# Testimony of Under Secretary Mark Menezes
# U.S. Department of Energy
# Before the
# U.S. Senate Committee on Energy and Natural Resources,
# Subcommittee on Energy
# December 5, 2017

## 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), an agency tasked with fulfilling missions in nuclear security, basic scientific research, energy innovation and security, and environmental cleanup. Thank you for the opportunity to testify today on behalf of the Department regarding seven bills that pertain to energy storage, rare earth elements, energy conservation standards, small volume exports of liquefied natural gas, and hydroelectric power.

In support of the Administration's goals of energy dominance and economic competitiveness, resources within DOE's energy and science programs are focused on early-stage research and development (R&D) across a variety of technologies that support American energy independence and domestic job-growth. Through careful prioritization and ensuring funding goes to the most promising research, DOE, through its national laboratories, will continue to support the world's best enterprise of scientists and engineers whose innovations drive American prosperity, security, and competitiveness for the next generation. This testimony is not intended to provide a formal Administration position, but rather to provide general and technical comments to the Committee.

## Energy Landscape

There has been an energy revolution in the United States over the last decade. Through the increase in production of crude oil and other liquid fuels, refined petroleum products, and natural gas, this nation has become an energy powerhouse. Wind and solar power generation also play a role in our energy mix and vehicles have reached historic levels of efficiency.

The United States is, however, at an energy crossroads. Our energy landscape is changing with implications across the energy sector and the economy as a whole. These changes have created opportunities. At the same time, they pose a set of challenges for energy policy makers, investors, non-governmental organizations, and industry.

These challenges to the energy system come in many forms, and addressing them will require action by many parties, including Congress, the private sector, and the public sector. The Administration looks forward to working closely with the Congress on this important topic.

I have been asked to testify on multiple bills today, which the Administration continues to review. Our understanding of what each bill seeks to accomplish is as follows:

*S. 1455 - Energy Storage Goals and Demonstration Project Act*

It appears this bill sets new goals for research and demonstration projects, including the deployment of three grid-scale energy storage demonstrations. The future resiliency and reliability of our electric system likely depends to a large degree on the deployment of breakthrough battery technologies. While DOE appreciates the research priorities set forth in this bill, Administration goals are to encourage early-stage R&D programs and projects. This Administration believes the private sector has the most important role to play in the development of late stage energy projects. Currently, there are multiple private companies competing and installing grid scale battery storage projects and this Administration encourages an increased reliance on the private sector to fund later-stage development of energy technologies. The Department looks forward to working with the committee to review the technological objectives expressed in the bill and provide technical comments.

*S. 1851 - Advancing Grid Storage Act of 2017*

This bill requires the Secretary to establish an energy storage research program, a demonstration and deployment program, and a technical assistance and grant program. The bill seeks to continue R&D on storage materials, electrochemical systems, and power conversion technologies. It specifically directs the Advanced Research Projects Agency-Energy (ARPA-E) to conduct research, and the Office of Electricity Delivery and Energy Reliability (OE) to conduct technical assistance. The demonstration and deployment program does not appear to have been assigned to a specific DOE program office.

The Department recognizes the content and approach taken within the proposed legislation. The basic elements of the program appear to foster the acceleration of energy storage systems.

As the members of this Committee are aware, the Administration proposed to eliminate funding for ARPA-E in its FY 2018 budget request. It appears the language in the bill singles out ARPA-E for undertaking this research, however, the Department has typically undertaken grid-scale energy storage research through its OE program with notable success. With this in mind, the Department hopes to have the discretion to determine under what program offices DOE would manage this research.

Finally, advanced technologies owned by Federally funded laboratories are used to facilitate public/private partnerships. The Department has a proven record of success with this arrangement. Thus, it is important that "lab-owned" technologies (given the appropriate application of provisions for the licensing of intellectual property) be considered as potential candidates for demonstration projects in any legislation considered by the Committee.

*S. 1876 - Reducing the Cost of Energy Storage Act*

This bill seeks to "establish a cross-cutting national program" within DOE with the goal of reducing energy storage costs through research, development, and demonstration.

Currently at the Department, the Office of Energy Efficiency and Renewable Energy (EERE) researches energy storage for transportation purposes, and the Office of Electricity Delivery and Energy Reliability (OE) researches energy storage technologies for grid-scale applications. EERE and OE coordinate their energy storage work through the Grid Modernization Initiative. The research investments in both vehicle technologies and grid-scale energy storage are greatly advancing the broader energy storage field.

The Department appreciates the research priorities in the bill, and looks forward to working with the Committee to evaluate the technical targets contained in the bill, such as any specific cost targets for vehicular and grid energy storage.

*S. 1563 - Rare Earth Element Advanced Coal Technologies Act*

It's likely the development of a domestic supply of rare earth elements (REEs) that is economically competitive will help fuel our nation's economic growth, secure our energy independence, and increase our national security. The bill appears to authorize $20 million per year from 2018 through 2025 for the Department of Energy (specifically the Office of Fossil Energy) to develop advanced separation technologies for the extraction and recovery of REEs and minerals from coal and coal byproducts. It appears the bill also requests that DOE, in consultation with the Department of Defense, within 1 year after date of enactment, submit a report that assesses the importance of REEs to the United States, evaluates the development of new separation technologies, and analyzes the market impact of new technologies. Due to the complexities of the research and scope of the report, Congress may want to consider extending the due date of the initial assessment.

The bill appears to acknowledge the current ongoing efforts within DOE to advance separation technologies for the recovery of REEs. Thus, DOE appreciates the proposed legislation as it incorporates its ongoing R&D. DOE is developing technologies with the goal of enabling additional domestic supplies of REEs, reducing environmental impact of coal and REE production, and delivering technologies that can be manufactured within the United States. DOE has accomplished much in this area, including the evaluation of pilot-scale processing options, and the nature and distribution of REEs in U.S. coal deposits.

*S. 2030 - Ceiling Fan Energy Conservation Harmonization Act*

This bill changes the compliance date for amended energy conservation standards for ceiling fan light kits from January 7, 2019 to January 21, 2020 so that it aligns with the ceiling fan energy conservation standard. These products were listed separately under the Energy Policy and

Conservation Act of 1975 and the compliance dates were developed under separate rulemakings. DOE cannot revise the dates of compliance for ceiling fan light kits set forth in its regulations without Congress making an exception from the anti-backsliding provision of the enabling statute, thus this bill will require an additional statutory change by Congress.

By syncing up compliance dates, the date of importation of compliant products will be the same, allowing for easier compliance for manufacturers as well as government tracking for products entering the U.S. This harmonization will likely reduce the burden of tracking compliant and non-compliant products that are shipped in one box, especially for retailers.

*S. 1981 - Small Scale LNG Access Act of 2017*

Currently, all exports of natural gas, regardless of quantity, are subject to review and approval by the Department through its regulatory authority under the Natural Gas Act (NGA). Applications are made under NGA Section 3(a) for exports of natural gas to non-free trade agreement countries or NGA Section 3(c) for exports of natural gas to free trade agreement countries. This bill amends Section 3(c) to expedite approval of exports of small volumes of natural gas. The effect of this bill would be to have qualifying applications granted automatically, saving several months of review time at a minimum.

This bill appears to be similar to the volume criteria DOE laid out in a recent DOE Notice of Proposed Rulemaking (NOPR) concerning small-scale natural gas exports published on September 1, 2017. The NOPR sought to revise DOE's regulations in 10 CFR 590 concerning its role in administering the NGA. DOE's NOPR proposed that natural gas export applications to non-free trade agreement countries that proposed to export up to and including 0.14 billion cubic feet per day (or 51.75 billion cubic feet per year) would be deemed to be consistent with the public interest. The Department looks forward to working with the Committee to determine the technical aspects of the bill.

*S. 1336 - Reliable Investment in Vital Energy Reauthorization*

This bill reauthorizes hydropower production and efficiency upgrade incentives established in the Energy Policy Act of 2005 for an additional 10 years. Hydropower production incentives, which are paid to qualifying hydropower facilities based on the amount of electricity they generate, are reauthorized from 2018 through 2027. Hydropower generation efficiency incentives, which support capital improvements to existing hydropower facilities that increase their efficiency, are likewise reauthorized from 2018 through 2027.

Hydropower has significant capabilities to support economic competitiveness and electricity system reliability by providing low-cost, flexible generation. The recent Staff Report to the Secretary on Electricity Markets and Reliability found that while some hydropower plants are operated as baseload resources, many also support the dynamic behavior of grid operations by

providing a full range of ancillary services. This flexibility has historically complemented other traditional forms of baseload generation, such as coal and nuclear.

DOE appreciates the goal S. 1336 attempts to achieve. Hydropower furthers goals of economic competitiveness and electricity system reliability, and it appears this bill incentivizes both hydropower generation and efficiency upgrades.

**Conclusion**

DOE is fostering an environment that promotes responsible investment, increased efficiency and development of new technologies, as well as predictability and ease of access by the private sector to the national laboratories and facilities.

Our nation will achieve our economic, energy, and environmental goals simultaneously by ensuring the United States continues to be a leader in energy technology, development, and delivery, and by unleashing America's ingenuity to unlock our natural resources. Through early-stage research and development, and collaborations at all levels of government and with the private sector, the Department of Energy and our National Laboratories aim to support an efficient transition during our nation's energy revolution. Significant progress has been made, however, more work is necessary to capture the full set of opportunities.

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.

Thank you again for the opportunity to be here today, and I look forward to your questions.