QUESTIONS FOR THE RECORD RESPONSES FROM ED McGINNIS

QUESTIONS FROM CHARIMAN FRED UPTON

Q1. When we talk on this Committee about DOE modernization, one key approach is to update the relevant laws to ensure the agency's security missions fit the global realities of today, not the 1970's or the 1950's.

Q1a. Several witnesses at the hearing talked about the connection between our nuclear infrastructure and threats to our national security interests, if U.S. global leadership on commercial nuclear technology continues to erode. Does DOE recognize these risks? And if so, what in DOE's view are the most important steps to take to address these risks in the short term and long term?

A1a. Yes. The Department of Energy (DOE) recognizes that more than half of its National Nuclear Security Administration's [NNSA's] facilities are over 40 years old, and nearly 30 percent date back to the Manhattan Project era. Science, innovation, and the recruitment of a talented workforce were key to beginning the Manhattan Project, and they will also be the key to modernizing our aging infrastructure, including our nuclear security enterprise, and addressing threats to our national security. The Department is also committed to working with American commercial partners to strengthen relationships and promote innovation to ensure that the U.S. nuclear industry stays strong in a challenging and increasingly competitive environment.

Q1b. Will you work with Committee Members to identify where statutory authorities can help strengthen the agency's role to ensure a robust nuclear infrastructure?

A1b. Yes, the Department is prepared to work with Committee members to strengthen the agency's role to ensure a robust nuclear infrastructure.

Q2a. What other specific steps is DOE considering to help the ultimate deployment of SMRs?

A2a. In addition to supporting the development of viable domestic sites for Small Modular Reactor (SMR) deployment, improving SMR economics is critical for assuring that these projects can be a vital part of a diversified energy portfolio and are competitive with other electricity generating technologies. The report, *Small Modular Reactors: Adding to Resilience at Federal Facilities (December 2017)*, provides recommendations for the Government to facilitate the financing and development of SMRs by expanding power

purchase agreement authorities, extending the loan guarantee program to support SMRs, and identifying ways to value the resilience of SMRs, among others. The Office of Nuclear Energy (NE) is evaluating these recommendations as one of several means of improving SMR economic competitiveness and utility attractiveness. To further support the development and deployment of a broad range of innovative nuclear technology concepts by U.S. industry, the Department recently published a multi-year funding opportunity announcement that will award at least $30 million in Fiscal Year (FY) 2018 for cost-shared, private-public technical partnerships with U.S. industry to achieve these goals. In FY 2018, NE will invest in early-stage research and development (R&D) on next generation reactor technologies, including $20 million supporting advanced SMRs. Additional funding will be provided for more technical partnerships in FY 2019 and beyond, contingent upon Congressional appropriations.

Q2b. Does DOE need specific legislative authority to implement the SMR deployment report's recommendations and, if so, what are those authorities?

A2b. The referenced SMR report identifies several recommendations involving specific legislative authorities that would be required for implementation. One of the report recommendations, extension of the Energy Policy Act of 2005 (EPAct 2005) production tax credits, has already been approved by Congress as of February 2018 and is expected to have a positive impact on the further development of advanced nuclear development, including advanced SMRs. NE is evaluating the SMR report and its other recommendation involving legislative actions to improve the financing and development outlook of SMRs.

Q3a. What is DOE's role in providing input to the civil nuclear review?

Q3b. What is the expected timing of the civil nuclear review's release?

Q3c. Will the civil nuclear review receive input from non-government stakeholders and, if so, what is the process by which the review will receive such input?

Q3d. Will the civil nuclear review make recommendations for statutory changes or propose legislative language to more accurately reflect today's interconnected global civil nuclear market?

Q3e. How will the civil nuclear review prioritize its recommendations to appropriately balance long-term infrastructure needs, such as the development and maintenance of a robust fuel cycle, with near-term actions that can directly support the existing fleet of nuclear power plants?

Q3f. Will you, as the lead organization for civilian nuclear energy policy issues, commit to working with the Committee to assure our interests are appropriately reflected in the civil nuclear review?

A3a-f. This Administration is fully committed to nuclear energy as a vital component of our Nation's energy portfolio. We are aggressively working to revive and expand our nuclear energy sector. On June 29, 2017, during a visit to DOE, President Trump called for a complete review of our Nation's nuclear energy policy. That review is currently underway and being led by the National Economic Council, the National Security Council, and the Office of Science and Technology Policy in the Executive Office of the President (EOP). DOE, along with several other federal agencies, is actively participating and working with the EOP on the review.

Q4. Today, in the United States, there are only two new reactors at one site in Georgia. China and Russia are competing to expand their dominance in nuclear technology globally, and the hearing testimony suggestion the U.S. risks falling behind our competitors.

This is not a good situation for the national security, economic, or safety benefits of U.S. civilian nuclear participation in global markets. As you know, the Departments of Defense, State, and Commerce all have prominent roles relating to the Administration's nuclear priorities.

Where does DOE fit in the Administration's Cabinet framework with respect to nuclear issues? Is it generally accurate to say the Secretary of Energy is the principal advisor in the Cabinet on matters relating to atomic energy generally, and nuclear weapons technology, and technical nonproliferation matters?

A4. The Secretary of Energy serves as the principal advisor to the President of the United States, as a member of the President's Cabinet and National Security Council on nuclear matters related to energy, weapons, and nonproliferation. As the Secretary said during his budget testimony to the Senate Energy and Natural Resources Committee on March 20, 2018, DOE's "greatest duty is to protect our citizens and nuclear deterrence is a core part of that mission."

The National Nuclear Security Administration, through the Undersecretary for Nuclear Security/NNSA Administrator, advises the Secretary of Energy on all defense nuclear security matters, whereas the Office of Nuclear Energy, through the Undersecretary of Energy, advises the Secretary of Energy all civil nuclear energy matters.

On defense nuclear security matters, DOE's role in the President's Cabinet is to maintain modern, flexible, and resilient nuclear capabilities that are safe and secure; prevent the spread of materials, technology, and expertise that could be used in weapons of mass destruction; advance counterterrorism and counter proliferation objectives; serve as the United States government's primary response to radiological and nuclear emergencies; and ensure the safe, reliable, and long-lived operations of our nation's nuclear Navy.

On civil nuclear energy matters, DOE's role in the President's Cabinet is to revive and expand the U.S. nuclear energy sector. The Department advances nuclear energy technologies through targeted early-stage investments, leveraging public-private partnerships, and world-class research and development capabilities of our national laboratories. DOE is also working to encourage a resilient nuclear supply chain, while promoting a strong advanced nuclear pipeline. Finally, the Department is committed to finding a solution for our Nation's nuclear waste.

Q5. How will the Office of Nuclear Energy prioritize and balance these types of proposed initiatives within realistic, historical budgets, while still providing the adequate level of funding to maintain existing infrastructure, including stewardship of DOE's lead nuclear energy laboratory, and research programs that can have a more immediate and tangible impact on the existing nuclear fleet?

A5. The Office of Nuclear Energy (NE) recognizes the budgetary, regulatory, and technical challenges of supporting a broad program of nuclear research and development (R&D) aimed at advanced reactor development while sustaining a healthy fleet of existing reactors and associated industry infrastructure. NE is prioritizing these challenges within current budgetary constraints to have the most immediate and tangible impact on the existing nuclear fleet. Initiatives to engage in private-public partnerships to drive technologies and capabilities to commercialization are underway and will help to leverage our government investments. Also, NE is evaluating the required investments in

future capabilities, particularly those with high upfront costs and continuing mortgages, in a strategic manner to ensure we are making the right decisions to maintain the relevance of our institutional R&D capabilities for generations to come.

QUESTION FROM REPRESENTATIVE RICHARD HUDSON

Q1a. Mr. McGinnis, what potential defense applications for nuclear reactors does DOE see in the near future and what needs to be done to enhance collaboration between DOD and your office?

A1a. The Department of Energy (DOE) sees significant potential for the deployment of very small "micro reactors" that meet defense power demands for forward operating bases and other remote sites with large electrical loads.

The Senate Armed Services Committee (SASC) requested that DOD engage in research, development, demonstration, and deployment of micro-reactor concepts, also known as very Small Modular Reactors (vSMR), and prepare a manufacturing feasibility report within 24 months. In response, DOD discussed micro-reactor technology with the Idaho National Lab and recognized that DOE and the National Labs are likely the most appropriate entities to oversee such prototype development. DOD also has initiated efforts to identify proper subject matter experts within the services and DOE for preparing the manufacturing feasibility report.

The Departments of Defense and Energy are also in consultation with the Department of State to ensure that all issues related to the international safety, security and nonproliferation regime are appropriately addressed.