

# Moving Forward With Consent-Based Siting

How We Got Here

History and Our  
Approach

Our Vision

The Path Forward



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Nuclear Energy

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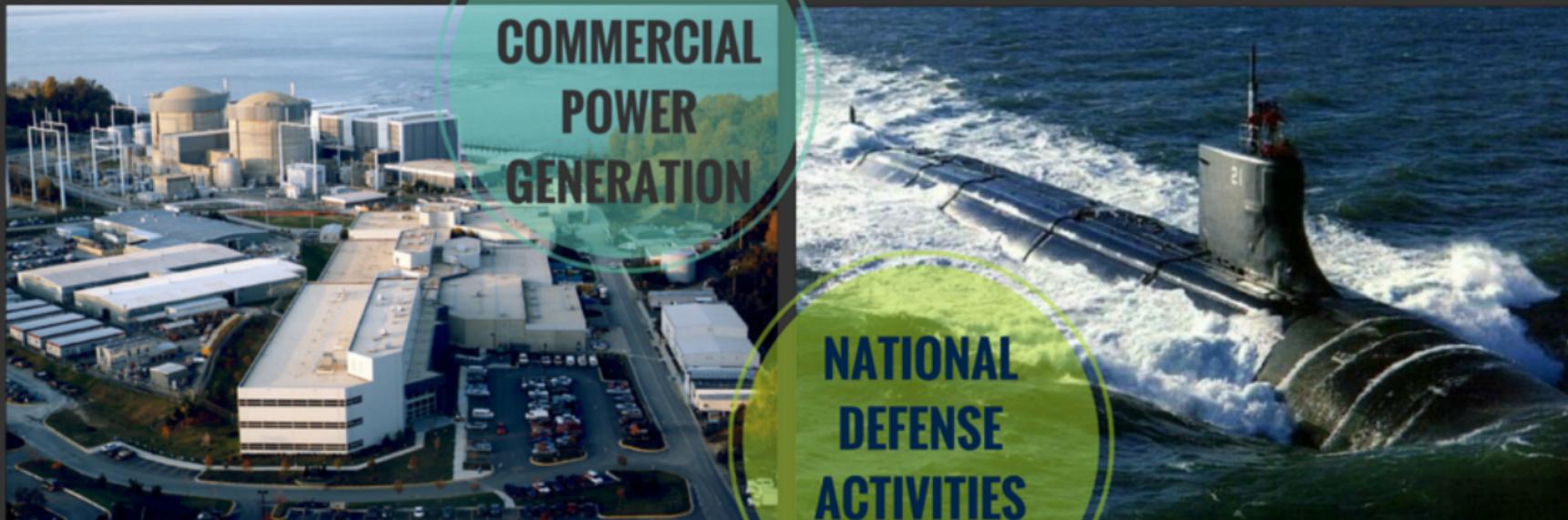


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# How We Got Here



Calvert Cliffs Nuclear Power Plant. Photo courtesy of Nuclear Regulatory Commission.

# 60

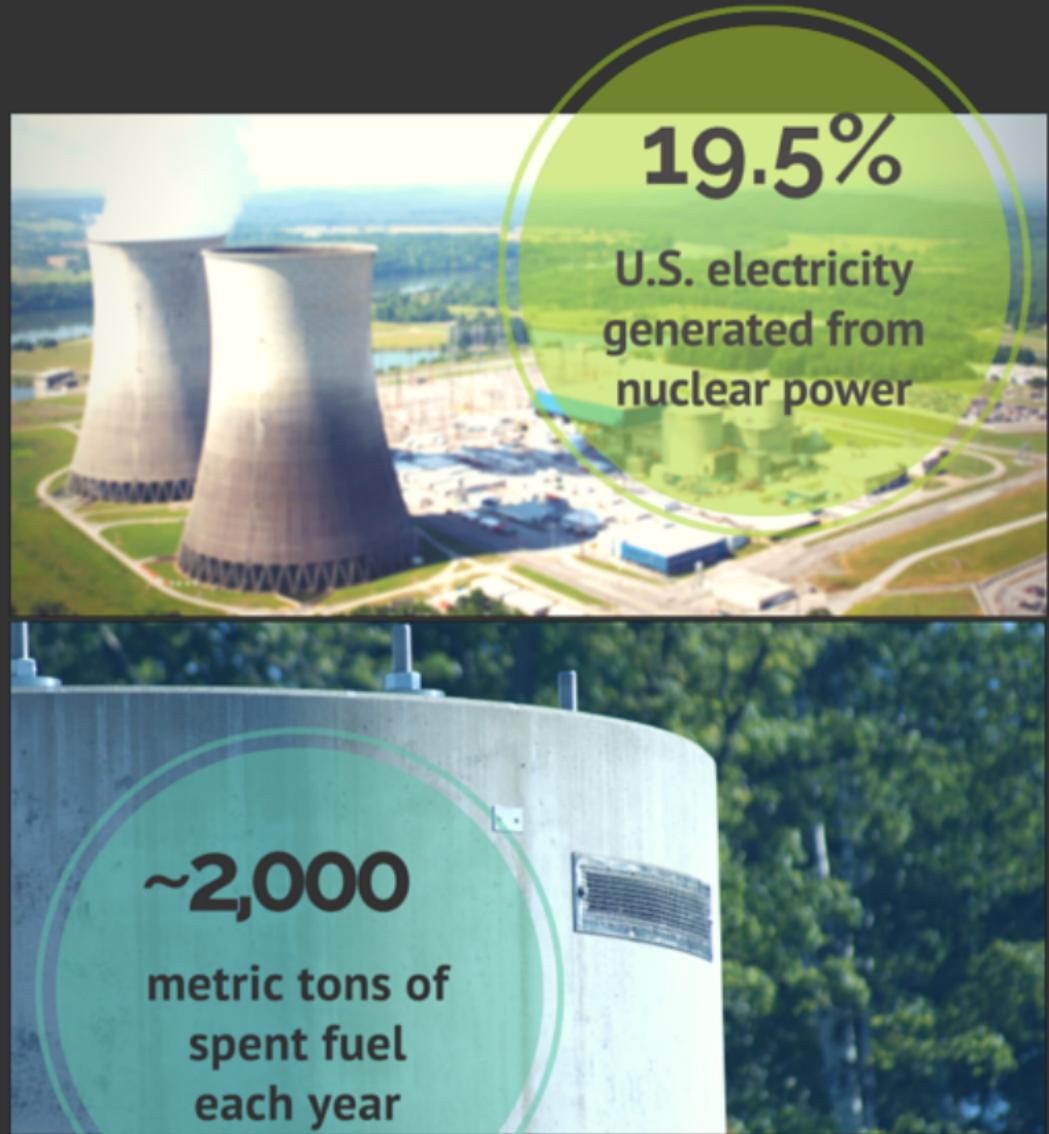
years of electricity from  
nuclear power

**1942**

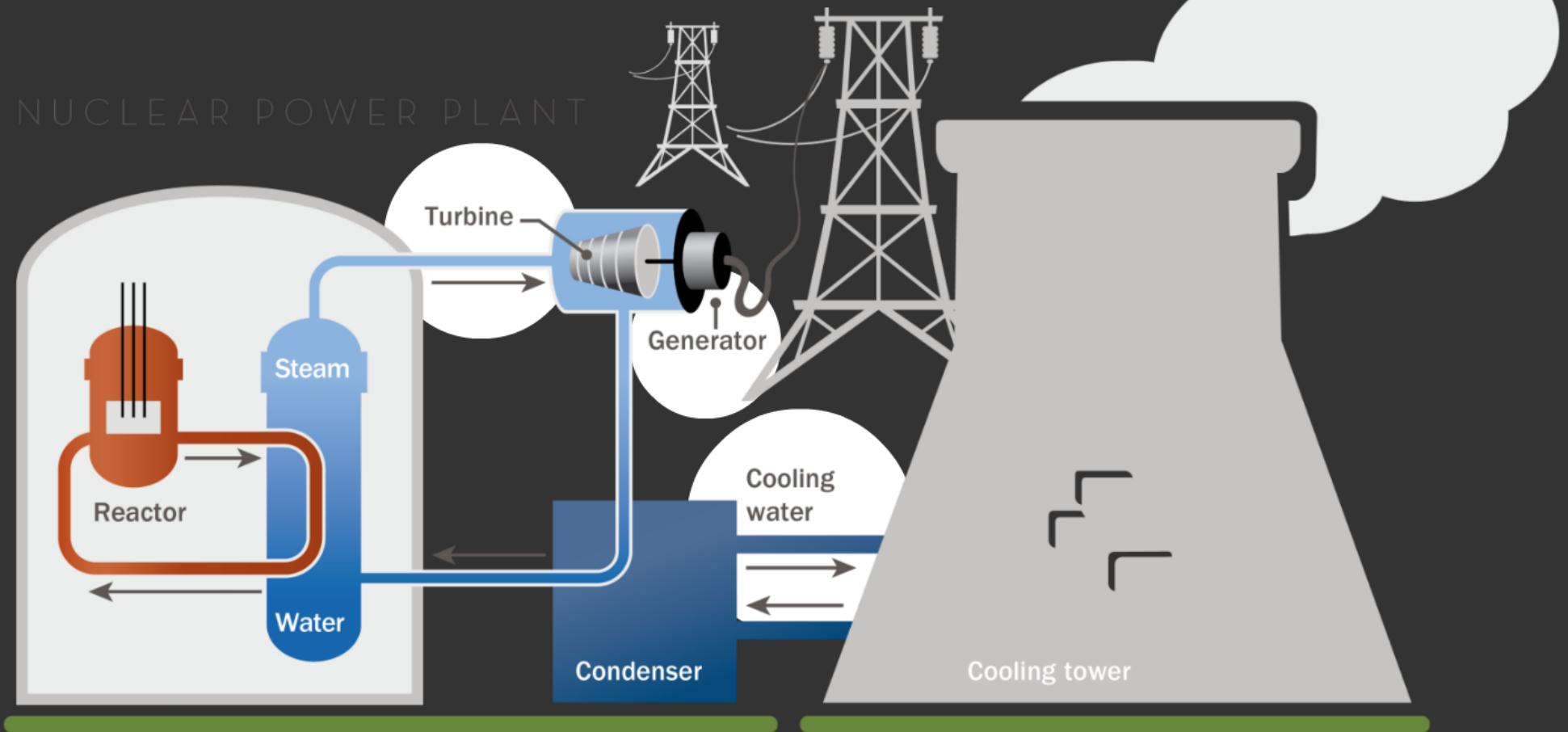
The world's first nuclear  
reactor operates in  
Chicago

**1955**

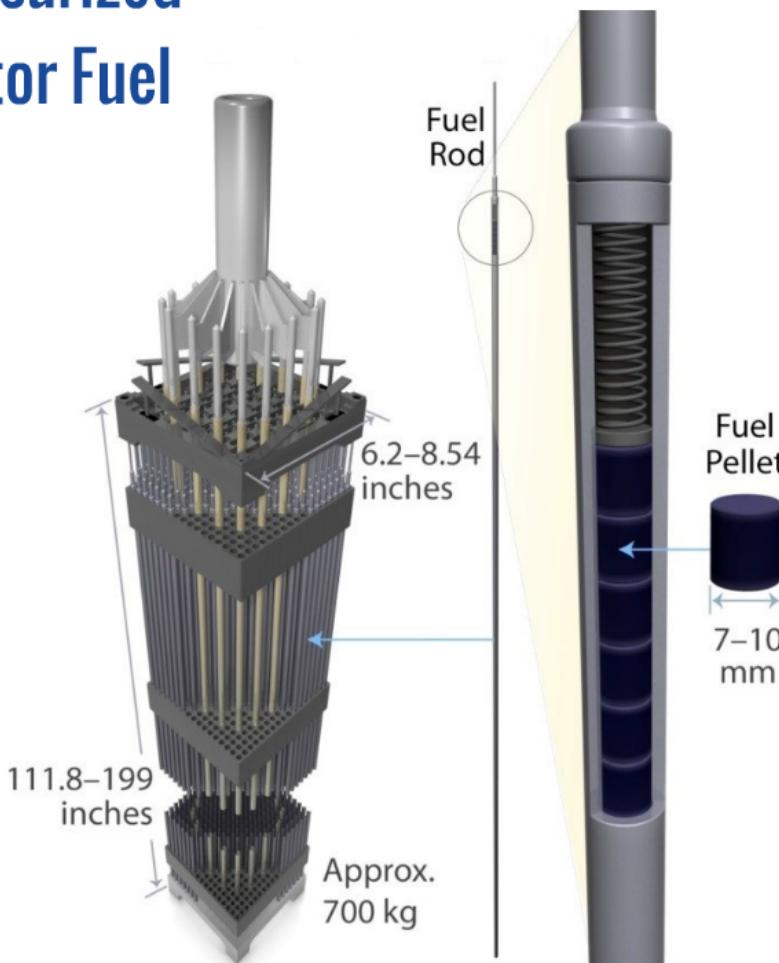
Arco, Idaho becomes first  
city in America powered  
by nuclear energy



## NUCLEAR POWER PLANT



# Typical Pressurized Water Reactor Fuel Assembly



ORNL 2015-G00443/aas



## WET STORAGE

Spent fuel pool at the San Onofre Nuclear Generating Station.  
Photo courtesy of the Nuclear Regulatory Commission.



A dry cask loaded with spent fuel being lifted from a horizontal transporter to be placed vertically on a storage pad. Photo courtesy of Sandia National Laboratories.

# Department of Energy Managed Waste



## SPENT NUCLEAR FUEL

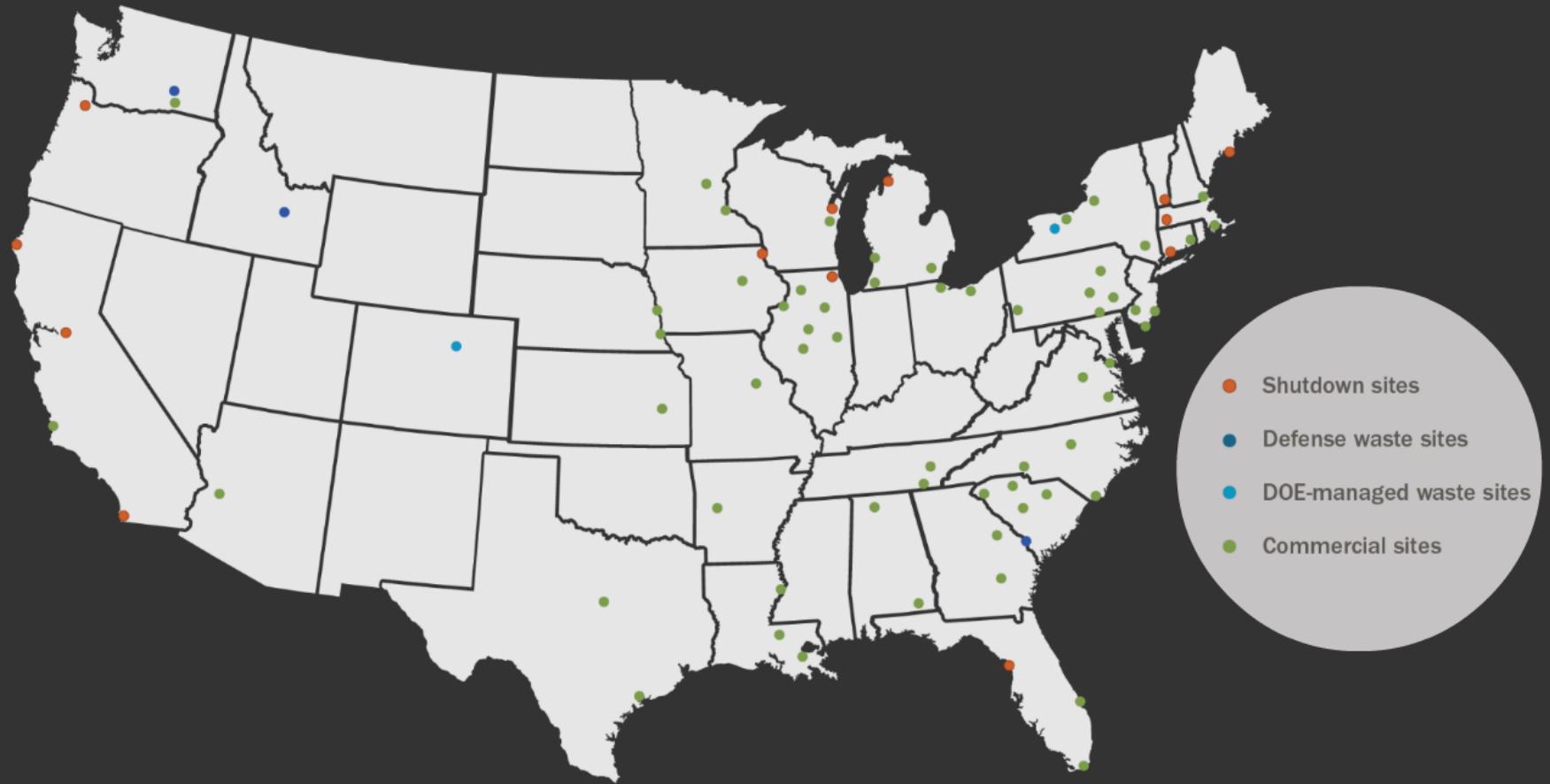
**~75,000**

metric tons of  
uranium

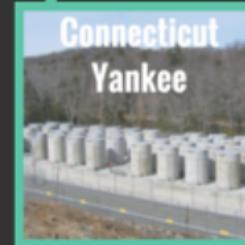
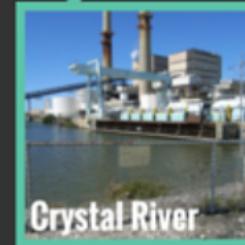
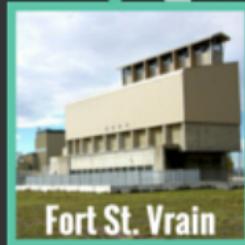
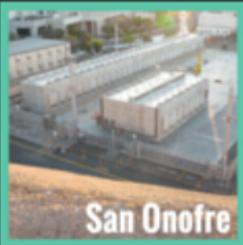
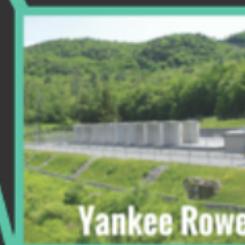
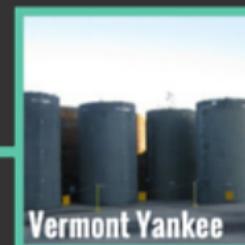
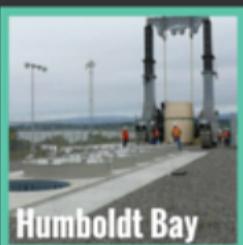
## HIGH-LEVEL RADIOACTIVE WASTE

**~12,000,000**

cubic feet of  
high-level waste



# Shutdown Power Reactor Sites



## WHY ACT NOW?

- The waste was created producing electricity and nuclear deterrent for our benefit
- Taxpayer liabilities are large and growing
- Government has a legal obligation to act
- Need to provide for safe, sustainable storage and disposal now to avoid leaving the problem to future generations
- We have the technology and resources to deal with the waste today



# **History and Our Approach**

## TIMELINE DEVELOPMENT OF NUCLEAR POWER

- 1934 Enrico Fermi splits the atom and achieves the world's first nuclear fission
- 1942 Manhattan Project forms to build the atomic bomb for use in World War II
- 1945 U.S. produces first nuclear weapons
- 1953 U.S. launches the first nuclear-powered submarine, the U.S.S. *Narwhal*
- 1954 Congress passes the Atomic Energy Act of 1954, providing direction for the peaceful use of atomic energy
- 1955 U.S. begins using nuclear power to generate electricity

## DEVELOPMENT OF GEOLOGIC DISPOSAL

- 1957 National Academy of Sciences recommends geologic disposal for disposing of nuclear waste
- 1970 U.S. begins a search for potential repository sites
- 1970 Lyons, Kansas site selected as the first national repository
- 1972 Government withdraws from operations at Lyons site due to technical uncertainties and public opposition

## NUCLEAR WASTE POLICY ACT AND YUCCA MOUNTAIN

- 1982 Congress passes NWPA, establishing process for selecting a disposal site
- 1986 DOE recommends three sites for further study, including Yucca Mountain
- 1987 Congress amends NWPA, directing DOE to study only Yucca Mountain
- 1988-2002 DOE studies Yucca Mountain extensively
- 1998 DOE misses deadline to begin accepting spent nuclear fuel
- FEB 2002 DOE recommends Yucca Mountain as the nation's first disposal site and President Bush submits recommendation to Congress
- APR 2002 Nevada Governor Quinn submits official notice of disapproval to Congress
- JUL 2002 President Bush signs joint resolution approving Yucca Mountain as repository site
- 2008 DOE submits license application for construction of repository to NRC
- 2009 Administration determines Yucca Mountain is not a workable solution. DOE suspends activities at the site

## THE BLUE RIBBON COMMISSION AND CONSENT-BASED SITING

- 2010 Secretary of Energy Chu establishes the Blue Ribbon Commission on America's Nuclear Future (BRC)
- 2012 BRC recommends DOE adopt a consent-based approach to siting nuclear waste facilities, including consolidated interim storage and geologic disposal sites
- 2013 DOE releases *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste* based on the recommendations from the BRC
- 2015 Secretary of Energy Moniz announces DOE will pursue a consent-based approach to siting facilities for interim storage, as well as disposal of defense and commercial waste

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CANADA

Moving Forward Together:  
Process for Selecting a  
Site for Canada's Deep  
Geological Repository  
for Used Nuclear Fuel

MAY 2010



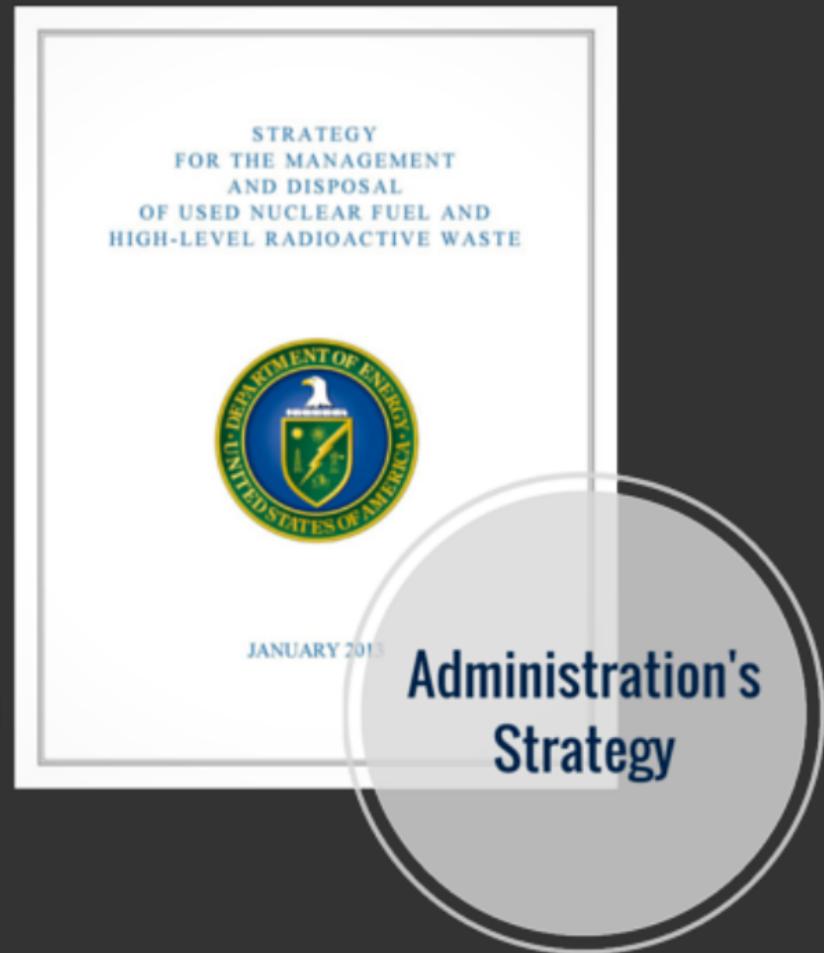
SWEDEN



FINLAND



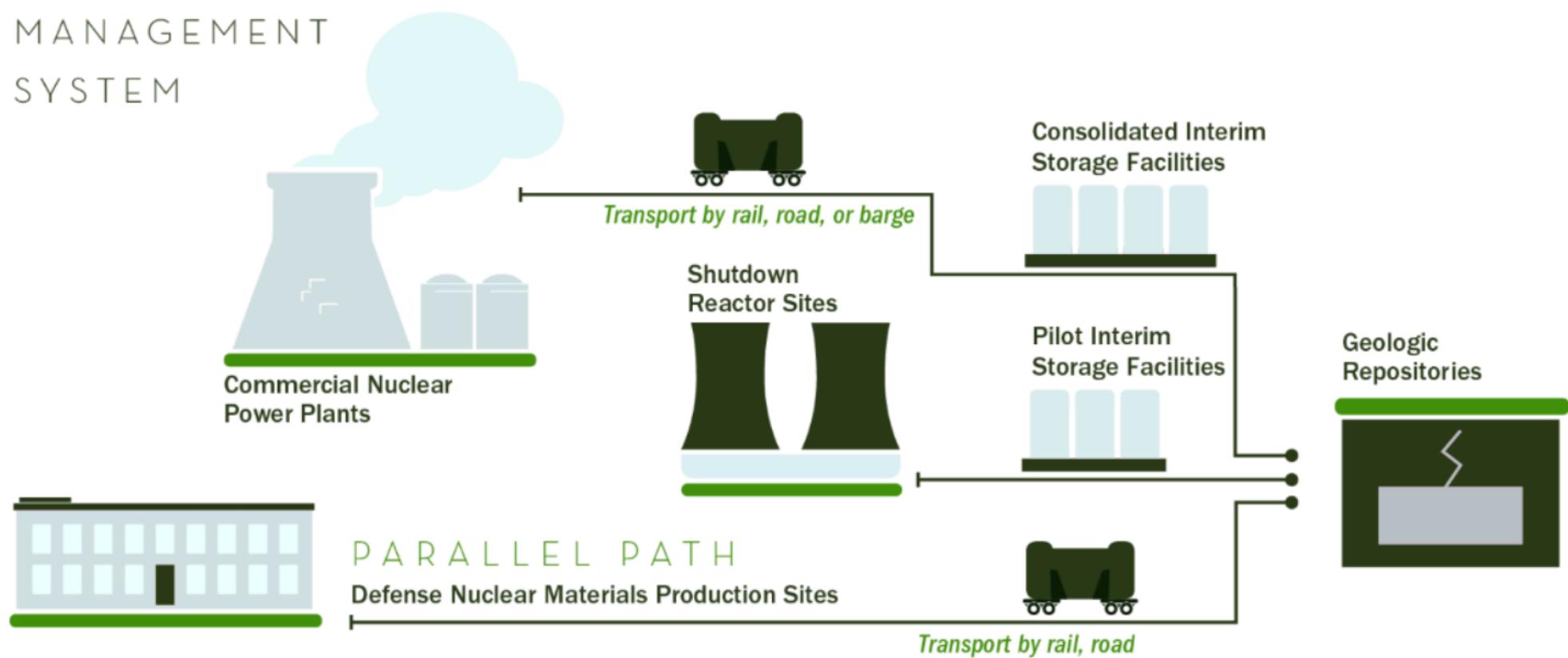
FRANCE



A photograph of a person from the waist up, wearing a flight helmet with a clear visor and a dark flight suit. They are standing in front of a large, semi-transparent blue circle. The background is a bright, possibly overexposed outdoor area with some greenery.

# Our Vision

# INTEGRATED WASTE MANAGEMENT SYSTEM



## Consolidated Interim Storage Facilities



*land, or barge*

es

## Pilot Interim Storage Facilities



Geologic  
Repositories





*Transport by rail, road, or barge*

## Shutdown Reactor Sites



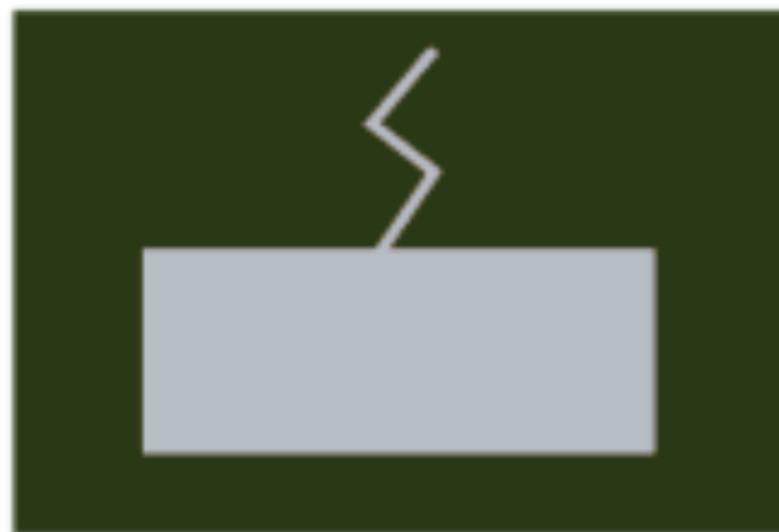
# TRANSPORTATION



M-290 shipping container used to ship Navy spent nuclear fuel.

n  
cilities

## Geologic Repositories



DISPOSAL





# The Path Forward

# **CONSENT-BASED SITING PROCESS**

**Local  
Governments**

**Tribal  
Nations**

**Communities**

**States**



**ensure safe and secure operations**



**build and maintain trust among stakeholders**



**adapt operations based on lessons learned**

1

Engage with the public and interested parties on the elements of a consent-based siting process

2

Design a consent-based siting process to serve as a flexible framework for engaging with potential host communities

3

Use the resulting consent-based siting process to work with potential host communities



YOU  
ARE  
HERE

1

Engage with the public and interested parties on the elements of a consent-based siting process

- How can the Department ensure that the process for selecting a site is fair?
- What models and experience should the Department use in designing the process?
- Who should be involved in the process for selecting a site, and what is their role?
- What information and resources do you think would facilitate your participation?
- What else should be considered?



Invit

you  
ation?



Invitation for Public Comment  
in the Federal Register



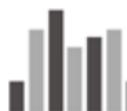
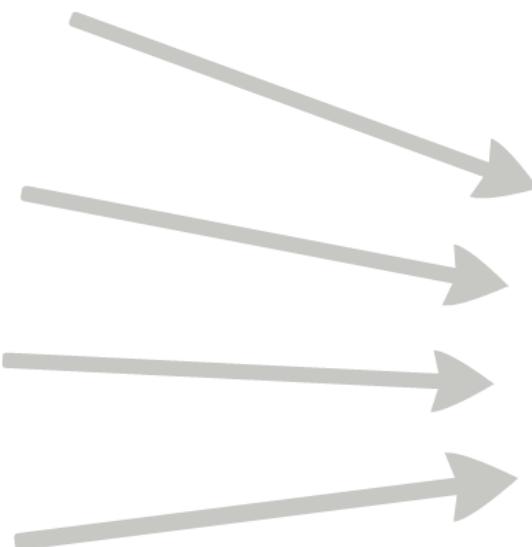
Public meetings hosted  
across the country



Public webinars or  
conference calls



Meetings with stakeholders  
and groups by request



Summary report for  
public review and  
comment

2

Design a consent-based siting process to serve as a flexible framework for engaging with potential host communities



Draft a consent-based siting process based on public input



Issue preliminary siting considerations to provide a baseline for siting discussions





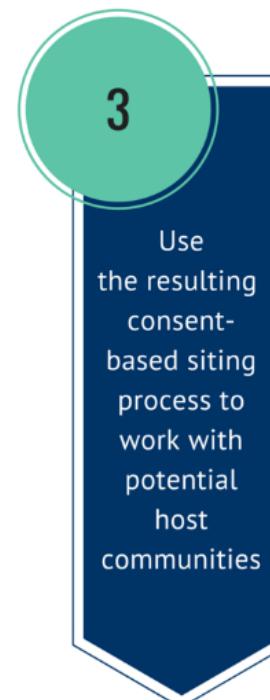
Proposed funding  
opportunity announcement  
for interested communities  
to seek information on  
consent-based siting

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Proposed funding opportunity announcement for interested communities to seek information on consent-based siting



# **GET INVOLVED!**

Visit

[energy.gov/consentbasedsiting](http://energy.gov/consentbasedsiting)

Email

[consentbasedsiting@hq.doe.gov](mailto:consentbasedsiting@hq.doe.gov)