



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

International Civil Nuclear Engagement Update to the Nuclear Infrastructure Council

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Support for Nuclear Power

Nuclear Energy

“And we should build a new framework for civil nuclear cooperation ... so that countries can access peaceful power without increasing the risks of proliferation.... We must harness the power of nuclear energy on behalf of our efforts to combat climate change, and to advance opportunity for all people.”
President Barack Obama, Prague, Czech Republic, April 7, 2009

“But to create more of these clean energy jobs, we need more production, more efficiency, more incentives. And that means building a new generation of safe, clean nuclear power plants in this country.”

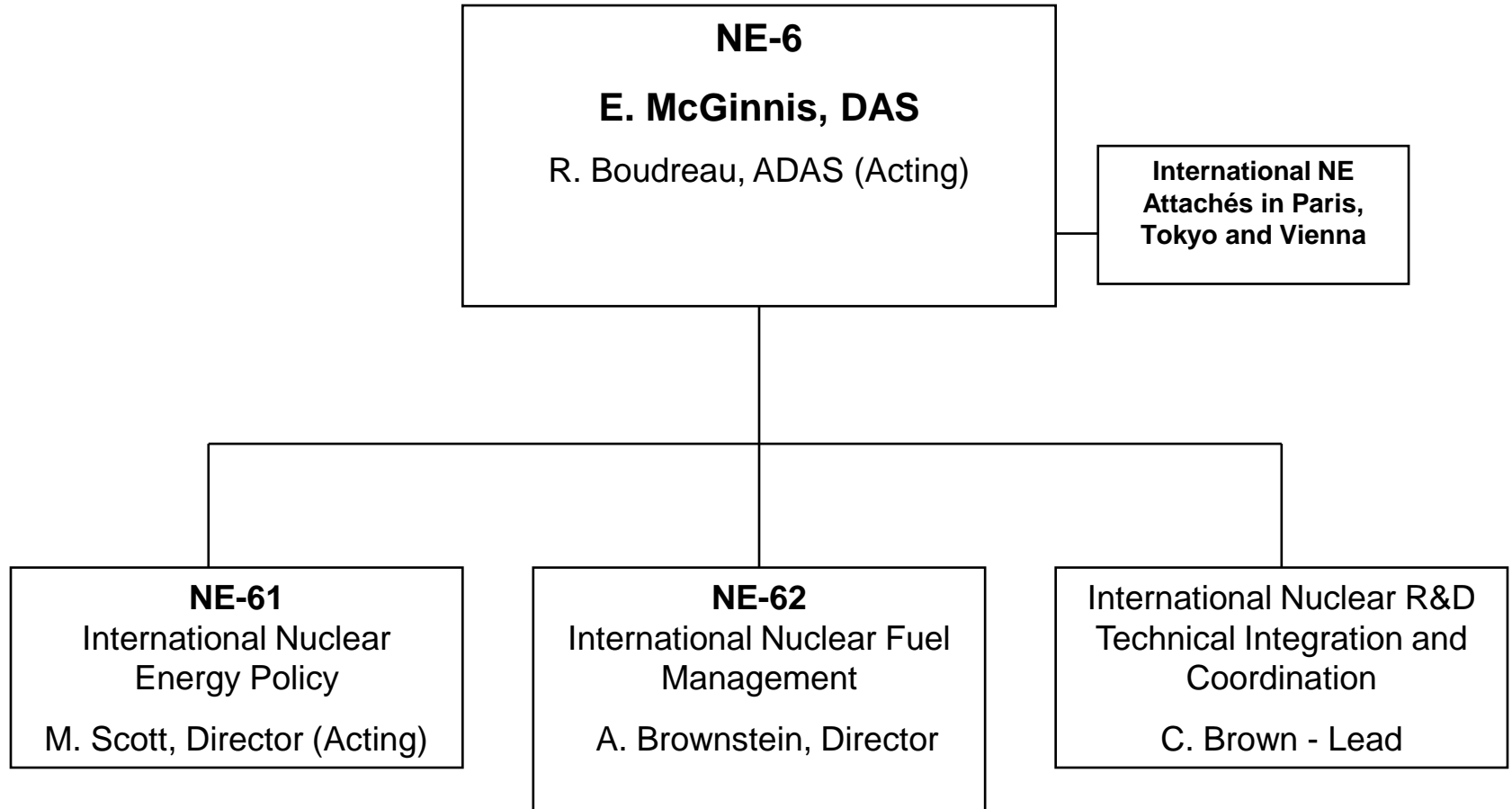
January 27, 2010: President Obama’s State of the Union Speech



“President Obama and I are committed to restarting the nuclear industry in the United States.” Steven Chu, Secretary of Energy
Meeting of the American Nuclear Society
November 16, 2009



International Nuclear Energy Policy and Coordination Organization Chart





Office of Nuclear Energy Mission and Road Map

Office of Nuclear Energy Mission: Advance nuclear power as a resource capable of making major contributions to meeting the nations energy supply, environmental and energy security needs.

Roadmap:

- Develop technologies and other solutions that can improve the reliability, sustain the safety and extend the current life of reactors
- Develop improvements in the affordability of new reactors to enable nuclear energy to help meet the Administrations energy security and climate change goals
- Develop Sustainable Nuclear Fuel Cycles
- **Understand and minimize the risks of nuclear proliferation and terrorism**

International Office Objectives

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:

- Support NE program offices in coordinating and integrating international cooperative R&D activities
- Provide technical, policy, and administrative support to carry out the civilian nuclear energy aspects of international agreements and commitments
- Advise other DOE offices and Federal agencies on issues related to the international use of civilian nuclear energy
- Continue engagement on comprehensive reliable nuclear fuel services in forums such as IFNEC to explore options for used fuel, including fuel leasing, interim storage, and regional disposition

International Engagement for Technical, Policy, and Commercial Benefits

- **Leverage U.S. R&D funds through joint work with other advanced nuclear energy states**
- **Support President's call for a new framework for civilian nuclear cooperation, including comprehensive nuclear fuel services**
- **Promote safe, secure and peaceful use of nuclear power as a clean energy source to combat climate change and gain energy security – post Fukushima: Nuclear Safety**
- **Respond to geo-political policy drivers**
- **Advocate for U.S. nuclear industry in international markets**



Civil Nuclear Engagement Partners

France

Japan

Canada

United Kingdom

EURATOM

Brazil

Russia

India

China

ROK

Argentina

South Africa

Czech Republic

Italy

Poland

Mongolia

Ukraine

Kazakhstan

Armenia

Association of South East Asian Nations?

Middle East Countries?

- **Identification of Mutually Beneficial Topics**
- **Memorandum of Understanding**
- **Action Plans**
- **International – Nuclear Energy Research Initiatives**
- **Peaceful Uses of Nuclear Energy Agreements (123 Agreements)**
- **R&D Agreements**



■ Generation IV International Forum (GIF)

- Policy Group meetings
- Very-High-Temperature Reactor and Sodium-cooled Fast Reactor

■ International Atomic Energy Agency (IAEA)

- General Conference
- Nuclear Energy Attaché in Vienna
- INPRO – International Project on Innovative Reactors and Fuel Cycles

■ International Framework for Nuclear Energy Cooperation (IFNEC)

- Steering Group chairmanship, Executive Committee secretariat
- Working Groups on Infrastructure Development and Reliable Nuclear fuel services

■ Nuclear Energy Agency (NEA)

- DOE Energy Attaché in Paris

■ Trilateral MOU on Sodium-cooled Fast Reactor Design (United States, France, Japan)

■ Other international forums:

- French led International Conference on Nuclear Energy – March 2010
- Nuclear Security Summit and the NEI led Nuclear Security 2010 industry event – April 2010



Global Liability: Convention on Supplementary Compensation (CSC)

- To ensure certain basic principles of nuclear liability law are incorporated into participating countries' domestic law
- Promotes a common approach on compensation, the definition of nuclear damage, and the jurisdiction of courts
- Addresses uncertainty about potential legal liability
- A significant impediment to U.S. nuclear suppliers participating in commercial nuclear projects outside of the United States.
- Provides the legal certainty necessary for undertaking civil nuclear projects and, in the unlikely event of a nuclear incident, prompt and meaningful compensation with a minimum of litigation



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International Engagement Challenges

- **Leverage Scarce Resources**
- **Support Broader Policy Goals**
- **Support U.S. Nuclear Industry Commercial Success**
- **Integrate Blue Ribbon Commission, IAEA Action Plan concepts into policy**
- **Your thoughts? Questions**

Background Slides



Coordinate and integrate NE's international engagement for:

- **RD&D:**
 - RD&D with advanced fuel cycle countries (e.g., bilateral action plans, I-NERIs, multilateral collaboration) to address long-term technical goals
 - Multilateral and bilateral engagement (e.g., civil nuclear energy working groups, MOUs, etc.)
- **Policy Engagement:**
 - IAEA General Conference, IFNEC Ministerial, NEA, Nuclear Security Summit
- **Administration Priorities:**
 - Presidential Initiatives
 - IFNEC
 - Comprehensive reliable nuclear fuel services activities
 - National Export Initiative
 - Provide expert support to Department of Commerce
 - Other administration priorities



International Framework for Nuclear Energy Cooperation

Participants

1. Armenia
2. Australia
3. Bulgaria
4. Canada
5. China
6. Estonia
7. France
8. Germany
9. Ghana
10. Hungary
11. Italy
12. Japan
13. Jordan
14. Kazakhstan
15. Kuwait
16. Republic of Korea
17. Lithuania
18. Morocco
19. Netherlands
20. Oman
21. Poland
22. Romania
23. Russia
24. Senegal
25. Slovenia
26. Ukraine
27. United Kingdom
28. United States

Observer Organizations

1. International Atomic Energy Agency (IAEA)
2. Generation IV International Forum (GIF)
3. Euratom

Observer Countries

- | | |
|-------------------|--------------|
| 1. Algeria | 25. Tanzania |
| 2. Argentina | 26. Tunisia |
| 3. Bahrain | 27. Turkey |
| 4. Bangladesh | 28. Uganda |
| 5. Belgium | 29. UAE |
| 6. Brazil | 31. Vietnam |
| 7. Chile | |
| 8. Czech Republic | |
| 7. Egypt | |
| 9. Finland | |
| 10. Georgia | |
| 11. Greece | |
| 12. Indonesia | |
| 13. Kenya | |
| 14. Latvia | |
| 15. Malaysia | |
| 16. Mexico | |
| 17. Mongolia | |
| 18. Nigeria | |
| 19. Singapore | |
| 20. Slovakia | |
| 21. South Africa | |
| 22. Spain | |
| 23. Sweden | |
| 24. Switzerland | |



- **Reducing the need for Operator Actions in Accident Response enhances overall safety.**
 - Passive Systems enhance safety
 - AP1000, ESBWR, SMRs, HTGRs
 - Better understanding of dry cask storage systems.
- **Re-engineering barriers can reduce complications.**
 - SiC cladding
 - Enhanced fuel properties
- **Re-evaluation of potential natural phenomena.**
 - Re-evaluation of U.S. seismic criteria
- **Targeted use of Modeling and Simulation.**
 - Improved modeling of operating reactors
- **Enlistment of the University Community.**