workforce development



# Overview of 8 Key Recommendations

8. Active U.S. leadership in international efforts to address safety, waste management, non-proliferation, and security concerns



# Conclusion

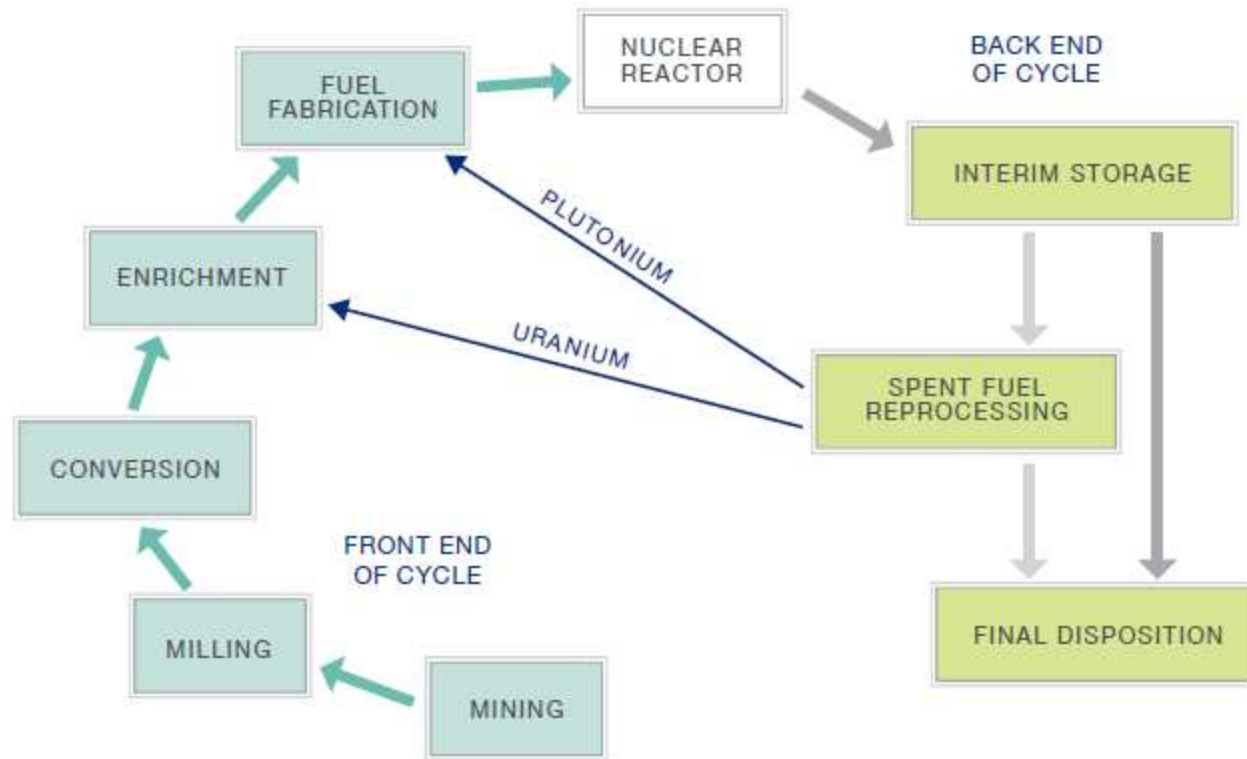
- The overall record of the U.S. nuclear waste program has been one of broken promises and unmet commitments
- The Commission finds reasons for confidence that we can turn this record around
- We know what we have to do, we know we have to do it, and we even know how to do it
- We urge the Administration and Congress to act on our recommendations, without further delay

# BACKUP SLIDES

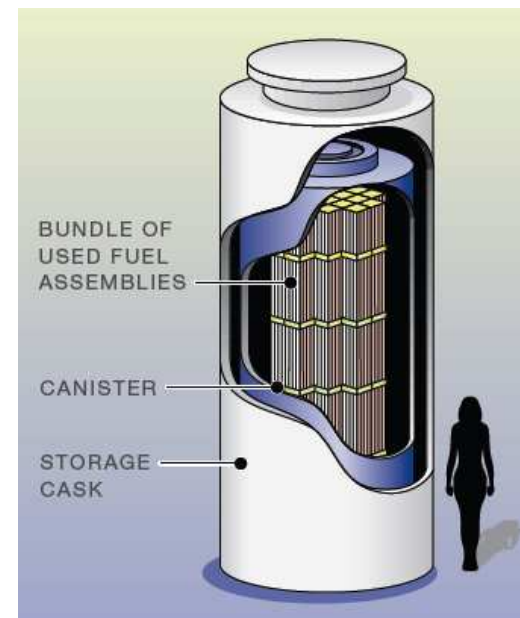
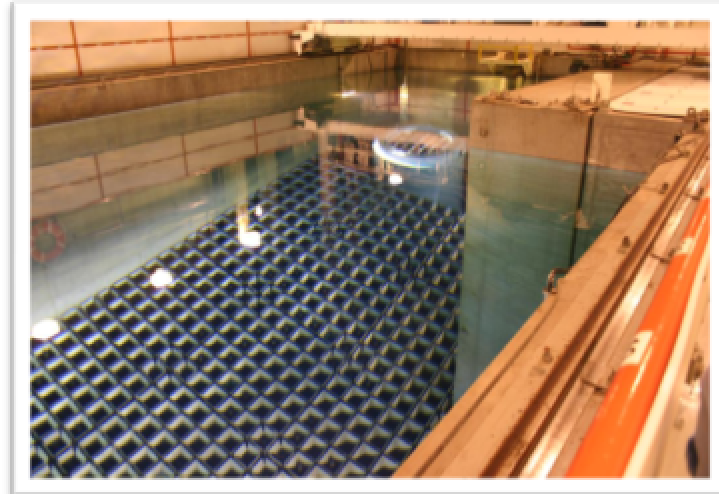




# Nuclear Fuel Cycle



# Nuclear Fuel

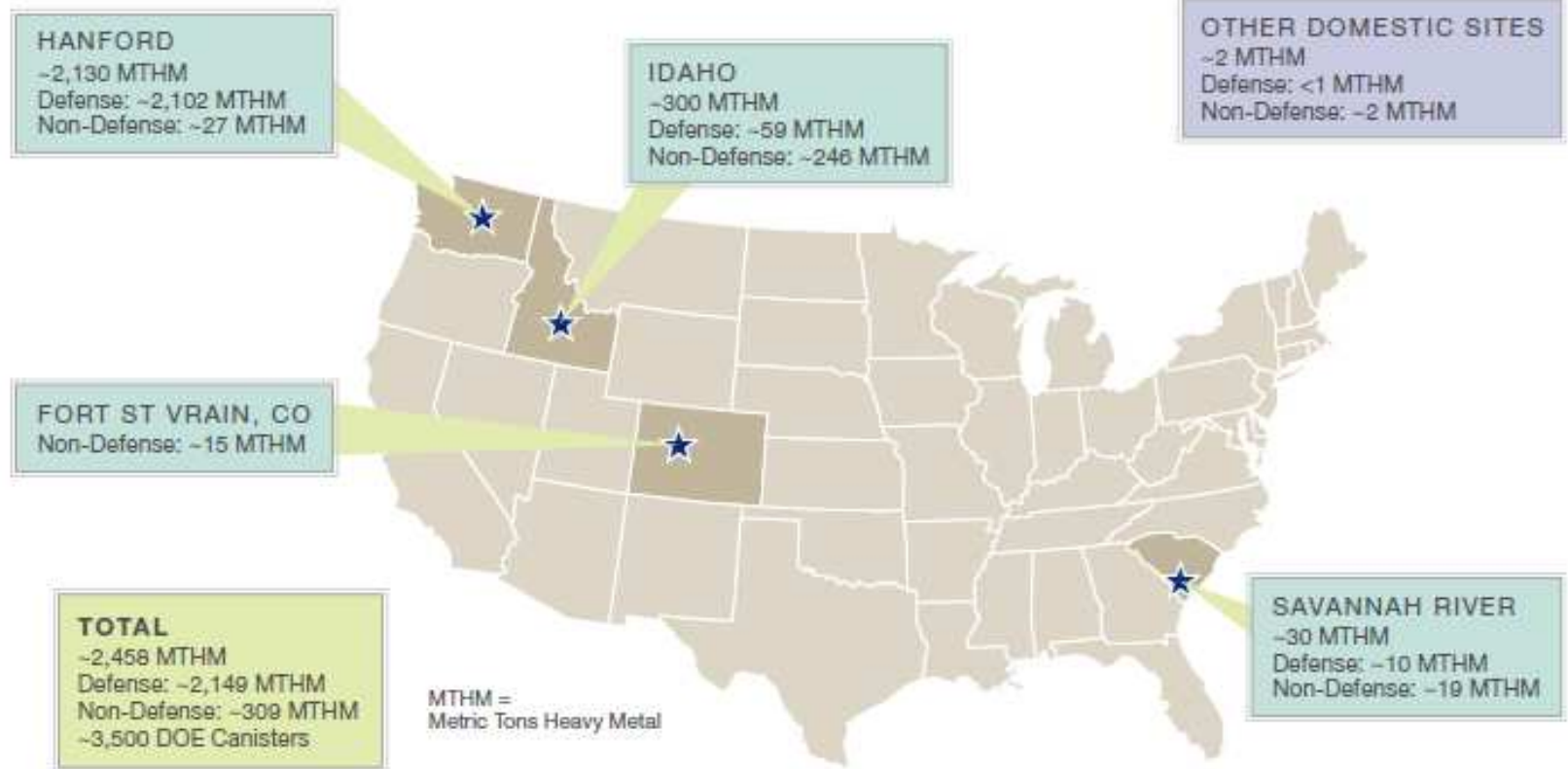


# Commercial nuclear reactors



Source: U.S. Nuclear Regulatory Commission

# Current DOE SNF inventory



Source: BRC staff using information from DOE and other sources.

# U.S. High-level Wastes



Source: BRC staff using information from DOE and other sources.

# High-level Wastes



Source: UK Nuclear Decommissioning Authority website – see <http://www.nda.gov.uk/ukinventory/waste/waste-now-hlw.cfm>

# Commission Activities

- **Full Commission meetings/site visits - 2010:**
  - March – Where are we and how did we get here?
  - May – Getting the issues on the table; three subcommittees formed -- Reactor & Fuel Cycle Technology; Transportation & Storage, Disposal
  - July – Hanford Visit: a community's perspective
  - August – Maine Yankee site visit
  - September – Crosscutting issues: governance, siting, international implications, ethical & societal foundations
  - October – Visits to Sweden and Finland
  - November – International perspectives, working with the states, experts advice

# Commission Activities

- **2011:**

- January – Visits to SC/GA (Savannah River) and NM (WIPP)
- February – Visits to Japan, Russia and France; meeting on crosscutting issues; organizational form and scope, siting, financial considerations
- March – Issued staff-developed report on “What We’ve Heard”
- May - NRC/DOE reviews post-Fukushima; discussion of draft subcommittee recommendations to the full Commission
- June – Visits to UK, France; draft subcommittee reports issued
- July – Draft report submitted to Secretary of Energy
- September-October – regional public comment meetings
- October-November – established *ad hoc* subcommittee to address commingling of defense and civilian wastes
- December – Meeting to discuss responses to public comment



# Proposed Legislative Changes

Fully implementing these recommendations will require changes to the NWPA or other legislation to:

- Establish a new facility siting process
- Authorize consolidated interim storage facilities
- Broaden support to jurisdictions affected by transportation
- Establish a new waste management organization
- Ensure access to dedicated funding
- Promote international engagement to support safe and secure waste management



# Key Features of a New Approach

- Consent-based
- Transparent
- Phased
- Adaptive
- Standards- and science-based
- Governed by partnership arrangements or legally-enforceable agreements between the implementing organization and host states, tribes, and local communities.

# Empowering a New Waste Management Organization to Succeed

- Organizational form: several options; Commission recommends federally-chartered corporation
- Scope of mission: to site, license, build and operate facilities for the safe consolidated storage and final disposal of SNF and HLW and conduct related R&D
- Resources and authorities: substantial implementing authority and assured access to funds coupled with *rigorous technical, financial and regulatory oversight*
- Governance: board of directors nominated by the President, confirmed by Senate



# Fixing the Funding Problem: A Two-Step Approach in the Near Term

- First, amend the Standard Contract so that nuclear utilities remit only the portion of the Nuclear Waste Fund fee that is actually appropriated for waste management activities each year.
- Place the remainder of fees collected each year in a trust account held by a qualified third-party institution
- Second, change the budgetary treatment of fee receipts so they directly offset appropriations for waste program
- Longer term, legislative action is needed to transfer unspent balance of Fund to new organization

# Siting New Facilities: Getting Started

The United States should begin siting new nuclear waste management facilities by:

- Developing a set of basic initial criteria
- Developing a generic standard and supporting regulatory requirements EARLY in the process
- Encouraging expressions of interest from a large variety of communities
- Establishing initial program milestones



# Getting to Consent: Navigating the Federal/State/Tribal/Local Rights Dilemma

- Participation in the siting process on a voluntary basis
- Roles and authorities of host states, tribes, and communities defined through a process of negotiation
  - Implementing organization has authority to enter into legally binding agreements
- Implementing organization provides financial and technical support for participation
- Substantial incentives are made available
- Meaningful consultation in all aspects of facility siting, development, and operation



# The WIPP Example

- Currently the world's only operating deep geological repository for long-lived nuclear waste. Accepts defense transuranic (TRU) waste only.
- The site, in an ancient salt bed near Carlsbad, NM, was selected for study in 1974. WIPP received its first shipment of waste in 1999.
- Process was long and often contentious but the project enjoyed local support throughout.
- WIPP has received approx. 10,200 shipments w/o incident
- Facility is now supported by a majority of NM citizens.



# Further delay and stalemate is not only irresponsible, it will be costly...

## Status of Litigation over DOE-Utility Standard Contracts (through 2010)

Cases filed	78
Claims	\$6.4 billion
Payments for final judgments & settlements to date	\$2 billion
Estimated total damages if waste acceptance starts in 2020	\$20.8 billion
Estimated damages for each additional year of delay	Up to \$500 million per year





## Status in Other Countries

- Finland: Selected repository site at Olkiluoto with consent of local municipality (Eurajoki). Site studies since 2004; license application to be submitted in 2012; anticipated start in 2020.
- Sweden: Selected repository site at Forsmark with the support of the nearby community (Östhammar). Permit for construction submitted in 2011; anticipated start date 2025.
- France: Communities in Meuse/Haute-Marne region have volunteered for underground site-characterization program; program is providing local economic development benefits.
- Canada: Implementing an adaptive, consent-based process.
- Spain: Successfully used consent-based process to select site (Villar de Cañas) for a consolidated storage facility. Entire siting process took 6 years.



## Responding to Fukushima

- Commission recommends the National Academy of Sciences undertake a comprehensive study of the accident and implications for U.S. policy & practices
- Dry cask storage and away-from-reactor pool storage at Fukushima performed well during crisis
- Fukushima points to importance of having long-term strategy & better near-term options for managing spent fuel

