Final Report of NEAC International Subcommittee

March 28, 2019
Washington DC

International Subcommittee Members

- Regis Matzie, Chair
- Lisa Marie Cheney, Co-Chair
- David Blee
- Jay Faison
- Sue Ion
- John Hopkins
- Allen Sessoms

Charter of the NEAC International Subcommittee

- Provide independent expert advice and guidance related to opportunities for
  - **Improving U.S. competitiveness in the global nuclear energy market, and**
  - **Reestablish the Nation's historic leadership in the global nuclear energy market.**
- Review related activities within the Office of Nuclear Energy and report its findings, recommendations, comments, and guidance to NEAC and the Assistant Secretary for Nuclear Energy

Background

- In the early days of civil nuclear power, the U.S. was the unquestionable leader both in technology and reactor deployment globally
- After the 1972 oil embargo and Three Mile Island 2 reactor accident, the situation changed in the U.S. with respect to domestic new nuclear project starts; electricity demand was significantly curtailed and many projects were either cancelled or substantially delayed
- Today, nuclear energy supplies 19% of U.S. electricity, but will decrease as additional operating units shutter
- Foreign nuclear technology suppliers (mostly state backed from China and Russia) have emerged and have taken over civil nuclear construction leadership internationally
- U.S. influence on nuclear matters is waning because of the weakness of domestic suppliers and the U.S. government's overall approach to nuclear energy – non strategic approach, leaving the field open to others

Additional Information

- Some recommendations are beyond the charter of the Office of Nuclear Energy (NE) and even DOE (in some cases), but NE can serve as a catalyst to help make them happen
- Many of the recommendations in this report look similar to past recommendations to DOE from the International Subcommittee – they are still valid and are submitted again because of their continued importance to the U.S.
- A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was performed and provided insights to many of the recommendations made in this report
- International Subcommittee met in Washington, DC, to obtain input and formulate its recommendations
  - October 18-19, 2018
  - January 10-11, 2019
- The full NEAC is asked to approve the Subcommittee's report at this meeting

What is different from the Past?

- Administration Policy toward commercial nuclear energy and exports
- Congressional support for nuclear innovation and development
- Surge in development of SMRs and Advanced Reactors that can be disruptive to traditional markets and suppliers, and that can open up both domestic and global markets that could not accommodate large nuclear plants
- Potential of other new U.S. technologies such as Accident Tolerant Fuel and Additive Manufacturing that can facilitate early engagement with foreign countries and improve the potential of future nuclear reactor safety and economics

Recommendations

- Take steps necessary to position U.S. nuclear industry to have an equal or greater competitive advantage compared to other foreign suppliers
  - **Use a "whole government" approach to achieve improved financing options**
  - **Streamline U.S. export controls processes to allow faster engagement**
  - **Appoint a Special Assistant to the President and Envoy for Nuclear Energy Policy to coordinate across government departments and agencies**
  - **Capitalize on the new authorities given to the U.S International Finance Corporation in the BUILD ACT**

Recommendations (cont'd)

- Aggressively pursue domestic deployment of new advanced reactors that can be the linchpin to regaining U.S. leadership in the international nuclear market because of their potentially disruptive nature
- Expand the U.S. commercial trade presence in the international nuclear market through initiatives such as
  - **Energy technology trade missions that prominently include U.S. advances in nuclear energy**
  - **Implementation of training and education programs in the U.S. for students and professionals from near and mid-term market countries**

Recommendations (cont'd)

- Revitalize the U.S. nuclear infrastructure, which is critical in maintaining global competitiveness and national leadership through actions such as
  - Build the Versatile Test Reactor (VTR) which is needed to provide a fast neutron source for many of the advanced reactors under development
  - Increase funding for training at U.S. colleges, universities, and national laboratories for both U.S. nationals and nationals of near and mid-term nuclear market countries
  - Increase funding for nuclear R&D and for initiatives that would help regain U.S. advanced manufacturing capability
  - Continue pursuing the licensing of Yucca Mountain while aggressively working with receptive communities on an interim dry fuel storage facility
- Pursue strategic international collaborations that could allow the U.S. to be more successful in new nuclear proposal opportunities
  - Provides greater financing capability to cover the entire project
  - Would bring into a project the heavy nuclear equipment fabrication which the U.S. can no longer provide
  - Could add major nuclear project construction experience that the U.S. has lost

Recommendations (cont'd)

- Develop and deploy enhanced communications messaging that shows a renewed U.S. commitment to nuclear energy. Possible themes could be
  - **Nuclear energy is a clean green environmentally friendly source of energy**
  - **Advanced nuclear energy is affordable and reliable**
  - **Nuclear energy is safe and advanced technologies continue to make it safer**
  - **The U.S. government is fully supportive of the commercial nuclear energy industry in the U.S.**

Questions?