

ONE HUNDRED FIFTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
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MEMORANDUM

May 21, 2018

To: Subcommittee on Energy Democratic Members and Staff

Fr: Committee on Energy and Commerce Democratic Staff

Re: Hearing on “DOE Modernization: Legislation Addressing Development, Regulation, and Competitiveness of Advanced Nuclear Energy Technologies”

On **Tuesday, May 22, 2018, at 10:00 a.m. in room 2123 of the Rayburn House Office Building**, the Subcommittee on Energy will hold a legislative hearing titled, “DOE Modernization: Legislation Addressing Development, Regulation, and Competitiveness of Advanced Nuclear Energy Technologies.” The hearing will examine four nuclear energy-related proposals.

I. H.R. ____, THE ADVANCED NUCLEAR FUEL AVAILABILITY ACT

The current commercial U.S. fleet of light-water reactors uses fuel composed of low enriched uranium, enriched to between three and five percent, but advanced reactors require higher percentage enrichments. High Assay Low Enriched Uranium fuel (HA-LEU) is enriched to between five and 20 percent. This enrichment allows for higher burn rates and better plant economics, making HA-LEU more efficient. Federal investments in producing and commercializing HA-LEU could open the way for operation of advanced reactors in the U.S. by the early 2030s; however, several challenges would remain. There are currently no approved packages for transporting HA-LEU. Research to establish safety margins to prevent unintended nuclear reactions is also necessary. Furthermore, future regulation of HA-LEU requires benchmark data to inform for transportation packages and for fuel fabrication and enrichment facility licensing and regulation.¹

¹ Michael Tschiltz et al., *Addressing the Challenges with Establishing the Infrastructure for the Front-End of the Fuel Cycle for Advanced Reactors*, Nuclear Energy Institute, (January 2018).

The discussion draft, released by Rep. Flores (R-TX), directs the Secretary of Energy to establish a program to support the availability of HA-LEU for commercial use in an attempt to address these challenges.

Section 2 of the draft outlines the elements of the program. The Secretary may provide funding to commercial entities to design transportation packages for HA-LEU, and shall have the transportation packages certified by the Nuclear Regulatory Commission (NRC) by January 1, 2023. The program includes a requirement for the Department of Energy (DOE) to submit a report to Congress on its uranium inventory. The legislation also requires the Secretary to survey how much HA-LEU is necessary for commercial purposes and assess the options available to acquire HA-LEU. The Secretary must also establish a consortium of commercial nuclear companies to collaborate with DOE to provide information on HA-LEU needs and purchase HA-LEU. The Secretary may acquire HA-LEU and make it available for purchase to members of the consortium by January 1, 2025. Lastly, the Secretary, in consultation with NRC, shall develop criticality benchmark data that will inform and steer the licensing requirements of HA-LEU fabrication and enrichment, as well as the certification of transportation packages.

Section 3 requires NRC to submit a report within a year of enactment on any necessary updates to regulations, policy, or certifications that are necessary for HA-LEU to be commercially available.

II. H.R. 1320, NUCLEAR UTILIZATION OF KEYNOTE ENERGY ACT

Reps. Kinzinger (R-IL) and Doyle (D-PA) introduced H.R. 1320, the Nuclear Utilization of Keynote Energy Act, on March 2, 2017. The bill alters the NRC's budget and fee structure, and makes changes to the process by which the NRC evaluates and processes license applications for nuclear power reactors in the United States. The legislation also commissions several reports on nuclear power licensing issues, and sets a deadline for an NRC rulemaking on decommissioning of commercial reactors.

Section 2 amends Section 6101 of the Omnibus Budget Reconciliation Act of 1990 to remove the amounts appropriated for the Advanced Reactor Program from the NRC's fee recovery requirement. NRC currently recovers approximately 90 percent of its budget from license fees, with the other ten percent coming from appropriated funds.

Section 3 makes a number of changes to the NRC budget and fee structure. Subsection (a) directs NRC to identify the anticipated expenditures necessary to complete work on requested activities anticipated to occur during the fiscal year. This subsection also directs NRC to limit its corporate support costs to 30 percent of the Commission's total budget request beginning in Fiscal Year (FY) 2020, with the percentage decreasing every two years until it reaches 28 percent in FY 2024. Subsection (b) would remove the current structure whereby NRC recovers 90 percent of its budget from license fees, and replace it with a list of activities excluded from fee recovery. This subsection also places a \$4.8 million cap on the fee that NRC may charge to an operating reactor. Subsection (c) requires NRC to develop performance metrics and

milestone schedules for reactor licensing activities. Subsection (d) requires NRC to implement processes for auditing invoices to ensure accuracy, transparency and fairness.

Section 4 requires the Government Accountability Office (GAO) to transmit to Congress a report on the feasibility and implications of repealing current statutory restrictions preventing foreign interests from obtaining commercial and other nuclear licenses. Section 103(d) of the Atomic Energy Act of 1954 (AEA) provides that “[n]o license may be issued to an alien or any corporation or other entity if the commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government.”²

Section 5 requires GAO, in consultation with the Secretary of Energy, to transmit to Congress a report on the impact of eliminating the mandatory public hearing held by NRC before granting a license for operation of a nuclear power reactor. This hearing is typically a one-day proceeding where stakeholders can participate, and NRC commissioners perform a final check on all items related to the overall safety and environmental impact of a facility.

Section 6 requires NRC to use more informal adjudicatory procedures for hearings under section 189(a) of the Atomic Energy Act. In 2004, NRC finalized a rule that made changes to the adjudicatory process largely similar to the provisions outlined in section 5.³ Additionally, the section eliminates the requirement in current law mandating an on-the-record adjudicatory hearing with regard to licensing for construction and operation of a uranium enrichment facility.

Section 7 sets up an expedited review process for nuclear energy projects at NRC. It requires draft environmental impact statements to be issued within 24 months, and sets a 42-month deadline for completing the technical review process and final environmental impact statement. This section also requires NRC to issue an early site permit or construction permit for a facility, even if an entity has requested a hearing challenging the basis of the permit.

Section 8 requires NRC to finalize a decommissioning rulemaking within 48 months. In November 2015, NRC published an advance notice of proposed rulemaking regarding potential changes to its regulations for the decommissioning of nuclear power reactors. The NRC’s goals in amending these regulations are to provide a more efficient decommissioning process, reduce the need for exemptions from existing regulations, and support the principles of good regulation, including openness, clarity, and reliability.⁴

² L. No. 83-703.

³ Nuclear Regulatory Commission, *Changes to Adjudicatory Process*, 69 Fed. Reg. 2182 (Jan. 14, 2004).

⁴ Nuclear Regulatory Commission, *Regulatory Improvements for Decommissioning Power Reactors*, 80 Fed. Reg. 72358 (November 19, 2015) (Advance Notice of Proposed Rulemaking).

III. H.R. ____, TO AMEND THE ATOMIC ENERGY ACT OF 1954 TO IMPROVE THE PROCESS BY WHICH THE SECRETARY OF ENERGY AUTHORIZES THE TRANSFER OF CIVILIAN NUCLEAR COMMERCE TECHNOLOGY AND ASSISTANCE

The Atomic Energy Act (AEA) designates DOE, NRC, and the Environmental Protection Agency as the Federal agencies responsible for managing “source, special nuclear, and byproduct material.”⁵ Source materials include uranium and thorium. NRC has authority to determine if other materials should be considered source material, depending on the concentration level of uranium or thorium. Special nuclear material, such as plutonium and enriched uranium, are derivatives of source materials.⁶ To date, NRC has not added any other materials to this category.⁷ Any radioactive product or waste that results from exposure to special or source nuclear material is a byproduct material and regulated by NRC.⁸

Section 57 of the AEA gives the Secretary of Energy authority to allow entities outside the United States to develop or produce special nuclear products in conjunction with the Department of State, NRC, and the Department of Defense. DOE’s 10 CFR Part 810 regulations (Part 810) govern the process by which the Federal government controls the flow of unclassified nuclear energy technology and assistance to foreign countries.⁹ Part 810 establishes general authorizations that do not require U.S. government approvals. There are also activities under Part 810 that require specific authorization from the Secretary of Energy. These activities include transferring sensitive nuclear technology to foreign countries, engaging in any form of uranium enrichment, creating nuclear fuel that contains plutonium, and developing nuclear reactors designed for the production of special nuclear material.¹⁰

Rep. Johnson (R-OH) has circulated this discussion draft, the stated purpose of which is to “modernize” Part 810.

Section 2 of the legislation requires the Secretary of Energy to submit a report to the Congressional committees of jurisdiction on the current state of civilian nuclear commerce, and offer recommendations on how the United States can improve its competitiveness. The report

⁵ 42 U.S.C. § 23 Sect. 2011 - Sect. 2259 (2010).

⁶ Department of Energy, Office of Environment, Health, Safety and Security, *Atomic Energy Act and Related Legislation* (accessed May 17, 2018) (www.energy.gov/ehss/atomic-energy-act-and-related-legislation).

⁷ Nuclear Regulatory Commission, *Special Nuclear Material* (2017) (www.nrc.gov/materials/sp-nucmaterials.html).

⁸ See note 7.

⁹ Nuclear Innovation Alliance, *Enabling Nuclear Innovation - Part 810 Reform - Improving the Efficiency of U.S. Export Controls for Nuclear Energy Technologies* (Dec. 2017) (www.nuclearinnovationalliance.org/part810reform).

¹⁰ See note 6.

must also analyze how to apply Price-Anderson Act indemnification provisions to advanced nuclear technologies.

Section 3 institutes an expedited approval process for low proliferation risk reactor technologies. This provision does not apply to foreign countries designated as nuclear-weapon states. The Secretary of Energy is required to issue a decision on applications 30 days after the Secretary of State receives the required assurances from foreign countries. The expedited process does not apply to fuel cell technology or the transfer of fuel fabrication technology.

Section 4 requires the Comptroller General to submit a report to Congress one year after enactment detailing the Secretary of Energy's methodology for implementing the risk-pooling program established in Section 934(e) of the Energy Independence and Security Act of 2007. That program requires nuclear suppliers to conduct a retroactive assessment to cover the costs associated with covered incidents that occur outside of the United States and are not covered by Price-Anderson.¹¹

IV. H.R. ____, TO REQUIRE THE SECRETARY OF ENERGY TO DEVELOP A REPORT ON A PILOT PROGRAM TO SITE, CONSTRUCT, AND OPERATE MICRO-REACTORS AT CRITICAL NATIONAL SECURITY LOCATIONS

Reps. Wilson (R-SC), Norcross (D-NJ), Hudson (R-NC), and Peters (D-CA) have put forward a discussion draft addressing the subject of micro-reactors. The draft directs the Secretary of Energy to develop a report on a pilot program to provide resilience for critical national security infrastructure at DOD and DOE facilities by contracting with a commercial entity to site, construct, and operate at least one licensed micro-reactor. The legislation defines a micro-reactor as a nuclear reactor that has a power production capacity not greater than 50 megawatts. This report would be due to Congress within 12 months of enactment. The pilot program developed by the report would commence by December 31, 2027.

V. WITNESSES

The following witnesses have been invited to testify:

Panel I

The Honorable Brent Park

Deputy Administrator, Defense Nuclear Proliferation
National Nuclear Security Administration
U.S. Department of Energy

¹¹ Energy Independence and Security Act of 2007, Pub. L. No. 110-140.

Ed McGinnis

Principal Deputy Assistant Secretary
Office of Nuclear Energy
U.S. Department of Energy

Panel II

Jeffrey S. Merrifield

Partner
Pillsbury Winthrop Shaw Pittman LLP

Melissa Mann

President
URENCO USA, Incorporated

Nick Irvin

Director, Research and Development for Strategy, Advanced Nuclear, and Crosscutting
Technology
Southern Company

Edwin Lyman

Senior Scientist, Global Security Program
Union of Concerned Scientists