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U.S. Department of Energy
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Introduction

Chairman Gardner, Ranking Member Manchin, and Members of the Subcommittee, it is a privilege and an honor to serve at the Department of Energy (DOE or the Department), an agency tasked with, among other important responsibilities: overseeing the Nation's energy supply, managing the Department's 17 National Laboratories, supporting early-stage energy R&D across a wide range of science and engineering disciplines, and working effectively with the States on our Nation's energy challenges. Thank you for the opportunity to testify today on behalf of the Department regarding legislation pertinent to DOE that is now pending in the Senate.

I have been asked to testify on 14 bills today. The Administration continues to review all of these bills. I appreciate the ongoing bipartisan efforts to address our Nation's energy challenges and I look forward to working with the Committee.

Advancing Energy Dominance through Energy Programs

The President's America First Energy Plan rightly calls for utilizing all of our energy sources to achieve energy security and economic strength at home and energy dominance through exports to markets abroad.

Fossil Energy

There has been an American energy renaissance in the United States over the last decade. Through the increase in production of crude oil and other liquid fuels, refined petroleum products, and production of natural gas, the United States has become an energy powerhouse.

S. 3495 (Barrasso-WY) - LNG Permitting Certainty and Transparency Act

When it comes to fossil fuels, the United States has become the world's largest producer of both oil and natural gas, resulting in an abundance of reliable and affordable energy resources available for domestic use and for export. DOE is committed to making decisions on natural gas export applications to all non-FTA countries expeditiously once the agency has all of the information necessary to make the required public interest determination.

S. 3618 (Cassidy-LA)/H.R. 6511 (Barton-TX) Petroleum Reserve Reform Act

The Strategic Petroleum Reserve (SPR) protects the U.S. economy from disruptions in critical petroleum supplies and meets the U.S. obligations under the International Energy Program. The Department supports an effective modernization program for the SPR. Leasing to foreign governments for strategic purposes is in line with the current designed and authorized use of the SPR and would be the preferred use of excess storage capacity. Commercial leasing, however, may prove to be technically problematic as it would likely require more frequent drawdowns for which the SPR caverns are not designed. Additionally, it may require significant up-front costs to build the desired functionality.

S. 2803 (Manchin-WV) Fossil Energy Utilization, Enhancement, and Leadership Act

DOE advances transformative science and innovative technologies that enable the reliable, efficient, affordable, and environmentally sound use of fossil fuels. As of March 2018, fossil energy sources constitute over 77 percent of the country's total energy use and are critical for the nation's security, economic prosperity, and growth. The Department is currently reviewing the proposed language and we look forward to working with the Committee on this legislation.

S. 1089 (Portman-OH) Re-Refining Used Lubricating Oil Study

In response to section 1838 of the Energy Policy Act of 2005 (EPACT), DOE prepared a report in July 2006 titled "Used Oil Re-Refining Study." The 2006 study identified two key objectives related to re-refining and three key steps were identified to support those objectives.

Nuclear Energy

Nuclear energy is clean, reliable, and safe, but the nuclear power industry needs to continue to innovate.

Advanced reactors, including small modular reactors, hold great promise as a clean, reliable, and secure power source for our nation. The Department recognizes that advanced reactors face challenges to ultimately achieving commercialization. In addition to early-stage research and development the Administration supports prioritized investments in nuclear energy research infrastructure to enable private sector innovation.

S. 3422 (Murkowski-AK) Nuclear Energy Leadership Act

The Nuclear Energy Leadership Act would enhance nuclear energy innovation, specifically related to advanced nuclear reactor technologies by providing goals for DOE to further accelerate the development of advanced reactor technologies, developing a program for making available the fuel required by these advanced reactors, and supporting the development of the high-skilled workforce needed to develop, regulate, and safeguard advanced reactors.
This bill would also extend federal power purchase agreements (PPAs) from 10 years to 40 years, and require DOE to enter into at least one PPA from a commercial nuclear reactor by 2023.

DOE has reviewed this bill and has a few observations:

• The requirement to enter into at least one agreement to purchase power from a commercial nuclear reactor is achievable at Idaho National Laboratory if it is done through a phased agreement to include the Idaho Power Company. However, potential conflicts with state law may need to be addressed.

• The bill would authorize the Secretary to enter into one or more agreements to carry out no fewer than four (4) advanced nuclear reactor demonstration projects. This initiative would be dependent on the availability of appropriations to attain its objectives.

• This bill would direct the Department to construct a fast neutron-capable research facility. This is consistent with the Department's current plans to develop a Versatile Test Reactor.

• DOE acknowledges the need for a strategic plan and one is currently under development.

Electricity

Our economy, national security, and the well-being of our citizens depend on the reliable delivery of electricity. The Department, working with and through our National Laboratories, supports key efforts to improve the resilience and reliability of the nation's electricity system. These include supporting private industry's investment in transmission systems to support resource adequacy and generation diversity; developing and deploying cyber security technology for the energy sector; moving forward with new architecture approaches for the transmission and distribution system to enhance security and resilience; and advancing energy storage.

Megawatt-scale energy storage is becoming a critical system asset that provides a buffer between generation and consumer demand through services such as frequency response, ramping support and bulk load shifting, allowing for greater utilization of generation assets.

S. 3376 (Smith-MN) Advancing Grid Storage Act of 2018

This bill would establish a cross-cutting energy storage program in DOE focused on 1) an energy storage research program, 2) a demonstration and deployment program, and 3) a technical assistance and grant program for mechanical, electrochemical, biochemical, and thermal energy storage technologies. Its intent is consistent with the early-stage research in grid-scale energy storage that is currently being conducted by multiple DOE offices.

S. 1875 (Wyden-OR) Flexible Grid Infrastructure Act of 2017

This bill proposes that the Department develop and implement reports, research and development, State technical assistance, and an innovation challenge to harness the capability and flexibility of Distributed Energy Resources (DERs) in service to the nation's electric grid. The proposed legislation advocates for a combination of analysis, improved methods and tools,

and targeted research, development, and technical assistance to advance both grid flexibility and the adoption of DERs.

The Department appreciates the objectives of the proposed legislation as it incorporates R&D conducted by several DOE offices, notably under the DOE Grid Modernization Initiative.

Energy Efficiency

DOE's Building Technologies Office leads a vast network of research and industry partners to continually develop innovative, cost-effective energy solutions.

S. 3295 (Hoeven-ND) All-of-the-Above Federal Building Energy Conservation Act

Efficient buildings help us do more with less energy. This alleviates pressure on our electric grid and extends our energy resources. Given its complexity, the Department continues to review this bill.

Advancing Research and Technology Transfer

As a research agency, DOE plays an important role in the innovation economy. DOE's 17 National Laboratories engage in research that expands the frontiers of scientific knowledge and generates new technologies that address the Nation's greatest energy challenges.

Accelerating the transition of technologies from the laboratory bench to the marketplace is an important component of increasing America's economic prosperity and energy security. This mission is the focus of DOE's Office of Technology Transitions, which oversees the technology transfer programs across the National Laboratories, including industry and other stakeholder engagement for the purpose of private sector access to lab-developed technologies and capabilities for the purpose of moving these to the marketplace.

S. 2257 (Coons-DE) IMPACT for Energy Act

The objective of the proposed non-profit foundation is to advance innovation driven by DOE R&D into the private sector. The Office of Technology Transfer, the national laboratory complex, and other DOE programs currently strive to meet this objective.

Cooperative Research and Development Agreements (CRADAs) allow industry partners to share technical expertise and resources to advance the commercialization of federally developed technology. Strategic Partnership Project agreements allow industry partners to pay national labs to perform a defined scope of research and obtain intellectual property rights from the sponsored work. National User Facilities within the national laboratory complex allow academia and industry to perform research on critical science infrastructure found only at the national labs. User Agreements are used to help advance the research and technological development in a public private partnership. Based on a successful pilot at DOE's National Laboratories, Secretary Perry authorized the permanent establishment of Agreements for Commercializing Technology (ACT) in November 2017, allowing our labs to assume more risk while streamlining their

processes to partner with businesses and non-federal entities in commercializing their innovative technologies.

Interactions with the States

DOE has a long and successful history of working with States on the Nation's most significant energy challenges. Nearly all state and territory governments and select local governments have an energy security or assurance plan, which serves as a foundation for action when an energy disruption threatens public welfare or when the energy industry requests help. These plans address energy supply risks and vulnerabilities and enable a quick recovery and restoration. Combined with training and exercises for personnel and stakeholders, energy assurance plans enhance response and recovery efforts and support resiliency investments.

S_____ (Gardner-CO) Implement State Energy Security Plans

DOE has provided support for state and local governments to develop and refine energy assurance plans, build in-house expertise on infrastructure interdependencies (i.e., other critical infrastructure systems' reliance on electricity for operations) and vulnerabilities, integrate renewable energy, and utilize new applications such as cyber and smart grid technologies.

Planning for energy sector disruptions—often led by a governor's energy office—is essential to safeguarding energy system reliability and resilience. Energy assurance planning can help to achieve a robust, secure and reliable energy infrastructure that is also able to restore services rapidly in the event of any disaster.

S. 1713 (Shaheen-NH) Investing in State Energy Act

This bill would require DOE to distribute funds for the Weatherization Assistance Program and the State Energy Program within 60 days of Congress making the funds available for such programs. The requirements in this bill may need to be reconciled with state fiscal deadlines and distribution schedules.

Human Capital

The Department is eager to assist in promoting the physical and economic health of our veterans, who have given so much in service in the Nation. We are equally committed to ensuring full protection for DOE federal employees who present claims of whistleblower retaliation.

S.____ (Ernst-IA)/H.R. 6398 (Norman-SC) Department of Energy Veterans' Health Initiative

The Administration continues to review the bill. Section 4 of this bill authorizes DOE to establish and carry out a research program in artificial intelligence and high performance computing, focused on the development of tools to solve big data challenges in partnership and coordination with the Department of Veterans Affairs (VA). While driving innovation in artificial intelligence, the joint effort with the VA will simultaneously advance veteran's

healthcare, supporting their efforts to identify potential health risks and challenges utilizing data on long term healthcare, health risks, and genomic data collected from veteran populations. The Energy and Water Development and Related Agencies Appropriations Act, 2019, within P.L. 115-244, provided $27 million to the VA to support the collaboration between the DOE and VA over the next five years. This section of the bill is strongly aligned with the Administration's stated Research and Development Budget Priorities that include American Leadership in Artificial Intelligence, Maximizing Interagency Coordination as well as Workforce for the 21st Century Economy. Section 4 of the bill is supported in addition by an agency to agency Memorandum of Agreement that outlines the significance of the activity.

S. 3088 (Duckworth-IL) Energy Jobs for Our Heroes Act of 2018

This bill would require the Secretary of Energy, in coordination with the Secretary of Defense, to establish a program to prepare veterans for careers in the energy industry, including the solar, wind, cybersecurity, and other low-carbon emissions sectors or zero-emissions sectors of the energy industry.

Senator Duckworth's office solicited technical assistance comments from DOE. Both the Solar Energy Technologies Office and the Wind Energy Technologies Office have submitted comments.

S. 2968 (Duckworth-IL) Department of Energy and NRC Whistleblower Protection Act

The effect of this bill would be a waiver of DOE's sovereign immunity, and an expansion of legal forums for claimants with associated liabilities and costs to DOE. S. 2968 is therefore more than a technical fix; it is a substantive change in law.

This bill would provide an additional forum for DOE federal employees to seek legal redress for whistleblower claims. Currently, DOE federal employees have three forums available to seek this legal redress: 1) Office of Special Counsel; 2) the collective bargaining agreement grievance process, or the DOE grievance order process; and 3) personnel actions before the Merit Systems Protection Board.

Conclusion

Thank you again for the opportunity to be here today. The Department appreciates the ongoing bipartisan efforts to address our Nation's energy challenges, and looks forward to working with the Committee on the legislation on today's agenda and any future legislation. I would be happy to answer your questions.