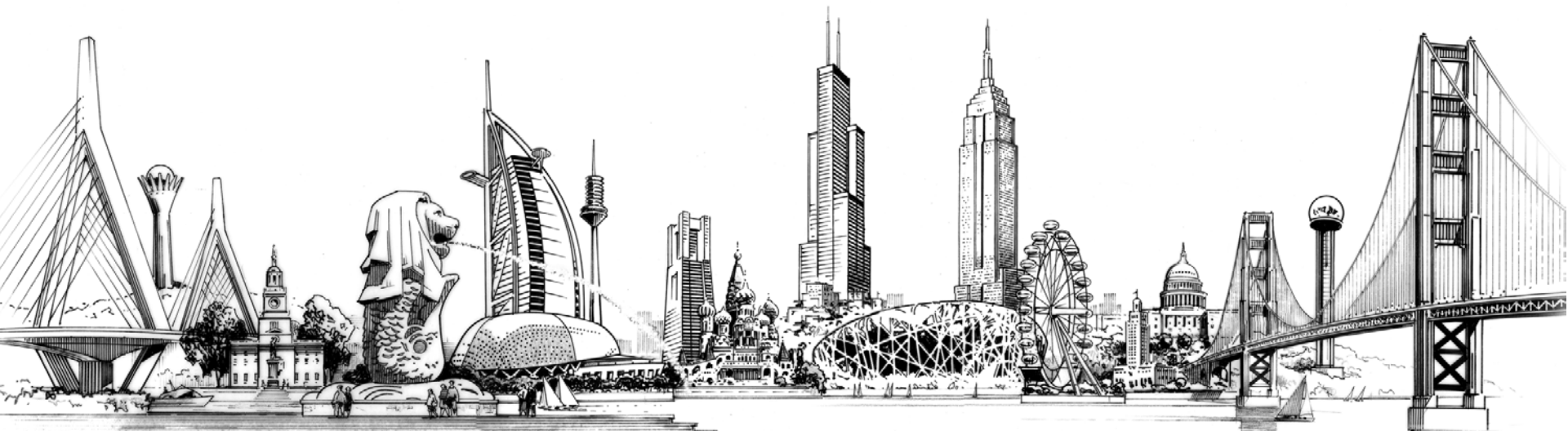
Morgan Lewis

NUCLEAR ENERGY REGULATORY TRENDS FOR 2016

Alex S. Polonsky
Steven P. Frantz
John E. Matthews
Ryan K. Lighty

January 28, 2016



Agenda

1. • Congressional Action
2. • Evolution of NRC Leadership and Organization
3. • Regulatory Factors Affecting the Economics of Operating Plants
4. • New Nuclear Power Plants
5. • Spent Fuel Storage and Disposal
6. • Decommissioning

Morgan Lewis

NUCLEAR ENERGY REGULATORY TRENDS FOR 2016:

CONGRESSIONAL ACTION

Alex S. Polonsky

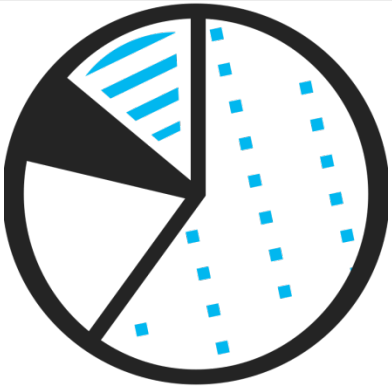
Congressional Action: 114th Congress

- Consolidated Appropriations Act, 2016 (Omnibus)
- Senate Legislation
- House Legislation

Consolidated Appropriations Act, 2016

- Signed into Law on December 18, 2015.
- Sets federal spending levels and priorities for Fiscal Year 2016.

DOE / Nuclear Energy
$80 million (9 Percent) over the initial budget request
Support for reactor & fuel cycle R&D and SMRs



NRC
FY 2016 funding is slightly lower than FY 2015
Implementation and acceleration of “right sizing” proposed by Project AIM
Omnibus requires future, on-going NRC reporting to Congress on Licensing, Right Sizing
Disappointment with pace of developing “subsequent license renewal” guidance

114th Congress: Senate Legislation - Waste

S.854 - Nuclear Waste Administration Act of 2015

Introduced on March 24, 2015	Sponsored by Senators Lisa Murkowski (R-AK), Maria Cantwell (D-WA), Lamar Alexander (R-TN), Diane Feinstein (D-CA), and Ron Wyden (D-OR)	Generally follows recommendations made by the Blue Ribbon Commission on America's Nuclear Future.	Hearings scheduled, but postponed in 2015

S.1825 - Nuclear Waste Informed Consent Act

Introduced by Senator Harry Reid (D-NV)	Prohibits expenditures from Nuclear Waste Fund without consent of State and Local Governments

114th Congress: Senate Legislation – Advanced Reactors

S.2012 – Energy Policy Modernization Act

Introduced on Sept 9, 2015	Sponsored by Senators Murkowski and Cantwell	First comprehensive energy legislation in years	Requires DOE to assess capabilities to host private fusion and fission reactors

S.2461 – NE Innovation Capabilities Act

Introduced on Jan 21, 2016 by Senator Crapo	DOE to prioritize partnering with private innovators

114th Congress: House Legislation

House Energy and Commerce Committee Subcommittee on the Environment and the Economy	House Science, Space & Technology Committee
Jurisdiction over regulation of Nuclear Wastes	H.R. 4084, Nuclear Energy Innovation Capabilities Act
Chaired by Representative John Shimkus (R-IL)	Introduced by Chairman Lamar Smith (R-TX) and Ranking Member Eddie Bernice Johnson (D-TX)
The Committee did not consider any significant nuclear waste related legislation in 2015, but ...	Directs DOE to prioritize R&D infrastructure for private sector investment in advanced reactor technologies and to incentivize private investment for prototype development at DOE labs.
Five nuclear waste-related hearings in 2015	

Morgan Lewis

NUCLEAR ENERGY REGULATORY TRENDS FOR 2016:

EVOLUTION OF NRC LEADERSHIP & ORGANIZATION

Ryan K. Lighty

3, 4, or 5 Commissioners?


Chairman
Stephen G. Burns


Commissioner
Kristine L. Svinicki


Commissioner
William C.
Ostendorff


Commissioner
Jeff Baran

VACANT

Commissioner

Jessie Hill Roberson
Vice Chairman, DNFSB
Nominated July 2015

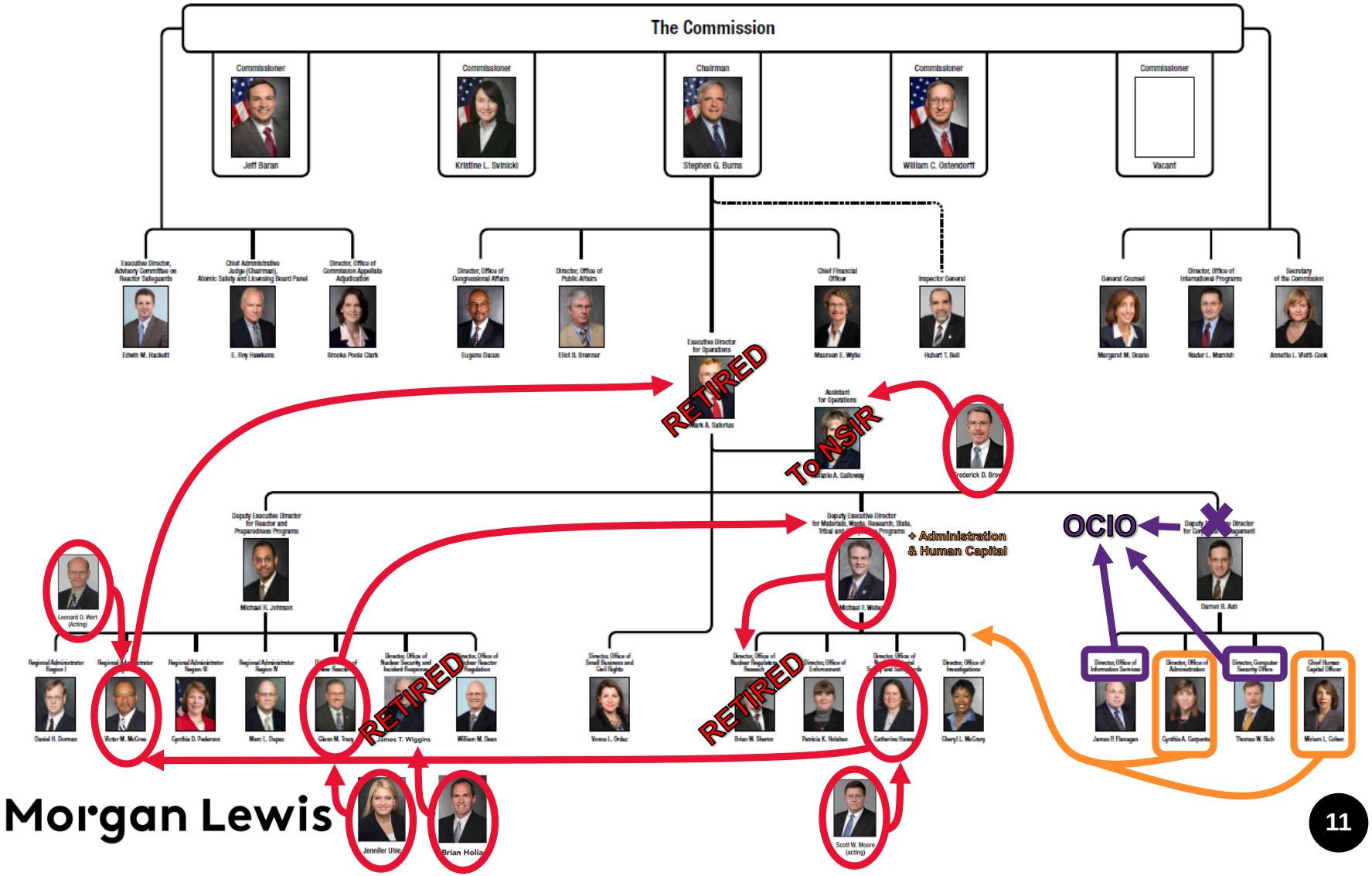
Term expires June 30, 2016

Sen. Jim Inhofe, Chairman
Senate Committee on Environment & Public Works

- Committee is negotiating a bipartisan pairing
- "I imagine it'll be very, very soon"

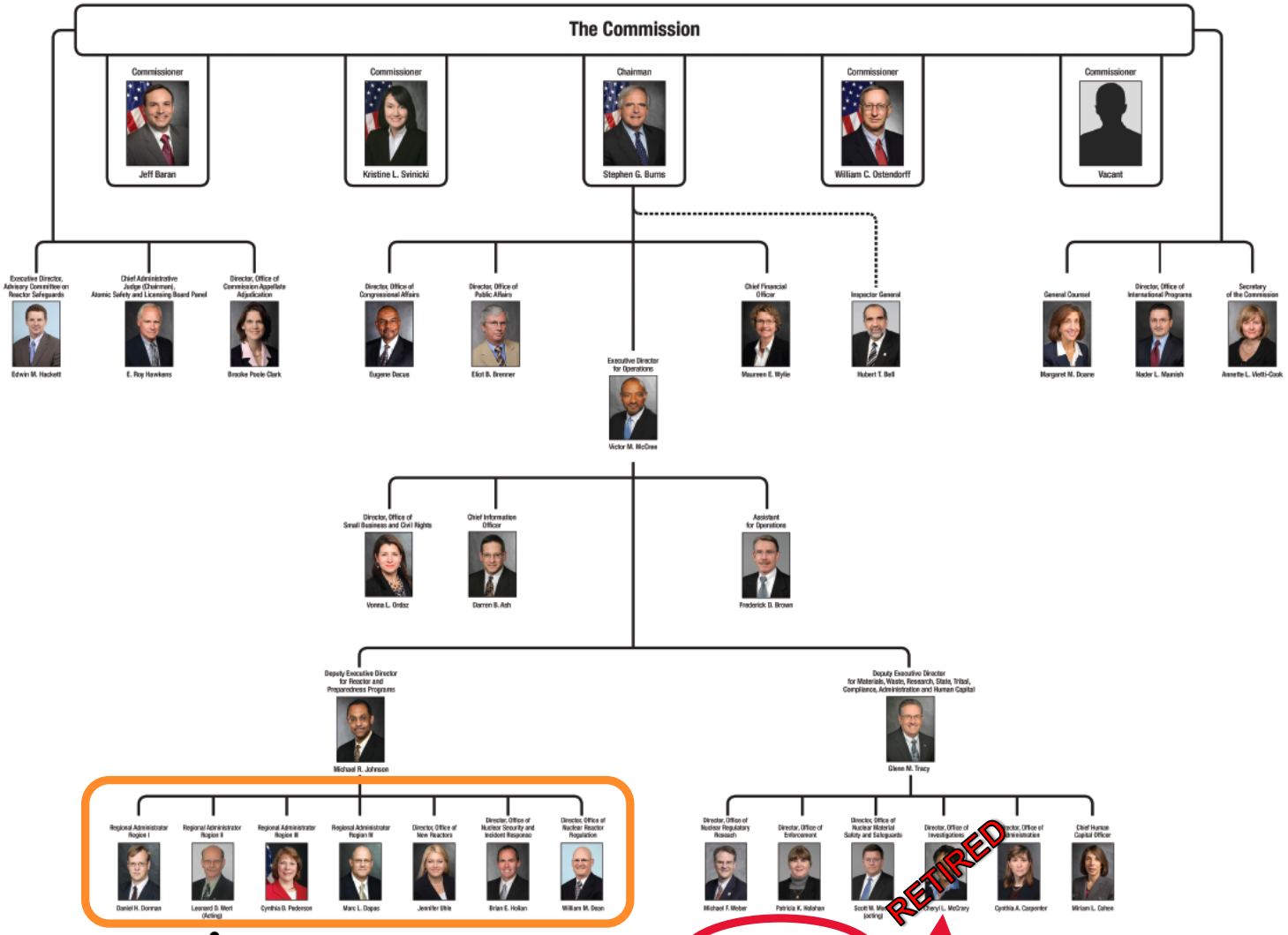
Politico, 1/13/2016

Organizational Changes in 2015



Morgan Lewis

2016 Structure & Leadership

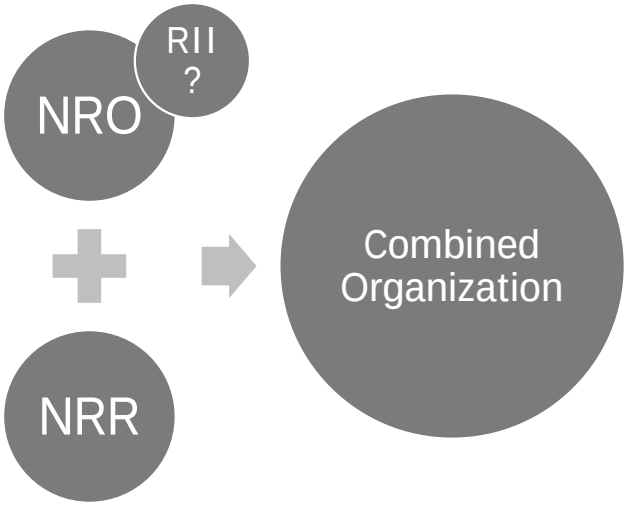


Morgan Lewis

Possible Organizational Consolidations

"Develop a transitional plan that describes the approach to conduct a merger of NRO and NRR at the appropriate time, along with any associated organizational changes in Region II."

SRM-SECY-15-0015



"Sufficient work remains at this point to continue as two offices, and the working group believes consolidation now would have a detrimental impact on the ongoing work of each office."

	Action/Milestones	Start Date	End Date	Status
1	Develop business case for potential NRR/NRO merger which will include a description of projected efficiencies as well as challenges*	7/27/15	12/04/15	Complete
2	Draft SECY Paper	12/07/15	4/01/16	
3	Finalize and issue SECY Paper (Vote) to the Commission	4/06/16	6/08/16	

Other possible consolidation:
Regional Materials Program
Regional Corporate Support

Accelerated Right-Sizing


U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NRC NEWS
Office of Public Affairs, Headquarters
Washington, DC 20555-0001
www.nrc.gov ■ opa.resource@nrc.gov

No: S-15-010 November 9, 2015
CONTACT: Holly Harrington, 301-415-8200

Prepared Remarks of NRC Chairman Stephen G. Burns
American Nuclear Society Winter Meeting
November 9, 2015 – Washington, D.C.

"We are right-sizing the agency now under something we call Project Aim 2020."

"[W]e won't be diverting resources from important licensing and oversight activities..."

"The NRC currently has some 3,700 employees, down from a peak of about 4,000 employees in fiscal year 2010. Under Project Aim, our staffing target is 3,600 employees by the end of this fiscal year."

"The agreement provides $30,119,000 less than the budget request in order to accelerate the 'right-sizing' proposed by the Project Aim report." [Note: Total funding only down $700k from FY 2015]

"[T]he Commission shall continue to address and resolve safety significant issues and ensure that the operating reactor licensing backlog is eliminated by the NRC goal of fiscal year 2017."

"Although Project Aim intends to move the agency in the right direction, the Committees are not satisfied with the NRC's explanation of the basis for those projections nor with its plan for execution."


Congressional Record
United States of America
PROCEEDINGS AND DEBATES OF THE 114th CONGRESS, FIRST SESSION
Vol. 161 WASHINGTON, THURSDAY, DECEMBER 17, 2015 No. 184—Book II

Morgan Lewis

NUCLEAR ENERGY REGULATORY TRENDS FOR 2016:

REGULATORY FACTORS AFFECTING THE ECONOMICS OF OPERATING PLANTS

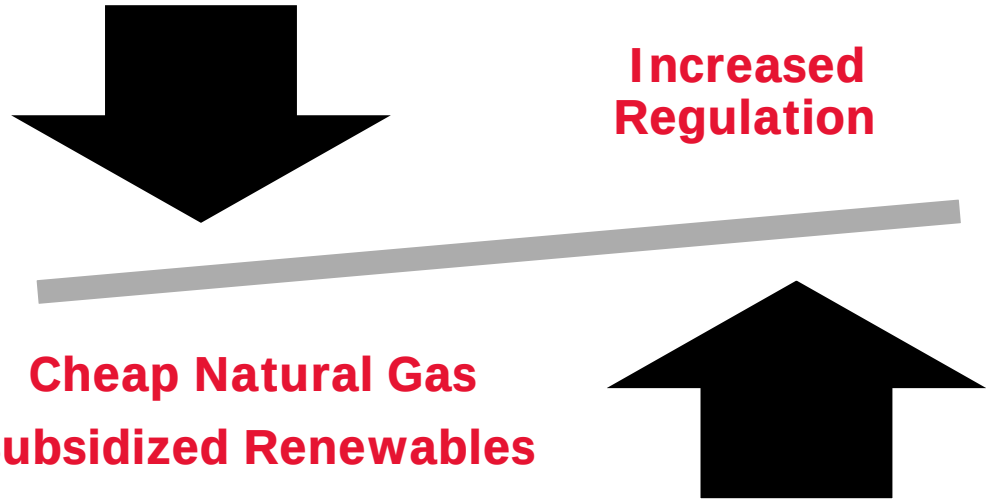
Steven P. Frantz

Economics of Operating Plants

Nuclear power was the least expensive generating source in the 1990s and 2000s

Now, several nuclear power plants being decommissioned due to economics

Cost of nuclear power has been increasing while the cost of other sources has decreased



Regulatory Outlook

Increases in Regulation and Guidance

Little or no regulatory relief expected in near term

Some positive developments likely

Regulatory Factors

Lengthy NRC Reviews	
License Renewals	Typically take **longer than 2 years**
Extended Power Uprates	Typically take close to **2 years**
License Amendments	Not meeting **goal**

Regulatory Factors

NRC Enforcement

Some positive developments in 2015

Difficult to predict whether there is an improving trend in enforcement

Plants with Greater-than-Green findings spend substantial amounts to recover

Morgan Lewis

NUCLEAR ENERGY REGULATORY TRENDS FOR 2016:

NEW NUCLEAR POWER PLANTS

Steven P. Frantz

New Nuclear Power Plants

New Nuclear Construction Update

Construction of Vogtle 3 & 4 and Summer 2 & 3

No significant enforcement action

Numerous license amendments due to strict change control process

Completion of some Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

New Reactor Designs

Certification of New Standard Designs

NRC has increased standards for accepting applications for review

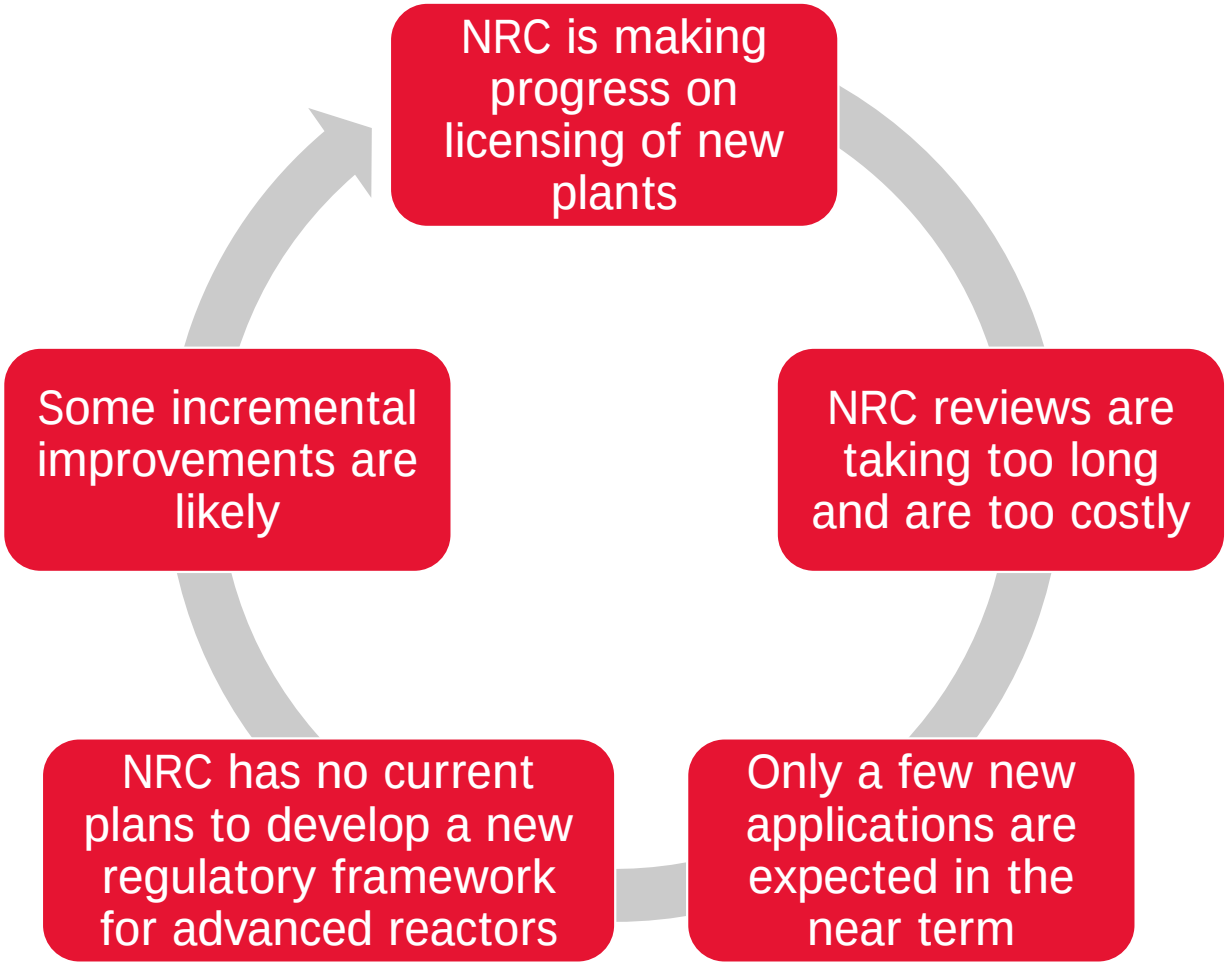
Development of Small Modular Reactors (SMRs) and Advanced Reactors

NuScale application expected in late 2016

Generation mPower suspended its work

No other design certification applications expected in the next several years

New Nuclear Power Plant Summary



Morgan Lewis

NUCLEAR ENERGY REGULATORY TRENDS FOR 2016:

SPENT FUEL STORAGE AND DISPOSAL

Alex S. Polonsky

Spent Fuel Storage and Disposal Pathways

Resume Yucca Licensing

NWPA still names Yucca Mountain as the sole site for a national repository

Congress provided no explicit funding for 2016

Defense/ DOE-only Repository

Defense and Commercial SNF/HLW were "decoupled" in 2015

DOE conducting feasibility study

Borehole/R&D

DOE evaluating alternative paths

Supported by Congress;

Field studies start this year

Commercial Interim Storage

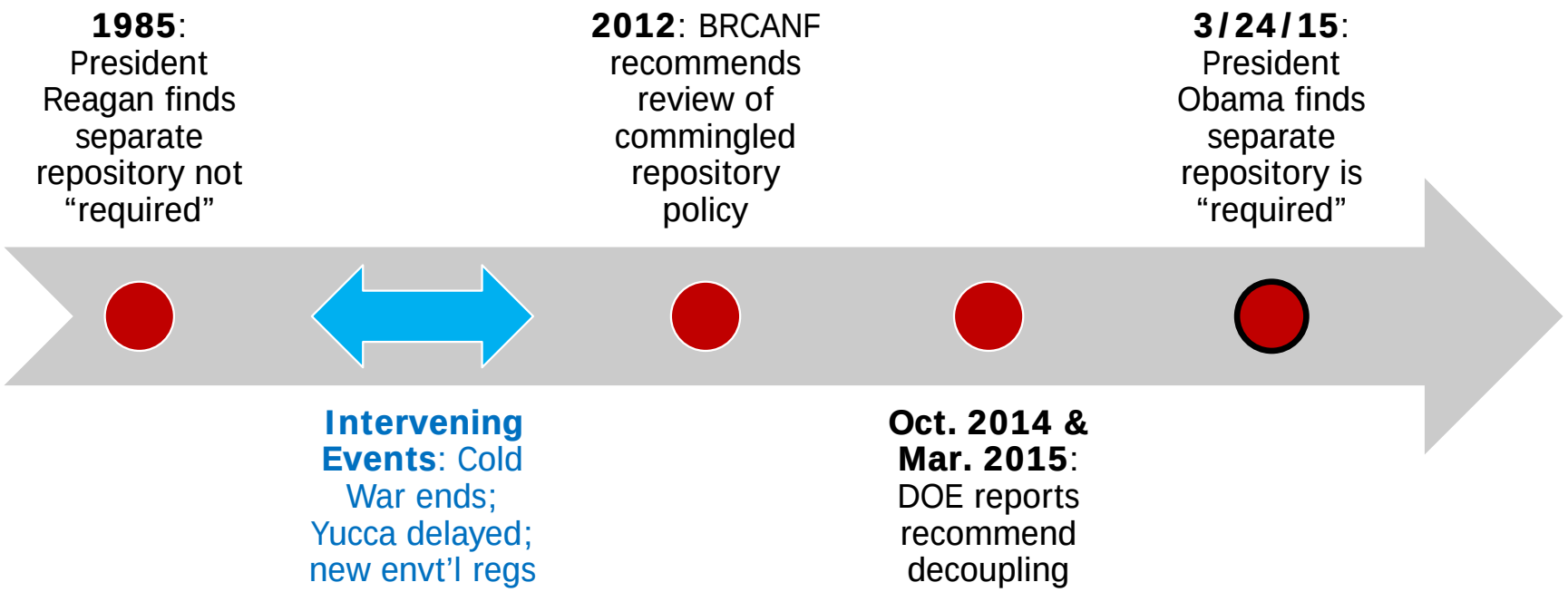
Commercial interest in building centralized interim storage facilities

WCS & ELEA plan to submit license applications to NRC by 2Q 2016

Defense/DOE-only Repository

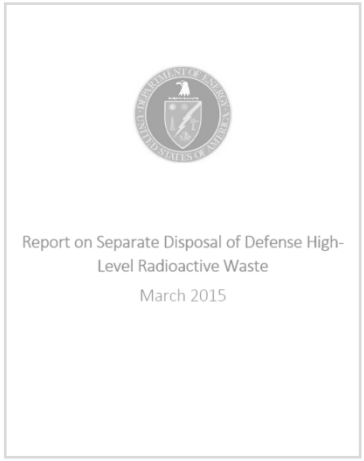
Section 8(b) of the Atomic Energy Act of 1954:

allows the President to decide whether a Defense HLW Repository is required; if so, the Secretary of Energy may develop such a repository under existing AEA authority (subject to NRC licensing, but not subject to NWPA siting provisions).



Decoupling to Create a Test Path?

"A Defense HLW Repository would require appropriations from Congress, but otherwise could be developed under existing authority. A Defense HLW Repository, therefore, presents an important **opportunity to demonstrate the feasibility of a phased, adaptive, consent-based approach**. . . . that could ease the siting and **development of a subsequent repository**."


Report on Separate Disposal of Defense High-Level Radioactive Waste

March 2015


DEPARTMENT OF ENERGY

Invitation for Public Comment To Inform the Design of a Consent-Based Siting Process for Nuclear Waste Storage and Disposal Facilities

AGENCY: Fuel Cycle Technologies, Office of Nuclear Energy, Department of Energy.

ACTION: Notice of Invitation for Public Comment (IPC).

SUMMARY: The U.S Department of Energy (DOE) is implementing a consent-based siting process to establish an integrated waste management system to transport, store, and dispose of commercial spent nuclear fuel and high level defense radioactive waste. In a consent-based siting approach, DOE will work with communities, tribal governments and states across the country that express interest in hosting any of the facilities identified as part of an integrated waste management system. As part of this process, the Department wants public input on implementing this system. In order to solicit public feedback, DOE is submitting this Invitation for Public

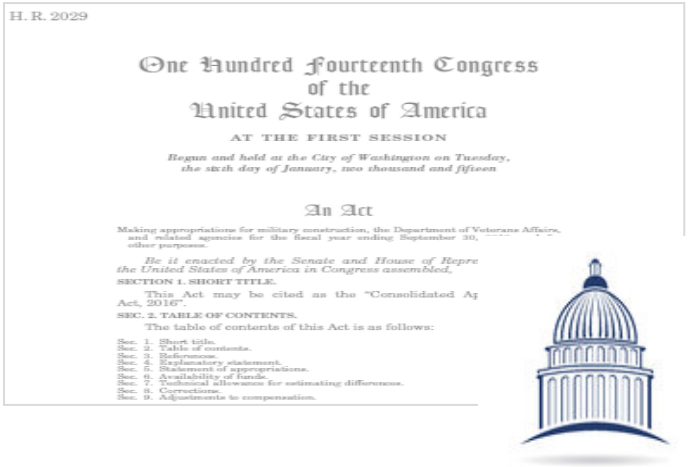
- On December 23, 2015, DOE published a notice in the *Federal Register* inviting public comment:

  "To Inform the Design of a Consent-Based Siting Process for Nuclear Waste Storage and Disposal Facilities."

- Comment period closes June 16, 2016
- DOE also plans "a series of public meetings"

DOE Research & Development Activities

- "Consolidated Appropriations Act, 2016" provides $85M for DOE R&D related to "Used Nuclear Fuel Disposition," partially devoted to "generic research and development activities on the behavior of spent fuel in long-term storage, under transportation conditions, and in various geologic media."


H. R. 2029

One Hundred Fourteenth Congress
of the
United States of America

AT THE FIRST SESSION

Begun and held at the City of Washington on Tuesday, the sixth day of January, two thousand and fifteen

An Act

Making appropriations for military construction, the Department of Veterans Affairs, and related agencies for the fiscal year ending September 30, other purposes.

Be it enacted by the Senate and House of Repre the United States of America in Congress assembled,

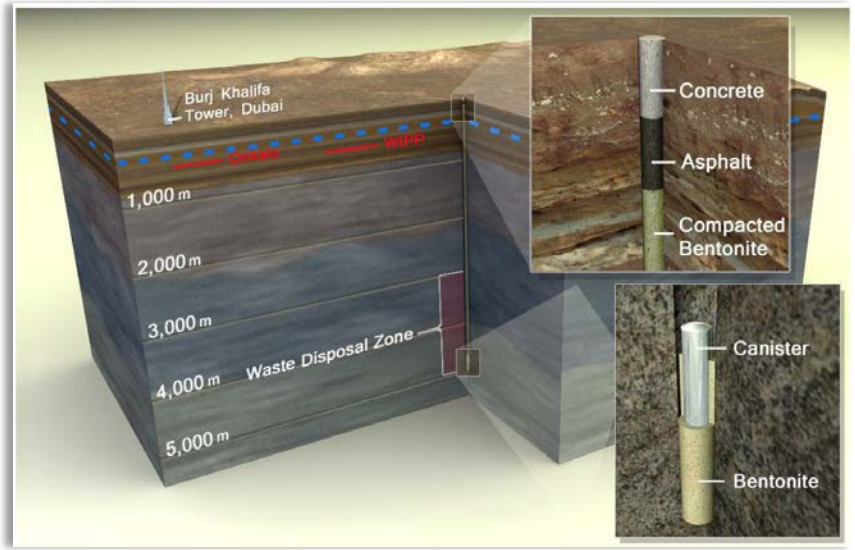
SECTION 1. SHORT TITLE.

This Act may be cited as the "Consolidated Ap Act, 2016".

SEC. 2. TABLE OF CONTENTS.

The table of contents of this Act is as follows:

Sec. 1. Short title.
Sec. 2. Table of contents.
Sec. 3. References.
Sec. 4. Explanatory statement.
Sec. 5. Statement of appropriations.
Sec. 6. Availability of funds.
Sec. 7. Technical allowance for estimating difference.
Sec. 8. Corrections.
Sec. 9. Adjustments to compensation.



- Oct. 2014 DOE report also recommended consideration of **Deep Borehole Disposal** of smaller DOE-managed waste forms.
- On Jan. 5, 2016, DOE announced selection of Battelle to conduct a 5-year Deep Borehole **Field Test** near Rugby, ND to evaluate the feasibility of siting and operating a deep borehole disposal facility.

Commercial Spent Nuclear Fuel

Commercial SNF Developments

- Commercial interest in construction and operation of Central Interim Storage Facilities
- NRC license applications possible in 2Q 2016

	Waste Control Specialists	HOLTEC + Eddy-Lea Energy Alliance
Storage System	AREVA & NAC International	HOLTEC
Planned License Application	April 2016	June 2016
Planned Capacity	5,000 MTU	Initial Application: 500 canisters; Site Layout: up to 4,000 canisters

Morgan Lewis

NUCLEAR ENERGY REGULATORY TRENDS FOR 2016:

DECOMMISSIONING

John M. Matthews

Structures for Execution of Decommissioning Projects (U.S. Experience)

- Experience in the 1990s
  - Maine Yankee, Connecticut Yankee and Yankee Rowe shut down in 1990s and entered into “fixed price” contracts with Decommissioning Operations Contractor (DOC) to conduct active decommissioning
  - DOC efforts failed
    - Contractors underestimated costs (extent of effort, disposal costs, *etc.*)
    - Vendors were unable to perform under their contracts (bankruptcy, litigation)
  - Maine Yankee and Connecticut Yankee formed small dedicated organizations (10 key leaders) to “self-perform” decommissioning
    - Managed contracts with multiple vendors
- New Execution Models have evolved
  - Zion Nuclear Power Station (Illinois)
  - La Crosse Boiling Water Reactor (Wisconsin)

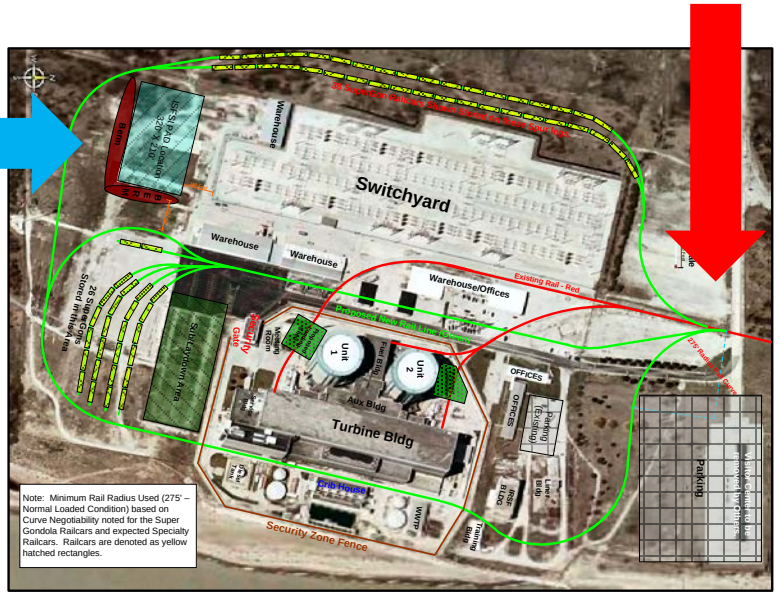
Zion Nuclear Power Station (License Stewardship)

- Utility Owner/Operator (Exelon) had shut down Zion in 1998 and planned to commence decommissioning in the 2020s
  - "Delayed DECON"
  - Nuclear Decommissioning Trust earnings grow over time to cover costs
- Energy*Solutions* entered into agreement to acquire Zion (including trust funds) in 2010 and complete decommissioning by 2020
  - Zion*Solutions*, LLC became owner and "operator" licensee for Zion with control of trust funds
  - Mechanisms to assure performance
  - Exelon retained title to spent fuel, but Zion*Solutions* was responsible for managing fuel (transfer to dry storage facility)
- After decommissioning of facility is complete, NRC License and possession of spent fuel returned to Exelon through "Put Option"

Zion Nuclear Power Station

Dry Storage (ISFSI)

Site Modifications with Rail Spurs



Morgan Lewis

La Crosse Boiling Water Reactor (LACBWR) (License Stewardship)

- Utility Owner/Operator (Dairyland) has self-performed decommissioning to move spent fuel to dry storage and remove Class B & C waste
  - Reactor vessel, containment building and balance of plant remain to be decommissioned
- Energy*Solutions* entered into agreement using license stewardship model, but with Dairyland Power Cooperative (DPC) retaining ownership
- La Crosse*Solutions* will become "operator" licensee, responsible to NRC for nuclear safety and security, but utility (DPC) remains owner licensee and retains trust funds
  - La Crosse*Solutions* has access to trust funds based upon certificate to DPC that DPC can only challenge after funds are disbursed
- Risk Transfer based upon a services agreement, which provides for fixed amount of Nuclear Decommissioning Trust dedicated to achieve decommissioning
  - DPC is remains responsible for ISFSI related costs, insurance and license fees
    - DPC plans to recover these costs from DOE HLW litigation and/or settlement
  - Mechanisms to assure performance
- After decommissioning of facility is complete, NRC license will be returned to DPC to maintain dry storage facility until U.S. Government picks up fuel, subject to regulatory approvals

La Crosse Boiling Water Reactor (LACBWR)

BWR (50MWe)
– AEC Demonstration Reactor
– Owned by Dairyland Power Cooperative (DPC)
– Operated from 1967 to 1987
– Licensed site shared with operational fossil plant

Advance Notice of Proposed Rulemaking

- Existing regulations are crafted for operating reactors
  - There were some changes made 1990s to address shutdown, such as automatic transition to non-operating status when Notices made to NRC
  - Many of the most significant issues, however, are dealt with by NRC staff granted exemptions on case-by-case basis, *e.g.*, Emergency Planning, Security, *etc.*
- NRC has initiated a Rulemaking to revise NRC regulations to address reactors in decommissioning in a more comprehensive manner
  - Industry is urging NRC to codify practices that have previously been confirmed through regulatory reviews in the context of processing exemptions
  - Under industry's proposed approach, regulatory relief would automatically apply once a shut down reactor performed analyses and/or took actions necessary to meet prescribed criteria
    - NRC would inspect and take enforcement action if a licensee were in violation of the requirements

Our Global Reach

Africa
Asia Pacific
Europe
Latin America
Middle East
North America

Our Locations

Almaty
Astana
Beijing
Boston
Brussels
Chicago
Dallas
Dubai
Frankfurt
Hartford
Houston
London
Los Angeles
Miami
Moscow
New York
Orange County
Paris
Philadelphia
Pittsburgh
Princeton
San Francisco
Santa Monica
Silicon Valley
Singapore
Tokyo
Washington, DC
Wilmington

Morgan Lewis

THANK YOU

Alex S. Polonsky
+1 202.739.5830
apolonsky@morganlewis.com

Steven P. Frantz
+1 202.739.5460
sfrantz@morganlewis.com

John E. Matthews
+1 202.739.5524
jmatthews@morganlewis.com

Ryan K. Lighty
+1.202.739.5274
rlighty@morganlewis.com

Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004-2541
www.morganlewis.com