

# THE FISCAL YEAR 2016 DEPARTMENT OF ENERGY BUDGET

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## HEARING BEFORE THE SUBCOMMITTEE ON ENERGY AND POWER OF THE COMMITTEE ON ENERGY AND COMMERCE HOUSE OF REPRESENTATIVES ONE HUNDRED FOURTEENTH CONGRESS FIRST SESSION

FEBRUARY 11, 2015

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<sup>1</sup> Available at: <http://docs.house.gov/meetings/if/if03/20150211/102942/hhrg-114-if03-wstate-monize-20150211-sd543.pdf>.



## **THE FISCAL YEAR 2016 DEPARTMENT OF ENERGY BUDGET**

**WEDNESDAY, FEBRUARY 11, 2015**

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON ENERGY AND POWER,  
COMMITTEE ON ENERGY AND COMMERCE,  
*Washington, DC.*

The subcommittee met, pursuant to call, at 1:00 p.m., in room 2322, Rayburn House Office Building, Hon. Ed Whitfield (chairman of the subcommittee) presiding.

Present: Representatives Whitfield, Olson, Barton, Shimkus, Latta, McKinley, Pompeo, Kinzinger, Griffith, Hohnson, Long, Ellmers, Flores, Mullin, Hudson, Upton (ex officio), Rush, McNerney, Tonko, Engel, Capps, Doyle, Castor, Sarbanes, Yarmuth, Loeb sack, and Pallone (ex officio).

Staff Present: Nick Abraham, Legislative Clerk; Gary Andres, Staff Director; Charlotte Baker, Deputy Communications Director; Sean Bonyun, Communications Director; Leighton Brown, Press Assistant; Allison Busbee, Policy Coordinator, Energy & Power; Patrick Currier, Counsel, Energy & Power; Tom Hassenboehler, Chief Counsel, Energy & Power; Peter Kielty, Deputy General Counsel; David McCarthy, Chief Counsel, Environment/Economy; Brandon Mooney, Professional Staff Member, E & P; Mary Neumayr, Senior Energy Counsel; John Ohly, Professional Staff, O & I; Chris Sarley, Policy Coordinator, Environment & Economy; Peter Spencer, Professional Staff Member, Oversight; Jeff Carroll, Minority Staff Director; Rick Kessler, Minority Senior Advisor and Staff Director, Energy and Environment; and Ryan Schmit, Minority EPA Detailee.

### **OPENING STATEMENT OF HON. ED WHITFIELD, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY**

Mr. WHITFIELD. I would like to call the meeting to order.

Today's hearing is the review of the fiscal year 2016 Department of Energy budget, and I would like to recognize myself 5 minutes for an opening statement.

Today we are going to examine the Department of Energy's proposed budget for fiscal year 2016. I am delighted that Secretary Moniz is here with us today. I want to say to him that I have great respect and admiration for him. I must also say that I don't have a lot of respect and admiration for the administration's energy policies.

But this proposed budget for 2016 is \$29.9 billion, a 9 percent increase over last year's appropriation. Interestingly enough, many people are making the argument that while DOE's budget request is growing, the Agency's role in setting the energy policy for the United States seems to be diminishing because EPA, through its regulations, seems to be dictating the energy policy more and more for America.

Now, the potential damage goes well beyond the thousands of coal miners and tens of thousands of coal-fired power plant employees who have lost their jobs under this administration. Electric bills are on the rise, and reliability concerns are an increasing focus of a lot of different entities. And these are serious concerns. As a direct result of EPA's proposed regulations on new power plants, you cannot build a state-of-the-art coal-fired plant today in America, the type that is being built today in Japan, in Germany, in China, in India, and in many other countries around the world.

Now, I understand that low natural gas prices play a part, but EPA has effectively put a moratorium on construction by requiring that new plants use carbon capture technology that has not been demonstrated as commercially viable for power generation in America. And we continue to see that the prospects for CCS power plant commercialization are slipping years into the future, according to the Department of Energy itself.

So at a time when EPA is ratcheting up the regulatory demands on coal-fired electric generation, DOE is reducing the fossil energy research and development program that could help the sector find ways to comply.

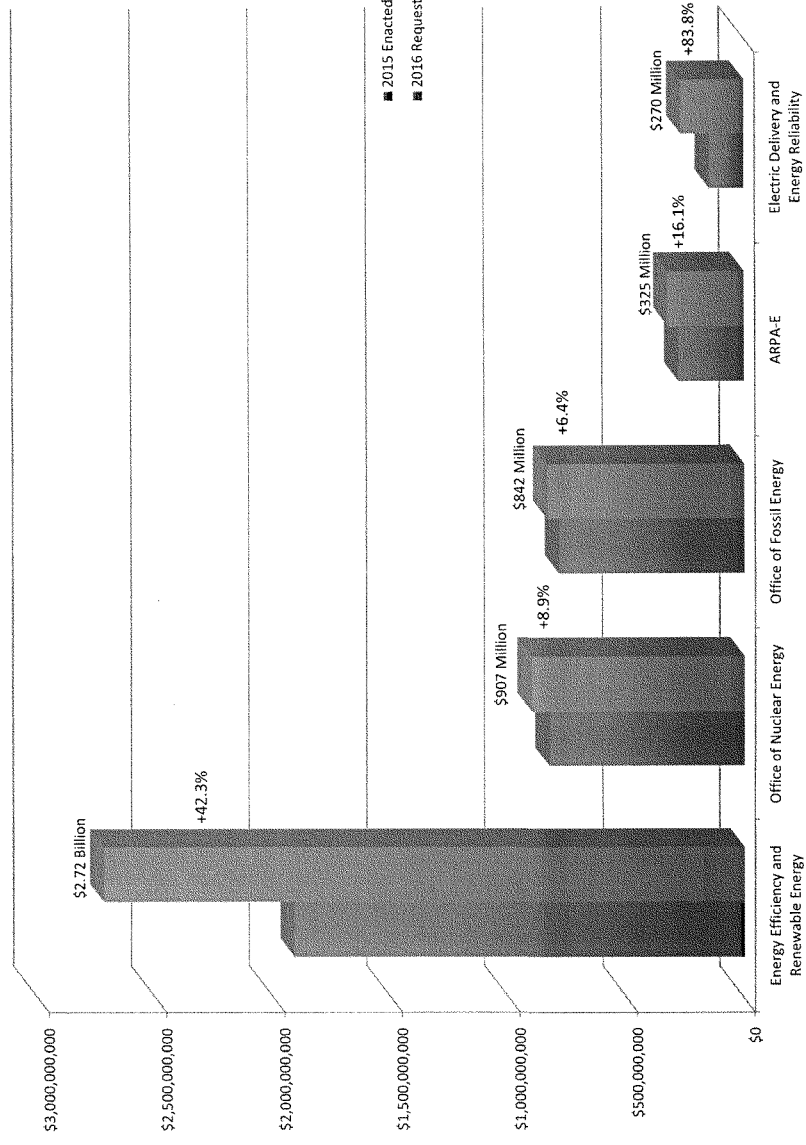
Just last week the agency stopped the FutureGen program even though EPA's regulatory agenda continues to require that new power plants install carbon capture and storage.

Now, nothing speaks better about a budget than the budget itself, and this slide illustrates precisely what I would like it to say. This budget shows on the far left, that is the DOE budget for renewables and energy efficiency; and the rest of it, as you can see, all of them combined does not equal that.

[Slide shown.]



## DOE Budget for Applied Energy and ARPA-E



Now the President of the United States goes around the country and the world talking about an all-of-the-above energy policy, but when you look at the budget of his Department of Energy, you see that his policy is about renewables and nothing else primarily. So that is a real disappointment.

I might also just mention that I don't think the President's \$38 million reduction in his request for funding at the Paducah Gas' diffusion site is a good sign. The DOE has now awarded the deactivation contract at this site. There is a mechanism to begin significant work, but consistent and adequate funding to begin cleanup is necessary.

Overall, my issues with the proposed budget reflect my issues with the direction that this administration has taken on the energy policy, which is being climate-driven. And I think the budget, this slide, certainly reflects that.

And with that, I would yield back the balance of my time.

And I would like to recognize the gentleman from Illinois for his opening statement.

[The prepared statement of Mr. Whitfield follows:]

#### PREPARED STATEMENT OF HON. ED WHITFIELD

This afternoon we will examine the Department of Energy's proposed budget for fiscal year 2016. I welcome Secretary Moniz and look forward to hearing your thoughts on this proposed budget as well as your answers to our questions.

DOE's proposed budget for 2016 is \$29.9 billion dollars, a 9 percent increase over last year's appropriation. DOE's budget request is growing, yet the agency's role in setting the nation's energy policy is shrinking. DOE has relinquished the lead to EPA, and much of DOE's actions amount to little more than a support role, in particular providing justification for EPA's efforts to handicap coal and other fossil fuels in the name of addressing climate change.

The potential damage goes well beyond the thousands of coal miners and tens of thousands of coal-fired power plant employees who have lost their jobs under the Obama administration. Electric bills are on the rise, and reliability concerns are real and growing. Secretary Moniz, you will have the distinction of seeing more coal-fired generation shut down during your tenure than any other Secretary of Energy, and by a wide margin. While the President and the environmentalists may applaud you for that, I can assure you the citizens of Kentucky and other coal states would not.

As a direct result of EPA's proposed regulations on new power plants, you cannot build a state-of-the-art coal fired power plant today in the United States—the type being built today in Japan, in Germany, in China, in India and other parts of the world. Low natural gas prices play a part, but EPA has effectively put a moratorium on construction by requiring that new plants use Carbon Capture technology that has not been demonstrated as commercially viable for power generation in this country. And, we continue to see that the prospects for CCS power plant commercialization are slipping years into the future, according to your agency.

So, at a time when EPA is ratcheting up the regulatory demands on coal-fired electric generation, DOE is cutting back on the Fossil Energy Research and Development program that could help this sector find ways to comply. And, just last week, the agency put an end to the FutureGen program even though EPA's regulatory agenda continues to require that new power plants install carbon capture and storage.

I believe that a good budget reflects reality, and that a bad one reflects wishful thinking. I'd like to point to a slide that shows the DOE budget for Applied Energy and ARPA-E. As in previous years, this DOE budget lavishes large sums on wind and solar energy and other renewables. The requested budget for the Office of Energy Efficiency and Renewable Energy (EERE) is more than all of the other Applied Energy Office and ARPA-E budgets combined. But despite all this funding, non-hydro renewables remain less than 10 percent of our nation's electricity supply, and they create serious cost and reliability concerns that are likely to preclude a significant increase. Wind and solar will always remain an intermittent and minor contributor relative to base load sources such as coal, nuclear, and natural gas. Grant-

ed, the Office of Energy Efficiency & Renewable Energy does some useful work that should continue, but its \$2.7 billion dollar budget is well out of proportion to the potential benefits and the realities of our nation's energy needs. I would prefer that proposed spending levels better reflected the reality of America's current and future energy mix.

I might also add that I am extremely disappointed with the President's \$38 Million reduction in request for funding at the Paducah Gaseous Diffusion site in Paducah, Kentucky. Since the DOE has now awarded the deactivation contract at the site, there is a mechanism to begin significant work, but consistent and adequate funding to begin cleanup is necessary. Now is not the time to slow down, but to push the project forward. I look forward to addressing this issue with you.

I remain a strong critic of EPA's proposed rules for new and existing coal-fired power plants and I will have many questions about these and other regulations at EPA's upcoming budget hearing. But as long as these measures remain part of the administration's energy agenda, I believe that DOE research efforts should be directed towards assisting industry in meeting these requirements.

Overall, my issues with the proposed budget reflect my issues with the direction the administration has taken on its climate driven energy policy.

#### **OPENING STATEMENT OF HON. BOBBY L. RUSH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS**

Mr. RUSH. I want to thank you, Mr. Chairman.

And I want to welcome you, Secretary Moniz. I also want to commend you for the outstanding work that you are doing across the board, but I want to specifically commend you for the legacy that you are working to establish at the Department of Energy in regards to transitioning the agency to be more attuned to the needs of all segments of the diverse American population.

Through the Minorities in Energy Initiative, which celebrated its 1-year anniversary back in November of last year, the more recent Job Strategy Council, which you established this past January, I am extremely encouraged by these policies which seek to position DOE as a proactive, forward-thinking agency that can be part of the solution rather than part of the problem.

Your staff, Mr. Secretary, recently got back to my office with constructive feedback on the workforce development bill that I introduced in the last Congress, and I was very encouraged to see that many of the policies and programs outlined in the bill align seamlessly with many of the proposals that you have initiated within the Agency.

Of course, as we both understand, the steps that have been taken are only the beginning stages of a longer process that would take time, effort, and resources to fully implement and become effective. The problem of underserved communities being historically left out of the energy sector both in the private and public realm did not happen overnight, and the policies needed to address these issues will not take hold overnight.

The good news, Mr. Secretary, is that today there is a focus on trying to proactively promote diversity and inclusion within all sections of the industry, and there is widespread support for policies that can help accomplish this goal. On this subcommittee alone, members on both sides of the aisle have expressed interest in moving forward with legislation designed to target women, minorities, veterans, and other underrepresented groups, and to help train and prepare them for the energy and manufacturing jobs of the present and of the future.

Industry groups, labor unions, community colleges, and universities, all understand that it is a win-win situation to help prepare a more than willing labor force for the well-paying jobs and careers that can be found in all sectors of the energy industry.

In America's new energy renaissance, where a skilled workforce is mandatory for building new infrastructure, to installing wind turbines or solar panels, to designing the latest technological advances in drilling, the possibilities for the American worker are becoming more and more abundant. And ensuring that all segments of the American population are given access and equal opportunity to participate in this American energy renaissance will only serve as a benefit to industry, to communities, and to the American economy as a whole.

So, Mr. Secretary, I say thumbs up to your agency, thumbs up to your plans, thumbs up to your budget. Let's get this good work that the American people have called us to do, let's start working on it immediately, if not sooner.

Thank you, and I yield back.

Mr. WHITFIELD. Thank you, Mr. Rush.

At this time I would like to recognize the chairman of the full committee, Mr. Upton, for 5 minutes.

**OPENING STATEMENT OF HON. FRED UPTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN**

Mr. UPTON. Mr. Secretary, welcome back.

I know that today's discussion is just one of the many that DOE is conducting as we look forward to working together to create a 21st Century energy policy.

You know, the areas of disagreement between Republicans and this administration often get the most attention. But while those differences remain, I am one who always looks for areas of agreement, areas of common ground on an energy policy that can benefit all Americans. We have seen a tremendous increase in oil and natural gas production here in the U.S. And across North America. We are already seeing the benefits of abundant and affordable energy, whether it be at the gas pump, our power bills, and with the creation of new jobs. But for more Americans to see even better benefits, we need to move beyond decades-old energy scarcity policies. We need to maximize the benefit of North American energy, and at this committee we call it the building of the architecture of abundance.

The first step is to upgrade and modernize our energy infrastructure. The new energy coming on line is of no use if we can't deliver it to consumers and businesses. We need a modern and more resilient infrastructure to safely and responsibly maximize our growing oil and gas output.

Our bipartisan pipeline safety legislation was an important milestone. Yes, it was. But there is more work to do. We also need to ensure that our electric grid can meet the challenges of the future, from everything from advanced grid technologies, to protecting against weather events or physical or cybersecurity threats.

Our energy abundance is also proving to be a powerful jobs creator, not only in places like Texas and North Dakota, where production is booming, but also in Michigan and other manufacturing

States, where low energy prices are fueling growth and attracting new jobs.

According to one study, modernizing North America's energy infrastructure could, in fact, support an average of 432,000 jobs per year through 2035. Despite the recent decline in oil prices, there continues to be many job opportunities for trained workers; but the key word here is trained.

One industry study estimates that there will be 600,000 career opportunities for men and women and minorities in energy in the years ahead. We need to ensure that necessary education and job training is available for all Americans.

Our energy potential makes us more secure here at home and more powerful abroad. We can diminish the political influence of other energy exporters like Russia and Iran, and help many of our allies, who would much rather buy their energy from the U.S. But it will only happen if energy security and geopolitical benefits become a part of our policy decisionmaking.

Dr. Moniz, we have a wonderful opportunity of working together to fulfill our tremendous energy potential.

And I yield back.

Mr. WHITFIELD. The gentleman yields back.

[The prepared statement of Mr. Upton follows:]

#### PREPARED STATEMENT OF HON. FRED UPTON

Secretary Moniz, welcome back to the committee. I hope that today's discussion is just one of many with DOE on creating a 21st century energy policy. The areas of disagreement between Republicans and the Obama administration often get most of the attention. But while our differences remain, I'm one who will always look for areas of agreement—areas of common ground on an energy policy that can benefit all Americans.

We have seen a tremendous increase in oil and natural gas production here in the U.S. and across North America. We are already seeing the benefits of abundant and affordable energy—at the gas pump, in our power bills, and with the creation of new jobs.

But for more Americans to see even more benefits, we need to move beyond decades-old energy scarcity policies. We need to maximize the benefits of North American energy. At the committee, we call this building the Architecture of Abundance.

The first step is to upgrade and modernize our energy infrastructure. The new energy coming online is of no use if we can't deliver it to consumers and businesses. We need a modern and more resilient infrastructure to safely and responsibly maximize our growing oil and gas output. Our bipartisan pipeline safety legislation was an important milestone, but there's more work to do. We also need to ensure that our electric grid can meet the challenges of the future, everything from advanced grid technologies to protecting against weather events or physical and cyber security threats.

America's energy abundance is also proving to be a powerful jobs creator. Not only in places like Texas and North Dakota where production is booming, but also in Michigan and other manufacturing states where low energy prices are fueling growth and attracting new jobs. According to one study, modernizing North America's energy infrastructure could support an average of 432,000 jobs per year through 2035.

Despite the recent decline in oil prices, there continues to be many job opportunities for trained workers. But the key word here is "trained." One industry study estimates that there will be 600,000 career opportunities for women and minorities in energy in the years ahead. We need to ensure the necessary education and job training is available to all Americans.

Our energy potential makes us more secure at home and more powerful abroad. We can diminish the political influence of other energy exporters like Russia and Iran, and help many of our allies who would much rather buy their energy from the United States. But it will only happen if energy security and geopolitical benefits become a part of our policy decision-making.

Let's not lose sight of the opportunity to turn America into an energy superpower and the bipartisan efforts that will help us get there. Dr. Moniz, we have a unique opportunity to work together as we look to fulfill our tremendous energy potential.

Mr. WHITFIELD. At this time I would like to recognize the gentleman from New Jersey, Mr. Pallone, the ranking member, for 5 minutes.

**OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY**

Mr. PALLONE. Thank you, Chairman Whitfield and Ranking Member Rush.

I just want to welcome Secretary Moniz back to the committee. This is not the easiest time to be the Nation's top energy official, but I would venture to say that you are proving yourself to be one of the better secretaries we have seen.

The President's fiscal year 2016 budget would fund the Department of Energy at \$29.9 billion, an increase of \$2.5 billion, or up 9.2 percent from fiscal year 2015 level. And the budget would increase funding for important national priorities, including energy efficiency and renewable energy. Additional policy and funding priorities which are designed to improve electric grid reliability, reduce methane pollution, and enhance U.S. economic and energy security include energy infrastructure, technology and research to accelerate energy technologies through the development of transformational technologies.

The President's budget would also fund cleaner fossil fuels as well as post- and pre-combustion carbon capture and compression technologies. And very importantly, the budget would adequately fund the Department's critical defense-related activities and add \$305 million to strengthen DOE's protections and defenses against cyber attacks and improve energy sector cybersecurity.

I support this budget because it takes the next logical steps in an already highly coherent energy strategy, which has greatly diversified our energy sources, generated significant efficiency gains and substantial reductions in demand, and, of course, lowered prices at the pump to levels that American drivers and households have not seen in many years.

Closer to home, I want to particularly commend the work done last year, and would continue under this budget, with regard to the Northeast Regional Refined Product Reserve. My district in New Jersey was one of the hardest to have been hit by Superstorm Sandy, and the lack of access to gasoline made a terrible situation even worse. The gasoline reserve will help ensure we are ready in the future. In my opinion, the gasoline reserve and the Department's efforts to address the resiliency and reliability of our electric grid, natural gas transmission and distribution systems, and other energy infrastructure, are critically important to not just my district, but also to the Nation as a whole.

In short, this budget continues to build towards a true, all-of-the-above energy strategy that addresses supply, demand, and security. It builds on the progress made toward realizing the goal of creating a low-carbon, clean-energy economy that can be the engine of

growth for decades to come, and so I support it enthusiastically, and I look forward to hearing more from the Secretary.

I yield back, Mr. Chairman. Thank you.

Mr. WHITFIELD. The gentleman yields back the balance of his time.

That concludes the opening statements. And so at this time, Secretary Moniz, you are recognized for 5 minutes for your statement.

And welcome again. We appreciate your being here.

**STATEMENT OF THE HON. ERNEST J. MONIZ, SECRETARY, U.S. DEPARTMENT OF ENERGY**

Secretary MONIZ. Thank you.

And Chairman Upton and Whitfield, and Ranking Members Pallone and Rush, members of the committee, I really appreciate the opportunity to come and discuss our budget with you, and I also appreciate your flexibility with regard to scheduling of the hearing.

Over the last 6 years, as has already been said, the U.S. has become the world's number one producer of oil, liquid fuels, natural gas; and now, in fact, our net imports of crude oil end products is below 5 million barrels a day, quite a remarkable place to have come in this period.

The EIA estimates that just in gasoline alone, the average household will be saving \$750 in 2015, and there are other savings as well in the energy sector.

I have submitted an extensive submission for the record, so I am going to be very, very brief in these remarks so that we can move to questions. I will just emphasize a few points. One is, this economic growth that we are enjoying, the energy boom that we are enjoying, has come even as we continue to decrease greenhouse gas emissions.

Secondly, that we are committed to an all-of-the-above energy strategy, and we will continue to do that through a whole raft of lower-cost, clean energy technologies, in fossil energy, energy efficiency, sustainable transportation, renewable energy, nuclear energy, and, well, energy efficiency I mentioned.

I will also add that in addition to focusing on the supply-and-demand sides of the equation, that we are, as you know, very, very much focusing on energy infrastructure, and we hope to have our quadrennial energy review available within weeks, as opposed to months of time. And, of course, with your framework focusing on infrastructure, we look forward to that discussion.

I will just end with noting, as Mr. Pallone did, that, of course, our role is not limited to energy. One of our very important roles as well is in providing a good piece of the backbone for the American basic research community through our science budget. We have requested \$5.34 billion for science, about 5 percent over the appropriation.

I do want to say that the science program continues to be very successful in, for example, completing large projects. I was at Brookhaven on Friday dedicating a huge light source, a billion dollar project, on budget and ahead of schedule. And in this budget request, we will build yet additional facilities.

In addition, we have, of course, a major national defense responsibility, specifically nuclear security; and there again we have I think a strong request of \$11.6 billion for the National Nuclear Security Administration, approximately a 10 percent increase over the fiscal year 2015 appropriation, very importantly continuing a science-based approach to the deterrent and helping to control dangerous nuclear materials globally.

Finally, environmental management, our fiscal year 2016 budget request is for \$5.8 billion, approximately equal to the 2015 appropriation, although up significantly from our request of last year.

It is worth noting, because we clearly have some very challenging projects there, but it is worth noting that over the years DOE has cleaned up over 85 percent of its sites and 90 percent of the land area, but again significant challenges remain, and we think we can make good progress in fiscal year 2016.

I think those really are the remarks I would just make to open up the discussion because I think our ability to discuss this will be much more valuable.

Thank you, sir.

Mr. WHITFIELD. Mr. Secretary, thank you very much, and we appreciate that opening statement.

[The prepared statement of Secretary Moniz follows:]



**Testimony of Secretary Ernest Moniz  
U.S. Department of Energy  
Before the  
Subcommittee on Energy and Power  
Committee on Energy and Commerce  
U.S. House of Representatives  
February 11, 2015**

Chairman Upton, Ranking Member Pallone, Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the Department of Energy's (DOE) Budget Request for fiscal year (FY) 2016. I appreciate the opportunity to discuss how the Budget Request advances the Department of Energy's missions.

**Advancing Nuclear Security, Science & Energy, and Environmental Cleanup**

DOE is entrusted with a broad and diverse portfolio across its three major mission areas of nuclear security, science and energy, and environmental management. The Budget Request for fiscal year (FY) 2016 for the Department of Energy is \$29.9 billion, \$2.5 billion above FY 2015 enacted, to support our mission responsibilities and to continue improving our management and performance in support of those missions.

For nuclear security, the Budget includes \$12.6 billion, an increase of \$1.2 billion over the FY 2015 enacted level, to support DOE's responsibilities of maintaining and modernizing, via life extension programs, the nuclear deterrent without testing; controlling and eliminating nuclear materials worldwide and providing nuclear and radiological emergency response capabilities in an age of global terrorism; and propelling our nuclear Navy.

For science and energy, the Budget includes \$10.7 billion, an increase of \$1.3 billion over the FY 2015 enacted, to support DOE's missions of enabling the transition to a clean energy future with low-cost, all-of-the-above energy technologies; supporting a secure, modern, and resilient energy infrastructure; and providing the backbone for discovery and innovation, especially in the physical sciences, for America's research community.

For environmental management, the Budget includes \$5.8 billion, to support DOE's responsibility of cleaning up from the Cold War legacy of nuclear weapons production.

Approximately \$18.9 billion, or 63 percent of the Department's Budget Request, is national security-related funding, including the nuclear security and most of the environmental management programs. The remaining 37 percent is for non-defense programs in energy, science, and other programs such as building capabilities to respond to energy disruptions, enhancing data collection and analysis in critical areas, and supporting obligations for international cooperation in clean energy and energy security.

#### **Science: Leading Edge Research and World Class Research Infrastructure**

Starting with basic research, DOE's Office of Science is the largest federal sponsor of basic research in the physical sciences, supporting 22,000 researchers at 17 National Laboratories and more than 300 universities. Informed by the latest science advisory council reports and recommendations, the FY 2016 Budget Request provides \$5.34 billion for Science, \$272 million above the FY 2015 enacted level, to continue to lead basic research in the physical sciences and develop and operate cutting-edge scientific user facilities while strengthening the connection between advances in fundamental science and technology innovation.

One of the signature aspects of our basic science research program is the Department's support for the construction and operation of major user facilities at the national laboratories that serve over 31,000 scientists and engineers each year on an open-access basis. We are committed to staying at the cutting edge of light sources, super computers, neutron sources, and other facilities essential to advancing our mission. In the last year, for example, we completed the brightest light source in the world, the National Synchrotron Light Source II at Brookhaven National Laboratory, ahead of schedule and on budget. We are at the commissioning phase of the 12 GeV Upgrade to the Continuous Electron Beam Accelerator Facility at the Thomas Jefferson National Accelerator Facility, and the National Spherical Torus Experiment at Princeton Plasma Physics Laboratory intends to begin research this summer after a significant upgrade.

Looking forward in the FY 2016 Budget, we continue construction of critical, new user facilities while ensuring increased investment in national laboratory infrastructure renewal to help sustain America's scientific enterprise. The Request supports a major upgrade of the Linac Coherent Light Source at SLAC and construction of the Facility for Rare Isotope Beams at Michigan State University. In addition, the Budget provides approximately \$2 billion to fund operations of our 27 existing scientific user facilities.

These facilities investments and research grants funded by the Office of Science will ensure that we continue to support discovery science, as well as science that underpins future energy and other technologies.

For example, using the current Linac Coherent Light Source at SLAC, scientists last year mapped for the first time the structure of a protein within a living cell. This single example highlights the tremendous benefits of our national laboratories in a broad range of scientific and applied areas. In addition, the Office of Science supports research at hundreds of universities in all fifty states through competitive grants to advance our mission. For example, a university group recently developed a new class of polymer-based flexible electronics for solar cells and medical applications through DOE-funded research.

High performance computing is a traditional area of strength and responsibility for the Department of Energy that has been an important component of U.S. leadership in science and technology more broadly. The FY 2016 Budget grows our investment significantly to \$273 million for a multi-year, joint Office of Science-National Nuclear Security Administration (NNSA) effort to achieve exascale computing—computing platforms with 100 to 1000 times more computational power than today's systems. This effort requires researchers and industry to overcome a number of technical challenges, including energy and big data management, as part of our push to develop enabling capabilities for exascale computing. We recently announced the joint Collaboration of Oak Ridge, Argonne, and Lawrence Livermore (CORAL) to advance within an order of magnitude of the exascale target within a few years. In addition, the Office of Science is supporting the Computational Science Graduate Fellowship program to support training in advanced scientific computing. These investments will ensure continued U.S. leadership of this critical capability in a very competitive global environment.

The Budget provides funding at the FY 2015 level for the U.S. contributions to the ITER project, a major international fusion facility currently under construction in France. ITER will be the world's first magnetic confinement long-pulse, high-power burning plasma experiment aimed at demonstrating the scientific and technical feasibility of fusion energy, and the request includes support for important critical-path items.

We will continue in this Budget to grow the Energy Frontier Research Center (EFRC) program by initiating five new centers and continuing support for existing Centers, for a total investment of \$110 million in FY 2016. This EFRC program is our flagship investment in basic science that underpins future energy technologies.

With our Budget Request, we support Fermilab operations at a total of \$135 million for operations, which includes operations of the NOvA neutrino experiment. We are also investing \$20 million to move forward planning and design for the Long Baseline Neutrino Facility at Fermilab. Last year, the particle physics community came forward with a visionary strategic plan for the High Energy Physics program, and our Budget Request responds to their recommendations, specifically by aiming to develop a strong international consortium for the next generation of neutrino physics experiments.

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## **Energy**

### **All-of-the-Above Energy Approach for a Clean Energy Economy**

Preparing for the clean energy economy in order to address climate change and energy security, principally through science and technology, is an essential focus of the Department of Energy. The President's Climate Action Plan is a guiding document for our efforts to mitigate climate change risks through clean energy technologies. The Administration remains committed to an all-of-the-above energy approach, and we believe that we need to enable technologies across all fuel sources to become competitors in a future clean energy marketplace.

In the last year, we have seen important accomplishments across the Department's technology portfolio that highlight our all-of-the-above approach. We have geologically sequestered over 9 million metric tons of CO<sub>2</sub> through DOE-supported projects. Two commercial-scale cellulosic ethanol facilities supported by

DOE grants or loan guarantees have commenced operations. We have commissioned one of the world's largest battery storage systems at the Tehachapi Wind Energy Storage Project. We have issued ten final appliance energy efficiency standards in calendar year 2014, which altogether will help reduce carbon dioxide emissions by over 435 million metric tons through 2030. Standards enacted since 2009 are projected to avoid a cumulative total of 2.2 billion metric tons of carbon emissions through 2030. The Office of Energy Efficiency and Renewable Energy (EERE) has achieved 70 percent of the SunShot goal of cost parity for utility scale solar energy.

The Advanced Research Projects Agency—Energy's (ARPA-E) grant program has attracted more than \$850 million in private follow-on funding to 34 ARPA-E projects, with 30 ARPA-E teams forming new companies.

EERE has launched the Frontier Observatory for Research in Geothermal Energy (FORGE), a first-of-a-kind field laboratory to deploy enhanced geothermal energy systems, and we have seen battery technology improvements that are projected to reduce battery costs for electric vehicles by 40 percent. The Office of Nuclear Energy has successfully completed the first 5-year program at the Consortium for Advanced Simulation of Light Water Reactors (CASL) nuclear modeling Hub at Oak Ridge and has initiated a second award for design and licensing support of a small modular nuclear reactor with advanced safety features.

Consistent with an all-of-the-above energy strategy, the DOE Loan Programs Office has issued loan guarantee solicitations for innovative technologies in four areas, including \$4 billion for renewable energy and energy efficiency, \$8 billion for fossil energy, \$12 billion for nuclear energy, and \$16 billion for advanced vehicle technology manufacturing.

Projects that this program has supported include one of the world's largest wind farms; several of the world's largest solar generation and thermal energy storage systems; Tesla Motors; and more than a dozen new or retooled auto manufacturing plants. This program's accomplishments include issuing loan guarantees for projects that avoided more than 6.1 million metric tons of carbon dioxide cumulatively in 2014, and for companies that produced more than 2.1 million fuel-efficient vehicles in 2014. We are moving aggressively in finding good projects to

deploy innovative energy technologies using the remaining \$40 billion in loan authority in the coming years.

Together, these accomplishments illustrate how DOE's programs invest in an all-of-the-above spectrum of energy technologies, and the FY 2016 Budget Request continues forward on that strategy with a \$5.4 billion request for our applied energy programs.

Advanced manufacturing will continue to be a major focus of our investments. We will continue to help support an American manufacturing renaissance. The FY 2016 Budget fully funds two new clean energy manufacturing innovation institutes and continues funding for four institutes, as part of the larger National Network for Manufacturing Innovation, including the advanced composites manufacturing institute in Tennessee the President announced in January. To support these institutes, the Request provides \$196 million out of a total request of \$404 million for EERE's Advanced Manufacturing program.

In energy efficiency, the Request invests \$264 million, an increase of \$92 million, to develop and promote the adoption of technologies and practices that, when fully deployed, would reduce U.S. building-related energy use by 50 percent from the 2010 Annual Energy Outlook baseline. It also provides \$228 million, \$35 million above FY 2015, to support competitively selected projects, training and technical assistance, and residential energy efficiency retrofits to approximately 33,000 low-income households nationwide.

The FEMP Budget includes \$15 million for the Federal Energy Efficiency Fund which provides direct assistance to agencies for investing in priority energy projects for efficiency and renewables. By providing direct funding and leveraging cost sharing at other agencies, the fund creates greater opportunities to develop Federal projects that may not otherwise be implemented.

The Request increases our investments in sustainable transportation, including \$40 million for the SuperTruck II initiative to develop and demonstrate technologies to double class 8 freight truck efficiency by 2020 from a 2009 baseline. The Request also continues our focus on electric vehicles by investing \$253 million in the EV Everywhere initiative, which aims to enable domestic production of plug-in

vehicles that are as affordable and convenient as gasoline vehicles by 2022. By continuing to make progress in core component technologies such as the dramatic reductions we are seeing in battery and fuel cell costs, we are looking to achieve transformative performance improvements for electric vehicles in the marketplace.

In biofuels, the Budget continues our focus on drop-in fuels, which can take advantage of existing infrastructure, and we will provide \$45 million for the jointly funded USDA/DOD/DOE commercial scale biorefineries program to produce military specification drop-in fuels. We will also continue research and development efforts on supplying, formatting, and converting cellulosic and algae-based feedstocks to bio-based gasoline and diesel, with a \$138 million investment in the FY 2016 Request.

The Budget continues to support accelerated advances in renewable energy. The SunShot Initiative has helped accelerate the reduction in solar costs, and our request of \$337 million, an increase of \$104 million, aims to continue progress to achieve cost parity without subsidies by 2020. For wind energy, the Request of \$146 million, an increase of \$39 million, includes funding for year five of a six fiscal-year Offshore Wind Advanced Technology Demonstration program supporting three offshore wind projects on track to begin operation in 2017. Our request of \$96 million for geothermal energy, \$41 million above FY 2015, implements the FORGE, an experimental facility aimed to advance enhanced geothermal systems, and pursues new approaches to hydrothermal development with a special focus on collaborative efforts with the Office of Fossil Energy on subsurface science, technology and engineering.

As we witness the transformation of our Nation's electric grid, the Department continues to drive electric grid modernization and resilience. In May 2014, with cost-share funding provided by the Office of Electricity Delivery and Energy Reliability (OE), Southern California Edison constructed and installed equipment for a prototype 8 megawatt/32 megawatt-hour battery storage plant for wind integration at Tehachapi, CA. The Tehachapi Wind Energy Storage Project is positioned to demonstrate the effectiveness of lithium-ion battery and smart inverter technologies to improve grid performance and assist in the integration of variable energy resources. In addition, we continue improving the security of the Nation's energy infrastructure. Oak Ridge National Laboratory announced in

January 2015 the licensing of its Hyperion software, which helps detect software that has been maliciously altered. Today, more than 20 new technologies that OE investments helped support are now being used to further advance the resilience of the nation's energy delivery systems.

In fossil energy, we will continue our across-the-board focus on carbon capture and sequestration and improving the environmental performance of natural gas development. In particular, the FY 2016 Budget includes funding to conduct initial R&D towards demonstration of carbon capture and storage for natural gas plants. While natural gas is an important bridge fuel, natural gas, as well as coal, will need carbon capture and sequestration to compete in a future very low-carbon economy.

And while the FY 2016 Budget does not request new authority in these areas, the Department has \$8 billion in loan guarantee authority for advanced fossil technologies, as I mentioned earlier, and the Department will continue to work with prospective applicants. Through the President's Budget Request for the Treasury Department, the Administration is also proposing a new, \$2 billion refundable investment tax credit, including support for the infrastructure for carbon capture and sequestration, as well as a sequestration credit for commercial carbon capture use and storage (CCUS) deployment to allow for enhanced oil recovery or injection into deep saline aquifers.

In the area of nuclear energy, the Request includes \$62.5 million to continue technical support for moving a small modular reactor to the Nuclear Regulatory Commission licensing stage by the end of 2016, as a step towards industry's demonstration of this important technology early in the next decade. The Request includes \$326 million to support research and development on reactor aging issues, advanced reactor concepts, and the fuel cycle. This request continues to support R&D on nuclear fuel issues at the Idaho National Laboratory. It also supports research on accident tolerant fuels and includes funding to continue laying the groundwork for implementing the Administration's Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste, including a consent-based approach to the siting of storage and disposal facilities for nuclear waste. The Request also focuses resources on maintaining operational readiness at the Idaho National Laboratory, including \$23.2 million for major power



distribution infrastructure refurbishments and \$11.7 million for critical security infrastructure investments.

The Request includes \$325 million for ARPA-E, an increase of \$45 million from FY 2015, to continue to grow this important program. The program, which received its first appropriation in 2009, is now showing impressive results. It has over 400 projects to date, and the first group of completed projects has led to 30 new companies, of which five have been acquired by large strategic investors. Altogether, 34 ARPA-E projects have attracted over \$850 million in follow-on funding.

Through ARPA-E, we will continue to invest in early-stage innovation with the potential to lead to transformational energy technologies.

For the loan programs, while the Request does not propose new authority for the Title 17 or Advanced Technology Vehicles Manufacturing loan programs, the FY 2016 Budget does include \$9 million for credit subsidy to support a new loan guarantee solicitation for new clean energy projects on Tribal Lands.

In addition to the new loan program, the Request provides \$20 million for the Office of Indian Energy Policy and Programs, an increase of \$4 million, for its technical and financial assistance programs, with increased emphasis on remote communities and the National Strategy for the Arctic Region.

The Department's final FY 2015 Budget supported a new workforce development effort for graduate and post-doctoral training in three areas of specific mission need for the Department: high performance computing in the Office of Science, advanced manufacturing in the Office of Energy Efficiency and Renewable Energy, and subsurface topics and project management in the Office of Environmental Management. These DOE traineeships are modeled in part after other federal programs for university-led graduate traineeships and include components that are uniquely focused on DOE mission workforce training needs. Our FY 2016 Budget Request proposes to add a fourth traineeship on radiochemistry, supported by the Office of Nuclear Energy, where we see a specific mission need.

### **Transforming Energy Systems, Investing in Resilient Energy Infrastructure**

In addition to the clean energy investments I just discussed, our Nation's energy infrastructure is an area that needs—and is now getting—more attention.

We have had several recent accomplishments relating to our energy infrastructure. Following the aftermath of Superstorm Sandy, the Office of Electricity Delivery and Energy Reliability committed \$500,000, along with EERE, totaling \$1 million for Sandia National Laboratories to provide technical assistance to New Jersey Transit and the Board of Public Utilities to assess NJ Transit's energy needs and help develop a conceptual design of an advanced microgrid system that will avoid disruptions and make it easier to get the power back on after a major disaster.

Led by our Office of Energy Policy and Systems Analysis, we have also completed a nationwide public stakeholder process and analytical work in support of the upcoming release of the first-ever Quadrennial Energy Review (QER) of U.S. energy infrastructures.

The QER is a four-year interagency process, with the first year focusing on energy infrastructure—the transmission, storage, and delivery of energy. We expect the first QER installment to be released soon, and many of you may be interested in that document for its systematic analysis of the breadth of challenges with our current energy infrastructure. The QER will also include recommendations to drive future program directions.

The electricity grid underpins many other infrastructures, and the FY 2016 Budget Request includes \$356 million, an increase of \$160 million, for a major crosscutting initiative led by the Office of Electricity Delivery and Energy Reliability to focus on the modernization of the electricity grid. This initiative invests in technology development, enhanced security, and modeling to enable the electricity grid of the future. This initiative includes \$10 million for R&D to improve resilience of large-scale electricity transformers and \$14.5 million to transition to an integrated system at the distribution level and develop a platform for market-based control signals. In addition, the Request establishes a virtual collaborative environment for conducting real-time advanced digital forensics

cybersecurity analysis, which can be used to analyze untested and untrusted code, programs, and websites without allowing the software to harm the host device.

The Request includes \$15 million to develop advanced technologies to detect and mitigate methane emissions from natural gas transmission, distribution, and storage facilities, and \$10 million to improve methane leakage measurements.

We will focus new attention on state grants for energy assurance and reliability, recognizing that many authorities and actions in this area depend upon the states. The FY 2016 Request includes \$35.5 million to provide grants to state, tribal, and local governments to update energy assurance plans to address infrastructure resilience, as well as \$27.5 million that is part of the Grid Modernization crosscutting initiative to provide competitive grants to states and multi-state entities to address electricity reliability.

Finally, while we move toward implementation of recommendations on the first installment of the QER on infrastructure, DOE will move forward on future installments of the 4-year QER. The Budget includes \$35 million for the Office of Energy Policy and Systems Analysis to provide integrated energy systems analysis and follow-on QER support activities.

In addition to the longstanding major mission areas of nuclear security, science and energy, and environmental cleanup, emergency response is an important mission for the Department. While we have had an ongoing responsibility for nuclear and radiological incident response, the Department has intensified its efforts for energy infrastructure emergency response, working with FEMA. Our Budget proposes an increase from \$6 million to \$14 million for Infrastructure Security and Energy Restoration, the lead program for these responses. While the budget for this emerging responsibility is relatively small, it is an increasingly important focus.

#### **Enhancing Collective Energy Security**

The Department's work in energy security is modest in budget requirements but greatly important for the Nation. Particularly given the events in Europe and Ukraine, we have an increased global focus on collective energy security—energy security for the United States and its allies.

In the last year, we worked with the G-7 and the European Commission to achieve a G-7 Leaders Agreement on a new collective energy security framework. Led by our Office of International Affairs, we also worked directly with Ukraine to provide technical support in developing its first ever energy emergency management plan, especially for the winter. In December, we also signed a Memorandum of Understanding with Canada and Mexico to initiate improved coordination of North American energy data. Led by DOE's Energy Information Administration (EIA), this will help us develop stronger active collaboration moving forward.

To continue on this progress for collective energy security, the FY 2016 Budget Request includes \$24 million for the Office of International Affairs. While the funding level is not large compared with other parts of the Department, the Office of International Affairs is taking on increased responsibility, as I just highlighted, and funding at this level is needed to fulfill its important mission and strengthen international energy technology, information and analytical collaborations.

Similarly, the Budget increases investment in the EIA to \$131 million, in order to fill gaps in current energy data, including transportation of oil by rail and integrating energy data with Canada and Mexico. The EIA recently initiated a data reporting program on oil and natural gas production trends by region, and the requested increase is needed to continue with this and other improvements in our data collection, analysis, and reporting.

Last year, the Department also completed a 5 million barrel test sale for the Strategic Petroleum Reserve (SPR) to look at infrastructure challenges resulting in large part from pipelines now flowing in opposite directions from when the SPR was originally established. Through the test sale, we found challenges confronting the SPR's distribution system, and the FY 2016 Budget proposes an increase of \$57 million above FY 2015 for the SPR to begin addressing the operational readiness issues found through the test sale to enhance distribution flexibility and reliability and to begin to address the existing backlog of deferred maintenance projects.

### **Strategic Partnerships with National Laboratories to Advance DOE Missions**

The Department is continuing its focus on building the strategic partnership with the National Laboratories. DOE is a science and technology agency, and our efforts across all of our mission areas are heavily grounded in science and technology. The National Labs are a major core asset in executing our missions, and strengthening our partnerships is critical to our success.

We are doing that in a variety of ways. For example, DOE is engaging the laboratories very early on in our program planning. The National Laboratories Ideas Summit helped shape FY 2016 budget initiatives and was instrumental in forming a special consortium of 14 National Laboratories arranged to implement the crosscutting grid modernization research.

We also have begun using the National Laboratories' expertise in science and technologies in some of our major challenges outside of the science and energy arena. When faced with what looked like major problems with the cost and schedule of the Uranium Processing Facility (UPF) at the Y-12 National Security Complex in Oak Ridge, or the major problem we had at the Waste Isolation Pilot Plant (WIPP), we engaged Laboratory leadership to help reformulate our approach to those issues. In those two examples, Oak Ridge National Laboratory led the Red Team review and restructuring of UPF, and the Savannah River National Laboratory led the forensics effort to investigate the cause of the failure of the waste canister at WIPP.

The Laboratory Operations Board (LOB), a body that we put in place in 2013, performed the first-ever uniform assessment of general purpose infrastructure at all Laboratories and NNSA plants. That has led to identifying over \$100 million in the FY 2016 Budget in new investments for priority general purpose infrastructure projects guided by LOB assessments, while also avoiding an increase in deferred maintenance.

Finally, we have developed new strategies to strengthen institutional capability of the National Laboratory system based on advice from the Secretary of Energy Advisory Board (SEAB)

### **Enhancing Impact: Crosscutting Initiatives in Key Technology Areas**

The FY 2016 Budget expands the crosscutting initiatives introduced in the FY 2015 Budget designed to advance key technology areas that have multiple energy resource applications. Each crosscut reflects an integrated plan of work to optimize programmatic objectives by efficiently allocating resources. Through deliberate and enterprise-wide planning and coordination of these research efforts, the crosscutting initiatives will help bolster DOE's efforts to institutionalize enhanced program management and coordination across program offices, while accelerating progress on key national priorities.

The programs and budgets within the three mission areas include over \$1.2 billion in crosscutting R&D across six initiatives focusing on: electricity grid modernization, subsurface technology and engineering, supercritical carbon dioxide technology, energy-water nexus, exascale computing, and cybersecurity. These initiatives are the product of a concerted coordination effort among all three DOE Under Secretariats and program offices across the Department in close collaboration with the National Laboratories.

The FY 2016 Budget continues to build on the five crosscutting initiatives established in FY 2015. The Exascale Computing initiative invests to make progress toward a thousand-fold improvement over current high performance computers. Grid Modernization supports technology development, enhanced security, and stakeholder support to enable evolution to the grid of the future. The Subsurface Engineering initiative invests in new wellbore systems, seismic research, and other areas supporting a wide variety of energy sources. The Supercritical Carbon Dioxide initiative establishes a 10 MWe-scale pilot Supercritical Transformational Electric Power facility aiming to increase the efficiency of power generation, and the Cybersecurity crosscutting initiative strengthens cybersecurity across DOE's federal and laboratory sites, and improves cybersecurity for the nation's electric, oil, and gas sectors.

The FY 2016 Budget also proposes one new crosscutting initiative, the Energy-Water Nexus. This initiative recognizes that the Nation's energy system uses large quantities of water, and the Nation's water system uses large quantities of energy,

and that DOE's coordinated science and technology efforts can contribute to the Nation's transition to more resilient energy-water systems.

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### **Nuclear Security**

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The FY 2016 Budget Request provides \$12.6 billion for the NNSA, an increase of \$1.2 billion over FY 2015, to carry out our missions for the nuclear deterrent, nuclear nonproliferation programs, and propulsion for the nuclear Navy.

#### **Effective Stewardship of the Nuclear Deterrent**

The Request includes \$8.8 billion for Weapons Activities, \$667 million above FY 2015, to maintain a safe and effective nuclear deterrent while continuing to reduce the size of the active stockpile.

In pursuit of this mission, we have recently achieved a number of major accomplishments. We have, first and foremost, had another year of science-based certification of the stockpile as safe, secure, and effective without nuclear testing. It is important to remember the remarkable story that a science research program has enabled the paradigm to shift since nuclear testing ceased to allow us to consistently certify the stockpile as safe and reliable without testing, even as it shrinks.

In the major life extension programs, we have now passed the halfway mark in Life Extension Program (LEP) for the W76-1 warheads for the Navy, and our FY 2016 Budget Request of \$244 million will keep us on track to complete the program in 2019. We have conducted successful first integration testing of the B61-12 LEP for the Air Force on or ahead of schedule, and the Request of \$643 million supports delivery of the First Production Unit in 2020. By the end of FY 2024, completion of the B61-12 LEP will shrink the number of active and inactive weapons, reduce the mass of nuclear material used in these weapons, and allow us to retire the B83, the last U.S. megaton class weapon. Our Request of \$220 million for the W88 ALT 370 supports delivery of the First Production Unit with conventional high explosives refresh by FY 2020.

This Budget supports the Nuclear Weapons Council decision to accelerate a new cruise missile capability, and the selection of the W80 as the warhead for the Air

Force's Long Range Stand-Off system (LRSO). The FY 2016 Budget Request includes \$195 million to accelerate the program by two years, to be completed in 2025, in order to meet military requirements.

We have begun operations in the new Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS) facility with half the footprint and an improved operating environment compared to the old environment. And at the National Ignition Facility, we have significantly increased the shot rate and achieved impressive advances in experimental results in closer alignment with modeling predictions.

As I mentioned earlier, we have used strategic partnerships with the National Laboratories to rethink some of our challenging projects. As a result of the Red Team review of the Uranium Processing Facility at the Y-12 National Security Complex in Oak Ridge, led by the Director of the Oak Ridge National Laboratory, and a similar review of the Chemistry and Metallurgical Research Replacement Facility (CMRR) capability at Los Alamos National Laboratory, we are developing a disciplined modular approach for both sites that will remove risks early in the process and build to a more rigorous budget and schedule. This rigorous process will be an important and recurring project management theme at the NNSA and across the Department of Energy—in particular, at the Office of Environmental Management.

### **Controlling and Eliminating Nuclear Materials Worldwide**

The FY 2016 Budget Request includes \$1.9 billion for Defense Nuclear Nonproliferation, \$325 million above FY 2015, to continue the critical missions of securing or eliminating nuclear and radiological materials worldwide, countering illicit trafficking of these materials, preventing the proliferation of nuclear weapon technologies and expertise, and ensuring that the U.S. remains ready to respond to high consequence nuclear and radiological incidents at home or abroad, and applying technical and policy solutions to solve nonproliferation and arms control challenges around the world. The Request is a \$75 million, or 4 percent, increase from the comparable FY 2015 enacted level after adjusting for a budget structure change moving counterterrorism efforts from the Weapons Activities appropriation to the Defense Nuclear Nonproliferation appropriation.



We have completed the removal or disposal of a total of 190 kilograms of vulnerable nuclear material, through bilateral agreements, and trilateral agreements with Russia and countries with material of Russian origin. Despite a difficult relationship at the moment, we are continuing to work with Russia to repatriate weapons-usable material to the United States or Russia.

In 2014, we obtained a pledge from Japan at the 2014 Nuclear Security Summit in The Hague to remove and dispose of all highly-enriched uranium and separated plutonium from the Fast Critical Assembly in Japan. We also helped prevent the illicit trafficking of nuclear and radiological materials, technology and expertise by installing 37 fixed and 22 mobile radiation detection systems worldwide.

The FY 2016 Budget Request reorganizes the Defense Nuclear Nonproliferation program into four business lines: Global Material Security; Materials Management and Minimization; Nonproliferation and Arms Control; and Nonproliferation Research and Development. We have also strengthened Counterterrorism and Emergency Response by consolidating these efforts with Nuclear Nonproliferation programs in one account. Together, these reorganizations create a clearer set of business lines for the nonproliferation programs and represent the full continuum of our nonproliferation efforts as we prevent, counter, and respond to global threats.

In FY 2015, the Congress appropriated \$345 million to continue construction of the mixed-oxide (MOX) project at Savannah River. The FY 2016 Budget includes \$345 million, which is the current services projection from the FY 2015 enacted level, while we complete congressionally-directed studies on plutonium disposition costs and alternatives.

#### **Advancing Navy Nuclear Propulsion**

The FY 2016 Budget Request includes \$1.4 billion for Naval Reactors, \$142 million above FY 2015, to support the Navy fleet and maintain progress on current efforts to refuel the land-based research and training reactor. The Request increases funding for Naval Reactor's core objective of ensuring the safe and reliable operation of the Nation's nuclear fleet (73 submarines and 10 aircraft carriers), constituting over 40 percent of the Navy's major combatants.

The Naval Reactors programs achieved some significant accomplishments this year. In 2014, we began integrated testing of the lead A1B reactor plant of the next-generation FORD-class aircraft carrier and provided technical resolution support for the nuclear fleet which steamed over 2 million miles.

The FY 2016 Budget provides \$187 million to continue development of the advanced *Ohio*-Class Replacement Reactor, and \$133 million to initiate refueling of the Land-based Prototype reactor. We also provide \$86 million to continue construction of the Spent Fuel Handling Recapitalization Project.

### **Cleaning up the Cold War Nuclear Weapons Legacy**

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The FY 2016 Budget Request includes \$5.8 billion for Environmental Management, \$43 million below the FY 2015 enacted level, to position DOE to meet the nation's Manhattan Project and Cold War legacy responsibilities. DOE is responsible for the cleanup of millions of gallons of liquid radioactive waste, thousands of tons of used nuclear fuel and special nuclear material, disposition of large volumes of transuranic and mixed/low-level waste, huge quantities of contaminated soil and water, and deactivation and decommissioning of thousands of excess facilities.

I will discuss in a moment the difficult challenges we face with some of our remaining Environmental Management projects. But I would like to start by pointing out that when the program started, there were 107 sites to be closed, and we have cleaned up all but 16 sites. To be sure, the remaining sites are not the simplest to remediate; however, we started with over 3,000 square miles to remediate, and we're down to only 300 square miles. And so, by some metrics, we have cleaned 90 percent of our total footprint. However, it will be decades before we finish the most difficult remaining sites.

Though we are down to some of the most difficult sites, progress is steady. Last year, we completed demolition of the K-25 facility at Oak Ridge, the largest demolition project DOE has ever undertaken. We have converted 15 million pounds of liquid waste into solid glass at the Defense Waste Processing Facility at Savannah River, enabling closure of six high level waste storage tanks.

We have put forward and are beginning to implement an alternative phased approach to completing the Hanford Waste Treatment Plant (WTP). We have cleaned up 479 square miles of the 586 square mile area at Hanford, including 90 percent of the River Corridor.

Going forward in FY 2016, recovery of the Waste Isolation Pilot Plant in New Mexico is one of our high priorities. The FY 2016 Budget includes \$248 million to implement the WIPP recovery plan, leading to initial resumption of waste emplacement in the first quarter of calendar year 2016. The FY 2016 Budget will also support continued operations of the Integrated Waste Treatment Unit at Idaho and work towards closing the tanks.

With \$1.4 billion for the Office of River Protection, we will move forward on our phased approach to begin vitrifying low activity waste early next decade. The Budget moves forward with construction of the Low Activity Waste (LAW) facility at the Hanford Waste Treatment Plant, including design of a new pretreatment system required for our phased approach. We will also continue technical issue resolution at the site, and we will bring the Plutonium Finishing Plant (PFP) at Hanford, once the highest risk nuclear facility at Hanford, down to slab-on-grade by the end of FY 2016.

Finally, we will continue construction and prepare for commissioning of the Salt Waste Processing Facility at Savannah River, which is on schedule to complete construction by December 2016.

#### **Management and Performance: Improving Efficiency and Effectiveness**

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Building on the Department's FY 2015 emphasis on management and performance, the FY 2016 Budget moves forward on initiatives that continue to identify and institutionalize improvements across the DOE enterprise.

In the Department's efforts to improve management and performance, we have adopted project management reforms, including strengthening the Energy Systems Acquisition Advisory Board (ESAAB) from an ad hoc process into an institutionalized regular process for situational awareness on project progress and issues, as they arise. ESAAB will be supported directly by a Project Management Risk Committee, which brings together DOE experts for a continuous look at the

risk profile of major projects and issues. We have also taken steps to improve the project peer review process and institutionalize other project management reforms.

We have also continually worked to improve management, increase efficiency, and support diversity on a number of fronts. We have recruited 30 high-level Ambassadors from industry, academia, and nonprofits to increase participation of minorities in energy. We have resolved hiring issues at the Bonneville Power Administration, providing additional Human Resources training and restoring hiring authority. The Department's management and operating contractors have reduced pension plan liability by \$100 million through lump sum buyouts. Our management and operating contractors have also established Health Reimbursement Accounts at 13 sites for their medical-eligible retirees, reducing long term financial statement liability by \$2.8 billion.

Going forward, the Budget includes \$25 million for the Office of the Human Capital Officer to implement a new Human Resources service delivery model to streamline our HR model and eventually consolidate 17 current service centers to five key delivery centers. We will also implement a new Energy Jobs Council to improve calculation of energy jobs data and strengthen technical support for state workforce development programs. We will also continue to strengthen Departmental cybersecurity programs, part of the Cybersecurity crosscutting initiative, through an enterprise-wide cyber council established in 2013 for securing personal data, our nuclear security data, and the privately-owned energy infrastructure.

#### **Advancing the President's Vision: Implementing DOE's Strategic Plan**

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In conclusion, we have much to do to advance the President's vision and implement DOE's Strategic Plan.

We will continue implementing the President's Climate Action Plan, to reduce emissions at home and around the globe.

We remain committed to our all-of-the-above energy strategy, to encourage innovation, create jobs, enable economic growth, and contribute to domestic manufacturing and net exports.

We must maintain leadership in basic research in the physical sciences—and increasingly in the life sciences, develop the next generation of computation technology, and develop and maintain world-class scientific user facilities.

We will continue to maintain a safe, secure, and effective nuclear weapons stockpile in the absence of testing, and manage the infrastructure needed to meet national security requirements.

We must continue to reduce the global nuclear terrorism threat through measures to identify, control, and eliminate nuclear weapons worldwide.

We will address the legal and moral imperative of cleaning up legacy waste to protect human health and the environment.

We will strengthen DOE and its national missions through cross-cutting initiatives that leverage the science, technology, and engineering capabilities across programs and National Laboratory partners.

And we will continually improve DOE effectiveness and efficiency through project management reform and constant attention to maintaining a safe and secure workplace.

Thank you, and I would be pleased to answer your questions.

Mr. WHITFIELD. At this time, we will begin the questions, and I would recognize myself for 5 minutes.

Mr. Secretary, I am not going to talk today about proposed regulations on existing coal plants, but I do want to focus for a moment on the proposed regulations for the new coal power plants. And I want to do that because in December of 2010, the Department of Energy reported that it had seven potential CCS demonstration projects for coal power plants.

Three of those plants were estimated to startup in 2014, three in 2015, and one in 2016. Now, I am assuming that EPA and DOE had a lot of conversation with each other because, as you know, EPA in their proposed regulations for the new plants set guidelines, and they focused on the Kemper plant in Mississippi, a proposed plant in Texas, one in California, and one in Canada. And the one in Texas has not began operation, has not even started construction, nor in California. There is a small one up in Canada.

But the Kemper plant, of which these emission standards were developed, looking at the projected emissions from Kemper, this is a plant that is 2 years behind schedule, billions of dollars over budget. And of those projects that DOE talked about in 2010, three of those projects have been cancelled, three of the remaining four projects are now estimated to begin operation in 2019 or 2020, if at all. And yet EPA sets a standard, an emissions standard, based on projected emissions from some pie-in-the-sky CCS plant that is built so that you can use CCS for enhanced oil recovery.

And this morning I had a meeting with the Applied Energy vice president at the University of Kentucky, who had just come back from China, where they are tearing down old coal plants but building new coal plants using supercritical technology like the one at the Turk plant over in Texarkana, Arkansas, which is the newest plant in the U.S., which was built before this proposed regulation comes out.

So here we are in America, finding ourselves not able to build a new plant using the best technology because of some fathomable emission standard set by EPA. And I was just curious, has EPA, Ms. McCarthy or others, have they talked to you all about this and the state of commercially viable CCS technology?

Secretary MONIZ. Mr. Chairman, so first of all, as with lots of rules across the government activities, the Department of Energy does often provide technical support when it is not our responsibility to implement a certain rule or regulation.

With regard to carbon capture and sequestration, I think it is very important to keep in perspective the proposed rule and what our demonstration projects are, because they are different levels of ambition in a certain sense.

First of all, there is no question that all of the technologies have been demonstrated, including in an integrated fashion, for example in the Boundary Dam project in Canada to which you referred, and for both coal plants and for industrial plants, there are other large projects coming onboard.

But I think a very important point is we are, as is appropriate for the Department of Energy, our projects are really trying to push the edge. So all of our projects are looking at 90 percent capture, et cetera. If you look at the rule as proposed, for example,

building an ultra supercritical coal plant with carbon capture, with that proposed rule, would require only 30 percent capture. That is a very, very different level of challenge than the projects that we are putting together.

We will be seeing—you are absolutely right that some of the projects are delayed. We will be seeing a good portfolio deployed, but you are also correct that some of the projects will not come on-line, and partly it is because of litigation and other issues, and the ARRA funding deadline coming in this year.

But, again, the key point is if one were to go out right now to build an ultra supercritical plant, and they exist, and use conventional capture there, one is talking only about 30 percent.

Mr. WHITFIELD. Well, I might just say that the experts in the utility industry say that it could not be done in a commercially viable way where they can be competitive. And I think the EPA in its extreme regard of this regulation is really diminishing our opportunity to be competitive and have a reliable electricity source.

At this time I would like to recognize—

Secretary MONIZ. I would be happy to come by and talk about some of this in more specific detail in terms of, especially the ultra supercritical route.

Mr. WHITFIELD. Yes, well, we will take you up on that.

At this time I recognize the gentleman from Illinois, Mr. Rush, for 5 minutes.

Mr. RUSH. I want to thank you, Mr. Chairman.

Mr. Secretary, I have a lot of questions that I want to cover, but unfortunately I do not have the time to do it all this afternoon, so I will be reaching out to your office to schedule a meeting where we can more fully discuss some of the priorities that I have already outlined.

That said, Mr. Secretary, my office is contacted frequently by business owners and entrepreneurs who would like to access DOE loans, grants, and/or anything technology transfers from the national labs. Many of these entrepreneurs tell us they cannot access these resources either because they don't know the right people, don't have the right connections, they don't fully understand the process, or in some cases they might just be intimidated by the very same process.

Mr. Secretary, in addition to helping women, minorities, veterans, and other underrepresented groups access employment in the private sector through outreach and skills training, I would also like to work with you to establish outreach policies to educate the public on accessing DOE loans, grants, and technological transfers.

It is important that we demystify these processes so that all Americans can benefit from these extraordinary resources that DOE possesses. Do you agree, and do you have any preliminary thoughts on how we might educate the public to make these resources, these loans, grants, transfers, more accessible?

Secretary MONIZ. Thank you, Mr. Rush.

And thank you again for your support of the Minorities in Energy program, including being there at the beginning and the 1-year anniversary.

In terms of the access to the labs and the transparency, you know, that is a very important issue. We are working on that. Actually, we can provide you some background material, for example, on some of the Web sites that we have created, for example, looking at financing opportunities for business. But we have more to go, a longer way to go.

Just today, literally this morning, we were able to announce a new group that we are putting together, a new office. It is called the Office of Technology Transitions. And that office's role is precisely to address the transparency and access to technologies that are in our laboratories that we want to get out as well, and have a larger customer base for it if you like.

Importantly, and I do want to note this very clearly, in the 2005 Energy Policy Act, the Congress authorized a 0.9 percent of applied energy R&D fund for commercialization. Up to now, that has been satisfied by the existing cost-shared CRADA agreements. Today I announced that we are going to move forward and actually create that as a separate fund, a technology commercialization fund, that will be run out of this Office of Technology Transitions by our technology transfer coordinator. It will seek at least 50 percent matching funds—it can always be waived in special circumstances—but that would be the norm, and making that system transparent. Allowing access to medium and small business as well as large businesses will be part of the goal.

Mr. RUSH. Mr. Secretary, you have done such a remarkable job during your tenure in establishing the Minorities in Energy Initiative and the Jobs Strategy Council. Do you think that we should look at some of your best practices and begin to codify some of those in law? That is the first question.

And the second question, if you have an opportunity to answer this, is do you think that this \$29.9 billion budget that you are seeking, is that enough to do the work that you are required to do in this particular area?

Secretary MONIZ. Well, I think the budget request is a very good one, and one in which we can move forward in the areas that you have said, but it will take, frankly, continued commitment at the top of the Department, and I don't mean only me. I mean a lot of other of the leadership of the Department.

And as far as best practices go, there are several to draw upon. One, we mentioned earlier the tremendous development in the oil and gas sector, for example, in the United States. And here I will say working together with API, the Petroleum Institute, it has been terrific in that we have had, I think, now about a half-dozen workshops jointly focusing on attracting minorities into the many job opportunities in that area. That is one example.

Another example, a person we brought on board last June named Dave Foster is really the point person on the whole jobs strategy. And so combining Minorities in Energy, women in clean energy, job strategy, the situation in our energy world right now, the very fortunate one, I hope we can make some real progress in the next 2 years. We need the talent.

Mr. WHITFIELD. The gentleman's time is expired.

At this time I recognize the gentleman from Michigan, Mr. Upton, for 5 minutes.



Mr. UPTON. Thank you again, Mr. Chairman.

On Monday, as you know, Mr. Secretary, this committee released a legislative framework for compiling a solutions-based energy package in this Congress. And it consisted really of four areas: Modernizing infrastructure, 21st Century energy workforce, energy diplomacy, and efficiency and accountability. And we do want to make sure that we coordinate this closely with our Senate counterparts, and also working with the Department of Energy. And we welcome the constructive engagement in those areas, and appreciate the discussions we have had thus far.

Also, know that the Department is preparing for the release of the first quadrennial energy review, QER, focusing on energy transmission, storage, and distribution. And we further understand that the effort will include some legislative proposals to Congress, which should complement the effort underway before this committee. And while we have not yet received your recommendations, we look forward to working with you, reviewing those in a timely manner to find agreement of common interest. I appreciate that willingness.

Recognizing that the legislative process is about give and take, we hope that you will be open to our ideas as we seek solutions to permitting challenges and infrastructure bottlenecks to resolve those. We also think that it is important to think about ways how we can use our energy resources, and the Department's role in securing resource development as a source for global good.

And I know that you have been personally involved for many, many months, in discussions with our allies in Eastern Europe and around the world, our partners in Canada and Mexico, and I wonder if you might expound on those in the remaining time that I have? Some of those—

Secretary MONIZ. Certainly. Thank you.

And first of all, let me again assure you publicly of what we have discussed privately, that we look forward to working on the framework that you have put forward. All of those issues are very dear to what we are doing, especially the accountability of Congress that was in that fourth part.

Mr. UPTON. You don't have to worry about us.

Secretary MONIZ. With regard to the international events, I will mention two of those, yes. One is Ukraine, you effectively alluded to, and our people, led by our emergency response people, but bringing in others, Red Cross, FEMA; Canadians have been very helpful, we have sent teams over to Ukraine now three times. Our teams, I want to emphasize, did not write the Energy Winter Contingency Plan for Ukrainians, but led them through the process of how to do that; and they wrote an energy contingency plan.

It also identified correctly the problem that there was going to be with coal, for example, this winter, and some other problems. So that has been very, very well appreciated. The Ukrainian Government is asking us now to do more, which we had a fact-finding group go there a week before last. They would like training, they would like to know how to manage emergency response. They want to know about energy modelling. These are all, I think, very helpful tools for them. But that is where I think we will need some discus-

sion with the Congress and other parts of the administration as to how we can respond to that.

With regard to North America, in December we had a very, very, very positive trilateral energy ministerial with Canada and Mexico. One result is we agreed that we should do it every year at least, which is progress. But, for example, we signed an MOU that we have already launched the work on through our Energy Information Administration on data, energy data integration. We really don't have a lot of data integration across the borders, or in some cases the same data. It seems to be different. So that is just one example.

I will mention a very interesting example. In the trilateral, our Mexican colleagues, Minister Joaquin Coldwell in particular, gave us an extensive briefing on energy reform in Mexico. And while there has been a lot of focus on the hydrocarbon part, they want to emphasize the reform on the electricity sector is equally ambitious, and will open up many more collaborative possibilities. In fact, they said more electricity integration is something that Mexico would like to work with us very, very closely.

So I think those are two areas of some of our international work, different in character, but both very important.

Mr. UPTON. Great. Thank you.

Yield back.

Mr. WHITFIELD. The gentleman yields back.

At this time I recognize the gentleman from California, Mr. McNerney, for 5 minutes.

Mr. MCNERNEY. Thank you, Mr. Chairman.

I want to thank you, Mr. Secretary, for coming in. It is always a pleasure to have you testify in front of the committee here.

Secretary MONIZ. Thank you.

Mr. MCNERNEY. As I look over the budget numbers, I am very happy to see a large increase in the electricity delivery and energy reliability categories. One of my colleagues, Ms. Ellmers, and I are working together on grid technology. And I just want to ask what the Department can do to translate all that it has learned about smart grid investment grants and smart grid demonstration projects into actionable information for electricity providers.

Secretary MONIZ. Thank you.

I can assure you also the quadrennial energy review coming out will have a major focus, of course, on the electricity grid, as does our budget. We have a \$356 million proposal for the whole-grid modernization approach, so that will have many, many aspects.

Part of it will be developing more of the essential technologies, like the high-power electronics, wide-band gap semi-conductors, et cetera, et cetera. Part of it will be a system analysis. Part of it will be further integration. You alluded to the data. So, for example, with the ARRA funding, one of the major programs was to really deploy well over 100 synchrophasors to really let us know what is going on in the high-voltage grid. Now integrating that information into actionable, precautionary actions will be part of this.

But also another part of it is—actually, we have two different programs, but one specifically here—we also propose a State planning grant program. It is about \$27 million we propose for grants to States to plan for reliability and how they will be doing integra-

tion. That, of course, in turn could lead to subsequent proposals for actual projects to implement microgrids, distributed generation, other kinds of IT-based technologies.

Mr. MCNERNEY. I am looking forward to working with your Department on that and with my colleagues.

Fusion, what do we have in the next budget for fusion energy? And you know, this is an area I think a lot of good future potential, but it is not in the immediate future.

Secretary MONIZ. I regret I have the same answer as last year, which is that I am recused from fusion. That recusal ends in May, so if you would like to ask me the question in June, we could come back. But seriously, perhaps our deputy secretary or our under secretary could come and visit you about that. Because I am recused from all decisionmaking in the fusion program.

Mr. MCNERNEY. OK. Fair enough.

So about the smart grid technologies, what do you think are some of the barriers to improving our grid technology and reliability then, given where we are today?

Secretary MONIZ. Well, on the high voltage side, the high voltage grid, I think one of the issues, as I already described, was this issue of now being able to use the new data that we are getting from these new kinds of sensors. But a lot of the action is really going to be on the distribution side. I think that is where a lot of the imbedded intelligence has to be. That is key to starting to bring in distributed generation, maybe distributed storage.

Mr. MCNERNEY. So you think we are going to have to put incentives out there for the local distribution networks to move forward on this?

Secretary MONIZ. And so, that is a very good point. I was going to end with, of course, we can help on the technology side; but the regulatory authority for that, of course, will rest with the States. So that is where we need a potential State-Federal partnership. That is where those planning grants can come in, where we will give a grant to States, to the State Energy Offices, to see what they need to do for their smart grid, and then we will see if there is some possibility of our working with them to implement it.

Mr. MCNERNEY. Well, I am also happy to see energy efficiency and renewable energies move forward with this budget. Very important for our Nation's energy mix to have those as a significant and reliable part.

Secretary MONIZ. Thank you.

Mr. MCNERNEY. I just want to ask the chairman to consider that developing carbon sequestration technology is going to be beneficial to the coal industry, because as climate change progresses there is going to be a larger outcry to stop producing carbon dioxide. So this is something that is going to benefit the coal industry. We are not out to hurt the coal industry with carbon sequestration technology.

I yield back.

Mr. WHITFIELD. Thank you.

The gentleman yields back.

At this time I recognize the gentleman from Illinois, Mr. Shimkus, for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman.

Mr. Secretary, welcome.

Secretary MONIZ. Thank you.

Mr. SHIMKUS. Are these the DOE labs that have high-level nuclear waste: Oak Ridge, Savannah River, Idaho Labs, and Hanford? Are there any more, in significant amounts?

Secretary MONIZ. In significant amounts, I think those are the main ones, actually and principally, Idaho, Hanford, and Savannah River, yes.

Mr. SHIMKUS. While I was at Oak Ridge they——

Secretary MONIZ. Oak Ridge also has, yes.

Mr. SHIMKUS. You have promised me numerous times that you as Secretary would continue to follow the law of the land. Is that still true?

Secretary MONIZ. It always has been true.

Mr. SHIMKUS. Great. OK, good, we are on the right track here.

Secretary MONIZ. And the Constitution.

Mr. SHIMKUS. So, in your budget justification, you have \$3 billion to move to a pilot interim storage plan. Do you agree that that would require a change in law? Do you not?

Secretary MONIZ. Certainly not to begin to discuss consent-based processes, et cetera.

Mr. SHIMKUS. But the Nuclear Waste Policy Act is a law signed——

Secretary MONIZ. So we——

Mr. SHIMKUS. So the use of this money would not be with the intent of the law, because the law says that—it doesn't give the DOE the authority or the responsibility to go into a pilot interim storage.

Secretary MONIZ. To site such a facility would require further legislation.

Mr. SHIMKUS. Thank you.

Secretary MONIZ. I would note, of course——

Mr. SHIMKUS. Well, let me just go on.

Secretary MONIZ. OK.

Mr. SHIMKUS. So you have \$3 billion. You also mentioned \$5.7 billion is outlined to maybe do this, which would require a change in law, but—and I made this point, I think, last year—the administration needs to appreciate that there is a change occurring in the State of Nevada.

We recently had one Member elected who said that if it was proven that Yucca Mountain would be safe, then he would support it. That is public record. Now that the NRC has finished its safety and evaluation report, it said that Yucca once closed would be safe for a million years.

So we are in a new world now than we were before. And just for public record, \$3 billion or \$5.7 billion could be very helpful in the State of Nevada transitioning to—restarting and opening Yucca Mountain, and also an interim, pilot interim storage site. So I just put that on the record.

We have also heard that it is also required by DOE under the law to do the environmental impact statement. Is that not correct?

Secretary MONIZ. We have——

Mr. SHIMKUS. The answer is yes.

Secretary MONIZ. We have responded to every request and order from the NRC, including providing the information that they needed for the——

Mr. SHIMKUS. But you are not doing it?

Secretary MONIZ. We have no——

Mr. SHIMKUS. It is your responsibility under the law to do the environmental impact statement. And what is going on now is the NRC is going to do it with the money remaining because of the failure of DOE to the final EIS.

Secretary MONIZ. No. We have responded completely to NRC's request.

Mr. SHIMKUS. OK. We will just agree to disagree.

As the NRC moves forward with adjudication of the license application, assuming that the funds are made available for the purpose, will you commit to following the law and defending the application DOE has submitted?

Secretary MONIZ. I must point out that the NRC also pointed out that we do not have the authorities in terms of land and water, for example, for Yucca Mountain. Which goes right back to the consent-based process. Without a consent-based process, we continue to think——

Mr. SHIMKUS. But the question is, under the law you are required to defend the application. Are you willing to follow the law and defend the application?

Secretary MONIZ. I will have to check with the exact aspects of the law on that. I know the DOE was required to submit the application.

Mr. SHIMKUS. OK. The last time we tried to visit Yucca, DOE gave us a lot of trouble. We are going back this year. I hope you will give us all opportunity and make it easy for us to get there and get the door open.

Secretary MONIZ. I wasn't aware of that. I apologize for that.

Mr. SHIMKUS. No, no. OK. And then finally in your budget, FutureGen 2.0, obviously that money was pulled. That was the retrofitting of the plant in Meredosia and then the carbon capture sequestration issue in Morgan County, Illinois.

I just make that point obviously because it is Illinois, and that is a traditional DOE project from the original FutureGen to now FutureGen 2.0 to pulling it away. It just adds to what—those of us from coal areas of the country are concerned that as we ramp up these environmental rules and regulations, we really shut down coal-fired generation, and that is major base load activity, which we as a country just can't sustain the loss of that power.

So with that, thank you, and I look forward to working with you.

Secretary MONIZ. Mr. Chairman, may I just comment?

Mr. WHITFIELD. Yes.

Secretary MONIZ. Make two comments if I may? I think it might be helpful. One is, first of all, in your opening statement, Mr. Shimkus, in terms of the four DOE sites, I would just note, of course, those do not have commercial spent fuel. It is high level waste.

Mr. SHIMKUS. Which doesn't make it any less safe. Where is that supposed to go?

Secretary MONIZ. So if I may just say that there is no resolution yet.

Mr. SHIMKUS. Well, no. There is a resolution. It is supposed to go to Yucca Mountain. That is where it is supposed to go.

Secretary MONIZ. Last fall we completed a study, and it is on our Web site, requested by the Blue Ribbon Commission, in terms of looking at the issue of whether there should be separate pathways. That remains a decision to be reached.

With regard to FutureGen, let me just say that I think the FutureGen project, an oxycombustion plant with deep saline aquifer storage, is very, very important; and unfortunately, that funding was from the Recovery Act. The date of expending the funds is upon us, so the project could not meet that, and with regret we are in the structured closeout.

I do want to say we will preserve the IP, and we will preserve the asset of the pore space that we have purchased in Illinois.

Mr. SHIMKUS. Thank you. I will just say the Blue Ribbon Commission is not an elected body, and they were told specifically not to consider Yucca Mountain.

Mr. WHITFIELD. At this time I will recognize the gentlelady from California, Ms. Capps, for 5 minutes.

Mrs. CAPPS. Thank you, Mr. Chairman.

It is always a pleasure, Mr. Secretary, to have you come before our committee.

Secretary MONIZ. Thank you.

Mrs. CAPPS. And today was no different.

And I want to start with a premise which I hope we can all agree upon. And that is the fact that climate change is real, and it is a serious threat to our Nation and to our planet. While we are already seeing and paying for the impacts of climate change, we do still have a chance to mitigate some of the long-term damages.

We need to act now, however, to reduce carbon pollution and move toward a clean, sustainable energy future. This will require significant American innovation and investment. And I know the Department of Energy and this administration is committed to it. While this is not easy, I believe we have some of the best innovators in the world, and that we are up to that challenge, but they cannot do it on their own.

The Federal Government does play an essential role in driving the research in development of these technologies, and this is something I have seen firsthand in my district.

And I want to ask you about two of the projects that come out of your administration that are being developed through the University of California in Santa Barbara, have applications there.

One of them that was one of the first, Frontier Energy Research Centers, designated by your Department in 2009. And since then, this center has made very significant advances in key energy technology, some of which we use every day, like photovoltaics and LEDs. In your testimony you say that the Energy Research Center's program is DOE's flagship—this is a quote—flagship investment in basic science that underpins future energy technologies. Music to my ears.

Why is this program so important to DOE's efforts on climate change, and do you see this commitment remaining strong in the future?

Secretary MONIZ. Thank you.

The EFRCs I think have been a tremendous success. I might say for the committee that originally there were 46 funded in 2009, partly with Recovery Act funds. But it is worth saying this again, in a bipartisan spirit, that the setup for the EFRCs came from an exemplary process run by the Department of Energy during the Bush administration, several years of convening workshops of 1,500 scientists to define the key science challenges that underpin future energy technologies.

They have been tremendously successful. With the ARRA funding falloff, regrettably we have had to lower the total number. But in fiscal year 2016, we are proposing a 10 percent increase to be able to get a few more of those operating. They have been tremendously successful, and I think are very important for the future of clean energy in this country.

Mrs. CAPPS. And that leads me right into my second question, because while some marketplace applications are already there, it is so essential that these come out of the lab setting, out of research institutions, and get into our economy and help to build that economy in the right direction. And that is why I was so pleased to see the increase in your budget.

ARPA-E provides essential research and development funding from the government, but the part we need to stress even more is the generation of private funds that have already and will continue to drive our economy. Will you elaborate on this?

What is the ratio between I call it startup funds that come from the Federal Government, and how does that impact the private sector? Because that is what motivates me when I see it becoming an economic driver right in my congressional district.

Secretary MONIZ. First of all, the ARPA-E program is another example of, I think, a tremendously successful program. And we have requested an increase from \$280 to \$325 million.

By the way, the ARPA-E Summit is going on as we speak out at the convention center, and I was there this morning. And it is just remarkable technologies. And I would like to say here that we have some first discussions going on about potentially bringing to the Congress an exhibit of some of the ARPA-E technologies. I think it would be a great science fair for us to have here.

In terms of the impact, the fifth anniversary of the first ARPA-E contract will be coming up in March. So now that we are at the 5-year mark, what we are seeing is a lot of these projects getting into the marketplace. Big leverage in terms of investment. I know one class of projects just drew in \$800 million of financing. But, also, five of the projects now have been essentially bought by much larger strategic investors. For example, a big American defense firm just took that. So these are becoming into the marketplace 5 years. That is a pretty good track record.

Mrs. CAPPS. Chairman, I am going to yield back.

But I think that was a very practical suggestion. It would be interesting to work with the Science Committee to see if there could be some kind of demonstration here—

Secretary MONIZ. Yes.

Mrs. CAPPS [continuing]. On Capitol Hill for what we are doing.

Secretary MONIZ. If I may just, we had last fall, I thought, a very successful—I think some of you may have come—a very successful lab day, where we showed results out at the laboratories. And I think now it would be nice to complement that with an ARPA-E day.

Mr. WHITFIELD. Thank you, Mr. Secretary.

And at this time I recognize the gentleman from Texas, Mr. Olson, for 5 minutes.

Mr. OLSON. I thank the chair and welcome Dr. Moniz.

I want to start with a few thank yous, my friend. Thank you for going to India this past March and making exports of U.S. energy a top priority between India and America. Thanks for that. Very important back home.

Also, thank you for the role your Department played in the Petra Nova project in the Parish power plant in my district, the first true carbon capture enhanced oil recovery operation in America that will be viable. Thank you for that.

Secretary MONIZ. And under construction.

Mr. OLSON. Yes, sir.

Secretary MONIZ. All right.

Mr. OLSON. My first question is about our national security infrastructure. It has been under attack. Last April, snipers shot up a Silicon Valley substation. In 19 minutes, they fired off rounds almost causing a blackout in Silicon Valley. Twenty-three pipeline companies have had cyber attacks. Your 2016 budget doesn't address these attacks. You spend six times more on solar than secure power lines and secure pipelines. And I am sorry to put you on the clock, but in 1 minute, can you tell us your views on protecting our energy infrastructure, what is your role?

Secretary MONIZ. Yes. There are several things to say about that. It is a very important problem.

Number one, the quadrennial energy review, first installment, on infrastructure will have a significant focus on resilience against multiple threats; extreme weather, cyber, physical, geomagnetic storms, which actually have occasionally hit the system. That is one point.

Second point is, first of all, I want to thank the Congress. In the fiscal year 2015 budget, there was funding included for us to build out our emergency response center for the energy system so that we will have better situational awareness about threats to our system. We will be implementing that this year.

Third, we have a substantial cybersecurity crosscut in the budget.

Fourth, we convened, under the deputy secretary—it has been going on now for a few years—a very high level, a CEO-level electric utility group specifically on cybersecurity. And including the fact that we have granted security clearances to a select number of leaders so that we can go deeper into the threat space.

Mr. OLSON. Well, thank you. And thank you, that was 1 minute exactly.

My next question is about EPA working with you and FERC. EPA's regulations are closing many base-load power plants, mostly



coal plants. And those that remain open may have to go offline at times for retrofits. Our grid will look very different in 2020. And there could be local brownouts, local blackouts. Some have complained that EPA is seeking advice on the impact of its rules after the fact and in a very ad hoc way.

My question, sir, is will you object to creating a process where EPA consults with FERC and DOE as new air rules are written? Yes or no?

Secretary MONIZ. Well, the answer is “yes” in the sense that it happens. We provide technical assistance, and that is with both EPA and FERC.

Mr. OLSON. How about we create a formal process review of EPA, FERC, and you? Object to that? Because right now that doesn’t exist. It is sort of informal. How about a formal process of review—

Secretary MONIZ. Well, I think we have to review specifics. But I think it happens now in the sense that certainly any rule that goes through OIRA and then goes out for agency comment, in addition to our direct technical consultation there. So I think I would have to look in terms of what enhancement would be being looked at. But I am certainly happy to have that discussion.

Mr. OLSON. OK. Thank you.

One final question about a bill I had last Congress. It is a bipartisan bill with myself, Mr. Green, and Mr. Doyle. It guarantees that if a power plant is ordered to briefly run and exceed its permits during an emergency situation, that—this is under Section 202(c) of the Federal Power Act—other regulators can’t interfere and shut them down.

Your predecessor, Mr. Chu, said, “Good bill.” He supports it. I asked you last time you were here. You had just got here and hadn’t looked at it. So you have had some time. Support the bill?

Secretary MONIZ. I am going to have to look at the bill. But this is about engaging—

Mr. OLSON. Power crisis permits—

Secretary MONIZ. Federal Power Act—

Mr. OLSON. Yes. We can find some—

Secretary MONIZ [continuing]. Authority.

Mr. OLSON [continuing]. Back in Texas—well, across the country, where there has been a power crisis, there has been a heat wave, a cold snap, there has been—plants have been ordered to stay online, exceed their emission permits. They have been sued. This bill stops that. This says if it is a true crisis, you can exceed your permits for 60 days and review it.

Again, common sense, keep the power up, keep people cold in the summer and hot in the winter. Do you support the concept of having one voice, the power regulator decide what will run, what won’t run?

Secretary MONIZ. Well, again, I think we will have to follow this up. But certainly the DOE has Federal Power Act authorities to order plants to run, at least for some period of time, to make sure reliability is there in a crisis. It is obviously something you don’t want to use a lot. Frankly, it was used the last time I was here at the end of the 1990s in California. Secretary Richardson had to order some plants to run to avoid blackouts.

Mr. OLSON. And that is fine. But they have been sued. The power generator said keep that plant up and running. They were sued. Mirant in San Francisco got sued for doing what the regulators said to do. That is what this bill tries to stop. Let them keep the power up without penalty.

Secretary MONIZ. We will look at this and get back to you.

Mr. WHITFIELD. The gentleman's time has expired.

At this time I recognize the gentleman from Pennsylvania, Mr. Doyle, for 5 minutes.

Mr. DOYLE. Thank you, Mr. Chairman. Mr. Secretary, welcome. It is always a pleasure to have you here in front of the committee.

Mr. Secretary, as you know, I have a keen interest in the National Energy Technology Lab for many reasons, but most especially because of the outstanding work that NETL is doing in implementing the mission of DOE's Office of Fossil Energy. The work of the NETL is critical to the people of southwestern Pennsylvania, as well as many other States in our entire Nation.

Recently, a commission has been created. It is currently working to examine missions and effectiveness of DOE national labs, including the NETL. And, in fact, the commission is in Pittsburgh today as we speak, preparing to make recommendations, including privatizing the lab, which I think would be a huge mistake and unacceptable.

Can you share with us your perspective on the efficacy of the NETL and what you see as the future for our national labs? Are there specific areas of concern that you have or have been brought to your attention? And I would like to say that I know we have had you in Pittsburgh several times, and we certainly appreciate it. But your schedule hasn't permitted you to actually visit the NETL in Pittsburgh.

Secretary MONIZ. Right.

Mr. DOYLE. And I would like to contact your office and reach out to you and see if we might be able to schedule a visit—

Secretary MONIZ. OK. Yes.

Mr. DOYLE [continuing]. To the lab in Pittsburgh. But could you talk a little bit about this commission?

Secretary MONIZ. Yes.

Mr. DOYLE. And any concerns you may have?

Secretary MONIZ. OK. I have been to the Morgantown site, but—I think I have another scheduled in Pittsburgh.

Mr. DOYLE. I am sure the gentleman from West Virginia appreciates that—

Mr. MCKINLEY. That is right. He was there. He was there.

Mr. DOYLE. But it doesn't do much for us in Pittsburgh.

Mr. MCKINLEY. That is right. So that is right. Yes.

Secretary MONIZ. The—

Mr. DOYLE. I mean West Virginia is so friendly to the administration, I can understand why you are there first and not in Pittsburgh.

Secretary MONIZ. OK. So NETL. Look, NETL is our fossil fuel laboratory—just no ifs, ands, or buts about it—and has done very, very good work in the carbon capture sequestration arena, in methane hydrates, and in some of the hydraulic fracturing environmental impact work, et cetera, et cetera. So its future is—we have

a new director, of course, relatively new director. And I think she will do a great job.

First of all, you mentioned privatize. And I don't know what this congressional commission will recommend. But I have made it very, very clear that we have no plans to change the organizational structure of NETL as the one of our 17 laboratories that is a—

Mr. DOYLE. Right.

Secretary MONIZ [continuing]. That is a Federal organization.

Mr. DOYLE. I appreciate hearing you say that. Can you tell me—we know NETL has been playing a role in identifying and developing and deploying numerous technologies that increase efficiencies and reducing the environmental concerns from coal-fired plants, which is a big source of our electricity in States like Pennsylvania and others.

Secretary MONIZ. Right.

Mr. DOYLE. But if we are going to be serious about moving fossil energy research and development forward, I do have some concerns about the proposed DOE budget in 2016 for fossil energy. It seems to me that we need to establish scaled demonstrations of technologies that show our industry partners and the Nation that we have a serious commitment to this, specifically in areas of advanced combustion systems, gasification, advanced turbines, coal biomass to liquids, fuel cells, and rare Earth elements research. And much of this research, I should note, is being done in Pittsburgh at the NETL.

I would really like to hear about your commitment to fossil energy R&D and where you see the role of this in America's energy portfolio and, also, to talk a little bit about the current status of DOE's CCS research, development, and demonstration efforts and what your agency is doing to develop a sustainable future for coal.

Secretary MONIZ. OK. There is many parts to that question.

First of all, in terms of the commitment to advancing clean fossil fuel technology, clean coal technologies, again, I think we are demonstrably very committed. We are—we had a discussion earlier on the large integrated CCS projects, and I anticipate a good five of those will be fully successful and operating.

We have right now opened an \$8 billion loan guarantee program in fossil. And I can't talk about individual projects, but we are pretty happy with the proposal stream. I might note—this is not DOE, but in the fiscal year 2016 budget, there is the proposal for new tax credits, investment tax credits for CCS and a tax credit for sequestering CO<sub>2</sub>. So that is very strong.

Then, of course, we have our R&D program, which is in fossil energy and also in ARPA-E. We shouldn't forget ARPA-E also has programs in methane detection, carbon capture, et cetera.

So it is a very, very broad program. You mentioned also rare earth elements. That is the study that the Congress asked for, I believe is within a 2 or 3 months probably about addressing the questions about whether or not coal ash, et cetera, is a viable source of rare warths. And I don't know the answer. If the answer is yes, then we should discuss how to implement.

Mr. DOYLE. Thank you, Mr. Chairman. I look forward to following up with you on the Pittsburgh visit.

Secretary MONIZ. Great.

Mr. WHITFIELD. At this time I recognize the gentleman from Ohio, Mr. Latta, for 5 minutes.

Mr. LATTA. Well, thank you, Mr. Chairman.

Thanks very much, Mr. Secretary, for being with us today. I appreciate your testimony.

If I could talk a little and ask a few questions about the American Medical Isotopes Reduction Act of 2012. As part of that, the Department of Energy is to develop a program to assist in the establishment of the domestic production capabilities for medically vital isotopes like Mo-99—I think it is also pronounced “moly 99.” And that is used in nuclear medicine to perform life-saving procedures related to both heart disease and staging of cancer, two of the largest killers in our country.

The motivation behind all of this was to address the fact that foreign production facilities that are scheduled to cease production in 2016. In the Western Hemisphere, the only place that is producing it is in Canada and, I believe, that they are going to be going out, unless something changes, I think, in 2016 when that occurs.

Then, as you look around the world where there might be production, in Europe I think there is five different facilities and one in Russia. I think there is one in—or two in South Africa and also in Australia. But, also, what this produces has a shelf life of only about 66 hours. So to get it from point A to point B to this country is vital to make sure that it is not degrading during that period of time, that it is not only 50 percent effective when it gets here.

So I guess the first question is: When the supplier in Canada ceases its isotope production in 2016, what is the DOE doing to ensure that there isn’t a shortage that would affect, I think, the United States using probably 50 percent of the world’s isotope?

Secretary MONIZ. Well, as we continue to develop capabilities, one of the important developments in the last week was that Canada announced that it will maintain the capability until 2018 if required. So they have made that announcement. And without getting into too many specifics, we would work with them to see that that 2018 date could be met. And in the 2018 timeframe, then I think we are much more assured of continued isotope.

Mr. LATTA. Well let me ask this. OK. If we go from 2016 to 2018, but at the same time is there the thought that the United States ought to be manufacturing it right here in the United States? And if that is the case, how long would it take from start to finish to be able to produce a facility that could produce that isotope?

Secretary MONIZ. Sir, I am going to have to get back to that in terms of exact timeline. I just don’t have that—

Mr. LATTA. OK.

Secretary MONIZ [continuing]. On my fingertips, I am afraid. But we will get back to you on that.

Mr. LATTA. Because at the same time, if you could also get back on the whole question really if it is going to be longer than 2018, is there a way that this could be expedited to make sure that we don’t have that—

Secretary MONIZ. Yes.

Mr. LATTA [continuing]. Shortage in the United States then?

Secretary MONIZ. Yes.

Mr. LATTA. It would be very, very helpful.

Secretary MONIZ. No. It is a very important point. And we will get back to you.

Mr. LATTA. Thank you.

Switching gears a little bit, what legislation would be most helpful to the NRC to be able to quickly license a DOE developed gen-4 reactor? What is out there that we should be doing to get to that next level?

Secretary MONIZ. Well, I can't speak in detail for the NRC. But I think that their appropriated funding is quite modest, I believe. And it is a question of staff to get educated, trained in terms of alternative technologies.

For some technologies, like the light water-based, small modular reactors, that is not as big a step away from the current regulatory basis. But if you start going into fast reactors or some of the more exotic molten salt reactors, you put your finger on a very important point. They need to get staffed up and ready to regulate such things.

So it would be staff—presumably paid for either out of appropriations or out of some way of having the industry support them through some fee. I really don't know in detail, but that is, I presume, the only two sources that are possible.

Mr. LATTA. If I could just go back to your opening statement—because I didn't really see it in your written statement. And I tell you we take so many notes up here. But you were mentioning about the energy boom in this country. Would you attribute that energy boom especially to the advancements we have had in fracking in this country to be able to bring up that natural gas and oil that we have right now?

Secretary MONIZ. Oh, quite clearly. For gas and oil, hydraulic fracturing has been critical. We are still increasing our production in the Gulf of Mexico. But the big increases, certainly in gas, have been from hydraulic fracturing.

Mr. LATTA. Thank you very much, Mr. Chairman.

My time has expired, and I yield back.

Mr. WHITFIELD. The gentleman yields back.

At this time I recognize the gentleman from New York, Mr. Tonko, for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair.

And, Secretary Moniz, thank you for being here this afternoon. And more importantly, thank you for leading the Department with such vision and intellect. And your team is great to interact with.

Secretary MONIZ. Thank you.

Mr. TONKO. I appreciate that.

In general, I express my strong support for the research, development, and demonstration funding that is included in the budget request for this year. Innovation is indeed the fuel that will drive progress and create new industries and, therefore, new jobs.

Mr. Secretary, wind and solar technologies are advancing at a rapid and steady pace. I fully support the increase in R&D for these and other renewable technologies. We hear a lot about wind and solar. We hear less about geothermal energy.

I see that in the fiscal year 2016 effort, the administration is proposing a significant increase for work in this area, including funding for research and demonstration sites, dubbed FORGE. Could

you expand, please, a bit on the goals for this funding and on the promise that this technology holds?

Secretary MONIZ. Well, first, in terms of the promise, engineered geothermal systems, hot rock systems, roughly speaking, have been looked at as having a promise in the United States of perhaps as much as 100 gigawatts of power. That came out of the 2005 report that the Department commissioned led by MIT, I might say. Not by me.

So we are talking certainly many 10s to 100 gigawatts as the kind of range of potential. However, the scientific base has not been adequately laid. And that is what the FORGE project is to do, to have a highly instrumented experimental facility that can better do things like direct control fractures, et cetera, that are a huge part of how you engineer a geothermal system—an engineered geothermal system.

Mr. TONKO. Thank you.

And I am pleased to see that there is a proposed increase in funding for great modernization for the Office of Electricity Delivery and Energy Reliability.

As you know, the electricity sector is undergoing a significant transformation, driven by a number of factors. I believe there is a Federal role in helping to smooth out those bumps in the road, so to speak.

So, you mentioned the energy storage and integration work that the Department is doing in partnership with Southern California Edison. The budget proposal includes funds for State energy and reliability and the assurance grants. That is a new program.

Will these grants be used for projects similar to the one that we have had with Southern California Edison?

Secretary MONIZ. Well, they certainly could be. But they will be broadly based and to individual States to determine. They will be planning grants, not project grants. But our hope is that the planning grants will lead to project grants. For example, in the QER we will specifically talk about how the State assurance plans that we have proposed could be essentially part of the—almost the requirements for then accessing other funds for projects.

Mr. TONKO. Thank you. There are many aspects of the Department's portfolio that directly or indirectly address climate change. I would like to hear a bit more about DOE's proposed work to reduce methane emissions associated with natural gas development and delivery. It is an important emission that needs to be addressed. So is the Department going to explore some new activities here with those emissions?

Secretary MONIZ. Yes. In particular, we hosted five stakeholder round tables specifically on methane strategy last year. What I want to note is that our focus at DOE is not so much on the production end, it is on the mixed stream, if you like, so then the transmission pipes and then getting to the distribution systems.

On the transmission pipe in particular, compressors are a big issue. We are looking at standards for compressors. And we are also funding new technologies for leak detection, for example. In fact, this morning at ARPA-E I saw a very elegant one. The ARPA-E, I believe, has right now 13 methane detection projects going on.

Mr. TONKO. Now, are you doing this in partnership with the industry, the work on the emissions?

Secretary MONIZ. Well, the ARPA-E projects, many of them are being done by industry, typically small companies and some by universities.

Mr. TONKO. And is it an effort that will require new technology, or is it just making an effort to—

Secretary MONIZ. No. It is new—

Mr. TONKO [continuing]. Improve the technology we have?

Secretary MONIZ. It is novel technology to try to get effective, sensitive, inexpensive technologies. For example, the one I saw this morning out at the ARPA-E involved a novel use of carbon nanotubes to detect methane with high specificity.

Mr. TONKO. OK. I yield back.

Mr. WHITFIELD. The gentleman's time has expired. At this time I recognize the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. MCKINLEY. Thank you, Mr. Chairman.

I would like to follow up on the remarks that the congressman from Pennsylvania was talking about with NETL.

And I just wanted to get maybe a little bit more specific with this. Because just in the next 2 years, Mr. Secretary, when you think about the facility in both Morgantown and Pittsburgh, maintaining the level of research, personnel, and all of their attributes of what they are doing, on a scale of 1 to 10, what do you think it is going to look like 2 years from now? Be the same?

Secretary MONIZ. Well, I think in terms of scale it will probably be very, very, very much the same. Yes.

Mr. MCKINLEY. Is it like a 10? You think that there will be—it will be on the high level, that we can anticipate that that facility isn't going to change much in the next 2 years?

Secretary MONIZ. Again, it is not going to change in terms of organizational structure. It is going to, I think, be very comparable in size. But hopefully, when you look inside, you will see change, of course, as projects evolve. One of the things that we are doing right now—

Mr. MCKINLEY. OK. I just wanted to get—

Secretary MONIZ. Yes. OK.

Mr. MCKINLEY [continuing]. We can have a conversation—

Secretary MONIZ. Like I said, but the large-scale computation at NETL is being upgraded.

Mr. MCKINLEY. OK. Thank you.

I noticed the other day that the administration—through DOE you had invested in some more projects in carbon capture in China. Is that accurate?

Secretary MONIZ. I am not aware of any specific project, no. We—in the—

Mr. MCKINLEY. There were clean coal projects there. I think it was carbon capture is what it was. But that leads to my next question.

Secretary MONIZ. I could be wrong. But I can look into that.

Mr. MCKINLEY. If you could.

Secretary MONIZ. But we do have—in the October agreement of Presidents Obama and Xi, it did say in there something that still

remains to be designed that we would work together on a specific sequestration project instrumented.

Mr. MCKINLEY. So having said that, though, when I read that, it tipped off, then, where else—if we are investing money in clean coal or whatever energy projects in China, where else are we investing money—

Secretary MONIZ. No.

Mr. MCKINLEY [continuing]. Outside the United States?

Secretary MONIZ. If I may clarify. So we have a clean energy research center with China. It is \$10 million a year. That is spent in American laboratories and universities, et cetera. It is matched by the Chinese, and both of our contributions are matched by industry.

Mr. MCKINLEY. OK. Well, that is really where I was going, is to find out are we investing in bricks and mortar or are we investing in research? And you are saying it is in research. So if it is in research, will we own the intellectual rights to that based on the research we have done? Or will it be something shared with the Chinese? Let me leave it at that. Will we own the rights?

Secretary MONIZ. The IP issues are very much a part of the discussion of every project.

Mr. MCKINLEY. OK.

Secretary MONIZ. There is a lot of progress on that.

Mr. MCKINLEY. OK. Next—

Secretary MONIZ. So we are protecting our IP rights.

Mr. MCKINLEY. What about other governments? Are we investing in other countries around? Because we seem to have ceded Africa to the Chinese in developing energy that we—

Secretary MONIZ. We—

Mr. MCKINLEY [continuing]. Backed off.

Secretary MONIZ. First of all, we have a very similar matching funds arrangement with India on some joint projects, including biofuels, et cetera.

With Africa, the main investment—again, we tend to provide a lot of support, but the main investment comes from AID. So it is Department of State funds.

Mr. MCKINLEY. If I could, I am fearing I am going to run out of time.

I think that the—everyone has, on the other side of the aisle, they have been quick to dodge and talk about there is no war on coal, but there is obviously a war on coal.

Secretary MONIZ. I disagree.

Mr. MCKINLEY. And it made people very nervous all around the United States about this. That is why these elections have consequences, and you have seen what has happened in some States as a result of it.

So I am just curious, because we have got a trade agreement coming up. And I have this very strong suspicion that there some climate change issues are going to be part of that. Can you give me any indication—have you shared anything with the administration, or have they talked to you about what conditions—it has already been telegraphed a little bit—when he went to China and set that deal with China that they could increase their CO<sub>2</sub> emissions until 2030, while we were supposed to decreased ours by 2015, and then



went to India and cut a deal with India that they would use less coal and more nuclear.

That, to me, was telegraphing that he is going to export his war on coal to other Nations. I am concerned about what else could happen with the various trade agreements that are going to come up. Do you see any component of fossil fuel—the emissions of greenhouse gases or anything else going to be in any trade agreement?

Secretary MONIZ. I certainly don't know that. I can say that when Ambassador Froman has asked me or us for information, it has been mainly on oil and natural gas.

Mr. MCKINLEY. OK. Because I think we ought to be very wary. He has already indicated what he has done with two other countries. And to add a host of other Nations, 19 other Nations into it, I would be very nervous about supporting any trade agreement as long as there is a potential of cutting back on the use of fossil fuels.

Apparently, I am running out of time.

Mr. WHITFIELD. The gentleman's time has expired.

Mr. MCKINLEY. He is going to yell at me here.

Mr. WHITFIELD. At this time, I recognize the gentlelady from Florida, Ms. Castor, for 5 minutes.

Ms. CASTOR. Thank you, Mr. Chairman.

Welcome, Mr. Secretary.

Secretary MONIZ. Thank you.

Ms. CASTOR. The Obama administration's energy policies are really paying off for American consumers. As the economy recovers and more people are working, unemployment is down, to have gas prices at the lowest level in 6 years is a great thing for so many families and businesses.

I never thought that I would see gas prices below \$2 again. But they have these Web sites now where you can go and find the lowest—the gas station in your neighborhood. And I just checked back in Tampa. I still found one below \$2, although most are at \$2 or a little bit more. So the energy information group under your purview said that that is going to save consumer families \$750 a year.

Secretary MONIZ. Average household savings.

Ms. CASTOR. The average household savings. So that comes at a great time. And it is part of the strategy, part of what we have seen on reduced demand for energy and increased supply. In recent years, the U.S. has experienced a natural gas boom, now one of the largest natural gas producers in the world.

And then when you look at savings, the fuel economy is remarkable. It has improved year after year for vehicles in the U.S. The difference in miles per gallon or your fuel economy between 20 miles per gallon and 30 miles per gallon is \$518 per year for consumers, or about \$2,600 over 5 years. And now consumers have many more choices when it comes to vehicles. We have recently purchased a new car, and the sky is the limit on how many different kinds of hybrids, electrics. So I think the administration has been right on track.

Then when you add in wind and solar energy—have tripled since 2008. The country is changing how it uses energy. The progress, when you sample it, is really impressive. This is a study, the Bloomberg New Energy Finance Report. Progress in clean energy

has really been immense. It says wind and solar have achieved lift-off, and the renewable energy story keeps getting better, too. In 2007, according to Bloomberg and the Business Council for Sustainable Energy, renewable energy provided just 7 percent of the Nation's total. But by 2014, it had nearly doubled, to 13 percent. That is a real success story.

And then we have seen great improvement in energy efficiency, too. This is the most cost effective area. But I am still not convinced that we have unleashed the power of consumers to really conserve energy and use the existing and emerging technology to help them save money and help us all conserve energy.

What is in your budget specifically on energy efficiency that will help partner with businesses, the technology companies, and unleash the power of consumers to control their thermostat or for businesses to do better in saving costs?

Secretary MONIZ. So we do have in the budget a proposed increase for building technologies. And those building technologies can be everything from external skins of buildings and windows to things like smart thermostats and smart everything there.

But I want to emphasize that besides the budgetary approach, let me just mention two other things that we do to address the demand side. One is, of course, efficiency standards. Setting standards for appliances, electric motors, et cetera, and keeping at the technology, not at, but maybe it is only a little bit behind, at least, the technology frontier. That is very important.

It is not appreciated so much that if we take all of the efficiency standards that have come into effect during this administration and those that we project for the next 2 years, and then we ask for the cumulative impact to 2030, the projection is about \$450 billion—that is a B—of energy savings for consumers and about 3 gigatons of CO<sub>2</sub> avoidance. That is one approach.

And then finally, the third approach, besides technology and standards, is just convening. So we do something called a better buildings challenge, for example. All we do is we convene companies that volunteer to meet a 20 percent energy intensity reduction by 2020. We give them some branding, and they agree to share best practices with others. It is really fantastic. Some companies reach their 2020 goals in like 3 years and then double down. So it is a broad-based approach to efficiency.

Ms. CASTOR. I will add that to my list.

Mr. WHITFIELD. The gentlelady's time has expired.

At this time, I recognize the gentleman from Illinois, Mr. Kinzinger, for 5 minutes.

Mr. KINZINGER. Thank you, Mr. Chairman. Mr. Secretary, thank you for being here and giving us your time. And thank you for your service to the country.

I just have a few questions I am going to get right into.

Do you believe that the Federal Government should use a coordinated process to assess the impact of policy decisions on national security and foreign policy?

Secretary MONIZ. Yes. In many ways, that is what the quadrennial energy review is all about, trying to get an integrated coherent approach.

Mr. KINZINGER. OK. And would you agree that Federal decisions for everything from rule making to project reviews and export licenses impact energy diplomacy?

Secretary MONIZ. Well, I would say selectively. I think we would need to talk about examples.

Mr. KINZINGER. Well, I believe it is vital that we ensure the United States' role as a leader in the nuclear technology export market, that it is maintained. China and India have increased their nuclear generation capabilities twentyfold, and Russia has recently taken the lead in the \$500 billion nuclear technology export market. In fact, just yesterday it was announced that Russia and Egypt signed an accord with one another that puts Russia in charge of creating a nuclear plant in Egypt.

Let me ask you about the DOE's role in enhancing U.S. manufacturing and competitiveness through your nuclear export control policies. Would you agree that strong nuclear exports will not only contribute to strengthening domestic job growth, but that it will also benefit U.S. influence over international nuclear safety and security?

Secretary MONIZ. Yes.

Mr. KINZINGER. OK. It is an interesting sidenote, too, because I think it is—for every \$1 billion in exports in this, it is something like 10,000 jobs are created, which is—and especially for my district, it is huge, too.

Secretary MONIZ. May I just add to reinforce that, also, frankly, the United States, I would say, is the gold standard in terms of nonproliferation norms in energy commerce. So maintaining a strong role in that commerce is very important in that point, too.

Mr. KINZINGER. Yes. And I agree with you. But my concern, though, is, as you see, all these other countries, especially Russia, proliferate their nuclear exports. We may have the gold standard. We may negotiate gold standard agreements. But the Russians don't necessarily have the same standards we do, which is why I think that is so important.

Ensuring peaceful use of civilian nuclear technology is a core mission and responsibility of yours as the Secretary of Energy. What are you doing to ensure that the U.S. is a leader in the peaceful use of civilian nuclear technology?

Secretary MONIZ. Well, for one thing, I think there is no doubt about it, I think we have, first of all, advocate for that and help. I mean we shouldn't lose sight of the fact that we do have quite a bit of nuclear technology being built elsewhere. I mean, in China, for example, there may be like 18 Westinghouse AP1000s, for example. And just recently in the President's trip to India, there was real progress made in terms of implementing that agreement.

And frankly, again, I and others in the administration, when we visit many Eastern European countries, for example, we certainly advocate strongly for the value of U.S.-based technology.

Mr. KINZINGER. And I know many of us do when we do our own traveling, too.

Secretary MONIZ. Right.

Mr. KINZINGER. You have been working on the first revision of the nuclear export procedures. That would be the first revision in more than 25 years. My only concern is this has been in progress

for a little more than 3 years already. Why is it taking so long for the Department to reform its nuclear export procedures?

Secretary MONIZ. I think it is fair to say that we will be finishing that process very, very shortly.

Mr. KINZINGER. OK. Good. And according to the GAO report issued as part of the committee's ongoing nuclear oversight last year, DOE does not have a clear timely, efficient review process. Some reviews can take more than a year, depriving the U.S. Companies from entering into commercial negotiations. Will you commit today that you will ensure that the Department is addressing fully the GAO report recommendations?

Secretary MONIZ. We have done and will do all that we can to expedite these. I just wanted to caution that, while we are perhaps the signatory in the end, it is a multi-agency review process and—

Mr. KINZINGER. And that can get messy. But I just want to make sure, at least at your level, it is receiving senior attention.

Secretary MONIZ. Yes.

Mr. KINZINGER. So hopefully that is the case.

And then lastly, what is the DOE's plan to ensure that Federal agencies continue to use private sector funding and expertise to meet their energy efficiency goals through energy saving performance contracts, or ESPCs? And what is the biggest barrier to increasing the use of ESPCs by the Federal Government?

Secretary MONIZ. Well, the ESPCs certainly have been very effective. And I will be honest, I have lost a little track of how many commitments we have—I think we are over \$2 billion now in terms of ESPC contracts. One of the issues there is, and of course, you know, the President has asked us to double that to \$4 billion, which is going to be a real push.

But one of the issues is that more and more the projects take on a different character than the initial projects. A lot of the low-hanging fruit, in a certain sense, in terms of direct energy savings may have been—have been done. And now it is a question of things like deeper retrofits that have to be done. So that is a little bit of an issue we are dealing with in going forward.

Mr. KINZINGER. Understood. Thank you. Thank you for being here.

And I will yield back.

Mr. WHITFIELD. At this time, I recognize the gentleman from New Jersey, Mr. Pallone, for 5 minutes.

Mr. PALLONE. Mr. Chairman, I would just as soon we continue with the other Democrats because I think we are going to have votes.

Mr. WHITFIELD. At this time, the gentleman from Iowa for 5 minutes, Mr. Loebsack.

Mr. LOEBSACK. Thank you, Mr. Chair.

And I thank the ranking member for going out of order. I appreciate that.

And thank you, Mr. Secretary, for being here.

I am very excited to be on the larger Energy and Commerce Committee, and on this subcommittee in particular. I am not new to Congress, but I am new to the committee and the subcommittee. And thank you very much again for being here today. And I have

really enjoyed the testimony and the questions from folks from all over the country.

I am from Iowa. Of course, there is a lot going on on the energy front in Iowa, as you might imagine. In your testimony, you state that DOE loans and grants have helped to support two commercial-scale cellulosic ethanol facilities, one of these located in my home State of Iowa. And as you know, these are critical for the country going forward.

We often talk about corn ethanol. That is first generation ethanol. Cellulosic is second generation, and that seems to get a little more political support nowadays, although I am still a firm supporter, as you might imagine, of corn ethanol.

But what percentage of funds would be set aside for these programs, or can you elaborate a little bit on what might be set aside for these particular second generation ethanol endeavors?

Secretary MONIZ. Well, there are a variety of approaches. And by the way, coming to the committee, if you would like a briefing, a broader briefing on DOE, we would be happy to arrange that for you.

Mr. LOEBSACK. Thank you. I appreciate that.

Secretary MONIZ. Like, for example, with the loan program, then there is no specific set-aside for biofuels. That would be competing within a broader pool there.

But if you look at some of our direct programs, one of the directions that we are going in now, in addition to the cellulosic ethanol, is moving towards drop-in fuels because those are—especially the military is very interested in that. It is a more complex process.

We have—I believe it is something like \$45 million in this budget request specifically for a project with the Department of Defense and the USDA in terms of looking towards—I think toward three projects for drop-in biofuels. So that is an example of what we are doing.

Mr. LOEBSACK. OK. Thank you.

And you mentioned, as you did in your testimony, about the investments in biofuels more generally. I don't want to implicate you in the whole renewable fuels standard debate.

Secretary MONIZ. Thank you.

Mr. LOEBSACK. Certainly. That is for another cabinet member probably or two.

But with the uncertainty of the blending guidelines out there, what does that mean for investments in the biofuels field, if you will? Do you have any thoughts about that?

Secretary MONIZ. Well, I think, as in all of the energy technologies, certainly having some stability and a clear projection, I think, is very important.

So here, I think one of the issues that remains to be resolved—and you are right, I am not involved in the RFS—is the question of the vehicles. Is 10 percent really a blend wall? What is the future in terms of more flex fuel vehicles? So I think we often just focus on the fuel, but it is really the fuel-vehicle system, I think, that we need to address.

Mr. LOEBSACK. Not to mention the infrastructure part of it as well?

Secretary MONIZ. And then comes the infrastructure issue. And that is where, of course, the alternative, for example, biomass-derived drop-in fuels—

Mr. LOEBSACK. Right.

Secretary MONIZ [continuing]. Would resolve that, but at the cost of it being a much more complex process.

Mr. LOEBSACK. Exactly.

Finally, Iowa is one of the leading wind producing States, as you know. Wind energy producing States. About 27 percent or so of our electricity in Iowa is generated through wind.

What kind of investments can we see set aside, if any, for the future as far as the wind industry is concerned? If you could elaborate on that a little bit.

Secretary MONIZ. Well, the programs continue to look at stretching the technology. For example, the materials for bigger blades, for example, is very important. One of the directions there is in the competitively awarded Manufacturing Institute on Composite Materials that we announced in January. That is one example. There is work in terms of different direct drive, for example, turbines for larger, higher efficiency machines.

By the way, there is also, it is kind of low-brow, but when you go to the bigger blades you do have to worry about transportation logistics. And that is another issue.

Mr. LOEBSACK. I might just say when you come to Iowa next, just go down Interstate 80, and you will see lots of those blades being transported across the State.

Secretary MONIZ. Yes.

Mr. LOEBSACK. They have TPI Composites in Newton in my district.

Secretary MONIZ. Yes.

Mr. LOEBSACK. We have Siemens in Fort Madison in my district.

Secretary MONIZ. Yes. Yes. That is great. Yes.

And the last thing I will say is probably—it is probably slightly less relevant for Iowa, but we are looking at offshore wind as well in terms of trying to capture particularly a deepwater resource. But that will take a while to get into an economically competitive range.

Mr. LOEBSACK. Thank you, Mr. Secretary.

And thank you, Mr. Chair.

Mr. WHITFIELD. We have a vote on the floor, and there is going to be three votes. And there is about 6 minutes left in the first vote.

I am going to go to you, Mr. Griffith, for your 5 minutes. And then I would ask the other members who have not asked questions how many of you want to come back. My understanding is the Secretary has a 4 o'clock meeting. He has to leave here, at the latest, at 3:45.

Secretary MONIZ. Yes. A quarter of, yes.

Mr. WHITFIELD. So how many of you would like to come back to ask questions?

OK. Well, I will tell you what, then, we will go with you, Mr. Griffith. And I guess that would terminate the questions for the Secretary, unless you all want to come back. So why don't I recognize Mr. Griffith for 5 minutes.

Mr. GRIFFITH. Thank you, Mr. Chairman. I do appreciate it.

Mr. Secretary, I heard you say something in your opening comments about a trilateral group that met regarding North American energy grid, and indicated that Mexico wanted to hook their grid into our grid. This immediately raised some concerns which I hope you can allay for me. And that would be that while workers in central Appalachia, and particularly in the 9th District of Virginia, which I happen to represent, are being laid off in the mines because of EPA policy, not DOE policy, but because of EPA policy, we have a situation where if we hook our grid into Mexico's, they could theoretically be sending electricity to the United States made with either Texan coal or Mexican coal or somewhere else they get it.

I would note that Texas did approve a project, it appears based on the reports that I have got, in 2013 to send coal. Some people claim that it is not as good as coal that we would allow to be burned in the United States. But more importantly—and I am quoting from an article in, if I am reading this right—heartland.org by Cheryl Chumley, “U.S. Environmental Protection Agency restrictions on coal power make Mexico the most viable market for U.S. coal mines near the Mexican border. Mexico has relatively few restrictions on coal power plants relative to the heavy EPA regulations of U.S. coal power plants.

And then there is the concern that in the Coahuila—and I hope I pronounced that correctly—region of Mexico, which borders Texas, that the Los Zetas, formerly drug gang, now coal mining gang as well, have taken over the coal industry. And they produce about 95 percent of Mexico's coal.

So I just worry, if they hook in into our grid and then we have a shortage because we have had the EPA debilitate the ability to use coal in this country, that we will be using coal that is burned at lower standards, lower grade coal, where we have extortion and other things operating in the mines and a safety record for the workers that is abysmal. And I would have to ask you to be cautious on that.

And I think you would agree with me that—we may not agree on how much coal ought to be used, but that when coal is used to provide American electricity, it ought to be done under American work standards and under American energy standards, and that we should not be allowing Mexico to backdoor the use of coal, particularly dirty coal, when we have lots of clean coal that my folks would like to be mining and are now finding themselves unemployed. You would agree with that, would you not?

Secretary MONIZ. With all of our international engagements—trade engagements, environmental and labor standards are critical, yes.

Mr. GRIFFITH. And the problem is, is that if you start wheeling that electricity in, it will have been made under their standards, and there is no way you can control that. Isn't that accurate?

Secretary MONIZ. Well, I think you have raised an issue that we need to be on top of. I do think that it is important to recognize, look, this is just an early start of a discussion. But to recognize that Mexico is also taking some pretty strong environmental positions. That is a discussion that will have to evolve. I mean, it is a good point.

Mr. GRIFFITH. All right. I appreciate that.

I will tell you that I think the DOE does some good things. I am worried about the EPA. And I have got a much longer question, but my time is running out because I got diverted with the Mexican issue.

But it appears that the EPA has asked in their budget request—and I am quoting now—evaluating and capturing these compliance strategies requires the Agency to tap into technical and policy expertise not traditionally needed in EPA regulatory development, for example, nuclear, wind, solar, hydroelectric, and demand side energy efficiency, and to understand and project systemwide approaches and trends in areas such as electricity transmission, distribution, and storage.

I just have to tell you, I often think that the EPA thinks that they don't need Congress. It sounds like, from the language in their budget request, they don't think they need the Department of Energy. What say you?

Secretary MONIZ. I can assure you that we—EPA and other agencies, FERC, others, do call upon us for technical analysis.

Mr. GRIFFITH. Well, but I don't have any problem with them calling on you for technical analysis. It seems like they want to set up their own technical abilities to do that analysis. And don't you think that would be wasteful spending on our part to approve that for the EPA when we already have your fine agency doing that work? And isn't it just another example of EPA overreach?

Secretary MONIZ. I appreciate the endorsement of our excellent work.

Mr. GRIFFITH. And I appreciate you, Mr. Secretary, as well.

I have other questions that I am afraid I will have to submit for the record because our time is up.

Secretary MONIZ. Yes. Do that.

Mr. GRIFFITH. And we do have votes waiting.

Secretary MONIZ. Thank you.

Mr. GRIFFITH. But thank you so much for being here today, and I appreciate your good work.

Mr. WHITFIELD. Mr. Griffith's time has expired. You have something, Mr. Flores?

Mr. FLORES. We will submit our questions for the record. Thank you for being here.

Secretary MONIZ. Thank you.

Mr. WHITFIELD. Mr. Secretary, I have been told that some members did want to come back. I am sure we won't be back over here until 3:20 or so. Are you available until 3:45?

Secretary MONIZ. Yes. If we could think of 3:45 as an end date—end time, that would be great.

Mr. WHITFIELD. Well, I tell you, if you wouldn't mind just waiting here for a few minutes. I am going to go to the floor to vote. I am going to ask the four or five members if they can come back, oK. If not, I will call—

Secretary MONIZ. OK.

Mr. WHITFIELD [continuing]. And we will conclude the hearing. But thank you.

Secretary MONIZ. OK.

Mr. WHITFIELD. Thank you, and thank you for being available.



Secretary MONIZ. Thank you.

Mr. WHITFIELD. Yes. The correct term is recess subject to the call.

[Whereupon, at 2:50 p.m., the subcommittee recessed, subject to the call of the Chair.]

Mr. WHITFIELD. We will reconvene the hearing. And at this point I would recognize the gentleman from Texas, Mr. Barton, to resume his question and answer.

Mr. BARTON. Mr. Chairman, I am more than willing to, but I think Mr. Johnson is ready to go. I will let him ask his, and then I will ask mine.

Mr. WHITFIELD. OK.

Mr. Johnson from Ohio is recognized for 5 minutes.

Mr. JOHNSON. Thank you very much, Mr. Chairman. And, Mr. Secretary, thanks for joining us again. It is always good to see you here.

My line of questions deal with LNG exports and particularly around some of the diplomatic and global, international, implications of America getting into that market in a big way. In your opinion, will U.S. LNG exports improve the efficiency and transparency of international natural gas markets?

Secretary MONIZ. I think in general the more LNG that goes into the global market the more opportunity there is for market development.

Mr. JOHNSON. OK. So I take that is a yes in terms of efficiency and transparency? That you think—

Secretary MONIZ. It is the whole LNG global market.

Mr. JOHNSON. Right. OK. Do the EIA 2012 LNG export analysis and the 2014 update, the NERA economic consulting analysis and the NETL analysis, all commissioned by DOE, does that give DOE the sufficient data needed to make the public interest determination about LNG exports?

Secretary MONIZ. Last year when we modified the process, we said that we do have that set of analyses for up to 12 BCF per day. We are currently at 5.7, so we are still quite some headroom there. But we said we would need to commission, and we have done so, new analyses for going from 12 to 20 should that be called upon. We are still awaiting the contracted second study.

Mr. JOHNSON. OK. When do you expect the Cove Point terminal to receive its final DOE approval?

Secretary MONIZ. I believe Cove Point has received its final approval. Anybody know? Well, I will check that.

Mr. JOHNSON. Maybe we can mutually verify.

Secretary MONIZ. We will verify either way. But I would emphasize that the—I mean, we have no applications available right now for our final approval—

Mr. JOHNSON. It was our understanding that, what I was expecting, was that you were waiting for FERC to reject their opponent's request for rehearing, but FERC is not under a time limit; therefore, they are waiting. So the question is are we waiting for FERC to do a rehearing? Does anybody know?

Secretary MONIZ. Again, I may be getting confused, but I thought we had approved Cove Point. OK. I am sorry? You are correct ap-

parently, that we do not have a final approval, we are waiting for the EIS then from FERC.

Mr. JOHNSON. So FERC does not have a time limit for their rehearing. Is there a policy requirement that DOE wait for FERC to deny the request for rehearing, or is it just DOE practice? Because I liked your first answer. I want it approved.

Secretary MONIZ. So we need to have the EIS in order to have the information on environmental impact for the public interest determination.

Mr. JOHNSON. Is that what would come out of the rehearing process?

Secretary MONIZ. If FERC is having a rehearing that is what would come of it.

Mr. JOHNSON. That is the problem. FERC is not under a timeline to do a rehearing, so it just sits there.

Secretary MONIZ. Look, I will go look into the status of that.

Mr. JOHNSON. Could you, please?

Secretary MONIZ. Yes, I will. And it is just that again we need to have the adequate information for our making a public determination. Because we decided long ago, the Department before I was even at the Department, that we certainly didn't want to do a parallel environmental impact statement. So typically what we simply do is adopt the FERC statement.

Mr. JOHNSON. OK. Shifting gears just a little bit, I want to commend you personally for including the \$100 million in the fiscal year 2016 budget for the continued domestic uranium enrichment research and development and demonstration activities in Piketon, Ohio. This is a critical domestic need, national security—we have talked about that—to produce our own enriched uranium.

The fiscal year 2015 CROmnibus contained language that directs the DOE to report to Congress by April 30 of this year with an accounting on the current and future availability of low-enriched uranium to meet our national security needs. Can you give us a status report on that report, and will the Department meet the 30 April deadline?

Secretary MONIZ. There is a very active multi-agency process going on right now with the aim to meet that target.

Mr. JOHNSON. OK. Thank you very much.

Mr. WHITFIELD. The gentleman's time is expired.

At this time I recognize the gentleman from Kentucky, Mr. Yarmuth, for 5 minutes.

Mr. YARMUTH. Thank you very much, Mr. Chairman.

Mr. Secretary, thank you for being here. I just want to begin by applauding your willingness to bring the demonstration research to the committees. One of the things that obsesses me now is to try to figure out how we can make policy when things in the world are changing so rapidly. And we were talking earlier about the grid. And I read somewhere not too long ago where somebody has invented a way to transmit energy through sound waves, electricity through sound waves. And I am thinking if that is something that is actually viable and scaleable, then we might have a whole different alternative to the grid.

So the things that I, as a matter of fact, I have thought it would be good for us to keep bringing futurists to the committee to talk

so we can make decisions in context. So anyway, I appreciate that and look forward to it.

One of the things that I have been so excited about in the energy field is that the Federally funded clean energy manufacturing initiatives have made a huge difference around the country, and specifically in my district. We have, because of the Federal initiatives, we have like 4,000 new jobs at Ford Motor Company manufacturing plant.

We have several thousand new jobs at a GE appliance plant because they are producing now energy-efficient appliances that have benefitted from Federal tax credits. They brought a line of hybrid water heaters back from China, 420 jobs. So these types of programs can have a phenomenal benefit for the community. Can you talk about the initiatives going forward, what you are proposing in the budget, to continue that kind of initiatives to promote energy efficient manufacturing?

Secretary MONIZ. Well, there are many things. For one thing, for the Manufacturing Institute Initiative we are proposing to have full funding of two new institutes in the fiscal year 2016 budget. That would be very exciting. Those are competitively awarded. And typically in the competition so far, the States have stepped up very, very strongly in terms of matching those funds. So that is one very important initiative.

And by the way, to go back to some earlier discussions, with those institutes we are also making sure we integrate training programs with them so that, you know, you can get a workforce in the area, et cetera.

On things like the Ford plant you mentioned, I believe was part of the loan program in the ATVM. We still have \$16 billion of authority left in that program, and we are encouraging especially suppliers for the auto industry to come forward. And we also have, of course, calls out for fossil renewables and efficiency and nuclear. And when you put those all together, those could really, really help move the needle, I think, as have the previous loans in terms of jobs and cutting-edge manufacturing.

Mr. YARMUTH. There is one thing that I have been meaning to ask somebody, so you are a good person to ask. Several months ago—well, it is probably a year ago now—General Wesley Clark was speaking to a group that I was part of, and talking about he has been doing a lot of work in the energy field internationally and been travelling back and forth to China.

And one of the things he was concerned about, he talked about a company in Washington State that had actually developed a process for baking coal, not for energy, but to get very valuable minerals. They had been able to do that. And they were looking for some venture capital, I think it was \$75 million, and couldn't find it. So ultimately, a Chinese company came in and bought the technology that had been developed in the United States. Is that the type of situation that that loan program or maybe some other DOE initiatives might be able to accommodate?

Secretary MONIZ. I would have to see it in more detail. From what the sound of it, I don't think the loan program would do it. The loan program needs to push the technology envelop in an emissions-reducing technologies. Now, I don't know what the minerals

are. For example, earlier we mentioned that there is a study going on right now that should be ready 2, 3 months, I would guess, on the question of whether or not coal or the coal combustion products are a viable source of rare Earth minerals.

So that is the kind of thing that, if it looks positive, then we will come back and work with the Congress to see about a program there.

Mr. YARMUTH. Great. Thank you very much. I yield back.

Mr. WHITFIELD. At this time I recognize the gentleman from Texas, Mr. Barton.

Mr. BARTON. Thank you. Thank you Mr. Chairman.

And thank you, Mr. Secretary. We appreciate your access to the subcommittee and the full committee. You have always been one of the most accessible Obama administration officials, and it is appreciated sincerely.

I want to ask about the situation in the world oil markets. As you know, not too many months ago the price of oil was over \$100 a barrel. Now it is below \$50. Massive layoffs in the service industry in the oil patch and drilling programs. I talked to an independent producer in Texas this past week. They had 15 rigs operating a year ago. They have two today. And they are not completing the wells. They are just drilling them. They are not fracking them. They are just drilling the wells.

I introduced H.R. 702 last week to repeal the existing ban on crude oil exports. I have heard you in other venues say reasonably positive things about that. I would like your position and the Department's position, and if you are able to give it the administration's position, if you all would support the outright repeal of the existing ban on crude oil.

My bill also requires a study of the Strategic Petroleum Reserve. You know, we have got a fairly large SPR these days. And so we want to repeal the ban and then take a look at what the future is for the SPR. I would encourage your comments on those two issues.

Secretary MONIZ. Well, Mr. Barton, as you know, the crude export policy issue is one for the Department of Commerce to address. They did issue this clarification recently about lightly processed condensates.

Mr. BARTON. Well, they are granting permits on a case-by-case basis, which is appreciated, but that is not a substitute, in my opinion, for a comprehensive policy. And it is much more cumbersome, it takes a lot longer, and it is not universal, as you well know.

Secretary MONIZ. That again, that is an issue that at the policy level Department of Commerce would address. I do always put in context that we do still import seven million barrels of oil per day. And I think that is an issue. That plus, of course, current low prices would severely impact, I think, what actually, you know, would be the ground truth. But obviously we have had some analyses done.

EIA, for example, has published a piece that says the exports would probably have zero or a small negative effect on gasoline prices, for example, mainly because the Brent price tends to correlate with our product prices. So we will continue to do analysis that supports a decision.

Mr. BARTON. I know the Department of Commerce has to make these decisions, but I would assume if the President were thinking about making a change in law, since it is crude oil exports, he would consult with the Secretary of Energy. And you happen to be the Secretary of Energy. If the Secretary of Commerce were here, I would ask his position, but he is not here.

Secretary MONIZ. Her, her.

Mr. BARTON. And you are. I would also point out that we export about four million barrels per day of refined products, which is up considerably. So we have got a situation where the patient is half pregnant. We are exporting the refined products, but not allowing the crude. And it does give our refiners somewhat of a captive market for the domestic crude oil. And if we just went free market totally, I think everybody would be better off.

Obviously, it would squeeze the profit margin of the refineries, because they would not be able to maintain that captured discount, which has fallen. It has been over \$25 a barrel, but right now it is I think around \$5 a barrel. So as the world prices come down, that discount that the domestic refineries are receiving is coming down too.

In my last 37 seconds, FutureGen, the Department I think made the correct decision, sadly, not too long ago to stop funding that project. What is your position on the next step in terms of clean coal technology, carbon capture sequestration, or perhaps even carbon capture and conversion?

Secretary MONIZ. Well, first of all, I want to agree with your characterization that it was sadly, because getting an oxycombustion plant done would be a very good demonstration, but the ARRA funding deadline made it not viable. We remain very committed to that. We still have a bunch of projects coming, including in Texas the Petra Nova project, for example, will be coming on. There is the Summit project. And also the industrial facilities, the air products project, for example, also in Houston is operating.

So we are going to keep pushing forward. And two things looking forward. In addition to our research on, you know, new capture technologies, et cetera, two issues going forward: One is we do have the active solicitation for \$8 billion of loan guarantee for fossil projects with emissions reductions. And we have a—I can't talk about specifics—but we do have a very encouraging proposal stream.

And, secondly, in the fiscal year 2016 budget, not from DOE but from Treasury, is the tax credit proposal for CCS. So a \$2 billion ITC for construction, including CO<sub>2</sub> infrastructure, and a sequestration—

Mr. BARTON. So you are still supportive of research into the technologies, bottom line?

Secretary MONIZ. Both research and deployment encouragement.

Mr. WHITFIELD. We have four members still that would like to ask questions. I am going to ask each of you to cut it to 3 minutes, if possible, because I know the Secretary is leaving. He will tell me when he has to go to get to his White House meeting, but—Mr. Sarbanes, you are recognized.

Mr. SARBANES. Thank you. Thank you for being here, Mr. Secretary.

Could you maybe just give me 1 minute of my 3 minutes speaking to what you see as the benefits that are already being realized from the efforts, heroic efforts, of the Department of Energy over the last few years to just generally diversify the energy portfolio of the country. I have an impression that the falling gas prices in part can be linked to that general commitment to diversification because of the concerns and anxiety it produces overseas from OPEC and others.

But if you could speak to that briefly and any other broad benefits you see from the diversification effort, which I think has been really terrific over the last few years.

Secretary MONIZ. Well, first of all, the diversification effort would go forward irrespective of where the oil price was going because this is a long-term investment, number one.

Number two, very critical, and I would refer you to a little paper on our Web site called Revolution Now that shows, I think, the big story. The four technologies, including solar and LEDs, the vehicle batteries, it shows the tremendous cost reduction of those technologies going forward and the associated large deployment increase. That is the huge story. And that is, in the end, key to what we do trying to push the envelop and get the cost down for these technologies.

Mr. SARBANES. Great. Let me switch gears to another topic, which increasingly according to all the surveys that are coming back in the recent period, the American public is now very focused on the effects of climate change. And it appears with each passing day, more and more are convinced that we need to step up and address this in a sustained fashion. And I think that is right.

In your testimony, you talk about the sequestration of over nine million metric tons of CO<sub>2</sub> through DOE-supported projects. You talk about the efficiency standards that have been issued in calendar year 2014, and what that will mean between now and 2030; that since 2009, you are projecting that you will have a 2.2 billion metric ton of carbon emission reduction up through 2030. Just speak to how these efforts the Department of Energy has undertaken can leverage even more meaningful steps more broadly out there in the country to meet the challenge that we have in terms of addressing climate change.

Secretary MONIZ. Well, first of all, for that example, I mean, efficiency is the number one short payback approach typically. We do have, we support the R&D to develop technologies, but in this case with appliances, et cetera, it is more we put out a well-understood standard cost benefit analysis, and our companies are plenty innovative enough to meet and beat those standards.

Mr. SARBANES. Great. Thank you very much.

Mr. WHITFIELD. Gentleman's time is expired.

Mr. Long is recognized.

Mr. LONG. Thank you, Mr. Chairman.

And thank you, Mr. Secretary for being here.

What do you attribute these precipitous drop in gasoline prices to? What do you think are the main couple of factors that have led to this big drop in gas prices?

Secretary MONIZ. Well, I think the main issue is the combination of production, especially U.S. production. U.S. production of oil went up 1.6 million barrels per day just last year.

Mr. LONG. Due to what?

Secretary MONIZ. Due to the technology that had been developed over the years in terms of hydraulic fracturing and horizontal drilling, opening up the shale plays, also some deep water, but the shale plays mainly. So, we had very, very strong production. We have produced an extra several million barrels per day at the same time that you have economic softness, for example, in Europe and a lot of slowed growth in the Far East as well. Supply and demand.

Mr. LONG. Yes. Supply and demand. I mean, to me common sense dictates, tells me, but I don't have your knowledge. I am not in your position. But when we talk about fracking and things, and there was a gentlelady on the other side of the aisle that spoke earlier that was very happy that gas prices have dropped so precipitously, which we are all thrilled.

The first time I went home after the big drop I filled up, I thought the pump had stopped. It was like \$30 short of where it used to ring up. And we are all pleased with that. But I think that fracking has been very effective in increasing the amount of production in this country, and I just wanted to make sure that I was on the right wavelength with that.

You also, and to your credit, pointed out when Mr. Olson from Texas was talking about the carbon sequestration plant down there, and you corrected him and said it is not running. We have had hearings before where they are not running. Do we have any that are up and running? And if so, why not? And are they going to be viable? Because everyone brags about carbon sequestration, which would be a great thing, but I haven't found any that are operating. You see these projections of when they are going to be on line in 2015 and 2017 and 2019, and where are we on that?

Secretary MONIZ. Well, again, there are plants operating. There is a natural gas reforming facility in Texas that is operating, putting carbon underground. I might add, and again in terms of an integrated coal plant, the Boundary Dam plant in Canada, is fully operational.

Mr. LONG. The one in Texas that he was referring to—

Secretary MONIZ. The Petra Nova is under construction. It will be a few years until it is fully operating. The Kemper plant in Mississippi is nearing end of construction. The ADM ethanol plant capturing CO<sub>2</sub> is nearing completion in Illinois. So we have a lot.

And by the way, we have also had from the Great Plains plant in North Dakota—it is a gasification facility—it has supplied 20 megatons of CO<sub>2</sub> for enhanced oil recovery in Canada. So there is a lot of activity going on.

Mr. LONG. So we can look forward to the Keystone being complete when we get that down here.

Thank you.

Mr. WHITFIELD. Mr. Engel, you are recognized for 3 minutes.

Mr. ENGEL. Thank you, Mr. Chairman.

Thank you, Mr. Secretary, for waiting. I am going to try to condense everything into 3 minutes.

I want to first be on the record in supporting flex-fuel cars. I don't understand why every car built in America isn't flex-fuel. I am told you can do it for under \$100 a car, and I think we should be doing it.

I want to tell you that I appreciate the President's budget. It makes a strong commitment to clean energy. I think it is important. Climate change is real. There is already enough CO<sub>2</sub> in the atmosphere to ensure that the U.S. will have more episodes of climate disruption. Superstorm Sandy in my district in New York, Hurricane Katrina, snow in Boston and Buffalo. We really need to take action.

I have had many long conversations with Con Edison in New York about improvements they can make to better protect their critical energy infrastructure. And I know that the Department of Energy also made recommendations to industry and governments to enhance response preparedness, restoration, and resilience to future storms. So can you provide me with an update on DOE's efforts to implement its recommendations, including updates on the northeast gas reserve? How have communications been improved? What has been done to facilitate access to fuel and other supplies? And have you identified any existing laws that need to be amended or laws that need to be promulgated? That is my first question.

My second question involves Indian Point. I have been opposed—I have been for closing Indian Point. It is just north of New York City. I am convinced it would never be approved at its current location if it were to be built today for a myriad of reasons. And your predecessor, Dr. Chu, expressed a need to look at whether the Indian Point reactors should remain, and I am wondering if you could commit to do the same?

Secretary MONIZ. Well, on the first question, first of all, more broadly in terms of emergency response, the northeast situation is clearly a major one in terms of climate. I just want to note that other examples would include, for example, the propane issues last year in the upper Midwest. And in all these cases we are—first of all, we are greatly increasing through the EIA—the EIA is, by the way, a really important agency—our database and our communications with State energy offices, so that we have good situational awareness.

Secondly, the Congress did support in fiscal year 2015 our expansion of our emergency response capacity at DOE.

Thirdly, with regard to the petroleum reserve and the product reserve—of course, in the northeast now we have both a heating oil and a gasoline reserve, a million barrels each, and we are performing fuel resiliency studies for other parts of the country as well. That gasoline reserve is fully up and operational. And there are 700,000 of the million barrels are in the New York Harbor area.

Mr. WHITFIELD. The gentleman's time is expired.

Mr. ENGEL. Mr. Chairman, just give me 10 seconds.

Could we communicate on Indian Point? I am not opposed to nuclear power at all. I just worry about that power plant.

Secretary MONIZ. Maybe we can have that discussion—

Mr. ENGEL. Thank you.



Mr. WHITFIELD. At this time I recognize the gentleman from Oklahoma for 3 minutes.

Secretary MONIZ. Yes, I need to leave in 3.

Mr. WHITFIELD. How much time do you have left, Mr. Secretary?

Secretary MONIZ. About 3.

Mr. MULLIN. I will literally have one question for you. With the rate that our coal-fired power plants are coming off line due to the administration's rules on clean air and the war on coal, has there been any study at all to know if the capacity of our pipeline right now is going to be able to supply adequate supply to our power plants? Obviously, we know they are going to have to take up the blunt of the load. And I believe we are going to have shortage of electricity heating our power grid. What I don't want to see is rolling blackouts.

Secretary MONIZ. Right. So, first of all, I want to just emphasize I don't accept the war on coal characterization.

Mr. MULLIN. That wasn't my words. That came out of the administration's. I mean, anyway, we can debate that at a different time.

Secretary MONIZ. And there are many, many factors that have influenced the reduction in coal plants, and by the way, I might say nuclear plants as well. I have also—

Mr. MULLIN. I understand that, but we have a lot of plants coming off line in 2016.

Secretary MONIZ. So on the gas side there was a paper—we will be happy to supply it to you—it was published just days ago. It was part of an analytical work in our QER. And what it says fundamentally is there will be some need for some regional build-out of additional gas pipe, but not nearly as much as is being discussed. For one reason, in the last years we have had a tremendous build-out of gas pipelines, in fact, enough to carry twice as much gas as we actually use.

Mr. MULLIN. But getting it to the power plants. We are seeing 4 years it is taking to get a permit, on average, to get a line built to the power plants. We have units coming down at an alarming rate coming 2016.

If we are downing these things, then what is DOE's answer to the shortage we are going to have in 2 years? Because we can't even get the lines permitted in that amount of time.

Secretary MONIZ. OK. Again, I think this is a more detailed discussion I would be happy to follow-up on. But to emphasize, there has been this huge build-out. Those pipes are underutilized. So there is a lot we can do just by using the unused capacity of these pipes.

Mr. MULLIN. The volume capacity is set by you guys of how much due to highly populated areas and rural areas. But so there is going to have to be some fluctuation there. We can discuss this at further length, because this is obviously vitally important.

So thank you for your time.

Secretary MONIZ. Yes, it is.

Mr. WHITFIELD. Time is expired.

Mr. Flores, do you have one question you want to ask?

Mr. FLORES. I do. I will just submit mine for the record.

Mr. WHITFIELD. OK. Mr. Secretary, thank you. So sorry.

We appreciate it and we look forward to working with you. And thank you so much.

Secretary MONIZ. And we have a number of things to get back with, various numbers.

Mr. WHITFIELD. That concludes today's hearing. The record will remain open for 10 days. And that is the end of the hearing.

[Whereupon, at 4:00 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

FRED UPTON, MICHIGAN  
CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY  
RANKING MEMBER

ONE HUNDRED FOURTEENTH CONGRESS  
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**House of Representatives**  
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March 16, 2015

The Honorable Ernest J. Moniz  
Secretary  
U.S. Department of Energy  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585

Dear Secretary Moniz:

Thank you for appearing before the Subcommittee on Energy and Power on Wednesday, February 11, 2015, to testify at the hearing entitled "Fiscal Year 2016 Department of Energy Budget."

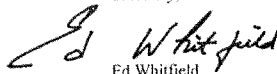
Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

Also attached are Member requests made during the hearing. The format of your responses to these requests should follow the same format as your responses to the additional questions for the record.

To facilitate the printing of the hearing record, please respond to these questions and requests with a transmittal letter by the close of business on Thursday, March 30, 2015. Your responses should be mailed to Nick Abraham, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515 and e-mailed to [Nick.Abraham@mail.house.gov](mailto:Nick.Abraham@mail.house.gov).

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



Ed Whitfield  
Chairman  
Subcommittee on Energy and Power

cc: The Honorable Bobby L. Rush, Ranking Member, Subcommittee on Energy and Power

Attachments

[Secretary Moniz's answers to submitted questions have been retained in committee files and are available at: *<http://docs.house.gov/meetings/if/if03/20150211/102942/hhrg-114-if03-wstate-monize-20150211-sd543.pdf>*.]

