Overview of U.S. Nuclear Regulatory Commission Domestic and International Activities

U.S.-Poland Energy Roundtable

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Office of International Programs

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Overview

• NRC Organization
  • Legislative Authority and Structure
  • Mission and Programs

• NRC Reactor Licensing
  • Existing Fleet
  • New Reactors

• International Activities

• Conclusion
The NRC Commission

Allison M. Mcfarlane
Chairman

Kristine L. Svinicki

George Apostolakis

William Magwood IV

Commissioners

William C. Ostendorff
Current Facilities – Nuclear Power Plants
The NRC Mission and Regulatory Programs:

• To regulate the nation's civilian use of byproduct, source and special nuclear materials to: ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.

• **Nuclear Reactors** - Commercial Power Reactors, Research and Test Reactors, New Reactor Designs

• **Nuclear Materials** - Nuclear Reactor Fuel, Radioactive Materials for Medical, Industrial and Academic Use

• **Nuclear Waste** – Transportation, Storage and Disposal of Nuclear Material and Waste, Decommissioning of Nuclear Facilities

• **Nuclear Security** – Physical Security of Nuclear Facilities and Materials from Sabotage or Attacks
Current Facilities – Research and Test Reactors

Source: U.S. Nuclear Regulatory Commission
Current Facilities – Fuel Cycle Facilities
Current Facilities – Uranium Recovery
New Reactors – Licensing Process

Combined Licenses, Early Site Permits, and Standard Design Certifications

- Early Site Permit*
- Standard Design Certification*
- Combined License Review and Hearing
- Verification of Inspection, Tests, Analyses, and Acceptance Criteria
- Reactor Operation

* or equivalent process
New Reactors – Design Certification

- Design Certifications Completed
  - GE Advanced Boiling Water Reactor (ABWR)
  - Westinghouse's System 80+
  - Westinghouse's AP-600
  - Westinghouse's AP-1000

- Design Certifications Underway
  - GE Economic Simplified Boiling Water Reactor (ESBWR)
  - AREVA U.S. Evolutionary Power Reactor (U.S. EPR)
  - Mitsubishi U.S. Advanced Pressurized Water Reactor (U.S. APWR)
New Reactors
# Expected New Designs

## Small Modular Reactors

<table>
<thead>
<tr>
<th>Name</th>
<th>Applicant</th>
<th>Expected Submission Date</th>
<th>Expected Submission Type</th>
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<tr>
<td>mPower</td>
<td>Babcock and Wilcox Company</td>
<td>Q4 2013</td>
<td>Design Certification</td>
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<tr>
<td>Westinghouse</td>
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<td>Q2 2014</td>
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<td>NuScale</td>
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<td>Q3 2015</td>
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<td>Holtec</td>
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<td>Q4 2016</td>
<td>Design Certification</td>
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International Activities

• The NRC Office of International Programs (OIP) is the office responsible for developing and managing NRC’s international cooperation and assistance activities.

• OIP’s activities cross-cut all of NRC’s domestic programs and OIP routinely coordinates with the other NRC offices focused on the U.S. domestic program.
NRC International Cooperation through Arrangements for Technical Exchange

- Argentina
- Armenia
- Australia
- Belgium
- Brazil
- Bulgaria
- Canada
- China
- Croatia
- Czech Republic
- Egypt
- Finland
- France
- Germany
- Greece
- Hungary
- Indonesia
- Israel
- Italy
- Japan
- Jordan
- Kazakhstan
- Lithuania
- Mexico
- Netherlands
- Peru
- Philippines
- Poland
- Romania
- Slovak Republic
- Slovenia
- South Africa
- South Korea
- Spain
- Sweden
- Switzerland
- (Taiwan)
- Thailand
- Turkey
- United Arab Emirates
- Ukraine
- United Kingdom
- Vietnam
Foreign Assignee Program

• Regulatory personnel of other countries are temporarily assigned to the NRC for training or regulatory cooperation.

• Hosted over 300 foreign assignees since 1974.

• NRC has recently begun sending its staff oversees as foreign assignees.
NRC International Assistance

• **International Regulatory Development Partnership (IRDP)**
  – Assists countries with new or expanding nuclear power programs in their efforts to establish and maintain an effective nuclear safety and security regulatory authority [www.irdp-online.org](http://www.irdp-online.org)

• **Radiation Sources Regulatory Partnership**
  – Assists partners to strengthen regulatory control over the use of radiation sources by supplementing the efforts of domestic regulatory authorities to improve safe and secure use of radiation sources [http://www.astminc.com/nuclear/rsrp.html](http://www.astminc.com/nuclear/rsrp.html)

• **Uranium Recovery Outreach**
  – Assists emerging nations with setting up regulatory programs for uranium recovery with the goal of preventing future uranium recovery legacy sites

• **Collaboration with IAEA’s Regulatory Cooperation Forum**
  – Participation in consultation, workshops, and mission activities
NRC and International Organizations

• International Atomic Energy Agency (IAEA)
  • Participation in IAEA Workshops
  • Cost-free experts
  • Integrated Regulatory Review Missions

• Nuclear Energy Agency (NEA)
  • NEA working groups
  • Cost-free experts

• International Commission on Radiological Protection (ICRP)
  • ICRP working groups
  • Document comment and consultation
Conclusion

- Additional information can be found at http://www.nrc.gov.

- Thank you for your attention!