

THE FISCAL YEAR 2015 DEPARTMENT OF ENERGY BUDGET

HEARING BEFORE THE SUBCOMMITTEE ON ENERGY AND POWER OF THE COMMITTEE ON ENERGY AND COMMERCE HOUSE OF REPRESENTATIVES ONE HUNDRED THIRTEENTH CONGRESS SECOND SESSION

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THE FISCAL YEAR 2015 DEPARTMENT OF ENERGY BUDGET

THURSDAY, APRIL 3, 2014

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

The subcommittee met, pursuant to call, at 10:06 a.m., in room 2123 of the Rayburn House Office Building, Hon. Ed Whitfield (chairman of the subcommittee) presiding.

Members present: Representatives Whitfield, Scalise, Hall, Shimkus, Terry, Burgess, Latta, Cassidy, Olson, McKinley, Gardner, Pompeo, Kinzinger, Griffith, Barton, Upton (ex officio), Rush, McNerney, Tonko, Engel, Green, Capps, Doyle, Barrow, Matsui, Christensen, and Waxman (ex officio).

Also present: Representative Johnson.

Staff present: Nick Abraham, Legislative Clerk; Gary Andres, Staff Director; Charlotte Baker, Deputy Communications Director; Mike Bloomquist, General Counsel; Sean Bonyun, Communications Director; Matt Bravo, Professional Staff Member; Allison Busbee, Policy Coordinator, Energy and Power; Annie Caputo, Professional Staff Member; Patrick Currier, Counsel, Energy and Power; Tom Hassenboehler; Chief Counsel, Energy and Power; Jason Knox, Counsel, Energy and Power; Brandon Mooney, Professional Staff Member; Mary Neumayr, Senior Energy Counsel; Peter Spencer, Professional Staff Member, Oversight; Tom Wilbur, Digital Media Advisor; Jeff Baran, Democratic Senior Counsel; Greg Dotson, Democratic Staff Director, Energy and Environment; Caitlin Haberman, Democratic Policy Analyst; and Bruce Ho, Democratic Counsel.

Mr. WHITFIELD. I would like to call the hearing to order this morning. And today, we are going to be looking at the fiscal year 2015 budget for the United States Department of Energy. And of course, we are delighted that Secretary Moniz is with us this morning. I know he has been very busy on the Hill and the Senate side as well. And we really look forward to his testimony today and to the opportunity to ask questions regarding next year's Department of Energy's budget request.

At this time, I would like to recognize myself for 5 minutes for an opening statement.

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

DOE of course is tasked with developing and implementing a coordinated national energy policy, one that should further an all-of-the-above energy strategy. It should also be fostering private sector competition and innovation of advanced energy technologies. And national energy policy should also continue to support job creation in our manufacturing renaissance by providing regulatory certainty rather than overreaching regulations so that we can maintain access to affordable, abundant and reliable energy supplies.

I noticed that the DOE fiscal year 2015 budget request \$9.8 billion for DOE Science and Energy programs that DOE states will play a key role in achieving the President's Climate Action Plan. In other words, over a third of the entire \$28 billion budget is being allocated to the President's climate agenda. This budget affirms the DOE is putting the President's climate change agenda ahead of the interest of a balanced national energy policy. Now, we can debate that, but it is quite clear that the President's climate change agenda is right at the top of the mission of the DOE at this time. This mission is further evidenced by the fact that the DOE's budget once again overwhelmingly favors the Office of Energy Efficiency and Renewable Energy, which houses all of the President's favorite green energy programs. And in fact, the 2.3 billion requests there is more than the combined budget requests for the Offices of Electricity, Fossil Energy, Nuclear Energy and ARPA-E. In my humble opinion, we have seen the Obama administration waste too much money on green energy projects that have failed. Many have gone into bankruptcy at the expense to the taxpayer.

Another issue that is of concern to me and many others in the proposed is the substantially reduced funding for the mixed oxide fuel fabrication facility, MOX, currently under construction at Savannah River Site in South Carolina. In the case of the MOX plant, DOE has decided to abandon construction of the facility being built to eliminate 34 tons of surplus weapons plutonium, a project that was initiated in the Clinton administration. At this point, \$4 billion has already been spent, and the facility is 60 percent complete. Yet, the Department has decided to shut down construction. And it appears, without any record of decision or any proposed alternative, or any analysis of the ramifications. Now, maybe they are there, but maybe we just haven't seen them yet. Congress appropriated funds for the construction. But it is my understanding that DOE does intend to use those funds instead to shut down the project, resulting in 1,800 people at risk of being laid off at their job. And it is disturbing because of what had happened at Yucca Mountain; the money that was spent at Yucca Mountain, that was stopped, the lawsuits that were filed as a result of that, and the liability of the Federal Government under those lawsuits. People who are concerned about our debt are genuinely concerned about wasting that amount of money.

I want to thank Secretary Moniz for appearing with us today on this budget. And as I said in the beginning, he has been a real energetic Secretary of Energy. He is willing to engage on these issues at any point. And it is good to have open discussion with him. And

I want to commend him for that. We look forward to hearing his testimony and asking him question about the budget.

[The prepared statement of Mr. Whitfield follows:]

PREPARED STATEMENT OF HON. ED WHITFIELD

This morning's hearing will focus on the proposed Fiscal Year 2015 budget for the Department of Energy. Welcome, Secretary Moniz. We're very pleased to have you here today to share your views on the Department of Energy's FY 2015 budget.

DOE is tasked with developing and implementing a coordinated national energy policy, one that should further an "all-of-the-above" strategy that promotes greater production of all of America's resources. It should foster private sector competition and innovation of advanced energy technologies. A national energy policy should also continue to support job creation and our manufacturing renaissance by providing regulatory certainty, rather than overreaching regulations, so we can maintain access to lowcost energy supplies.

But the DOE budget before us today, I am disappointed to say, is not reflective of a true national energy policy. Rather, it contributes to the lending of taxpayer support to the President's Climate Action Plan. To be sure, the DOE FY 2015 budget request includes \$9.8 billion for DOE science and energy programs that DOE states "will play a key role in achieving [the President's Climate Action Plan] goals." In other words, over a third of DOE's entire \$28 billion budget is being allocated to the President's climate agenda.

This budget affirms that DOE is all-too-willing to acquiesce to EPA's anti-energy agenda rather than affirmatively assert its own pro-energy agenda. This budget further creates additional concerns in my mind that DOE is blatantly putting the President's climate change agenda ahead of the interests of a balanced national energy policy and the interests of the American people. This mission is further evidenced by the fact that DOE's budget once again overwhelming favors the Office of Energy Efficiency and Renewable Energy (EERE), which houses all of the President's favored green energy programs. In fact, EERE's \$2.3 billion budget request is more than the combined budgets of the Offices of Electricity, Fossil Energy, Nuclear Energy, and ARPA-E.

We've seen the Obama administration waste too much money on green energy pet projects that have failed, and we owe it to the taxpayers not to repeat those mistakes. That is why I am disappointed to see yet another DOE budget pursuing the same failed policies in pursuit of a climate agenda that has repeatedly been rejected. The fact that the President and DOE continue to circumvent Congress to unilaterally pursue policies that are not supported by the American people is an affront to the democratic process.

DOE instead should be taking a much more balanced approach that reflects current energy and economic realities. For example, America's abundant energy resources—including coal, oil and natural gas—holds tremendous potential for energy affordability and security, for job creation, for export opportunities, and for strengthening America's standing in the world. But it also poses implementation and innovation challenges for which DOE can play a role. DOE should be out in front of this effort, but the proposed budget does not reflect this need.

Another issue that is of great concern to me in the proposed budget is the substantially reduced funding for the Mixed Oxide Fuel Fabrication Facility (MOX) currently under construction at Savannah River Site (SRS) in South Carolina. In the case of the MOX plant, DOE has decided to abandon construction of the facility being built to eliminate 34 tons of surplus weapons plutonium, a project initiated by the Clinton administration. At this point, \$4 billion has been spent and the facility is 60 percent complete, yet DOE has decided to shutdown construction apparently without any Record of Decision, any proposed alternative, or any analysis of the ramifications. Congress appropriated funds for construction, but it is my understanding that DOE intends to use those funds instead to shut down the project resulting in 1800 people at risk for layoffs.

It seems to me that if DOE is going to abandon a \$4 billion investment, the taxpayers and those at risk of losing their jobs deserve a thorough basis for it. I would urge DOE to use the funds for construction of the facility as originally appropriated by Congress.

Again, I want to thank Secretary Moniz for appearing before us today on DOE's FY2015 budget proposal. I look forward to hearing his testimony and asking him questions on issues before the Department of Energy.

Mr. WHITFIELD. And at this time, I would like to recognize the gentleman from Illinois, Mr. Rush, for his 5-minute opening statement.

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 thank you, Secretary Moniz, for being here today to discuss DOE's fiscal year 2015 budget.

Secretary Moniz, I would like to commend you for establishing the minority's and energy's initiative at DOE. Following discussions where I express my strong and overriding desire to increase minority participation and involvement within all sectors of the energy industry. While I believe that this is a first—a good first step, I have some serious concerns regarding the amount of resources the Agency is actually investing in this initiative, as evidenced by your own budget proposal.

Mr. Secretary, to me, DOE's budget is a moral statement of principles and a covenant with the American people. Mr. Secretary, when I speak to my constituents about this new initiative, one of the very first questions that they want to know is how committed is DOE to this program, and how much of the Department's vast resources is the Agency willing to invest to ensure that this initiative achieves overwhelming success?

Mr. Secretary, I am sure that you understand that in minority communities around the country, there is always skepticism when new programs or new policies are announced supposing to help increase opportunity when the resources to help make them successful are not included. So when members who represent these communities, such as myself and many, many others see a lack of investment in programs designed to assist minorities, it is our duty to hold the administration and the Agencies responsible in order to rectify the situation. For instance, Mr. Secretary, I am not impressed with the investment in the minority and energy initiative as it currently stands. And I want to work with you to make sure that we are not shortchanging these communities who are looking for opportunities to improve their livelihood, as so many others have already been afforded.

And, Mr. Secretary, we know that these opportunities are out there. In fact, we have come a long way since I first inquired—first started inquiring into the levels of participation of minorities in all different sectors of the energy industry. And now we have the administration, the industry, schools, universities, and all—they are all talking about the concept of increasing the number of minorities in energy. As you know, I have a bill that will provide a pass way to energy jobs by reaching out to minority communities and informing them of mostly opportunities available within the energy sector, as well as the skills, training and certifications needed to take advantage of these opportunities. My office is actively reaching out to members on both sides of the aisle who understand the need for better preparing all Americans for energy jobs in the present and the future. And I will continue to work with any and all stakeholders who are of the same mind.

This is my hope, Mr. Chairman, that we can hold a hearing on this very important topic of minority participation in the energy sector in order to make up for the shortfall of workers who will be retiring and exiting the workforce, leaving behind a shortage of talented and skilled workers in their wing. And the fact of the matter is that increasing the number of skilled and trained workers will in fact be a win for the industry, a win for the minority communities and a win for the entire American economy as a whole. So I look forward to working with you, Mr. Secretary, as well as members on both sides of the aisle to make this a real commitment on the part of the administration and—

With that, I yield back.

Mr. WHITFIELD. The gentleman yields back. At this time, I 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. Well, Mr. Secretary, welcome back to the committee. I for one do appreciate your thoughtful insight and friendship. And when I look at DOE's current energy policies, as well as its budget for fiscal year 2015, I must confess that I see an agency that is still struggling a bit to keep up with a changing energy landscape. The old assumptions of energy scarcity are somewhat pervasive, and it is time for DOE to adapt.

It does appear that DOE is ultra-cautious approach to proving LNG Export's—you would expect us to say this today—to non-free trade agreement trade agreement countries does not reflect our newfound age of energy abundance. Projections from the EIA, as well as DOE's own analysis, confirm that we have more than enough natural gas to meet domestic needs affordably while supporting export markets. And this surplus situation is likely to last for many decades. The ramifications of DOE's policy on exports can be measured not only in the thousands of unrealized jobs that could be constructed at LNG Export facilities and producing the extra natural gas for export, but also in the billions in revenues that could be flowing into the country and boosting the overall economy. Geo-political opportunities are also at risk. The mere signal that the U.S. is serious about entering export markets would have an immediate effect on our allies in Eastern Europe who are currently dependent on that—on Russia for natural gas. In fact, reports earlier this week show that Russia upped the bill by as much as 45 to 50 percent on our friends in Ukraine. That is why I and so many others support Cory Gardner's bill, H.R. 6, bipartisan legislation, The Domestic Prosperity and Global Freedom Act, which would help clear the backlog of export applications currently at DOE.

LNG export facilities are just one part of the larger infrastructure picture to make full use of our newfound energy advantage in H.R. 6, is one bill that facilitates building these—this architecture of abundance. We are in the midst of a continued and comprehensive effort to review and update energy laws, many of which were written in a time of Jimmy Carter Era price controls and scarcity. And whether it is legislation to modernize and update transmission and distribution infrastructure, legislation to maintain adverse

electricity portfolio generation with a continued role for coal and nuclear renewables, or legislation seeking or ensure that we have the tools in place to permit a new manufacturing renaissance, we are building a record and exploring opportunities at every level.

Now, I know that DOE is beginning a similar effort to look comprehensively at our energy infrastructure and broader strategy through the quadrennial energy review process, and I welcome that broad look. However, I remain skeptical of the Federal Government playing venture capitalist in making other decisions best left to the marketplace. DOE may be talking about the energy breakthroughs of the future, but the Agency is still trying to get there with central planning approaches of the past. In particular, the revival of the loan guarantee program that backs Solyndra and several other projects that went bust is of serious concern and will no doubt be a topic of discussion of today.

I would like to conclude just by reminding you of DOE's role in the Federal Government. Yesterday, this subcommittee held its EPA budget hearing. And I couldn't help but notice the extent to which EPA sets the energy policy agenda in the administration, even though that Agency has no statutory authority to do so. DOE should be the energy policy setting body, but it seems as though it has relinquished that duty to a degree. In past administrations, both Republican and Democratic, DOE acted as a pro-energy counterweight to an EPA whose tendency was to regulate every BTU that it encountered. I know that we can restore DOE's mission to ensure a more balanced approach to the energy policy. And I yield back the balance of my time.

[The prepared statement of Mr. Upton follows:]

PREPARED STATEMENT OF HON. FRED UPTON

Secretary Moniz, welcome back to the committee. When I look at DOE's current energy policies as well as its budget for Fiscal Year 2015, I see an agency that is struggling to keep up with a changing energy landscape. The old assumptions of energy scarcity are still pervasive and it is time for DOE to adapt.

For example, DOE's ultra-cautious approach to approving LNG exports to non-Free Trade Agreement countries does not reflect our newfound age of energy abundance. Projections from the Energy Information Administration as well as DOE's own analysis confirm we have more than enough natural gas to meet domestic needs affordably while also supporting export markets. And this surplus situation is likely to last for many decades.

The ramifications of DOE's sluggish policy on exports can be measured not only in the thousands of unrealized jobs that could be constructing LNG export facilities and producing the extra natural gas for export, but also in the billions in revenues that could be flowing into the country and boosting the overall economy. Geopolitical opportunities are also at risk. The mere signal that the U.S is serious about entering export markets would have an immediate effect on our allies in Eastern Europe who are currently dependent on Russia for natural gas. That is why I and so many others support Cory Gardner's bill, H.R. 6, "The Domestic Prosperity and Global Freedom Act," which would help clear the backlog of export applications currently languishing at DOE.

LNG export facilities are just one part of the larger infrastructure picture to make full use of our newfound energy advantage, and H.R. 6 is just one bill that facilitates building this architecture of abundance. We are in the midst of a continued and comprehensive effort to review and update energy laws, many of which were written in a time of Carter era price controls and scarcity. Whether it is legislation to modernize and update transmission and distribution infrastructure, legislation to maintain a diverse electricity portfolio generation with a continued role for coal, nuclear and renewables, or legislation seeking to ensure we have the tools in place to

permit a new manufacturing renaissance, we are building a record and exploring opportunities at every level.

I know DOE is beginning a similar effort to look comprehensively at our energy infrastructure and broader strategy through its Quadrennial Energy Review process, and I welcome this broad look. However, I remain highly skeptical of the Federal Government playing venture capitalist and making other decisions best left to the marketplace. DOE may be talking about the energy breakthroughs of the future, but the agency is still trying to get there with the central planning approaches of the past. In particular, the revival of the loan-guarantee program that backed Solyndra and several other projects that went bust is of serious concern, and will no doubt be a topic for discussion today.

I would like to conclude by reminding DOE of its role in the Federal Government. Just yesterday, this subcommittee held its EPA budget hearing, and I could not help but notice the extent to which EPA sets the energy policy agenda in this administration, even though that agency has no statutory authority to do so. DOE should be the energy policy-setting body, but it seems as though it has relinquished its duty. In past administrations, both Democratic and Republican, DOE acted as a pro-energy counterweight to an EPA whose tendency was to regulate every BTU it encounters. I hope we can restore DOE's mission to ensure a more balanced approach to energy policy.

Mr. WHITFIELD. Mr. Upton yields back the balance of his time. At this time, I would like to recognize the gentleman from California, Mr. Waxman, for 5 minutes.

OPENING STATEMENT OF HON. HENRY A. WAXMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WAXMAN. Thank you, Mr. Chairman. And, Mr. Secretary, welcome back to our committee.

Last week, Geochemist James Lawrence Powell published a study documenting the scientific consensus on climate change. Dr. Powell, who, among other things, served on the National Science Board under both Presidents Reagan and George H.W. Bush, looked at all the peer-reviewed scientific articles published on climate change in 2013. He found over 10,000 articles that agreed that climate change is real and caused by man. And only 2 out of more than 10,000 that rejected human-caused global warming. You can see his results on the screen.

Secretary Moniz, you may not know this, but we took a vote on this issue earlier this year. Congresswoman Schakowsky offered an amendment that said greenhouse gas emissions threaten public health and welfare by disrupting the climate. That was the statement. The Republican members of this committee voted unanimously to reject that amendment. Just that statement. I have been in Congress for 40 years. This is my last year in Congress. And I have never seen just an embarrassing and dangerous disconnect between what scientists say and how this committee votes. On Monday, the Intergovernmental Panel on Climate Change, or IPCC, told us that climate change is happening today on "all continents across the oceans." The world's leading scientists explain that unless we take significant steps to reduce carbon pollution now, "climate change impacts are projected to slow down economic growth, make poverty reduction more difficult, further erode food security, and prolong existing and create new poverty traps."

The science of climate change is settled. Climate change is happening. It is caused by humans. And its impacts are both serious and real. And it is time for us to listen to the scientists and to act.

I appreciate that we have a President who does listen to the scientists and is acting to address climate dangers. Under his Climate Action Plan, President Obama has committed to reducing our carbon pollution by 17 percent by 2020 and has outlined a number of steps to do so. The President has committed to bend the post-2020 global admissions trajectory further still.

The Department of Energy has a key role to play under the President's plan. The energy choices we make today will determine whether we address this threat or leave our children and grandchildren with a climate catastrophe.

That means, Secretary Moniz, that you have one of the most important jobs in America. I view the paramount responsibility of the Secretary of Energy as advancing the Nation's response to the threat of climate change. That is your responsibility as well as EPA's. And I don't think you ought to be fighting a turf war with them, as some of our colleagues here suggest. Under your leadership, the Department of Energy is working to meet the climate challenge. DOE is developing the energy efficiency standards we need to cut energy waste and save people money. You are engaged in research, development, demonstration and deployment of advanced renewable energy technologies, cleaner vehicles, energy storage and a modern electric grid that delivers reliable clean energy to power our homes and businesses. And you are hard at work developing next generation pollution control technologies for our fossil fuel systems. These new clean energy technologies will protect our environment, create new jobs and grow our economy.

Mr. Secretary, the latest IPCC report confirms that we have a choice. We could listen to the scientists and invest in the energy technologies we need for a prosperous clean energy future, or we could ignore the climate problem and suffer dire consequences. Mr. Secretary, I am confident that you will continue to help us choose the right path to a clean energy future. I look forward to your testimony and your continued leadership on these issues. Thank you.

Mr. WHITFIELD. The gentleman yields back the balance of his time. At this time, having completed the opening statements, Secretary Moniz, we are going to recognize you for your 5-minute opening statement. And once again, thank you for being with us.

STATEMENT OF ERNEST J. MONIZ, SECRETARY, DEPARTMENT OF ENERGY

Mr. MONIZ. Well, thank you, Mr. Chairman. And—I should say chairmen Whitfield and Upton and ranking members Rush and Waxman. Members of the committee, I appreciate the opportunity to come here to discuss our budget proposal for fiscal year 2015.

The President I think makes clear through this proposal that the Department of Energy has significant responsibilities in the advancing the Nation's security—especially by maintaining a reliable nuclear deterrent and keeping nuclear materials out of the hands of terrorists, and for advancing the Nation's prosperity, in particular by supporting the President's all-of-the-above approach to energy and by helping to provide the foundation for the future of advanced manufacturing in this country.

Mr. WHITFIELD. Mr. Secretary, if I may? I am sorry to interrupt you. Would you move the microphone just a little bit closer to you?

Mr. MONIZ. Oh, closer?

Mr. WHITFIELD. Yes.

Mr. MONIZ. OK.

Mr. WHITFIELD. Thank you.

Mr. MONIZ. Thank you. OK. So the Department of Energy's top-line discretionary budget request is \$27.9 billion, a 2.6 percent increase from fiscal year 2014. And in this constrained budget environment, again, I think this reflects some of the high-priority missions that we have responsibility for.

I will discuss very briefly a few points along DOE's three major programmatic areas as we have organized them at the under secretary level, science and energy, which I understand will be the main focus of today's discussions, and a few words about nuclear security, and management and performance.

On science and energy, the President's all-of-the-above energy strategy is driving economic growth, creating jobs while lowering carbon emissions. We are producing more natural gas in the United States than ever before. And for the first time in two decades, we are producing more oil at home than we import from the rest of the world. In fact, just yesterday, the EIA released some data showing that net energy imports in the United States now, which is about 13 quads, is the same as in 1987, 30 years ago. So it has been a dramatic reduction. And in fact, more than a 10 percent reduction just from 2012 to 2013.

We have also, at the same time, made remarkable progress in clean and renewable energy. In the last 5 years, more than doubled the amount of electricity from wind and solar, at the same time making the investments that enable coal and nuclear power to be competitive in a clean energy economy. We are aggressively advancing energy efficiency, bringing economic environmental and security benefits.

In the last few years, we have seen technologies like LED lighting costs drop several fold, such that payback periods are now approaching one year, and along with that, tens of millions of units being deployed in the marketplace.

The budget request is 9.8 billion, as the chairman said, for the science and energy activities, an increase of 5 percent for, again, advancing the all the above energy strategy, supporting the Climate Action Plan, continuing the quadrennial energy review focusing on energy infrastructure, and maintaining global scientific leadership.

There are significant increases in several important applied programs. I will just say a couple words. In energy efficiency renewable energy, a 22 percent increase is proposed with focus areas in transportation, renewable technology, efficiency, advanced manufacturing. Office of Electricity: significant increase to support what we all see I think as important modernization of the grid, an enhancement of its resiliency in response to many threats that we are seeing. We are also building a strengthened emergency response capability as the lead agency for energy infrastructure under the leadership of FEMA in case of severe events.

ARPE-E, which takes a unique entrepreneurial approach, we propose for a 16 percent increase. We would note that in its relatively brief existence so far there have been 24 startups coming

out of the ARPE-E programs, and many, many other indicators of success. We also have created, as part of our reorganization, the Office of Energy Policy and Systems Analysis, mainly gathering policy elements from various program offices, but with a particularly critical responsibility for enhancing our analytical capacity and for advancing the Quadrennial Energy Review, looking at this country's energy infrastructure challenges.

DOE science programs really are the backbone of the American research enterprise and the physical sciences, and we have proposed \$5.1 billion for science. As one example, in conjunction with the NNSA, our National Security Agency, the Office of Science will lead an initiative to develop exascale computing platforms, the next stage in a historic DOE role for keeping this country at the leadership edge of high performance computing. And of course, the many facilities that science supports, light sources, Spallation Neutron Source, the future Facility for Rare Isotope Beams, all sustained nearly 30,000 scientists in this country with cutting-edge activities.

I mentioned cross cutting activities already, exascale, for example, and grid. One other one is subsurface science and engineering, where we find many energy issues involve subsurface science and engineering. We want to pull those together, make them more coherent, involve our laboratories as a system.

In nuclear security, I will just end up by saying we have asked for 11.9 billion. I would say a highpoint there is that through an administration-wide process, we have firmly committed to the nuclear posture review approach to our nuclear deterrent, and that is stretched out a little bit because of budget constraints, but it is committed to as our direction there. In management performance, just emphasizing, and I think this committee would agree that, without improving our management performance, we will not be able to as effectively for sure execute our energy science and security missions. So this is a new focus under which we have moved environmental management to be a specific responsibility of that under secretary.

I will just mention maybe from the point of view of a news item again, as you know we have had an issue at WIPP, our facility in New Mexico. I just wanted to emphasize first that there is no evidence of any significant exposures to people. But, obviously, we are shut down at the moment. But yesterday, two teams did enter the caverns, and we hope to move expeditiously towards a reopening.

With that, I just want to thank you for your time and look forward to questions.

[The prepared statement of Mr. Moniz follows:]

**Testimony of Secretary Ernest Moniz
U.S. Department of Energy
Before the
U.S. House of Representatives
Committee on Energy and Commerce
Subcommittee on Energy and Power
April 3, 2014**

Chairmen Whitfield and Upton, Ranking Members Rush and Waxman, and Members of the Committee, thank you for the opportunity to appear before you today to discuss the Department of Energy's (DOE) Budget Request for fiscal year (FY) 2015. I appreciate the opportunity to discuss how the budget request advances our clean energy, science, nuclear security, and nuclear waste cleanup goals to carry out the President's priorities.

The President has made clear that the Department of Energy has significant responsibilities for advancing the nation's prosperity and security through its mission. In particular, I would like to highlight three critical mission areas of the Department.

As the President said in the State of the Union address, "the all-of-the-above energy strategy I announced a few years ago is working, and today, America is closer to energy independence than we've been in decades." This strategy is driving economic growth and creating jobs, while lowering our carbon emissions. We are producing more natural gas in the United States than ever before. And for the first time in twenty years, we are producing more oil at home than we import from the rest of the world. We have also made remarkable progress in clean and renewable energy. In the last five years, we have more than doubled the amount of electricity we generate from wind and solar. At the same time, we are making the investments that will enable coal and nuclear power to be competitive in a clean energy economy, and aggressively advancing efficiency for its economic and environmental benefits.

In June 2013, the President launched the Climate Action Plan. Under this plan, the Department is working to reduce the serious threat of climate change and, with a

heightened focus on resilience, preparing American communities for the impacts of a changing climate that are already being felt.

Just over a week ago at the Nuclear Security Summit in The Hague, the President reiterated his commitment to nuclear nonproliferation and security, calling on the global community to decrease the number of nuclear weapons, control and eliminate nuclear weapon-usable materials, and build a sustainable and secure nuclear energy industry. All of these areas are central to the Department of Energy's mission: maintaining a strong and credible strategic deterrent, working to secure and eliminate vulnerable nuclear materials around the world, and advancing safe nuclear power technology for the decades ahead.

Both of these mission areas – clean energy and nuclear security – depend on sustaining America's research and development (R&D) leadership. The Department of Energy, to a large extent through our seventeen national laboratories, plays a key role in our nation's respective advantage in the physical sciences.

Finally, the President's Management Agenda includes an emphasis on Federal agencies' effective and efficient execution of their missions for the American people.

Carrying Out DOE's Top Priorities through an Effective Organization

The Department of Energy's budget request for fiscal year (FY) 2015 aligns the agency's funding and organization with these three presidential priorities.

First, while the Department's science and energy programs have previously been managed and overseen separately by two under secretariats, we have merged those roles into a single Under Secretary for Science and Energy to more effectively carry forth our science and energy priorities. I'll discuss some of the cross-cutting initiatives facilitated by this new organizational structure, as well as how we are reexamining and strengthening the way we work with our National Laboratories to better carry out our science and energy missions.

Next, an Under Secretary for Nuclear Security, who also serves as Administrator for the National Nuclear Security Administration, oversees our nuclear security missions and ensures effective and efficient collaboration across under secretariats on crosscutting activities and missions. This Under Secretary is also engaging in discussions with the National Laboratories and with Congress to ensure that all of our sites are working to serve the public interest to the greatest extent possible. This position is, of course, established with the principle high level charge of preserving U.S. nuclear security, this why we are moving the Office of Environmental Management to the new Undersecretary for Management and Performance.

Finally, we created the Under Secretary for Management and Performance to implement a strong focus on management to effectively carry out our missions on behalf of the American people. It is not a secret that DOE has room for improvement in this area, and establishing this new position will bring focus and leadership to these challenges.

This Under Secretary focuses on management across the Department, and oversees our environmental cleanup programs. It is inherently complex and challenging to design and implement one-of-a-kind projects to nuclear safety standards. We have had many successes in implementing major projects at the Department of Energy, and obviously we have had and are continuing to have major challenges. We have reduced our Cold War legacy “footprint” by 74 percent. But of course, the most complex and difficult projects remain. A focus on management and performance is critical to further building upon our successes and overcoming our challenges.

The Department of Energy’s top-line discretionary budget request for FY 2015 is \$27.9 billion, a 2.6 percent increase above FY 2014. The Department of Energy’s 2.6 percent increase recognizes our high-priority missions for clean energy and addressing climate change, nuclear security, and innovation. The Department of Energy’s budget request includes \$9.8 billion for energy, science, and related programs, \$11.9 billion for nuclear security, and \$6.5 billion for management and performance and related programs. I will discuss the budget request for each of these three programmatic areas in more detail.

Recognizing the importance of the two-year budget agreement Congress reached in December, the Budget adheres to the 2013 Bipartisan Budget Act's discretionary funding levels for 2015. However, these levels are not sufficient to expand opportunity to all Americans or to drive the growth our economy needs, and the need for pro-growth investments in infrastructure, education, and innovation has only increased due to the Great Recession and its aftermath. For that reason, the Budget also includes a separate, fully paid for \$56 billion Opportunity, Growth, and Security Initiative (OGSI), which shows how additional discretionary investments in 2015 can spur economic progress, promote opportunity, and strengthen national security. Consequently, in addition to the base budget submission of \$27.9 billion for the Department of Energy, OGSI provides \$1.6 billion for additional investments at the Department of Energy. Those investments consist of over a billion dollars in the energy and climate arena—including \$355 million for climate resilience and \$684 million for clean energy and energy efficiency activities—and \$600 million for additional investments in nuclear security.

In addition to our discretionary budget and OGSI, the Budget also proposes an Energy Security Trust. This \$2 billion investment over 10 years will support R&D into a range of cost-effective technologies – like advanced vehicles that run on electricity, homegrown biofuels, renewable hydrogen, and domestically produced natural gas – and will be drawn from existing royalty revenues generated from Federal oil and gas development.

Science and Energy

The budget request includes \$9.8 billion for science and energy programs to further our all-of-the-above energy strategy, support the President's Climate Action Plan, continue the Quadrennial Energy Review, and maintain global scientific leadership. The request includes \$4.7 billion for a portfolio of energy activities consisting of our applied energy programs, the Advanced Research Projects Agency—Energy (ARPA-E), the Loan Programs, International Affairs, the Energy Information Administration, our new Energy Policy and Systems Analysis program, our proposed consolidation of the Office of Indian Energy Policy and Programs, and the Power Marketing Administrations. These offices reflect the

wide diversity of programs, roles, and responsibilities that we have in the Nation's energy sector.

The budget request for science and energy also includes \$5.1 billion for the Office of Science, which provides the national research community with unique research opportunities at major facilities for nuclear and particle physics, energy science, materials research and discovery, large-scale computation, and other disciplines.

Together, these programs support the President's Climate Action Plan, further an all-of-the-above energy strategy, and promote and sustain U.S. leadership in science and technology innovation to ensure that clean energy technologies are invented and manufactured here in America.

Energy Efficiency and Renewable Energy

The Department's Office of Energy Efficiency and Renewable Energy (EERE) is the U.S. Government's primary clean energy technology organization, working with many of America's best innovators and businesses to support high-impact applied research, development, demonstration, and deployment (RDD&D) activities in the areas of sustainable transportation, renewable power, and energy efficiency.

EERE has experienced tremendous success in contributing to efforts to reduce U.S. dependence on foreign oil, save American families and businesses money, and grow the domestic clean energy industry. For example, EERE has helped manufacturers increase their energy productivity, including providing technical support to 590 combined heat and power projects between FY 2009 and FY 2013. Since 1979, EERE-supported RD&D has advanced 220 new manufacturing technologies that can and will continue to significantly increase energy efficiency. In addition, through the EERE-supported SuperTruck Initiative, EERE partners have developed a full-scale, prototype class 8 heavy-duty truck that is 61% more efficient than current technology. And these are only a couple of examples of the work underway.

The budget request for EERE is \$2.3 billion, a 22 percent increase over the FY 2014 enacted level to fully support investments in these areas of sustainable transportation, renewables, and efficiency and manufacturing.

From day one as Secretary, I have placed a strong emphasis on energy efficiency. This budget follows through on that focus by proposing a 39 percent increase in energy efficiency programs in building efficiency, weatherization of homes, advanced manufacturing, and Federal energy and State and local partnership activities. This increase includes funding for activities, such as developing and issuing new appliance standards and working with States on building code development, to strongly promote energy efficiency in support of our goals for the climate, the economy, and American competitiveness.

In his State of the Union address, the President articulated his vision for supporting American manufacturing, including a focus on increasing the number of our manufacturing institutes to accelerate U.S. development of world-leading manufacturing technologies and capabilities. These Institutes connect businesses to research universities that can help America lead the world in advanced technologies. In addition to DOE's contribution to the first institute on additive manufacturing led by the Department of Defense, the Department of Energy awarded an additional institute this year that specializes in wide bandgap semiconductors and announced a competitive solicitation for an additional institute on advanced composites. The FY 2015 budget request will support at least one additional manufacturing institute funded at up to \$70 million over five years, with at least one-to-one matching funds from the recipient.

Vehicle technologies are a major focus of DOE's EERE budget request and of the Energy Security Trust proposal. The FY 2015 budget request supports research, development, demonstration, and deployment of efficient and alternative fuel vehicles, including the EV Everywhere goal that aims to make electric vehicles as affordable and convenient as the gasoline powered vehicles we drive today by 2022. This would be accomplished through cost reduction and improved performance in batteries, electric drive systems, lightweight materials, and integration with the electric power grid. The request also includes funding to continue a focused research and development effort to reduce the cost and increase

the durability of fuel cell systems. The request further includes \$60 million, administered through authority provided by the Defense Production Act, in collaboration with the Departments of Agriculture and Defense, to continue to enable the objective of producing advanced biofuels that meet military specifications at a price competitive with petroleum—an initiative first supported with DOE funding in FY 2014.

The Department's budget request also continues to advance renewable energy through a number of ongoing initiatives. The request supports the SunShot Initiative's mission to make solar energy technologies, including both solar photovoltaic (PV) and CSP technologies, cost-competitive with traditional sources of electricity, without subsidies, by 2020. It supports research, development and demonstration for wind energy, including funds for three advanced offshore wind demonstration projects to be operational by 2017, and it includes funding to advance technologies in both conventional hydropower and marine and hydrokinetic devices. The request continues to support the Frontier Observatory for Research in Geothermal Energy (FORGE), a new geothermal energy R&D project started in FY 2014, and a critical step for learning how to harness our vast but untapped domestic geothermal resources through enhanced geothermal systems.

Fossil Energy

As part of our all-of-the-above energy strategy, DOE's Fossil Energy Research and Development program advances technologies related to the reliable, efficient, affordable, and environmentally sound use of fossil fuels which are essential to our Nation's security and economic prosperity. Since President Obama took office, the Department of Energy has invested more than \$6 billion in carbon-capture and storage (CCS) research, development and demonstration. The Office of Fossil Energy is leading this charge, supporting critical research and deployment efforts to ensure that all sources of energy, including fossil fuels, are competitive in a carbon constrained economy.

The budget request continues the Department's strong focus on carbon-capture and storage (CCS) through its \$476 million request for Fossil Energy (FE) Research and Development. In addition to our current portfolio of demonstration projects,

The request includes \$25 million for a new demonstration program, Natural Gas Carbon Capture and Storage (NG-CCS), to support a project to capture and store carbon emissions from natural gas power systems. Looking into the future, CCS technologies will be required for natural gas, as with coal, to be a major player in a low-carbon world.

In addition, the Loan Guarantee Program is currently receiving applications for up to \$8 billion in loan guarantees focused on advanced fossil energy projects that reduce CO₂ emissions. Together with these ongoing projects and the fossil loans, the FY 2015 budget request constitutes a major fossil energy program.

The request includes \$15.3 million to implement priority collaborative research and development with the Environmental Protection Agency and Department of the Interior to ensure that shale gas development is conducted in a manner that is environmentally sound and protective of human health and safety; \$4.7 million to fund a new midstream natural gas infrastructure program focused on advanced cost-effective technologies to detect and mitigate methane emissions from natural gas transmission, distribution, and storage facilities and to communicate results on methane emissions mitigation to stakeholders; and, \$15 million to conduct lab- and field-based research focused on increasing public understanding of methane dynamics in gas-hydrates bearing areas.

The budget request provides for the full operational readiness of the Strategic Petroleum Reserve including restoration of its designed drawdown capability.

Nuclear Energy

The Office of Nuclear Energy works to advance nuclear power as a resource capable of contributing to meeting the Nation's energy supply, environmental, and national security needs. The budget request for the Office of Nuclear Energy, \$863.4 million, is roughly flat compared to the FY 2014 appropriated level. The Office will continue ongoing work with particular focus in two main areas: the development of next-generation nuclear reactors and the management of nuclear waste.

For next-generation reactors, the budget request continues to fund research and development on advanced reactor technologies, as well as technical support for two awards to help accelerate the commercialization of small modular reactors. It also provides funding for the continuation of the Department's first Energy Innovation Hub into a final five year term, assuming the determination is made that the Hub meets all requirements and criteria to be eligible for renewal. The Department is using a formal process make the renewal determination, which will be completed within FY 2014. This hub is focused on nuclear energy modeling and simulation and currently centered at Oak Ridge National Laboratory.

In addition to the focus on new reactor technologies, the budget request funds for activities to advance the Administration's *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste*. The budget request continues to lay the groundwork for implementation within existing authorities by providing \$79 million for Used Fuel Disposition activities, including \$30 million for generic process development and other activities related to storage, transportation, disposal, and consent-based siting, and \$49 million for related generic research and development. The budget also includes a funding reform proposal needed to support implementation of the nuclear waste management program over the long term.

Electricity Delivery and Energy Reliability

The Electricity Delivery and Energy Reliability (OE) program drives electric grid modernization and resiliency in the energy infrastructure through research and development, partnerships, facilitation, modeling and analytics, and emergency preparedness and response. OE also serves as the Federal government's primary liaison to the energy sector in responding to energy security emergencies, both physical and cyber.

OE's development of advanced sensors to measure the flow of electricity in real time is enabling grid operators to monitor system health and mitigate disturbances. Roughly 1700 sensors have now been installed nation-wide, providing wide visibility of the grid that can prevent the kind of cascading events that caused the 2003 blackout. OE's cybersecurity research has produced commercially available

tools designed specifically for the energy sector. Just one example is a tool to assist the electricity sector assess and strengthen their cybersecurity maturity posture. This program has been accessed by over 100 utilities and has now been adapted and released for use by the oil and natural gas sector. OE also responded to three energy emergency events in FY 2013, including Superstorm Sandy, facilitating restoration efforts through trained analysts and responders coupled with the deployment of the program's near-real time visualization capability, enabling quicker power restoration and fuel delivery systems.

The budget request, \$180 million, includes a substantial increase for OE, over 20 percent, to emphasize grid modernization and resiliency in several areas. The budget increase supports the Department's growing focus on increasing the resiliency of the energy infrastructure through emergency preparedness and response. From the severe cold weather over the past winter to extreme storms, including Superstorm Sandy, we have seen how important these activities are. The Department is also focused on the growing danger of cyber-attacks and the physical security of the grid. The budget increases funding to strengthen the energy infrastructure, critical for national, economic and energy security, against both natural and man-made hazards, through research and development and through the establishment of an Energy Resilience and Operations Center.

The budget increase also helps move the Nation closer not only to a more resilient grid, but one that is also more reliable, efficient and flexible through research and development into microgrids and grid-scale energy storage. It also invests in transformation of the distribution system toward higher performance through new, more advanced control systems.

Advanced Research Projects Agency—Energy

The Advanced Research Projects Agency—Energy (ARPA-E) program takes a unique entrepreneurial approach, supporting high-risk high-reward energy technology research projects that could create the foundation for entirely new industries, but are too early in their development for private sector investment. With ARPA-E, we are swinging from the heels and trying to hit home runs, not just base hits.

ARPA-E has invested over \$900 million across 363 projects through 18 focused programs and two open funding solicitations. In the past year alone, ARPA-E has launched focused programs to improve techniques to manufacture light-weight metals, develop robust battery chemistries and architectures for electric vehicles, biologically convert natural gas to liquids, create innovative semiconductor materials for improved power conversion, and use solar concentration techniques for hybrid solar converters. To date, 22 ARPA-E projects have attracted more than \$625 million in private-sector follow-on funding after ARPA-E's investment of approximately \$95 million.

ARPA-E funded companies and research teams have successfully engineered microbes that use carbon dioxide and hydrogen to make a fuel precursor for cars, developed a one megawatt silicon carbide transistor the size of a fingernail, produced a new hardware device that regulates the flow of power on the electrical grid and software that allocates electricity in much the same way internet routers allocate bandwidth throughout the internet.

The budget request provides \$325 million for ARPA-E, a 16 percent increase, which will be split between an open solicitation to capture potentially transformational ideas not within the scope of existing programs, as well as 4-5 new programs looking at critical energy challenges.

Loan Programs

The Department's Loan Programs Office supports a large, diverse portfolio of more than \$30 billion in loans, loan guarantees, and commitments, supporting more than 30 closed and committed projects. The projects that LPO has supported include one of the world's largest wind farms; several of the world's largest solar generation and thermal energy storage systems; the first new nuclear reactors to begin construction in the U.S. in more than three decades; and more than a dozen new or retooled auto manufacturing plants across the country. The program as a whole is performing very well to date, with losses below expected levels.

The example of utility scale solar shows how the Loan Program can jumpstart an entire industry. If we think back to 2009, photovoltaic projects larger than 100 MW were non-existent in the United States. And there was no commercial financing market for large solar projects. Using Recovery Act Funds, our Loan Program Office financed the first six utility scale PV projects in the United States. And these projects helped prove to private industry that the technology was viable and cost effective. Since our initial investments, ten new utility scale projects have been funded by the private sector.

The budget request includes administrative funds for the Title 17 Innovative Technology Loan Guarantee Program and the Advanced Technology Vehicles Manufacturing Loan Program. While the budget does not propose new loan authority or credit subsidies, I would note that the Loan Program celebrated a number of milestones in the last few months, including the opening of the Ivanpah solar plant—the world’s largest solar-thermal plant—and the financial closing of two loan guarantees to support the construction of the Vogtle nuclear reactor project. We have also begun accepting applications for an \$8 billion advanced fossil energy loan guarantee solicitation, and we look forward to continue to use the Program’s existing authority to support the President’s all-of-the-above energy strategy.

Energy Information Administration

The Energy Information Administration (EIA) is the statistical and analytical agency in the Department of Energy. EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment. In the last year, EIA released a new Drilling Productivity tool, which has already received widespread, praised from industry participants and will also lead to a more accurate baseline for production estimates in many other of EIA’s reports. In 2013, EIA also launched the most comprehensive portal of the U.S. government’s national and state energy data currently available.

EIA is important both to the mission of the Department and also to the functioning of energy markets. The budget request proposes \$122.5 million, an increase of 5 percent, to fully support EIA's important capabilities through upgrades to its infrastructure and the development of the new products for evolving energy markets.

Energy Policy and Systems Analysis

The Office of Energy Policy and Systems Analysis (EPSA), established last year, serves as my principal policy advisor on energy and related integration of energy systems and acts as a focal point for the Department's analysis and development of energy policy that could facilitate the transition to a clean and secure energy economy. EPSA carries out strategic studies and policy analysis, maintains and coordinates a supporting set of analytical capabilities, and carries out assessments of the strength, resiliency, and anticipated challenges of national energy systems.

By identifying and prioritizing ways in which DOE programs may be strengthened to contribute to the economic well-being, environmental quality, and energy security of the United States, EPSA plays a critical role in the Department's policy formulation, and in efforts like the Quadrennial Energy Review (QER) and DOE's crosscutting grid modernization initiative.

The QER report will provide an integrated view of, and recommendations for, Federal energy policy in the context of economic, environmental, occupational, security, and health and safety priorities, with attention in the first report given to the challenges facing the Nation's energy infrastructures. It will review the adequacy, with respect to energy policy, of existing executive and legislative actions, and recommend additional executive and legislative actions as appropriate; assess and recommend priorities for research, development, and demonstration programs to support key energy-innovation goals; and identify analytical tools and data needed to support further policy development and implementation.

The budget request for EPSA is \$38.5 million, an increase of \$22.4 million, to support several key initiatives. The increase primarily funds the crosscutting grid

modernization efforts, as well as analytics and modeling in support of DOE's responsibility as secretariat for the government-wide Quadrennial Energy Review.

Indian Energy Policy and Programs

The Office of Indian Energy Policy and Programs (IE) directs, fosters, coordinates, and implements energy planning, education, management, and competitive grant programs to assist Tribes with clean energy development and infrastructure, capacity building, energy costs, and electrification of Indian lands and homes. IE performs these functions consistent with the federal government's trust responsibility, Tribal self-determination policy, and government-to-government relationship with Indian Tribes, and accomplishes its mission through technical assistance, education, and capacity building; research and analysis; and financial assistance to Indian Tribes, Alaska Native Tribes and corporations, and Tribal energy resource development organizations.

The budget request, which provides \$16 million for Indian Energy Policy and Programs as a separate appropriation, reflects the consolidation of our tribal energy programs into a single office.

Science

DOE's science programs provide the technical underpinnings to accomplish the Department's missions and form part of the backbone of basic research in the physical sciences in the United States. Almost 28,000 researchers use Office of Science user facilities each year, and the successful construction and operation of these facilities is central to the economic competitiveness, national security, and scientific leadership of the Nation.

The budget request provides \$5.1 billion for the Office of Science, a 1 percent increase above FY 2014. The request builds upon the Department's strength in the development of large-scale computational capability. The FY 2015 request supports the Office of Science in developing next-generation computational tools—and in applying these tools to many of science's grand challenges, such as climate modeling and computational material science.

In particular, Science will lead, in conjunction with NNSA, research focused on developing capable exascale computing platforms. Maintaining a strong program in high performance computing will be tremendously important to our economic competitiveness and national security, and government-wide coordination of this effort will ensure that the U.S remains a global leader in high-performance computing for science, defense and industry.

The budget request also supports our ongoing commitment to leading-edge scientific facilities. The request ramps up construction of the Facility for Rare Isotope Beams at Michigan State University, which was dedicated on March 17th. The request also continues construction of the Linac Coherent Light Source II—another example of the many cutting-edge DOE facilities that provide an unparalleled set of research tools to tens of thousands of science users.

In FY 2015, we sustain our commitment to our highly productive Energy Frontier Research Centers and three Bioenergy Research Centers. The budget request also includes funding for the Office of Science's two Energy Innovation Hubs, which focus on batteries and converting sunlight to liquid fuels. I would also note that I have charged the Secretary of Energy Advisory Board to look at how we can evaluate and continue to improve the performance of the Department's Hub model moving forward. The Advisory Board's draft report was released late last month, and I would be happy to discuss its findings once the report is finalized.

Crosscutting Initiatives

Finally, we have identified a number of areas for crosscutting initiatives to tackle common challenges and recognize shared opportunities across multiple DOE offices. I have selected these initiatives because of their potential to be game-changers in energy and security, to add value through collaboration and leveraging DOE's full breadth of research and technologies, and to ensure there is no duplication of effort. These collaborative efforts extend across DOE's programs and National Labs and are designed to leverage the unique, first-class array of facilities and capabilities that exist across the DOE complex.

The grid modernization initiative implements a unified strategy to address institutional and technological challenges to creating a more secure, resilient, and flexible future grid. The initiative enlists the unique strengths and focuses of four offices: OE, EERE, EPSA, and the Office of Congressional and Intergovernmental Affairs.

The subsurface environment is critical to the U.S. for energy production, energy and CO₂ storage, remediation of existing legacy waste, and ultimate disposal of future energy wastes. With the subsurface crosscutting initiative, DOE is bringing together its Science, Fossil Energy, Environmental Management, Energy Efficiency and Renewable Energy, and Nuclear Energy programs into a coherent, coordinated approach to common challenges in characterizing, engineering, monitoring, and controlling subsurface systems in various geologic environments.

The exascale computing initiative continues research and development with our Office of Science and NNSA leading to the implementation of advanced computing systems that will be tremendously productive for science, defense, and our Nation's innovation leadership. An approach coordinated across DOE Offices as well as across the government will help to accelerate that effort. The Department of Energy is part of an interagency effort to optimize investments to sustain our nation's leadership in high performance computing to the benefit of our research capacity, our nuclear security and our industrial base.

Supercritical carbon dioxide (SCO₂) power systems have broad potential for substantially lower-cost, higher-efficiency energy in a number of energy areas. The supercritical CO₂ crosscutting initiative continues related work in renewable energy and fossil energy, and fully-funds a new 10-megawatt supercritical CO₂ technology electric power (STEP) demonstration project in the Office of Nuclear Energy.

Finally, the cybersecurity crosscutting initiative funds activities in four offices—NNSA, OE, Science, and the Chief Information Officer—to strengthen the protection of DOE from cyber-attacks, bolster the Nation's capabilities to address cyber threats, and improve the cybersecurity of the energy sector.

Nuclear Security

The budget request provides \$11.9 billion for our nuclear security missions, a 4 percent increase over FY 2014, in support of national security priorities articulated in the 2010 Nuclear Posture Review, the Stockpile Stewardship and Management Plan, and the 2010 National Security Strategy of the United States, to secure nuclear materials globally, and to ensure protection of DOE's national security assets.

Weapons Activities

The Department of Energy is responsible for certifying a safe and reliable stockpile without testing, as long as we have nuclear weapons. While budget caps have put difficult constraints on the nation's national security enterprise, the interagency planning process—involving the Department of Defense, Department of Energy, National Security Council, and the Office of Management and Budget—created a revised strategy and budget request that remains committed to the “3+2 strategy” to maintain a safe and reliable stockpile while reducing the numbers and types of weapons in the next two decades.

The FY 2015 budget request for Weapons Activities is \$8.3 billion, a \$534 million or a 7 percent increase over FY 2014, to maintain a safe, secure, and effective nuclear stockpile, and to strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure. The budget request supports the revised strategy to achieve the B61-12 LEP First Production Unit (FPU) by FY 2020 and complete production of the W76-1 warhead by FY 2019. The strategy defers the W78/88-1 Life Extension Program by five years, achieves the W88 ALT 370 FPU in the first quarter of FY 2020, and delays the Long-range Standoff warhead by three years to 2027, while evaluating the option for a future budget request. Under the strategy, the budget continues engineering design for the Uranium Processing Facility into FY 2015, and it continues to support the Nation's current and future defense posture and its attendant nationwide infrastructure of science, technology and engineering capabilities. We are also continuing to make the investments necessary for maintaining continuity of plutonium capability at

Los Alamos National Laboratory while reducing safety risks in the Chemistry and Metallurgy Research Facility and PF-4.

The budget request also includes funding for Defense Nuclear Security (DNS) to support DOE's physical security reform efforts emphasizing mission performance, responsibility, and accountability. The request also provides funding within Weapons Activities to sustain emergency response and nuclear counterterrorism capabilities that are applied against a wide range of high-consequence nuclear or radiological incidents and threats.

In short, the budget request continues to support interconnected critical life extension programs; rebuilding of infrastructure; and the continuation of the science and engineering base that we will need in the long run for certification of the nation's stockpile.

Defense Nuclear Nonproliferation

The Defense Nuclear Nonproliferation (DNN) FY 2015 budget request is \$1.6 billion, a \$399 million reduction from FY 2014. The Office of Defense Nuclear Nonproliferation continues to support U.S. leadership in nonproliferation initiatives both at home and abroad that increase global nuclear security. While we will continue to support a very robust program, the DNN budget reflects a substantial reduction, which is a result of difficult choices within our prescribed budget caps. Further, more than half of the reduction to DNN's budget is due to reduced funding for the Mixed Oxide Fuel Fabrication Facility.

DNN has had many successes in recent years. Since the President laid out his nuclear security agenda in 2009, DOE's Office of Defense Nuclear Nonproliferation (DNN) has removed or confirmed the disposition of over 3,000 kilograms of highly enriched uranium – enough material for more than 100 nuclear weapons. These removal activities have resulted in eleven countries plus Taiwan becoming HEU-free. DNN has also overseen the downblending of roughly 13 metric tons of surplus U.S. HEU, and cooperated with Russia in the downblending of about 2 metric tons of Russian HEU. I have just returned from the Nuclear

Security Summit in The Hague where the U.S. and Japan announced a program to remove hundreds of kilograms of HEU from Japan's Fast Critical Assembly.

After the conclusion of a four-year accelerated effort, the budget request supports continued efforts to secure or eliminate the world's most vulnerable nuclear weapon materials. The Global Threat Reduction Initiative will continue to convert or shutdown HEU reactors, remove vulnerable HEU and plutonium, and protect additional buildings containing high-priority materials. The research and development program will continue to improve capabilities in nonproliferation and foreign weapons program activity monitoring.

The Fissile Material Disposition program remains a vital commitment. However, as part of an ongoing analysis of options to dispose of U.S. surplus plutonium, it has become apparent that the Mixed Oxide (MOX) Fuel Fabrication Facility will be significantly more expensive than anticipated, and therefore, the budget request places the MOX Facility in cold stand-by while the Department evaluates plutonium disposition options. While we remain committed to the disposal of the 34 metric tons of weapons plutonium, we must go into a standby mode while we look at the full range of options.

Naval Reactors

The Office of Naval Reactors supports the U.S. Navy's fleet of aircraft carriers and submarines by maintaining its unique infrastructure and advanced naval nuclear capabilities. The FY15 budget includes funding for Naval Reactors operations at four Program sites including two laboratories, two operating prototype training reactors and spent fuel handling operations

Naval Reactors' request for FY15 is \$1.4 billion, an increase of 26 percent (\$263 million) over FY 14 spending levels. The increase is critical to ensuring maintenance of the high standards required to operate the U.S. Navy's nuclear-powered Fleet and executing its National Security mission. It further funds research, development, engineering and testing required to support operating and future nuclear powered warships.

The Program is advancing the design of the life-of-ship core for the OHIO-class Replacement submarine and meeting scheduled milestones for manufacturing and development efforts being performed as part of the Land-based Prototype Refueling Overhaul. Naval Reactors continues conceptual design for recapitalizing its spent fuel handling facility in Idaho. The facility is critical to meeting the Navy's aircraft carrier refueling schedule.

NNSA Federal Salaries and Expenses

The FY 2015 budget request includes \$411 million for NNSA Federal Salaries and Expenses, formerly the Office of the Administrator, to support the staffing and Federal support needed to meet mission requirements. The \$33 million increase over FY 2014 primarily results from the congressionally-directed transfer of Corporate Project Management and \$20 million to move the Albuquerque Complex to a different leased facility.

Management and Performance

The FY 15 budget request provides \$6.5 billion for management and performance programs, to support efforts to manage more effectively and to meet our legal and moral obligations to clean up nuclear waste from the Cold War. As mentioned, a suite of efforts supported by the budget aim to improve how effectively we carry out our missions for the American people.

The budget request moves responsibility for the Environmental Management program from the Under Secretary for Nuclear Security into a mainline responsibility for the Management and Performance Under Secretary in order to improve departmental management and execution of some of our most technically-complex cleanup missions. We are currently implementing a reorganization to establish an enterprise-wide approach to health, safety and security that improves both execution and accountability. We continue to support diversity, small businesses, and Native Americans across activities at the Department.

We are pushing forward initiatives to improve the strategic partnership with the National Laboratories including by establishing a National Laboratory Policy

Council and a National Laboratory Operations Board to address strategic and management issues with leadership from the Department and the Laboratories. We are also working to improve delivery and reduce the cost of human resource functions and IT services, to strengthen management through new cyber and incident management councils, and to institutionalize more effective enterprise-wide project management by convening a senior-level working group with representatives from across the Department.

Environmental Management

The Environmental Management (EM) program is responsible for the cleanup of millions of gallons of liquid radioactive waste, thousands of tons of used nuclear fuel and special nuclear material, and large volumes of transuranic, mixed, and low-level waste and contaminated soil and water. The program also supports the deactivation and decommissioning of thousands of excess facilities across the complex.

The EM Program has achieved a number of recent successes. To provide just a few examples, the program has completed cleanup at 91 of 107 sites across the country and significant portions of the remaining 16 sites. Sites that once housed large industrial complexes, like Rocky Flats in Colorado and Fernald in Ohio, are now wildlife preserves. In December 2013, EM closed two additional radioactive waste storage tanks at the Savannah River Site, a major milestone that brings the total number of tanks closed to six. At Oak Ridge, EM recently completed demolition of the K-25 facility, a mile-long, facility that was once the world's largest building under one roof. EM has decommissioned and demolished another 2 million square feet of excess facilities at the Idaho National Laboratory. And at Los Alamos National Laboratory, EM is on track to meet its commitment to complete the removal of all above-ground combustible transuranic waste by the end of June, despite the temporary closure of Waste Isolation Pilot Plant.

The FY 2015 budget request provides \$5.6 billion for Environmental Management to meet the Nation's legal and moral imperatives for environmental remediation at DOE sites. The budget request continues to support cleanup progress at 16 sites across the DOE complex, including continued progress on environmental

management of the former uranium enrichment facilities at Oak Ridge, Portsmouth, and Paducah. EM has successfully completed many cleanup projects. What remains are some of the most complex cleanup efforts.

For example, the request supports continued construction of the Hanford Waste Treatment and Immobilization Plant (WTP) and efforts to resolve the project's remaining safety and technical challenges. Consistent with the Department's revised option for WTP, which is designed to move the WTP toward immobilization of waste as soon as practicable while resolution of technical issues continues, the FY 2015 budget includes support for analysis and preliminary design of a Low Activity Waste Pretreatment System. This approach demonstrates a commitment to complete the Waste Treatment Plant in a realistic and sustainable way. This will give Congress and the affected communities' stronger confidence in the Department to get the job done. We will also continue making tank waste cleanup progress at Savannah River and Idaho.

The Budget also proposes \$172 million for Legacy Management (LM), the final element of site remediation and closure after active remediation is complete. LM fulfills the Department's commitments to ensure protection of human health and the environment and ensure all contractual obligations are met.

Conclusion

The Department of Energy's FY 2015 budget request will allow it to deliver the innovative and transformative scientific and technological solutions to energy, security, economic, and environmental challenges facing the United States in the 21st century.

Through its Science and Energy programs, the budget request will further the President's Climate Action Plan to cut carbon pollution while reducing America's dependence on foreign oil and will support an all-of-the-above energy strategy. The budget request for Nuclear Security programs will advance the President's vision for reducing the levels of nuclear weapons in the world, strengthen nonproliferation efforts, and combat nuclear terrorism. Finally, the request for Management and Performance programs will allow DOE to address the legal and

moral imperative of cleaning up legacy nuclear waste and to better manage our programs on behalf of the American people.

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

Mr. WHITFIELD. Well, thank you, Mr. Secretary. Once again, we appreciate you being here. At this time, I will recognize myself for 5 minutes of questions. And while there are many broader policy concerns that I have, I do want to focus initially on the Paducah Gaseous Diffusion Plant, because there is so many—it is going through a transition down there.

And one question I would like to ask you is this—of course communication between the State of Kentucky, the City of Paducah and the Department of Energy is vitally important. And with all the changes taking place, the Paducah site has not really had a director or a lead that is really focused on that one area onsite. And we have had some previous discussions about this. But could you share with us this morning whether or not you all do intend to appoint a person that would be responsible for that site and be responsible for good communication with the community and the State?

Mr. MONIZ. Yes. First of all, I appreciated also your intercession in helping us with those communications with the City and the State. My understanding is that we are in the process of hiring that person. I will—why don't I get back and check exactly on the status of that and get back to you promptly?

Mr. WHITFIELD. But you do feel like—

Mr. MONIZ. We do want to have a dedicated site manager at Paducah.

Mr. WHITFIELD. OK. Thank you, sir.

Mr. MONIZ. Yes.

Mr. WHITFIELD. Thank you. Now, the fiscal year 2014 budget for the Paducah area, the cleanup and everything was around \$265 million. And it is my understanding that not all of that money is going to be able to be spent this year. But it is my understanding that the Department of Energy would have the option of directing some of that additional money for cleanup. And as you know, with USEC coming to an end, a lot of people are losing their jobs down there. Could the Department of Energy—or are you all considering funneling some of that money for additional cleanup so that some of these people would be able to retain those jobs?

Mr. MONIZ. Well, Mr. Chairman, we are working to try to speed up the contract discussions. Typically, these large environmental management contracts, they are complicated. They are very long-term. They have very, very large contract amounts, are 12 to 14 months. We are hoping to get that down a little bit shorter so that we can have that turnover early in the fall, and we are working hard on that. That is I think the reason why we anticipate having some carryover funds. We are trying to exercise what we can this year. I understand the concerns. But we will have carryover funds for sure. So I think also in the context of our fiscal year 2015 request, I think we will have a strong program.

Mr. WHITFIELD. You are referring to the IDIQ contract that—

Mr. MONIZ. Yes.

Mr. WHITFIELD. And did I understand you to say that in September or did you—

Mr. MONIZ. September is when we are trying to push to get that contract concluded.

Mr. WHITFIELD. OK. Well, of course, that remains a priority for all of us involved with this issue. So we do appreciate your focusing on it and expediting it as much as possible.

Mr. MONIZ. We were able to beat the schedule last year on another issue.

Mr. WHITFIELD. Right.

Mr. MONIZ. Hopefully, we can beat the schedule this year. But we are trying.

Mr. WHITFIELD. And also, in the fiscal year 2015, there is talk in the budget about transitioning the facility into a cold and dark state. And of course, we don't want it to be a cold and dark state, because we were more interested in decontamination and decommissioning of the facility. But your understanding, what is the definition of a cold and dark state for a facility like—

Mr. MONIZ. Well, I can't say that I have, to be honest, really focused on that. But I would say that it means I think we need to have the facility in a stable, safe condition without compromising the eventual D&D activities.

Mr. WHITFIELD. Right.

Mr. MONIZ. Those would be the objectives, at least. I can't say that I could describe in technical detail what it means.

Mr. WHITFIELD. Right. Right. But it is the goal to decontaminate and decommission rather than—

Mr. MONIZ. Certainly. Oh, yes, it does. That is certainly a requirement. Yes.

Mr. WHITFIELD. Well, Mr. Secretary, thank you for helping clarify some of those issues. I appreciate that very much. And I don't know how much time you have. We may go to a second round if you have time. But at this time, I would like to recognize the gentleman from Illinois for 5 minutes of questions, Mr. Rush.

Mr. RUSH. I want to thank you, Mr. Chairman. Mr. Secretary, I do have a lot of questions that I want to cover. And I know I won't have the time to do it all this morning, so I will be submitting questions for the record. And I would like the Agency to get back to me as promptly as possible to an issue that I want to discuss today on both the minorities and energy initiative and also the publicly funded national research labs. Of the Agency's \$27.9 billion budget request, what is the amount allocated to the Office of Economic Impact and Diversity, which is the Agency primarily responsible for enacting the Minorities and Energy Initiative both in terms of dollars and also in terms of percentage? Do you feel that this amount is adequately in terms of reflecting the priorities of reaching out and engaging minorities in the energy sector for both you and for President Obama, and can you do more? So those are the three questions.

Mr. MONIZ. Well, first of all, I think the budget for the economic development and diversity office is approximately \$6 million. I just want to clarify that in the budget, it shows a decrease. But it is not actually a decrease, because two functions were placed elsewhere. One is by law. We had to move the OSDDBU office—I forgot the name—office of small—it is a small business office—I—the acronym, I have forgotten now what it stands for. But by statute, it turned out we had to move that outside and leave it as a coordinating office with the ED office under Dot Harris. The second thing

is that there was a function placed in there, which the office was paying for, for the department wide ombudsman, which was really misplaced. So we put that in the management and administration office as a better place. So the budget for that office really has not been cut.

Mr. RUSH. So in your best estimates, the budget has flat lined to a degree—flat line——

Mr. MONIZ. I believe it is flat.

Mr. RUSH. Without increase—without an increase, is that what you are saying?

Mr. MONIZ. I believe it is flat. Yes. I think that is correct. And if I go on to discuss the Minorities in Energy Initiative, and by the way, I do want to say that, you know, the birth of that was in a hearing here last June when you raised the issue. I think it is off to a very, very successful start with the ambassadors. You know that very well, Mr. Rush. This is not on our budget, but, for example, the American Petroleum Institute, because of the initiative—and its director is one of the ambassadors—is having eight regional meetings to attract minorities into the oil and gas industry workforce. I personally went at the end of January to Hampton University and recruited the president, Mr. Harvey, to an ambassadorship. So we are promoting this, I think——

Mr. RUSH. Mr. Secretary, can you do more?

Mr. MONIZ. We can do more. And I would be happy to discuss with you how we could do more.

Mr. RUSH. All right. Moving on to the area of the public funded national research labs. How many publicly funded research labs are there, and are any of these labs managed by or operated by a minority?

Mr. MONIZ. We have 17 national laboratories. The——

Mr. RUSH. Are any of them operated by a minority?

Mr. MONIZ. Well, yes—I mean, they are operated by organizations. Let me say that I am dissatisfied frankly with the diversity in the upper-management ranks of these laboratories. And that is something that we have taken up with our lab policy counsels.

Mr. RUSH. When you—yes, when you speak specifically about Argonne and Fermi which are located in my home State—Argonne and Fermi, which are located in my home State, what are the percentage of minority engagements at Argonne and Fermi lab?

Mr. MONIZ. Sir, I will have to get back to you with that for the record, because I don't know those numbers.

Mr. RUSH. Right. Do you have——

Mr. MONIZ. I do know that the upper ranks of the management—we have inadequate representation.

Mr. RUSH. Do you have figures for any other of the other 17 labs across the country?

Mr. MONIZ. No, but I would be happy to get you those demographics.

Mr. RUSH. Thank you very much.

Mr. WHITFIELD. The gentleman's time has expired. At this time, I will recognize the gentleman from Texas, Mr. Barton, for 5 minutes.

Mr. BARTON. Thank you, Mr. Chairman. And thank you, Mr. Secretary, for being here. You are the only cabinet secretary that goes longer between haircuts than me. So I appreciate that.

Mr. MONIZ. I didn't know I had to come here to get that repeated. But anyway—

Mr. BARTON. No. I need a haircut. So you make me look sheared, so to speak. I know this is a budget hearing. And I know we should be asking questions about the DOE budget. But I want to ask you a few more questions about LNG Exports given what has happened in the Ukraine and Crimea. This subcommittee has done a number of forums where we have had almost a complete panoply of forum representatives. And to a person, they have all said that they want the United States to export LNG, and they want to do it sooner rather than later. The situation in the Ukraine obviously gives credence to that. I believe President Obama, when he was in Europe last week or the week before last, made some comments that said that we should do that. Now, I don't want to say that in absolute certainty, because I don't remember exactly what he said. Your Agency, your Department is the Department that has to give the initial approval. You just approved one on I think February the 29th. So if that is possible, did we have a February the 29th this year? Any—in any event—

Mr. MONIZ. It was in March.

Mr. BARTON. March.

Mr. MONIZ. March.

Mr. BARTON. March 29.

Mr. MONIZ. Yes.

Mr. BARTON. I knew you would correct me. So you are right. March. March the 24th, actually. I was looking—any way, it is my fault. So it looks like when we read the approval documents that they are almost verbatim. And so my question is once you found that it is in the public interest for one of these projects, why does it keep taking so long to approve the next one? There are still 24 in the queue. Why couldn't we just get a big stamp and stamp them all approved and get on with it?

Mr. MONIZ. Well, there are a number of issues there. First of all, we do have these large dockets which do have specific comments with regard to different proposals. Secondly of course, as you know there is also the FERC process, which goes through the NEPA process on a secondary basis.

Mr. BARTON. I am aware of that.

Mr. MONIZ. And—

Mr. BARTON. You don't have to worry about that.

Mr. MONIZ. And—

Mr. BARTON. So that is not an excuse.

Mr. MONIZ. Well, no. But it is a fact. And right now, we have no proposals ready for that final declaration, because they are still in the NEPA process. Third is that the—

Mr. BARTON. But why would that impact the DOE process? I don't understand that. Somebody is getting ready to run for President in 2 years, but that doesn't impact my process of running for Congress this year. I mean, I don't understand why DOE going through—

Mr. MONIZ. Well—

Mr. BARTON. I mean, FERC going through the NEPA process makes it more difficult for you to give approval or disapproval.

Mr. MONIZ. My understanding certainly is that we cannot act on a final approval until the FERC process is complete.

Mr. BARTON. But you can do whatever you have been doing, this conditional approval?

Mr. MONIZ. Yes, so the conditional approvals, we——

Mr. BARTON. You have done 7, I think.

Mr. MONIZ. We do prior to the—typically prior to the FERC process, although I might say that now I think as the process has rolled forward, we are seeing some proposers filing with FERC prior to getting conditional approval. So this is an evolution that is happening that is——

Mr. BARTON. That is great information, Mr. Secretary.

Mr. MONIZ. Yes.

Mr. BARTON. But it is irrelevant to what your job is supposed to be. You have got 24 of these. And I am not trying to be argumentative. I happen to believe that you and I are on the same page.

Mr. MONIZ. Then——

Mr. BARTON. All I want you to do is say I agree with you, we are going to get on it, we need to do it more quickly, you are right, Congressman.

Mr. MONIZ. I——

Mr. BARTON. That is all you have got to do, and we go on to the next questioner.

Mr. MONIZ. I agree that we are systematically working through the applications. Right—the law requires us to do a public interest determination. That public interest determination has multiple features.

Mr. BARTON. All right. My time has expired.

Mr. MONIZ. It includes——

Mr. BARTON. You have successfully filibustered the question period. I want you to do me one—go back to your office this afternoon. It is that big office in the corner on the top floor of the Forrestal Building, unless you have moved it.

Mr. MONIZ. No.

Mr. BARTON. And read the seven applications that you have approved. And give me a report on the—any wording differentiation in any of those seven approvals. They are almost verbatim.

Mr. MONIZ. I would note for example in the last approval, the Jordan Cove, you will see a rather different discussion of international impacts in the public interest determination, for example.

Mr. WHITFIELD. The gentleman's time has expired. At this time, I would like to recognize the gentleman from California—no, have you asked some questions yet?

Mr. WHITFIELD. Where is Mr. Waxman? Who is next?

Mr. BARTON. Go to Mr. McNerney.

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

Mr. MCNERNEY. Thank you for that reluctance, Mr. Chairman. Mr. Secretary, thank you for coming this morning. And I would like to talk a little bit about fusion energy for a few minutes, if you don't mind?

Fusion energy, as you know, consists of releasing energy by fusing nuclei of small elements together. And fusion of—the fuel for fusion energy would be virtually unlimited. Radioactive waste produced by fusion reaction is less dangerous than radioactive waste produced from nuclear power. And fusion reactors would inherently be failsafe in their operation. Do you agree with those statements?

Mr. MONIZ. Well, failsafe in terms of certain kinds of accidents. Obviously, they can have malfunctions.

Mr. MCNERNEY. Right. OK. Thank you. Mr. Secretary, the DOE budget for fusion research is \$416 million a year. Now, on the other hand, the fusion power supporters believe that fusion power could be practical in 10 years with a \$3 billion investment per year. Do you believe that that is a realistic assessment?

Mr. MONIZ. I should probably insert at this point—so just—I can answer that question but—

Mr. MCNERNEY. Sure.

Mr. MONIZ. I am recused from dealing with the fusion program. So there may be some of these I will have to have my science office get back to you. But in terms of the statement just now in terms of a general objective, I think the 10-year estimate would certainly be viewed as optimistic by most scientists.

Mr. MCNERNEY. OK. Well, so how long do you think it would take then with the 400 and—

Mr. MONIZ. I wouldn't speculate. But for example, what is certainly part of the public discussion, again, I cannot make decisional statements on fusion. I believe, you know, the major international project currently going on doesn't even plan to get to ignition in, I don't know, quite a few years from now, at least a decade. And that would be many steps from that to a commercial plant.

Mr. MCNERNEY. OK. Fair enough.

Mr. MONIZ. Yes.

Mr. MCNERNEY. Do you think it is a—that is a good investment of American dollars in fusion research?

Mr. MONIZ. Again, as a general statement, I think we definitely should keep investing in fusion.

Mr. MCNERNEY. OK. We have fallen behind some of the other countries in that research area over the last decade or so.

Mr. MONIZ. Well, again, I think as—I am just going to my scientific background. I would say that we remain the leaders in many aspects of fusion. I think certainly in the large scale modeling and simulation of plasmas, I think we remain leaders. We are building many of the big components in terms of big magnets—superconducting magnets. So I think we are not so far behind, I would say in terms of our capacity. Obviously, we don't have a facility of the scale that is being built in Europe.

Mr. MCNERNEY. OK. Well, I am going to change the subject a little bit, if you don't mind. Last week, the President announced an interagency methane strategy to reduce emissions of that potent greenhouse gas. DOE will play an important role, along with the EPA and the Department of Interior. The strategy document states that the DOE will sponsor roundtable discussions with stakeholders about methane emissions. What does the DOE hope to achieve in those roundtable discussions?

Mr. MONIZ. I just might add for the agencies that U.S.—that Agriculture is also a major player in that for different sources of methane. The Department of Energy—our focus is on data. And it is very much focused also on the kind of midstream and downstream systems. We had in the first of the roundtables, multiple constituencies, especially for that midstream and downstream, including, you know, companies, labor, environmental groups, et cetera. The big message for me in that meeting was the surprising degree of agreement in terms of a path forward and how much actually companies are already doing in the context of renewing old infrastructure and simultaneously addressing methane leaks.

Mr. MCNERNEY. Are there particular technologies that the DOE would want to support in this area?

Mr. MONIZ. For example, we very much want to keep pushing—and ARPE-E will be pursuing this—really high quality, lower cost detectors and sensors so that we can know where the leaks are.

Mr. MCNERNEY. Performance based standards?

Mr. MONIZ. Right.

Mr. MCNERNEY. Very good.

Mr. MONIZ. Yes.

Mr. MCNERNEY. Thank you, Mr. Chairman. I yield back.

Mr. WHITFIELD. The gentleman yields back. At this time, I will recognize the gentleman from Louisiana, Mr. Scalise, for 5 minutes.

Mr. SCALISE. Thank you, Mr. Chairman, appreciate you having the hearing. And, Secretary Moniz, appreciate you being here to talk about the Department's budget and obviously the policies that then go into the funding that would come from that budget. When I look at your budget, you are requesting a \$715 million increase over where you currently are. And, obviously, we are trying to get control over spending in Washington. Washington is spending more than we take in. We are actually trying to go department by department to actually start trying to get Washington to live within its means, meaning to spend less than it is taking in—less than it is spending right now, because it spends more than it takes in. So when you ask for a \$715 million increase, I know you look at some of the agencies, and you have a 22 percent increase requesting for renewable energy. And we are already spending a lot of money. It is not like there is not money being spent on renewable energy. This committee has had a lot of hearings on some of those boondoggles things, like Solyndra and others. And when you look at a request like this—and you are asking for 715 million more. Somewhere in the neighborhood of 250 million or more of that money is going to have to be borrowed from countries like China. I mean, do you factor that in when you are asking us for this kind of increase that a large portion of that is money that is not just sitting around somewhere? It is literally money that is going to be borrowed with that bill being sent to our kids?

Mr. MONIZ. Well, first of all, I do not subscribe to the boondoggle. We can come back to that. But—

Mr. SCALISE. It is the level of the expenditure—

Mr. MONIZ. With regard to the budget—clearly, the administration budget is consistent with the underlying budget. So it obeys the cap. It is essentially flat dollars from fiscal year 2014. Within

that overall budget, the President chose to give greater emphasis to some of our programs, both in energy and in nuclear security.

Mr. SCALISE. And I know we talked about this yesterday at a separate hearing, but, you know, the Secretary of State had made comments that global warming and this climate change agenda is a bigger threat to American than terrorism. I would dispute that. I don't know—I won't ask you for that reaction. But I do want to ask you because you did touch on the President's supposed all-of-the-above energy strategy, and I know your Agency is tasked with coming up with the strategy for the country. When we talk about the President's approach to energy, you know, I know he talks about "all of the above," but when you look at the numbers, it just doesn't back up what he says.

And specifically, I want to talk about energy production on Federal lands. I was able to get this information from the American Enterprise Institute. They do some really good research on a lot of fronts. But on energy production, they actually have charted how—this is actual change in fossil fuel production over the years. And so they are showing—you know, especially when you look from 2009 to today, a dramatic increase in production on State and private lands, which I know the President likes taking credit for. But when it comes to areas where the Federal Government actually has authority, on Federal lands, you have a 15 percent decrease. So you have a dramatic difference in how our energy portfolio is playing out in the real world. You are seeing State and private land production dramatically up. But—on Federal lands, because of this administration's policies, you actually see a dramatic decrease in energy production.

And so when the President talks about an all-of-the-above strategy, he is not carrying that out in his policies. His policies are actually hurting production on Federal lands. Fortunately, we have got private lands in States that are making up the difference. But the Federal Government is going after them, too.

So I want to ask you, when it comes to this idea of an all-of-the-above strategy, which I fully embrace, President Obama does not embrace and the numbers back that up. But when you see some of his other agencies, like EPA and Department of Interior, de facto carrying out a different strategy, how much interaction do you have, as Secretary of Energy, trying to push for an energy strategy on one hand, but then having agencies like the EPA trying to shut some of that production down? Do you all try to coordinate and say hey, we want an all-of-the-above strategy? And if you really mean it, are you going to agencies like EPA and saying stop this war on coal that is killing jobs, killing energy. Stop this war on—you know, they are attempting to have a war on hydraulic fracturing to shut some of that down. I mean, do you all have any interaction on that?

Mr. MONIZ. We certainly do. I would like to note first of all that I feel we do have an all-of-the-above strategy. And it is a very strong one. And if I—

Mr. SCALISE. What do you say about these numbers though? The numbers don't back it up.

Mr. MONIZ. So if I may make two comments, sir?

Mr. SCALISE. Sure.

Mr. MONIZ. Respectfully. The first, the investments in these different areas, it is not only these discretionary numbers in the fiscal year 2015 budget. If you look at coal, we have \$6 billion in CCS projects that are coming on. We have an \$8 billion loan guarantee program for fossil energy across the board. We just did a loan for nuclear. The——

Mr. SCALISE. You are talking about money. But I am talking about the results.

Mr. MONIZ. And——

Mr. SCALISE. The results are that production is down on Federal lands.

Mr. MONIZ. And——

Mr. SCALISE. Do you dispute that?

Mr. MONIZ. And if you look at that specific issue, I might observe that a major driver of that is geology. The——

Mr. SCALISE. Do you dispute that it is down, production is down on Federal lands?

Mr. MONIZ. No, those are data.

Mr. SCALISE. Right. That is correct.

Mr. MONIZ. However, unconventional reservoirs are not in the traditional areas. The market has moved to the Marcellus Shale, to the Eagle Ford, to the Bakken. So is the——

Mr. SCALISE. And I know I am out of time. I appreciate that. And I yield back the balance of my time.

Mr. WHITFIELD. At this time, I would like to recognize the gentleman from California, Mr. Waxman, for 5 minutes.

Mr. WAXMAN. Thank you, Mr. Chairman. Secretary Moniz, that was an interesting line of questioning. It was more trying to provoke you. Are we not following an all-of-the-above strategy? It seems to me you were outlining a lot of different areas where we are pursuing energy development. I assume that development on public lands is just a small part of the overall energy areas that we are concerned——

Mr. MONIZ. Well, bottom line, yes. We are pursuing an all-the-above strategy. And I think our energy system is showing it, even as we have reduced carbon emissions at the same time.

Mr. WAXMAN. I tend to think that the Republicans don't want an "all of the above," they want a strategy to continue to rely on fossil fuels, especially coal. And then we talk about a war on coal. I just can't understand this argument, the war on coal. Coal is losing out, not because of any Government actions. It is losing out because of market forces. Utilities are finding it less expensive to use natural gas. And even though we subsidize coal, but not requiring them to pay for the external costs of their use of cheap coal, they can't compete at the present time. But they are also the leading source of carbon emissions.

I mentioned in my opening statement the intergovernmental panel on climate change. Their report should be a wakeup call. Everyone is—the world's leading scientists are telling us everyone is going to be impacted by climate change, no country or region is immune. If we listen to our scientists and invest in the clean energy technologies, that will put our country and the world on the path to a sustainable and prosperous energy future. That seems to be the course we should be taking, not just no action which is what

we hear more often than not from the leadership on this committee.

As a scientist, I would like to ask you about the consequences of inaction. Last year, DOE examined the impacts of climate change and what it would mean for energy infrastructure as a result of higher temperatures, drought, sea level rise, extreme weather events. What did DOE find?

Mr. MONIZ. I missed the last part.

Mr. WAXMAN. Well, I wanted to know what DOE found in terms of the impact of climate change on energy infrastructure.

Mr. MONIZ. Oh, I see. Um-hum. Um-hum. Yes. So the risks and vulnerabilities report that you are referring to certainly lays out rather dire consequences for our energy infrastructure. I might add the President, in the Climate Action Plan, of course, elevated adaptation and resilience of energy infrastructure to a very high level, precisely anticipating what the report said this week that we are seeing the consequences and they are going to get worse.

Mr. WAXMAN. Um-hum.

Mr. MONIZ. And prudence requires us both to try to mitigate further consequences and to adapt as well.

Mr. WAXMAN. But let me ask you, if we have sea levels rising and floods and storms and wildfires, I don't—

Mr. MONIZ. Right.

Mr. WAXMAN. That is going to put coastal and inland energy facilities at risk, among others. Droughts will impair power plant cooling systems, increase the risk of shutdowns.

Mr. MONIZ. Um-hum.

Mr. WAXMAN. Higher temperatures will put stress on our electricity systems and reduce the efficiency of generation and transmission infrastructure. If all those things happen, aren't we talking about an all-of-the-above strategy of ignoring climate change at our own peril?

Mr. MONIZ. Yes. And they have all happened already. We have had power plants shut down because of warmer waters, for example.

Mr. WAXMAN. In the west, climate change is expected to decrease the amount of snow pack. And we are already seeing in recent years in California a problem. What effect is that going to have on water availability for energy generation, agriculture and drinking water?

Mr. MONIZ. It would be a tremendous impact. And, again, it is already there. We are seeing it. The Colorado River, as you know very well, is in a very difficult situation after years of drought.

Mr. WAXMAN. Climate change is going to impact everyone, but it won't impact everyone equally. Some in the coal industry are engaged in a publicity campaign to convince Americans that the key to addressing poverty in the world's poorest countries is to get them to use coal. I find this deeply cynical. In fact, Secretary Moniz, didn't the IPPC find that poor people and poor countries will be hit hardest by climate change? And wouldn't uncontrolled burning of coal exacerbate these impacts?

Mr. MONIZ. Well, increased carbon emissions in general would, of course. And you are certainly correct that the poorest societies are the most vulnerable.

Mr. WAXMAN. Well, it just strikes me that we are whistling past the graveyard when we hear people talking about how the war on terrorism is something that we ought to pay more attention to than climate change. You know, you got to pay attention to problems. And the big, huge problem that is being ignored on this committee is the problem of climate change. And I hope that will change, because we do have a choice to make. Thank you, Mr. Secretary.

Mr. MONIZ. I agree.

Mr. WHITFIELD. The gentleman's time has expired. At this time, I will recognize the gentleman from Texas, Mr. Hall, for 5 minutes.

Mr. HALL. Thank you, Mr. Chairman. And, Mr. Secretary, I thank you for being here. It is good to see you again.

Mr. MONIZ. Good to see you.

Mr. HALL. I want to touch on what is going on in Russia and the Ukraine a bit, and also a little bit from what we have been talking about. But what—I know that crisis must have influenced your decision in making with respect to LNG Exports. And I understand Russia has recently raised the price of natural gas to Ukraine by 40 percent. It seemed like the chairman of Energy and Commerce touched on that a moment ago. Do you think—at what point are delays going to deny the private sector the ability to export LNG negatively? How does that impact job creation here in our country?

Mr. MONIZ. Well, sir, again, the public interest determination that we are required to make by law has us balancing various factors. The international situation is certainly one of them. And that was noted in our last Jordan Cove conditional approval. But also of course, very paramount is the impact on domestic markets and manufacturing. And as you know, many in the manufacturing community remain very concerned not about having no exports, but about going too fast. So we are in a situation of balancing that. We have to look at the cumulative impacts of exports. I might add, you know, there is this view of somehow not doing enough or something. But I might add—

Mr. HALL. Are delays—

Mr. MONIZ. But I might add that, so far, the conditional approvals—again, we all know that gas will not flow for several years yet, except for the first project. But the amount of approval so far, 9.3 billion cubic feet per day, is almost equal to the amount currently exported by the world's biggest exporter by far, Qatar. So what we have approved already puts us essentially at the top of the export list. So this is not a small amount.

Mr. HALL. Well, I want to get back to offshore situation. In December 2012, Congress passed, and our President signed into law, the Deepwater Ports Act, containing authority for DOE to create a similar and a simultaneous process for offshore projects that would be permitted under the Department of Transportation Maritime Administration, not for—and the land-based projects would continue under FERC. But from what I have been told, and I guess what I understand, the DOE is not complying with the 2012 law change, allowing non-FERC offshore projects. Is that true?

Mr. MONIZ. Well, I don't believe so. But I will look into this, Mr. Hall. Certainly, I know there it is a different process using MARAD.

Mr. HALL. And if it is, what seems to be the holdup?

Mr. MONIZ. My understanding is that—and, again, I will have to get back to you on this in detail. I am sorry.

Mr. HALL. All right.

Mr. MONIZ. But I think they address——

Mr. HALL. If you would——

Mr. MONIZ. I will do that. Yes.

Mr. HALL. I don't know how much time—I can't see that sign too good. But I have heard from companies that are ready for their permits to be approved and would be able to export LNG this year. They have global customers just waiting for these projects to move forward, I am told. And the sooner we do this, Mr. Secretary, the better it is going to be for our economy, I think. And the faster we can provide stability in uneasy parts of the world, like the Ukraine that I mentioned to start with, I would appreciate you also looking into that and giving me some information on it.

Mr. MONIZ. Yes.

Mr. HALL. I yield back my time.

Mr. MONIZ. Thank you. May I add one comment on that?

Mr. HALL. Yes, sir. Please.

Mr. MONIZ. Just to note that in a certain sense, we have already had some kind of shadow exports in the sense that as you well know 5, 6 years ago, there was the expectation of major LNG imports to the United States. Our not having those imports has had those cargoes go elsewhere, including to Europe.

Mr. HALL. And we have European allies that are losing their bargaining power with Russia.

Mr. MONIZ. Yes. Last week, in fact it was announced in Europe—and Tuesday—Wednesday—what is today? Yesterday, there as a meeting in Brussels. And we are going to have a meeting of the G7 energy ministers to look at our collective energy security.

Mr. HALL. All right. And I thank you. And I yield back, Mr. Chairman. Thank you.

Mr. WHITFIELD. The gentleman yields back. At this time, I will recognize the gentleman from New York, Mr. Tonko, for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair. Mr. Secretary, thank you for your tremendous leadership over at DOE. I am very pleased to see the administration's request for an increase in the energy efficiency renewable energy account. While I know you were just criticized for that, I for one am very pleased with that outcome for many reasons, including the promising opportunities for clean energy, improvements in energy efficiency, domestic manufacturing and certainly for modernizing the grid and making it more secure and resilient.

One of the key technologies that will enable much of this is of course energy storage. I firmly believe if we can make better batteries and energy storage systems, we will advance in many of the areas more expeditiously in those areas that I have just mentioned.

I know this area of research and development is part of the vehicles technology work at the Department of Energy and that you are doing it very well. How close are we to getting energy storage systems that will enable us to rely more heavily with the opportunity for storage with our solar and wind power?

Mr. MONIZ. Well, if I start with the vehicle storage that you mentioned, we should note that costs per kilowatt of storage have

dropped by a factor of two in about 4 years, which is very encouraging. We need another factor of two or three to really get to the cost point of a major commercial market, although we are seeing tremendous progress. We did have almost 100,000 plug-in hybrid sales last year, for example, double 2012. So that is looking very promising over the next, say, 10 years.

On utility scale storage, we produced a report. If you haven't seen it, we would be happy to provide it, on utility scale storage a few months ago. Let us get that to you if you haven't see it. We have a ways to go to reach the cost points that one will need. We did have a budget increase request for fiscal year 2015.

Mr. TONKO. Right. And I know that GE in my district is working on advanced battery manufacturing that will address storage capacity for renewables.

Mr. MONIZ. Yes.

Mr. TONKO. Does DOE have some demonstration projects underway with these systems?

Mr. MONIZ. I am not personally aware, but I will check back on that. I am just not aware, Mr. Tonko.

[The information follows:]

COMMITTEE: HOUSE ENERGY AND COMMERCE,
SUBCOMMITTEE ON ENERGY AND POWER

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INSERT FOR THE RECORD

DOE's Office of Electricity Delivery and Energy Reliability (OE) has supported a balanced research and demonstration program for grid-scale energy storage for the last dozen years. The program encompasses research into applied storage technology, development of devices, and field testing and deployment of storage systems.

Under the Recovery Act of 2009, OE funded 16 energy storage demonstrations, providing a total of \$185M, with \$585M in cost share provided by recipients. Among noteworthy projects: a 20MW frequency regulation plant in Pennsylvania, a 36MW facility in Texas for wind smoothing, a 25MW/3hr facility in California for wind backup, and a 250kW/4hour battery installation to support photovoltaic solar power (PV).

Beyond the Recovery Act projects, OE is working directly with states to provide funding and technical guidance for regional projects. New York represents our oldest state involvement through a Memorandum of Understanding (MOU) that led to construction of a 20MW facility for frequency regulation in upper NY State. In Vermont we are involved in a 4MW resiliency project in conjunction with PV. In a Washington State collaboration, a vanadium flow battery, developed at Pacific Northwest National

Laboratory (PNNL) and commercialized by private industry, is finding a 3MW deployment on two utility grids.

OE is working with the New York State Energy Research and Development Authority (NYSERDA) on a new storage MOU to support joint projects. We also work closely with New York Battery and Energy Storage Technology Consortium (NY BEST), in a collaboration between our storage test site at Sandia National Laboratories (Sandia) and a new BEST facility. OE, through Sandia and PNNL staff, supports New York City in developing appropriate safety regulations to allow the NYC Department of Buildings to install sizable amounts of storage in city buildings.

Working with Sandia, PNNL, and Oak Ridge National Laboratory, OE maintains comprehensive research projects exploring novel storage technologies such as sodium-ion, zinc iodine, vanadium/vanadium, vanadium/iron, and organic electrolytes such as ferrocene. In addition we explore more durable and less costly membranes, and long lasting electrodes. All of these research projects are focused firmly on bringing more cost effective storage to market.

The OE program also maintains a global database of storage projects, produced the DOE/Electric Power Research Institute Electricity Storage Handbook, and has initiated a storage safety initiative for the entire industry.

Grid Energy Storage. U. S. Department of Energy. December 2013

<http://energy.gov/oe/downloads/grid-energy-storage-december-2013>

DOE/EPRI 2013 Electricity Storage Handbook

<http://www.sandia.gov/ess/publications/SAND2013-5131.pdf>

Mr. TONKO. OK. As you well know, the electric generation and transmission systems that make up the grid are undergoing tremendous changes due to many factors, including an increased deployment of distributed generation, retirement of old generating plants, shifts in the areas with electricity demand, and certainly shifts in fuel mix, to name a few. I believe energy storage could play an important role in a newly designed grid that is more flexible, resilient and efficient. But these developments will also challenge the traditional financing model for utilities. Is the Department looking at both the technical and non-technical barriers to deployment of clean energy technologies, and the challenges that—the challenge that is presented to our current grid infrastructure and traditional financing models?

Mr. MONIZ. Yes. That is a very important point. Thank you. We are looking at this in a number of ways. In particular, again, the Quadrennial Energy Review for this year, is entirely focused on the transmission, storage and distribution of energy, both electricity and fuels. It is a key issue. Clearly, there is technology involved with the grid making phase or measurements, et cetera. But a lot of it is policy, including State policy as to how one does that. The other point I would mention is—and again, you are completely on the mark as far as I am concerned—is business models are challenged as we look forward to distributed generation, smarter grids.

But also, I might add, the anticipation that we will continue to have no or very, very modest demand growth as our efficiency actions take hold. And so we are trying to think through how do we see a transformation happening in a period of, let us say, flat demand.

Mr. TONKO. Um-hum. In your testimony, you also talked about the impact on the utilities with experiences like Hurricane Sandy in New York. Given our recent experiences and the prospect of more storms of this type as a result of climate change, is this something the administration sees as a key component of climate adaptation?

Mr. MONIZ. Absolutely. And we have in our budget, in fact, a proposal for increasing our emergency response capacity that we exercise under FEMA. That would include, for example, setting up an emergency response room for energy infrastructure. And it also would be a good investment to have a DOE person assigned to each of the FEMA regions so that the energy issues are understood upfront, and that can cut time out from any response to an emergency.

Mr. TONKO. Thank you, Mr. Secretary.

Mr. MONIZ. Thank you.

Mr. TONKO. And I thank you for your efforts. Mr. Chair, I yield back.

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

Mr. SHIMKUS. Thank you, Mr. Chairman. Mr. Secretary, on July 31 of last year, you testified before this committee, and you said, and I quote, “We had made very clear we follow the law. The law will be determined by this Court decision that we are all awaiting. And if it directs the NRC to pick up the license, we will do our job to support that, given appropriations.” Your quotation. On Novem-

ber 19 of last year, the DC Circuit Court observed that the DOE is not following the law, noting that DOE's current strategy, and I quote, "is based on assumptions directly contrary to the law."

The Court ordered you to, and I quote, "submit to Congress a proposal to change the fee to zero until such a time as either the Secretary—that is you—"chooses to comply with the Act as it is currently written, or until Congress"—that is us—"enacts an alternative waste management plan."

Does the administration have any plans to resume work on Yucca Mountain and comply with the law, which is the Nuclear Waste Policy Act, as it is currently written?

Mr. MONIZ. Well, first, of course, we did submit the letter to the Congress on I think January 3 on the—

Mr. SHIMKUS. Well, the question is, does the administration have any plans to resume work on Yucca Mountain and comply with the Nuclear Waste Policy Act as it is currently written—as it is currently written?

Mr. MONIZ. Yes. Secondly—

Mr. SHIMKUS. What is the answer?

Mr. MONIZ. In terms of the Court decision with the NRC, of course. They have resumed their activity. We are supporting that as I said we would. So we will in fact probably have our technical—

Mr. SHIMKUS. Well, I am going to follow through, because I think we have got questions and testimony in your budget submission that adequately will prove that you are not complying and following with the law. The administration's budget indicates the need for legislation to carry out your DOE strategy for spent nuclear fuel management, especially considering it is based on assumptions directly contrary to law. Is the administration going to propose legislation?

Mr. MONIZ. I would have to go consult with my colleagues on that. I am not aware of anything at the moment.

Mr. SHIMKUS. So let me get this straight. The administration doesn't like the existing law and is choosing not to execute it. So the administration wants Congress to write a new law that it might like better, but won't propose to Congress what that new law should look like? And in the meantime, you want to keep spending taxpayer's money on your strategy, even after the DC Circuit Court noted that it is based upon assumptions directly contrary to law, and has directed DOE—that is you—to stop collecting the nuclear waste fees from electricity consumers. If the administration won't follow the law on the books, why should we have any confidence that you will follow a new law?

Mr. MONIZ. First, I would like to note that as was stated publicly in a Senate hearing, I did in fact work with the committee in terms of shaping a proposal—

Mr. SHIMKUS. Mr. Secretary, this is a budget hearing—

Mr. MONIZ. And—

Mr. SHIMKUS [continuing]. And what we are trying to find out is why you are not submitting money to comply with the law.

Mr. MONIZ. And—

Mr. SHIMKUS. And by not submitting money in your proposed budget, in conclusion, you are directing your Agency to not follow the law.

Mr. MONIZ. If I may add, I am also happy to work with this body to formulate any bill. Secondly, we have more than adequate funding right now to do all the responses that might be called for from the NRC to support their process. As I said, we expect our first report to be submitted very soon, probably the end of this month. And, third, our budget request is for all activities, which are authorized under the Nuclear Waste Policy Act.

Mr. SHIMKUS. In the context of DOE's assurances that it would follow the law, you, DOE, has repeatedly committed to this committee that DOE would honor the NRC's November 19 Order, both in correspondence and in hearings, including your testimony that I noted earlier. As recently as January 9 letter to this committee, DOE stated it would honor NRC's request, complete a groundwater supplement to Yucca Mountain EIS. However, on February 28, you, DOE, notified NRC that it would not prepare the EIS supplement. Why did DOE change its mind over those seven weeks, and was your commitment to this committee even a factor in that decision?

Mr. MONIZ. Again, the core activity that we need to do for NRC is updating the technical issues on groundwater. The—

Mr. SHIMKUS. I have 15 seconds. Let me just go to a statement you have in your testimony.

Mr. MONIZ. Yes.

Mr. SHIMKUS. You say, "and a consent-based citing." Where in the Nuclear Waste Policy Act is there a—any—the words anywhere "consent-based citing"? Where is it in the law?

Mr. MONIZ. I would have to go back to my general counsel to answer that question.

Mr. SHIMKUS. Oh, come on, Mr. Secretary, you know that consent-based citing is not in the Nuclear Waste Policy Act. And that is why your job is to comply with the laws of the land, and you continually thwart doing that. I yield back my time.

Mr. MONIZ. Well, we believe we are complying.

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

Mr. GREEN. Thank you, Mr. Chairman. And, Secretary Moniz, welcome you back to our committee. I also want to thank you for your recent trip to Houston and speaking to our Senator conference there. The budget we are discussing today has a significant impact on the activities you witnessed in Houston.

I want to start by asking you about pending LNG export applications. On March the 24th, the DOE approved the seventh non-FTA application for the Jordan Cove energy to be located on the west coast. This approval came within six weeks after the approval of the Cameron location from Louisiana. The—in October of 2013, the Government was shut down for 17 days. The Department repeatedly stated due to the shutdown, the operations of the Agency significantly slowed down.

My first question is has the Department fully recovered and staffed up from the delay, and does the fiscal year 2015 budget include this?

Mr. MONIZ. Well, yes. We are fully operational.

Mr. GREEN. OK. Does the six week approval of Jordan Cove reflect this recovery?

Mr. MONIZ. Well, each license is a little bit different in terms of the timing. But I think if you look historically, you can see what the timing has been post-shut down.

Mr. GREEN. OK. Will the Department continue to move at this pace?

Mr. MONIZ. Well, again, I cannot make a prediction on any individual application. But our process, as you know, is well known. It has been very transparent. Not everyone is happy with it apparently, but it is a pretty transparent process. And we have managed to now to get through—well, in my tenure, I think 5 of these licenses.

Mr. GREEN. Once FERC issues the environmental assessment, what steps or analysis does the DOE take with respect to the final issuance of the non-FTA's work permit?

Mr. MONIZ. Well, when it comes back to the Department, then we obviously look at the NEPA statement. There is a decision to be made as to whether any other analysis is required. But that is something that we haven't faced yet, at least I haven't faced yet. But—so we are expecting to get some of these NEPA analyses back from FERC this spring.

Mr. GREEN. Well, and you know the history of the—we first thought we were going to import LNG in '05. And now we are using that '05 law to export it. And there is I guess some interest in expanding exporting, and there is legislation to consider it.

Mr. MONIZ. Um-hum.

Mr. GREEN. But the Department is actually, you know, approving these permits. And there will still be a—I think the first one probably won't be able to export until sometime next year, which is a Cheniere facility in—

Mr. MONIZ. End of next year.

Mr. GREEN. End of next year.

Mr. MONIZ. Um-hum.

Mr. GREEN. So even if we approved all of these permits now, that natural gas—that LNG probably wouldn't get to someone. And my concern is yesterday I met with a number of German industrialists who would like to buy our natural gas. The problem is most of those permits that have been issued, and the ones that are on the—in line are actually contracted to send that LNG to Asia. And I asked them, I said if you all want to get in line, you know, you don't build an LNG permit unless you can have some customers for it. And I know a lot of these companies would like to have the customers in Europe as well as Asia. So—but any way, I appreciate that. So—

Mr. MONIZ. May I just comment, if—

Mr. GREEN. Sure.

Mr. MONIZ. That the first license that was granted, the Cheniere project that you mentioned to export at end of next year, they do have European companies. In fact, they just announced one with a European company contracting for the volumes. But I want to emphasize European companies does not necessarily mean they will deliver the cargoes to Europe.

Mr. GREEN. Well—

Mr. MONIZ. That is up to those companies to decide.

Mr. GREEN. That is true. Thank you. The carbon capture and storage is constantly discussed in the context of use and the possibility to be used as carbon control technology under EPA rules for utilities and refiners. The problem is that it is still too expensive commercially to be used. This year, the Department's budget was reduced for carbon capture and storage by 40 percent. Does this reduced funding level indicate Department believes CCS is commercially viable?

Mr. MONIZ. No, I wouldn't reach that conclusion or the opposite conclusion, either. I mean, I think we are continuing to move forward with these projects. All the technologies have been used in a commercial context. Clearly, as with any of the new technologies, renewables as well, our job is to continue to work on cost reduction across the board.

Mr. GREEN. Well, and I think we probably disagree a little bit on commercially, you know, cost effective. But I know we would like to do it. Mr. Chairman, I have another question I would like to submit on American manufacturing. And I support that in the President's budget recommending a 69 percent increase in advanced manufacturing funding. And I would hope we could have a response from the Department. Thank you. And I yield back my time.

Mr. WHITFIELD. That will be given to the Department for response. At this time, I recognize the gentleman from Nebraska, Mr. Terry, for 5 minutes.

Mr. TERRY. Thank you, Mr. Chairman. And thank you, Mr. Secretary, for being here today. I noted in the budget that the lowest sub-agency or department—lowest funded is the electric delivery and energy reliability. And so could you give me quickly the mission statement of that sub-agency, electric delivery and energy reliability?

Mr. MONIZ. It has two—I would say two principle roles. One is to develop and—in the Recovery Act period, to also deploy critical technologies for 21st century grid modernization. So for example, they did a tremendous amount in terms of doing phase measurements to understand stability of the grid, working with the utilities and ISOs, actually. The second area is the one that I did mention earlier on strengthening emergency response capabilities. So the principle organization for our work on emergency response under FEMA is in that office.

Mr. TERRY. Can you tell me how this Department or DOE then, on reliability and delivery, works with FERC and—I am sorry, EPA, or do they?

Mr. MONIZ. Well, obviously, we all have different responsibilities. We certainly coordinate. As an example, Acting Chairman LaFleur from FERC has come over twice for us to discuss the risks that have been very prominent recently around physical attacks on infrastructure.

Mr. TERRY. Yes. And that is going to be my next question.

Mr. MONIZ. OK. So—

Mr. TERRY. But how about with EPA?

Mr. MONIZ. And with EPA, we have many, many discussions. Often, what we do is provide kind of technical—underpinning tech-

nical support in areas that they are considering. We collaborate on things like the interagency methane strategy, et cetera.

Mr. TERRY. Yes, the methane strategy is an interesting one, too. Now, I will disagree slightly in part with Mr. Waxman on market forces being simply prices, because sometimes energy feed stock sources are regional. For example, Nebraska, being a couple-hour train ride for Powder River Basin coal, and so therefore Nebraska's heavily reliant on that level of coal. But it appears that some of the rules that the EPA is promulgating would force some of those smaller, older power—coal-fired power plants to spend more than the building or facility is worth to change to natural gas, or close. So I want to know if the electric delivery and energy reliability department sub-agency is working with EPA to figure out reliability when we have large gaps in production electrical generation in States like Nebraska if these rules become permanent?

Mr. MONIZ. I would say that there are three places in the Department that address these kinds of issues.

Mr. TERRY. All right.

Mr. MONIZ. I mean, one of course is EIA just on a purely data basis.

Mr. TERRY. Right.

Mr. MONIZ. The Office of Electricity, as we mentioned. But the third, and in some sense maybe the most active at the moment in the way you are mentioning is the Energy Policy and Systems Analysis Office, because in this Quadrennial Energy Review, in which they play a key role, this whole question of reliability and resilience of energy infrastructure is the focus area for this year.

Mr. TERRY. OK. And in that regard, and what happened in California, the Department, do they do a risk assessment on the vulnerability of the powered grid, either by an attack that occurred out in California, or even at a higher level that seems to be the rage in a lot of TV shows, EMPs?

Mr. MONIZ. Well, on the first part, we have worked together with Homeland Security and State agencies, the Deputy Secretary in particular. We have had 13 regional meetings to address the issues of physical security. We work with utilities very closely. The utilities have done probably more than has been acknowledged in the press already, but there is a ways to go. The last of these meetings was just a week ago Friday, in fact, in New York. That was the last of the 13 meetings. EMPs is on the screen.

In our look at resiliency of infrastructure, both electricity and fuels, we are trying to start an analysis based on integrated sets of risks. So it is extreme weather. It is cyber. It is physical. It is EMPs. And it is the interdependencies of infrastructures as a risk in and of itself.

Mr. TERRY. Yield back.

Mr. WHITFIELD. The gentleman's time has expired. At this time, I will recognize the gentlelady from California, Ms. Capps, for 5 minutes.

Mrs. CAPPS. Thank you, Mr. Chairman. And thank you, Secretary Moniz, for being here today for your testimony. I am a long-time supporter of the Department of Energy's efforts to develop clean, renewable energy technologies. And of the many renewables out there, wind and solar are obviously the furthest along. But

there are some other promising renewables in the works, including marine and hydrokinetic or MHK technologies.

As you know, Federal investments are crucial to advancing these technologies to commercial viability. And I will quote the DOE, as you stated in your 2015 budget justification. "DOE plays a critical role in MHK technologies because of their nascent stage of development, which is similar to that of wind and solar technologies 20 years ago.

I have three questions around this topic, pretty specific or brief, if you will. Could you expand upon this point briefly? Why is DOE's involvement so important for developing these technologies at this early stage?

Mr. MONIZ. Well, I think as you said, as with others, the early stage is very hard to attract private sector funding, at least if it is not leveraged with some public funding.

Mrs. CAPPS. You can recall that I—perhaps I can—that I raised this issue with you last September during a hearing as well. And you responded by saying that DOE was looking for ways to increase support, just as you just did, for what you referred to as these forgotten renewables, if you will. Given this perspective, I was puzzled to see a 25 percent decrease for MHK in DOE's budget request this year. This was particularly troubling when compared to the 20 percent increase for the Energy Efficiency and Renewable Energy, EERE, office overall. So what is with this divergence? Why did the relatively small MHK budget get such a sharp reduction?

Mr. MONIZ. Well, we did increase in terms of the other renewables, geothermal and in water.

Mrs. CAPPS. Yes. Yes.

Mr. MONIZ. Within water, what the program did was rebalance because it was viewed as the relatively near term major microhydro opportunity. So they rebalanced. But, you know, I have said already I am happy to reexamine the balance of that with Members who are interested.

Mrs. CAPPS. I appreciate that, because I would like to question, you know, and say I like the old balance before. Some of my research companies do as well. It wouldn't take much to make a really big difference for these MHK industries right in such a critical time, as you know, in their development.

Mr. MONIZ. Um-hum.

Mrs. CAPPS. I encourage the Department to make these investments, if you can. But even with this limited funding, I applaud you for making such good progress. In my district alone, DOE has funded two promising ocean energy projects, a local company called Aquantis is leveraging DOE investments to develop a cutting edge turbine to harness energy from ocean currents. And Cal Poly University in San Los Obispo in my district received funding to start planning a promising wave energy demonstration off—a project off the coast of California—central coast. I am proud to say that Cal Poly is one of only two projects selected in the country.

Now, I want to ask you if DOE plans to provide continued support for these demonstration projects to help them get up and running. Is that critical as we—you acknowledge and I agree that what they call they dark phase of trying to attract funding from the outside when you—

Mr. MONIZ. Um-hum.

Mrs. CAPPS. But so much promise is held there in this area. What are the next steps?

Mr. MONIZ. Well, I can assure you, first of all, I will go back and look at those projects. I am not up to the—on the specifics. And will get back to you in terms how that looks going forward.

Mrs. CAPPS. Excellent. I appreciate that.

Mr. MONIZ. Right.

Mrs. CAPPS. Because I believe, as many of the folks who have done the research in my district have demonstrated to me, this holds great promise for the future. But it isn't yet to that stage that solar and wind are now even.

Mr. MONIZ. Um-hum. Yes. It is longer term.

Mrs. CAPPS. That is right. And so I would encourage you to explore in this direction. And I thank you very much for being here.

Mr. WHITFIELD. The gentlelady yields back the balance of her time. Are you—

Mrs. CAPPS. Yes. Oh, I am sorry. I do. Yes.

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

Mr. Latta. Thank you, Mr. Chairman. And, Mr. Secretary, thanks again for being with us today. And I know that I think from the last time you were here, I mentioned this before, but I think it is worth mentioning again because we all have to look at who we represent. I represent about 60,000 manufacturing jobs in northwest and west central Ohio, and recently I have heard from one of my constituent companies out there—and it is a large manufacturer—that they are in a voluntary curtailment contract with a local utility. In the years past, the agreement with the utility has amounted to some small savings for that company during these demands, during the peak periods. But recently, the curtailments have often not really given any savings, because they have been actually cut back because we have had a pretty tough winter in Ohio and utilities are asked to, you know, do what they could. So they asked the companies. So it is important in these cases, because the minor savings that they had enjoyed are gone now. And it is also important that, because of that, they have lost production time, which means that if folks aren't working, people aren't bringing home a paycheck. And the employees of course got reduced hours. And then of course when you put that in—when people take their paychecks home with the increased electrical bills and more expensive healthcare premiums and things like that, it is pretty tough.

So my concern and the concern of the manufacturers that I represent is that the problems today are only going to get worse as more and more of our coal-powered generation units are being retired as a result of the administration's regulations. And it is also important to note, again, in Ohio that 78 percent of our energy in Ohio is coal based. And in some parts of the State, particularly in my area, it is even greater than that 78 percent.

So my first question is, What will DOE do, and you, to ensure that this Nation's manufacturers have access to reliable and affordable electricity going forward? And again, a lot of my manufacturers are ones out there that really need that base load capacity be-

cause they run forges and everything else. So what can we expect in the future from the DOE?

Mr. MONIZ. Well, basically, I would say "all of the above" is part of addressing the electricity system, not only the electricity but certainly in that area. The fact is I think rates in general for consumers have come down with the natural gas revolution. And of course, that has also stimulated more manufacturing. Again, we have had perhaps \$125 billion invested in new manufacturing capacity directly associated with the natural gas revolution. We will continue to work on the technology side to drive costs down for all of the energy sources and also, as was mentioned earlier, storage eventually to help with variable sources. And we will continue to—in this budget request, we will continue to have a major focus on trying to develop the foundational technologies for our advanced manufacturing future.

Mr. LATTA. Well, and I agree that we are seeing an explosion out there on the natural gas side, which is tremendous for our country. But in Ohio, we are very fortunate. In the eastern side of the State, we do have the Utica Shale. And of course, in Pennsylvania, you have Marcellus. But we just can't retrofit these plants. You know, the costs would almost be the costs of building a new plant in the retrofits. So these costs are going to be passed along to these manufacturers. So don't you agree that our manufacturers out there, to stay competitive across the world, have to have utility rates that are competitive, not just here in this country but across the world?

Mr. MONIZ. Well, and I think that is what we are seeing. We are seeing that the whole mentality internationally has changed about now the United States being a kind of a manufacturing center increasingly. And a large part of that is because of our energy costs. So maintaining that edge is—

Mr. LATTA. Let me ask this. I know my time has run out. I just have one last question for you. If you would see that EPA regulations out there are going to impair electricity reliability and raise rates, would you raise those concerns directly to the EPA?

Mr. MONIZ. Well, again, obviously, we communicate. But especially this year in this Quadrennial Energy Review, it will be looking across the administration in an integrated way at how we maintain and sustain and develop energy infrastructure that serves the goals that you have stated.

Mr. LATTA. Mr. Chairman, I see my time has expired, and I yield back.

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. And, Secretary Moniz, welcome to the committee. It is a pleasure to have you here.

Mr. Secretary, the National Energy Technology Lab budget is something that I have a particular interest in. And as you may know, my colleagues on both sides of the aisle have asked the appropriators that the NETL be funded at 775.5 million for fiscal year 2015. And of course, the President's budget has a number that is much, much lower than that. I wonder if you could elaborate on the administration's vision for the NETL as it relates to the President's fiscal year 2015 budget request, and could you hypothesize

about the effects of the President's proposed budget on both research and jobs in southwestern Pennsylvania and West Virginia as it relates to the NETL?

Mr. MONIZ. Well, NETL, as you well know, and Mr. McKinley as well knows, is our lead fossil energy laboratory. It does have an unusual structure compared to our other laboratories in having Federal employees as opposed to contractor employees. I certainly remain committed to, in particular, to be honest, try to continue to build up the research and development activity within the laboratory. I think that we have room to increase that. And as one example in our budget submission this year, an area where NETL certainly has an interest in and strength is in something like methane hydrates where we proposed an increase I think from 5 to 15 million dollars, you know, because this could be—we don't know. But in a couple decades, this could be the new shale gas going forward. So those are the things that I will be looking at.

Mr. DOYLE. Yes, thank you. And since Mr. McKinley is asking questions next, I am sure he will follow-up on NETL. I would like to move to CCS though. The Department's carbon capture and storage roadmap, which is the blueprint for DOE CCS investments notes that the Agency is developing the advanced technology platforms needed to prove that CCS can be a viable climate mitigation strategy.

Mr. Secretary, I would like to take this opportunity to hear more about the current status of DOE CCS research development and demonstration efforts. And in your view, if you could tell us what role CCS technologies play in the future of coal in this country and around the world? And also, while you are addressing that, we know that EPA has proposed pollution standards for new coal fired plants that would effectively require such plants to use partial CCS. Some members of this committee have asserted that CCS just isn't feasible for coal fired plants at this time. Dr. Julio Friedmann from your Department testified in an O&I Subcommittee that first generation CCS technologies are proven and commercially available for coal fired power plants right now. A plant owner can go out and buy them today with performance. Can you tell me first if you agree with that assessment, and then maybe elaborate on the Department's efforts with CCS?

Mr. MONIZ. Certainly. Again, the technologies are available today. They have all been used in a number of venues. And as I said earlier, as with all of our new technologies, we remain focused on technology development for further cost reduction. In terms of our program, we have right now eight major projects. And I would note that most of them are actually CCUS where the U is for utilization of the carbon dioxide, in this case through enhanced oil recovery, which obviously then gives you a monetary return for the CO₂.

Mr. DOYLE. But isn't it true that in certain parts of the country, that is just not possible because—shared oil there?

Mr. MONIZ. Correct. Sure. So that is not—in fact, in particular it is no accident that, of the eight major projects that we have, the two that do not have utilization are in Illinois, where that is not such an attractive option.

Mr. DOYLE. Yes.

Mr. MONIZ. Although I might say there have been many interesting discussions about if and when one goes to a system with lots of capture plants around the country, including in the Midwest and western Pennsylvania, et cetera, that there is a lot of interest in building an infrastructure of CO₂ that would go down to the Gulf and then over towards the Rocky Mountains to have a major CO₂ infrastructure.

Mr. DOYLE. Do you think—

Mr. MONIZ. That is in the future.

Mr. DOYLE. Do you think, though, that CCS technology in areas like western Pennsylvania where there isn't oil to recover—if there isn't a recovery part to help pay for the costs that it is still economically and commercially viable in those areas?

Mr. MONIZ. Well, look. I think we are going to have to keep working to, again, drive costs down. And besides the demonstration projects today, which are using basically today's technology, we also have—including in ARPE-E, et cetera, programs to look at new technologies that can have substantially lower costs. I think the research program for these novel technologies, next-generation technologies, is in a very early stage.

Mr. DOYLE. Yes. Mr. Secretary, thank you. I think that CCS is a key to the administration's all-of-the-above strategy if we are going to have one.

Mr. MONIZ. It is.

Mr. DOYLE. And I would encourage you to keep the investments going. Thank you.

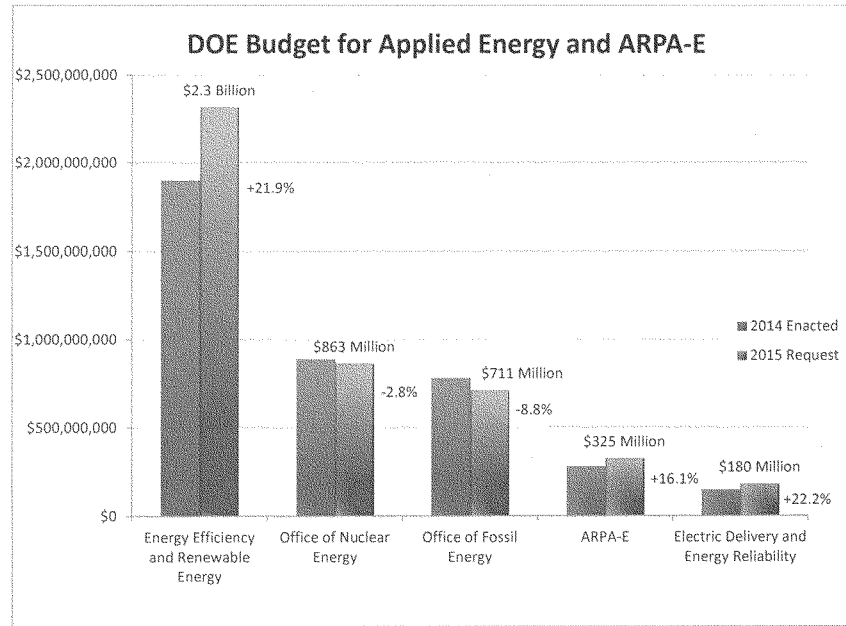
Mr. MONIZ. Yes. We will.

Mr. WHITFIELD. At this time, I recognize the gentleman from Texas, Dr. Burgess, for 5 minutes.

Mr. BURGESS. Thank you, Mr. Chairman. Mr. Secretary, thank you so much for being here and your forbearance today. Let us stay on the all-of-the-above strategy concept for just a moment. I think we have a slide that shows the Office of Energy Efficiency and Renewable Energy in comparison to other aspects of the—of your energy budget.

[The information follows:]

APPENDIX



Mr. BURGESS. And it is—looking at the bar graph, it is pretty—it is hard to read the writing. But ERE is the big one. And everything else are the small ones. So ERE just absolutely overwhelms like nuclear energy, more traditional fossil energy and more traditional sources of energy. So it seems like the Office of Nuclear Energy, Fossil Energy and Electricity would have critical roles to play in shaping the future energy policy of the United States. Would—is that a fair statement?

Mr. MONIZ. It is. I could comment on the graph, however, and note that EERE, we might think of as two programs, efficiency and renewables.

Mr. BURGESS. And I am glad you brought that up, because I wished you would. And I believe in energy efficiency.

Mr. MONIZ. Right.

Mr. BURGESS. And sometimes coupling it with renewable energy in fact distracts us from the validity and the importance of energy efficiency.

Mr. MONIZ. Right.

Mr. BURGESS. No one of either political party is going to run on a platform of wasting energy.

Mr. MONIZ. Um-hum.

Mr. BURGESS. So energy efficiency is one of the things that I should think we should put high on our list. So in fact for future graphs, I would appreciate the ability to tease out what is renewable energy and what are the gains that we can have from expanded energy efficiency.

Mr. MONIZ. And—

Mr. BURGESS. You were starting to answer. I will let you finish.

Mr. MONIZ. And I want to let you know, I am just going to add that in the budget request for fiscal year 2015, in fact, energy efficiency is actually the largest of the proposed increases.

Mr. BURGESS. Let us—and will you be able to—can you provide us those figures?

Mr. MONIZ. Sure.

[The information follows:]

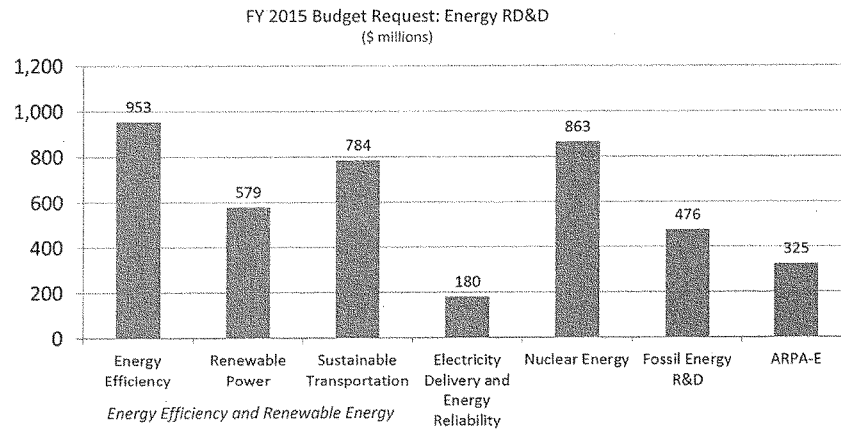
COMMITTEE: HOUSE ENERGY AND COMMERCE,
SUBCOMMITTEE ON ENERGY AND POWER

HEARING DATE: APRIL 3, 2014

WITNESS: ERNEST MONIZ
PAGE: 83, LINE: 1875-76

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The Fiscal Year 2015 budget request includes \$953 million for energy efficiency activities within the Office of Energy Efficiency and Renewable Energy. The graph below shows that figure compared to the other areas of energy research, development, and deployment in the FY 2015 request.



Mr. BURGESS. OK. Thank you. And we don't need to go into it now, but if you could make that available? I think that would be helpful. And I have got a series of questions that might in fact then not be necessary looking at those numbers. I have got some questions. The homebuilders back home are really concerned. You have got energy building codes that were developed by the Department of Energy and authorized to serve as the technical advisor during the development of the codes. Your role has expanded over time. And now, it has almost moved into the point of advocacy. The Department of Energy representatives even pursue what are very aggressive energy goals that actually increase the cost of housing by having to meet these requirements. Is that something that you are willing to take a look at?

Mr. MONIZ. I—yes. I am not familiar with that. I will look at it.

Mr. BURGESS. I can provide you information that has been provided to me by homebuilders in north Texas.

Mr. MONIZ. That would be—

Mr. BURGESS. But apparently, it has been—the requirements have been out there for some time. The world has changed around them. But the net effect is we are expending a lot of money to meet those requirements on technologies that aren't adding that much to energy efficiency but really do drive the cost of construction when other things might be a more reasonable expenditure. So I will make that information available to your office.

Mr. MONIZ. Thank you.

Mr. BURGESS. And I would appreciate your response on that.

Mr. MONIZ. OK.

Mr. BURGESS. Thank you, Mr. Chairman. With that, I am going to yield back.

Mr. WHITFIELD. The gentleman yields back. At this time, I will recognize the gentlelady from the Virgin Islands, Dr. Christensen, for 5 minutes.

Mrs. CHRISTENSEN. Thank you, Mr. Chairman. And welcome, Mr. Secretary. We are really excited to have you here to discuss the 2015 budget for the Department of Energy.

In order to meet the President's clean energy targets by 2020, we must continue to support the development and the deployment of new innovative clean energy technologies, but we also much encourage initiatives that support families to make any change that they can at the household level to make to increase efficiency. So I am pleased to see that the weatherization assistance program has been designated a 31 percent increase in funding. And I hope this continues to be a priority item as it serves critical needs in my district where residential rate pairs are charged over 51 cents per kilowatt and commercial over 55 cents. And I know you have heard me say that before.

The weatherization program allows our local energy office to assist low-income families to reduce their energy costs by providing new efficient refrigerators, solar water heaters, air conditioning, different bulbs and similar improvements which may seem small for some but go a long way in our small and tightknit communities. It is also a great benefit to the local vendors that provide the products and service for the program.

The State energy program is another key program that we really depend on a lot to provide energy programs for the general public, and we want to thank—I want to thank you for your support of these two important programs.

I want to go back to climate change for a minute. And much has been said about the intergovernmental panel on climate change and their new report that was reported earlier this week that described the impact of climate change on our natural environment but also warns about the impacts on human health and safety. The scientists identified several key risks. One is risk of death, injury, ill-health or disruptive livelihoods in low-lying coastal zones and small island developing States like mine, and other small islands due to storm surges, coastal flooding and sea level rise.

When I was here earlier, you talked about the threats to utilities and water supplies. Mr. Secretary, would you agree that the potential impacts of climate change pose a human health and safety risk to people who live along coastal areas or islands as well?

Mr. MONIZ. Certainly. And islands of course are often quite exposed. Um-hum.

Mrs. CHRISTENSEN. Yes. Periods of extreme heat pose public health risks, too. How worried should we be that heat waves resulting from—about the heat waves resulting from unchecked climate change?

Mr. MONIZ. Well, again, I think what we see are more extremes, both hot and cold. We also have the polar vortex, in fact, recently.

Mrs. CHRISTENSEN. Yes. And the IPPC report also warns that extreme weather events, as you said, will become more frequent as the climate warms, will damage infrastructure and critical services. Given all of these potential impacts, would you characterize climate change as also a critical public health challenges, not only an environmental challenge?

Mr. MONIZ. Yes, it is an environment, economy, health and security challenge.

Mrs. CHRISTENSEN. OK. A lot of times when we talk about, you know, moving to a greener economy and renewable fuels, the talk is about the cost and jobs and economic damage. But we never take into account the public health cost. And so I just wanted to focus on public health in my questioning.

Mr. MONIZ. Um-hum.

Mrs. CHRISTENSEN. Thank you, Mr. Secretary. And thank you for being here.

Mr. WHITFIELD. The gentlelady yields back. At this time, I will recognize the gentleman from Louisiana, Dr. Cassidy, for 5 minutes.

Mr. CASSIDY. Thank you, Mr. Chairman. Mr. Moniz, how are you?

Mr. MONIZ. Hello.

Mr. CASSIDY. Listen. I am following up with something that Mr. Hall asked earlier regarding the offshore deep water port facilities for liquefied natural gas. Now, as I am told—I was in another meeting. I was told that you had mentioned kind of a lack of familiarity with it, but you would look into it. Now, my concern is that I have here a letter dated October the 18th, 2013, from Mr. Jonathan Levy, Deputy Chief of Staff of the Office of the Secretary of

the DOE, and he was requesting that the—that there would be a parallel process to review these offshore LNG terminals as opposed to the FERC terminals. Now, since we are looking to see how we can expedite the approval of these processes, and I gather in the FERC process, whichever comes off next is the one that you review next, clearly, we have something which is outside FERC. It is a parallel agency. And this seems something that again the secretary suggested that you all would set up the parallel process.

So with that introduction, it is kind of troubling to me that you would not be familiar with it. It tells me that if the letter came October 18—and it refers actually to another letter from 2012—that this would not be a priority for your agency. And if it is not a priority, it is probably not going to happen. Can you reassure me regarding my concerns?

Mr. MONIZ. And as I said to Mr. Hall, I think, I will certainly go back and look at this whole issue of the MARAD approvals in the queue.

Mr. CASSIDY. Yes, if you could, because, frankly, it seems like a parallel process is indicated, particularly if we are trying to make export of LNG a priority. And, again, my concern, the fact that it is kind of an unknown issue suggests that it is not a priority. Those are jobs in my State.

Mr. MONIZ. No. To clarify—I mean, I am certainly aware of the issue of the MARAD approvals in lieu of FERC approvals for that. I just have to go back and look at where we stand in that discussion.

Mr. CASSIDY. OK.

Mr. MONIZ. I don't want to give misinformation.

Mr. CASSIDY. OK. Thank you. Let me change gears to mixed oxide fuel fabrication. Does that plant on the—in South Carolina, I gather that the Department of Energy is seeking to put in I would call it mothball. I think it is called cold standby. Now, it is my understanding that this was not supposed to be done because Congress had indicated that this process should be created, that we are now 60 percent through with the process and it is going to cost a certain amount of money to put it in cold standby that actually could be used for the completion of the project. So if—but again, I gather that it is being shut down, if you will, because if your concerned about the cost. Can you give us that cost analysis to put the facility into the cold shutdown? How much will it cost to do so?

Mr. MONIZ. Oh, well, first of all, there are several analyses about the large lifecycle cost, which are frankly all converging to this \$30 billion or so.

Mr. CASSIDY. Now, I am told there is a—

Mr. MONIZ. Like—

Mr. CASSIDY. I am sorry. I don't—limited time. I am sorry. I am told there is a GAO report that pegs it at 24 billion.

Mr. MONIZ. Yes. So the GAO said 24 billion. But it acknowledged that it had left things out and suggested it was likely to be higher. And so I think I would put them and the DOE analysis and the Army Corps of Engineers' analysis of the facility are all consistent in terms—

Mr. CASSIDY. Now, I am told that that Army Corps analysis is not yet public. Are—is that going to be made public?

Mr. MONIZ. I anticipate it will be. Yes. It was not full lifecycle. That was for the capital facility.

Mr. CASSIDY. Uh-huh.

Mr. MONIZ. But on that part, it was in line—in fact, a little bit higher than our estimate. So again, the approach was that \$30 billion lifecycle looks pretty hard to sustain. So we felt that in the fiscal year 2015 budget, we proposed roughly \$220 million for an options analysis to make sure in the end the administration and the Congress have to come together to decide, you know, how are we going to dispose of this plutonium. Is a \$30 billion project the way to go? The standby—

Mr. CASSIDY. So is there—I am almost out of time. So if there is an alternative, has the alternative been identified? And if so, what would be the lifecycle cost of the alternative?

Mr. MONIZ. There was a National Academy report in the 1990s that identified 31 alternatives. We have restricted that to four or five. Some are reactor alternatives. Some are non-reactor alternatives. Our initial look suggests that some of these are as expensive, but some may not be. So that is what we need to work up and come to the Congress with in terms of the path forward. We want to make sure that in the standby, nothing is irreversible, because MOX remains an option in the suite.

Mr. CASSIDY. OK. I am out of time. I yield back. Thank you.

Mr. WHITFIELD. AT this time, the Chair recognizes the gentleman from Texas, Mr. Olson, for 5 minutes.

Mr. OLSON. I thank the Chair. And welcome back, Secretary Moniz.

Mr. MONIZ. Thank you.

Mr. OLSON. My questions today will focus on the nuclear power workforce, grid challenges during disasters and, for a change, LNG exports.

First, the energy nuclear power workforce. The South Texas Project in Bay City, Texas, is key to the Gulf Coast grid. It provides reliable, affordable power to the entire Houston area. It has been doing that since 1988. However, STP is dealing with an aging workforce. Workers are retiring, and there aren't enough qualified replacements. Now, Wharton County Junior College is stepping up to the challenge, led by the great president, Betty McCrohan. Wharton has opened a fourth campus in Bay City. And with the help of the Matagorda County Judge, Nate McDonald, they are offering 2-year degrees, associate degrees, in three nuclear power specialties. I would love to have you come down and see that facility some time, if you are going by the South Texas plant.

But nationally, nuclear power workers and STEM aren't as exciting as 4-year liberal arts degrees. And that concerns me. I am proud. I graduated from Rice University and from UT Law School. But lawyers like me who never practice law and liberal arts majors are great with pens and paper but terrible with fixing combined cycle gas turbines. And so my question is, What do you see when we look at our energy workforce? Is there anything DOE can do in its budget relating to finding the next generation of scientists, engineers or high-tech construction workers?

Mr. MONIZ. I think, you know, we do have somewhat limited authorities in terms of direct educational programs. But I think this

issue of workforce in a number of areas is of relevance to the Department's missions. It is a major challenge. By the way, we have the same issue in some of our laboratories in terms of the nuclear workforce. So we would like to work to find ways to focus on core disciplines—core areas of relevance to the energy space where we might look at increasing things like internship programs, traineeship programs, that kind of activity. Because I agree. In fact, Mr. Rush mentioned earlier in terms of the Minorities in Energy—we need more people coming into the workforce. And that is only going to be helped if we work across the entire spectrum, gender, race, et cetera. So I would be happy to work with you. And—

Mr. OLSON. By yourself or—

Mr. MONIZ. I would send Pete Lyons up to see you.

Mr. OLSON. There you go. Send him down there to Bay City, Texas.

Mr. MONIZ. Great.

Mr. OLSON. My second question is about grid recovery and disaster. The 2014 hurricane season starts June 1. My hometown of Houston, the whole area is in Hurricane Alley. As we have seen, the grid can be very vulnerable in severe weather. Keeping lights and air conditioning on should be a top priority for all of us. When Hurricane Ike hit in 2008, 2 million people lost their power. DOE's budget has some priorities I think are interesting. You want to spend five times the amount on wind energy, \$115 million, than on energy infrastructure security and restoration, \$22.6 million. Texans love wind. We are the number one producers of wind in America. But we also remember America's most disastrous hurricane, the Galveston Hurricane of 1900, when over 6,000 people, minimum, were killed. Should I be concerned by DOE's priorities here?

Mr. MONIZ. Well, I think frankly we are trying to ramp up our emergency response capability, and also our what you might call prevention possibility through looking at—to make our infrastructure more resilient so that if something does happen, it doesn't go down. Or if it goes down, it comes back faster. So that is a big focus for us. Again, we have some specific proposals in the fiscal year 2015 budget to amplify these capacities. One is to have a dedicated energy infrastructure response center. It is—I forget, it is a 6 or 8 million dollars proposal to outfit a place where we can look at the country's infrastructure and help us in directing Federal assets to assist with recovery. We also propose to place one person in each of the FEMA districts to understand the region specific issues with regard to risks. And we feel that, you know, that having a person embedded in that way, you really understand the local situation, and you can understand who to call quickly. Where there are problems, you could do training, all kinds of things. So those are two specific initiatives on emergency response. But in addition, in the Quadrennial Energy Review, there are basically going to be two major focuses. One is electricity system, and the other one is the fuels infrastructure. And on the latter, for sure, we are going to do region by region analyses of the resilient fuels infrastructure, because we have seen different problems in all different parts of the country. Just recently, the propane, for example—especially in the upper Midwest, although it went to other parts of the country as well.

So we really are building in this area. We think it is a high priority.

Mr. OLSON. Come see Wharton County Junior College, my friend. I yield back.

Mr. WHITFIELD. At this time, I recognize the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. MCKINLEY. Thank you, Mr. Chairman. And thank you again, Mr. Secretary, for appearing before us. I want to build off a little bit of what Mr. Green—

Mr. WHITFIELD. Would the gentleman move the microphone up? Yes. Thank you.

Mr. MCKINLEY. I have to hold it, I guess. The—I want to build off what Doyle and Green both talked about with NETL and CCS. The back—so the backdrop of my question is going to have to do with that. There are folks that will contend, and maybe justifiably, that some of the climate change involves CO₂ emissions. I am not going to disagree there is climate change. The question I think is how much is manmade. Are you with me on—

Mr. MONIZ. Yes, I am trying—yes, I think it—

Mr. MCKINLEY. How much of it is manmade? So I just—just looking at a chart that we put together. Yes. Because the variable is the amount produced by man.

And in this chart, you see that almost 70 percent comes from fossil fuels of the energy produced. Now, the second chart shows that.

The second chart shows that very little is being spent in research in fossil fuels. And if that indeed is the problem—if fossil fuels is the problem, I don't understand why there is a disconnect between that and the research with that, because you can look at it. The research dollars is only around 18 percent. But more specifically, for NETL, the fossil energy research has been cut by over 15 percent. And importantly, the comment that was raised over there that carbon capture, one of the keys to the future of using fossil fuels and under some of the regulations that are being issued by the EPA, they have cut the research money in carbon capture by 16 percent. They have cut the—on carbon storage by 26 percent. If we are serious about trying to include fossil fuels in our energy matrix, I think someone is being disingenuous about their interest in "all of the above." And rather, there truly is this war on coal. So is this—are we—do you think the President is deliberately trying to discredit or diminish the use of coal in America?

Mr. MONIZ. Again, in terms of the R&D numbers, for example, I respectfully feel that this does not give the full picture. I mean, this administration is unprecedented in its investments in coal, CCS in particular—CCUS, with \$6 billion.

Mr. MCKINLEY. OK. Then why do we see cuts of 40 and 40-some percent with NETL? That is—

Mr. MONIZ. But \$6 billion in CCUS. And right now, an active loan program solicitation of \$8 billion for fossil fuels generally. I can't get into the specifics of some of the initial proposals. There will be more proposals.

Mr. MCKINLEY. Mr. Secretary—

Mr. MONIZ. But there is coal—

Mr. MCKINLEY. You can appreciate, we have that 5-minute drill we have to—we have limited ability to ask enough questions here.

But the—my focus again is over NETL. It is providing increase research dollars into NETL. And I think it sends a message to the laboratories, both in Pennsylvania and West Virginia, that we are serious about them, whether that is a chemical loop, whether that is a fracking techniques, and all the things that have been developed at NETL that they will continue, that they can count on, that their employment is secure.

Mr. MONIZ. Um-hum.

Mr. MCKINLEY. I think it also sends a message if we split the proper amount of money in NETL. We are sending a strong message to the coalminers all across America in the coalfields that their jobs are secure, that there is a future for coalmining. And it just eliminates the uncertainty. I am—I use that backdrop as—for NETL. But also if we continue this attack on coal and fossil fuels, and not put the money into the research, if we de-carbonize America, do you really think the health of the world will improve that much if America alone, by itself, were to not burn fossil fuels? Do you think the health of the world would be better?

Mr. MONIZ. Well, first, let me say, I will go back and look at the NETL program specifically. Number two, as mentioned earlier, things like methane hydrates, I think we tripled, which will be a NETL interest.

Mr. MCKINLEY. Sure.

Mr. MONIZ. Third, on the last question, we all recognize that obviously the United States alone cannot change the trajectory. But what we do is very, very important. And I think, and the President feels—

Mr. MCKINLEY. But wouldn't the other nations—

Mr. MONIZ. And we will share leadership here.

Mr. MCKINLEY. But, Mr. Secretary, the other nations aren't following us. Germany is building more coal fire power houses. So my message is until we get a global unanimous effort to try to do this, why do we continue to attack our coal industry and diminish it and cause uncertainty with it? I am past my time. I am sorry. And I would go back to—

Mr. MONIZ. Again, I would just say that we are making unprecedented investments in coal, huge in scale.

Mr. WHITFIELD. The gentleman's time has expired. At this time, I will recognize the gentleman from New York, Mr. Engel, for 5 minutes.

Mr. ENGEL. Well, thank you very much, Mr. Chairman. Thank you, Mr. Secretary. I just want to first say that overall I am satisfied with the President's fiscal year 2015 budget, the Department of Energy. At a time of significant alarm over climate change, I am encouraged that the budget request offers a 2.6 increase above fiscal year 2014. And I am particularly interested in the budgeting for alternative transportation fuels. I want to commend you and the President for proposing a 2 billion set aside for an energy security trust, as well as other investments in alternative fuels and energy efficiency.

For many years, I have introduced the Open Fuel Standard Act just recently with my colleague from Florida, Ileana Ros-Lehtinen. I have done this for the past several years with bipartisan support from this committee. And I do believe that this legislation will

drive—help drive domestic production of all types of alternative fuels, while decreasing our reliance on foreign oil from hostile regimes. And it has also been the goal of my oil and national security caucus, which is focused on ways to reduce our dependence on foreign oil while making the U.S. energy independent.

So, Mr. Secretary, in the past, you have mentioned electric vehicles. Can you expand on what other types of alternative fuels you foresee being developed and funded through the energy security trust?

Mr. MONIZ. Well, I think first of all, with regard to vehicles, let us say very broadly, I think there are three major thrusts on what we are trying to accomplish. One is efficiency vehicles. Second is alternative fuels. The open fuel standard would fit in there, of course. And third, electrification. And we think they are all important directions, and in fact can work together. So on the electric vehicles, if you want to focus on that first, we of course are continuing the battery research. But issues such as light-weighting have very, very important implications for electric vehicles because of range issues, et cetera. So we are pushing on that. And yesterday, we had a discussion with the auto suppliers of the United States in terms of the advanced vehicle technology program at DOE. And they are noted that much of the—almost any plug-in hybrid sold anywhere has some DOE driven technology in it. And this provides new opportunities for our suppliers.

Mr. ENGEL. Thank you. I want to just make a couple of statements about some things pertaining to New York. And you could submit it to me, because we only have 5 minutes. I know there is not time. But, obviously, about Hurricane Sandy is something that we are still feeling the pangs of in the northeast. During that hurricane or super storm, significant fuel supply shortages in New York City area were caused by damages to supply train components in New Jersey. And the City and State have no authority—regulatory authority to intervene, and it has caused problems. I am told New York City requested that DOE and the National Petroleum Counsel to convene a regional working group to develop a strategy for securing physical infrastructure like pipelines, refineries and terminals. So I am wondering if you could submit to me—you don't have to do it now—an update on the status of the working group and its findings. And I also would like to ask you to have the Agency follow-up with my office and the City to discuss the findings, and to address some of the jurisdictional concerns that took place after the storm.

Mr. MONIZ. Certainly. I charged the National Petroleum Counsel last October to do this fuel resiliency studies. And it will involve as well these issues of authorities and seams in gaps of authorities. So that is very important. And we will get back to you—to your office.

Mr. ENGEL. Thank you. And, finally, I just want to mention the whole issue of fracking and with the difficulties we are having with Russia bullying all the neighboring countries, whether the United States should export natural gas and other such things. Can you address what steps DOE is taking to deal with environmental concerns that are a result of fracking, such as methane leaks and groundwater contamination? People in my district get very nervous

about it. I have spoken with the people that do this. And they, you know, assure me. I have been to Alberta. I have been to North Dakota. And they assure us that there is no damage of any contamination. Can you tell us what your observations are?

Mr. MONIZ. Well, we have been consistently stating that the environmental—the footprint issues of production, they are challenging but they are manageable. The issue is you have to manage them. And we still think there are ways to go. For example, our Secretary of Energy Advisory Board just last Friday, I think it was, finalized a report called FracFocus, looking at the issues of disclosures of chemicals, et cetera, et cetera. And while, you know, it gave some credit for progress, it also pointed out many areas of possible improvement. So what we are doing is, whether it is research or it is on issues like this where we are trying to push for a continuous improvement, best practices is absolutely critical in all cases. So, obviously, it has been a big boom to our economy. It will continue to be one. But we need to keep working on the footprint. And we have an interagency methane strategy where again we will have a lot of responsibilities, not only in production but in things like mid and downstream gas transportation.

Mr. ENGEL. Thank you.

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

Mr. ENGEL. Thank you, Mr. Chairman.

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

Mr. KINZINGER. Thank you, Mr. Chairman. Mr. Secretary, thank you for being here, and thanks for serving your country.

In 2010, the National Insulation Association, in conjunction with the Department of Energy, estimated that the simple maintenance of mechanical insulation in industrial and manufacturing plants could deliver 3.7 billion in energy savings every year. In today's budget climate, would you agree that it makes sense to pursue cost saving measures such as the increase use and maintenance of mechanical insulation in Federal buildings and facilities to help save hard-working-taxpayer dollars and overall energy consumption?

Mr. MONIZ. Absolutely. Efficiency of buildings is a major opportunity.

Mr. KINZINGER. Has your Agency, through its Federal Energy Management Program or any other program, ever evaluated the potential energy savings available to Federal agencies through the greater utilization or upgrading to mechanical insulation in Federal facilities?

Mr. MONIZ. I don't know the answer to that question, but I will find it.

Mr. KINZINGER. OK.

Mr. MONIZ. If I could get back to you—

Mr. KINZINGER. Well, would you commit to evaluating the potential source, the energy savings?

Mr. MONIZ. Yes.

[The information follows:]

COMMITTEE: HOUSE ENERGY AND COMMERCE,
SUBCOMMITTEE ON ENERGY AND POWER

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The Federal Energy Management Program (FEMP) provides strategies, best practices, and resources to help Federal agencies implement sustainable design practices within Federal buildings and facilities as well as guiding and advising agencies on how to use funding more effectively in meeting federal and agency-specific energy goals. FEMP works with agency leaders and stakeholders to improve energy practices within organizations. FEMP guides and advises agencies on how to use funding more effectively in meeting federal and agency-specific energy goals and implementing energy efficiency projects, in addition to providing information and assistance on energy savings performance contracts (ESPCs) and utility energy service contracts (UESCs), which allow federal agencies to save energy without spending money upfront. An ESPC can be used to finance renewable energy systems, water conservation, related O&M improvements, and other measures, as well as energy conservation measures and energy-efficient systems. The contract can apply to retrofits and, in certain limited circumstances, new construction. In many cases, old, inefficient equipment is replaced with new equipment and control systems. The greater utilization or upgrading of mechanical insulation is one strategy that is often implemented as an energy conservation measure within an ESPC project and the savings are calculated as part of the larger

project. In addition, FEMP has developed guidelines and provides technical assistance for measuring and verifying energy, water, and cost savings of their implemented projects.

In addition, the Advanced Manufacturing Office (AMO) created the Mechanical Insulation Assessment and Design Tools (Calculators), which were developed to provide assistance for common calculations used in the design and analysis of mechanical insulation systems.

http://www1.eere.energy.gov/manufacturing/tech_assistance/insulation_calculators.html

Mr. KINZINGER. Mr. Secretary, as we have seen in this committee and others, Russia has been wielding its energy prowess on the world stage for some time now. Not only do they supply the majority of natural gas to our European allies, but they are also exporting their nuclear technology at a rapid pace. In fact, I was recently in Hungary. And they signed another agreement with the Russians in terms of nuclear production. In fact, Russia has either built or is in the process of building 36 reactors around the world. The last time we had a chance to talk on this subcommittee, I expressed my concerns that a vacuum of U.S. nuclear energy exports would occur in the very near future if your Agency did not set out clear and concise guidelines to push forward an effective nuclear energy policy. I believe the U.S. should be the leader in the realm of nuclear expertise. But Russia's influence in nuclear energy exports, and therefore their geopolitical influence, seems to be expanding beyond ours. What are you doing, and your Agency doing, to reestablish our competitiveness in this area?

Mr. MONIZ. Well, it is a whole variety of things. One is we did provide a loan guarantee for the new AP1000 construction reactors in Georgia. We are pursuing of course R&D. But in addition to that, I might say on a very different vein, when sanctioned by the Government, we have been very active in promoting U.S. technology abroad, including quite recently the—I think there is a lot of promise for both Westinghouse and GE technologies right now abroad. The fact that we are building in this country makes a huge difference in terms of being able to promote the technology. China is building a whole bunch of Westinghouse reactors. But just one comment, Russia—you mentioned Russia. I would just note that in some cases, they do something that we can't do—

Mr. KINZINGER. Right.

Mr. MONIZ [continuing]. Which is essentially provide the financing and make it a turnkey operation.

Mr. KINZINGER. Yes, and I appreciate that. And I think that is a conversation as a Congress we have to have, and with the administration in terms of that. Because, obviously, the Russians are providing this financial support for a reason, for a geopolitical advantage. So when we don't do things like that, or we are not competitive in this arena, I think it affects us geopolitically.

As the chairman noted earlier, and it was mentioned earlier, I also have concerns with your decision to stop the construction of the MOX plan in South Carolina. Beyond the concerns I have with the decision with taxpayer money sitting dormant on a project that is nearly 60 percent complete, I have concerns with the impact that this will have in the realm of non-proliferation with Russia. I have seen comments from a former Russian official who said the decision to stop construction of this plant is a breach of the U.S./Russian agreement on this issue, and that Russia may decide to go their own way since the U.S. is not following through with its end of the deal. Did you consider the ramifications when you made this decision? If so, why? If not, why? And if so, do you believe this is still the correct path forward?

Mr. MONIZ. First of all, those issues were very much a part of the discussion. And I do want to emphasize, we have not canceled the MOX project. The—

Mr. KINZINGER. The Russians think we have. So——

Mr. MONIZ. Well, I would just say discussions with Russia have changed in character over the last couple of months.

Mr. KINZINGER. Understood.

Mr. MONIZ. So I did discuss this with Mr. Kirienko, head of Rosatom, twice, as I saw the costs going up, just saying look, this is just a heads up kind of thing. I don't know where we are going with that yet. But what I want to emphasize is that, as I said earlier, I think the lifecycle cost estimates are pretty much converging to this kind of \$30 billion number.

Mr. KINZINGER. OK.

Mr. MONIZ. And that is a big number. And I think it is a collective decision about what we can do.

Mr. KINZINGER. Thank you. And I will just end with this, over the past decade, the EEU has pursued a broad range of climate policies, including renewable energy subsidies for wind and solar power. Those climate policies have led to high energy costs in Europe. In fact, I had some interesting conversation with some CEOs of European companies. And they are threatening the competitiveness of many of Europe's energy intensive industries. I just want to say in closing, I hope that raises red flags with you, and you take a look at kind of the European experience versus ours and act accordingly. Thank you for your time and being here, and I yield back.

Mr. MONIZ. Thank you.

Mr. WHITFIELD. The gentleman yields back. At this time, I recognize the gentleman from Virginia, Mr. Griffith, for 5 minutes.

Mr. GRIFFITH. Thank you, Mr. Chairman. I appreciate that. Thank you so much for being here, Mr. Secretary.

The Energy Policy Act of 2005 authorized the Clean Coal Technology Program and certain tax credits to assist development of the next generation clean coal technology, including carbon capture and sequestration. My understanding of what your discussion was earlier this morning with Congressman Doyle was that the DOE believes these projects on carbon capture and sequestration that are currently ongoing reflect technology that is already in or demonstrated as viable for commercial service in coal power plants. Is that—am I correct in my understanding of your previous testimony?

Mr. MONIZ. Yes, they are mainly using solvent technologies that have been used before.

Mr. GRIFFITH. So here is the Catch 22. I am not sure I agree with you, because also, as Congressman Doyle pointed out, unless you happen to be like the Mississippi facility right down the road from the oil well where you are going to use the carbon to push up the oil that they may not be commercially viable. But the Catch 22 is that if that is accurate, the statute makes it clear that you are not supposed to be giving them money anymore. If they are commercially viable now, they don't need the support from the tax credits. But you are still giving them the tax credits, are you not?

Mr. MONIZ. The issue is that this is a system integration issue pursuing a new deployment of the whole system. So it is I would say quite eligible.

Mr. GRIFFITH. Well, I mean the problem is it says that this technology has to be well beyond the level therein commercial service or have been demonstrated as viable for commercial service. So you are in a Catch 22 because if they are in fact viable for commercial service, as both you and the EPA submit——

Mr. MONIZ. Um-hum.

Mr. GRIFFITH [continuing]. I happen to disagree they are not eligible for the money. If they are commercially viable, they are not eligible for the money. And so I would submit that you all need to figure that one out, either cut the money off or—and say that they are commercially viable, or admit that they aren't commercially viable.

Mr. MONIZ. Well——

Mr. GRIFFITH. And I don't know that there is an answer necessary for that. But that is the dilemma that we have is that if you are following the code, which I always think is the right thing to do—that is why we have a Congress. That is why we pass laws.

Mr. MONIZ. Agreed.

Mr. GRIFFITH. This is why we have a Senate and a House that pass them, and a President that signs them.

Mr. MONIZ. Um-hum.

Mr. GRIFFITH. Is because we actually mean for people to follow them.

Mr. MONIZ. Um-hum.

Mr. GRIFFITH. If we follow the law, you can't have it both ways. You can't say they are commercially viable, therefore these new regs come into effect, or they aren't commercially viable, therefore they are eligible for the tax credits. I submit they are eligible for the tax credits, but that the EPA has got the cart before the horse and that you need to probably call their hand on it. That being said, let me move on because you can't respond. And I appreciate that. And I understand that. I am not offended by that.

The EIA has reported in February that the number of coal fired power plant retirements will be higher than originally anticipated, and that an estimated 60 gigawatts of coal fired capacity will retire by 2020. Notably, EIA expects 90 percent of the coal fired capacity retirements to occur by 2016. Now, this means nearly 18 percent of all coal fired generation in the United States will retire in the next 2 years due to new regulations. Are you concerned—is the DOE concerned that the loss of these critical generation facilities in such a short timeframe will make it increasingly difficult to meet electricity demands as we move forward, putting reliability at risk?

Mr. MONIZ. First, I would just comment that I think, you know, the market forces with gas cannot also be dismissed in terms of what is happening with coal. But the analyses that I have seen suggest that reliability will certainly be preserved if this is what happens over these next years.

Mr. GRIFFITH. Well, and my concern is that I recognize that at some point, because of the regulations, gas is going to surpass coal. I may not like that, but that is where we are headed. And I also recognize that someday coal—gas may be able to take up that slack. What I am concerned about is between today and that time period. I am concerned that next year, or in the winter of 2016,

that we will see some real problems with this many coal plants being reduced. And I think that DOE ought to be concerned about that as well.

Also, with all that new expenditure, closing down facilities—in fact, there are two different facilities—three different generators, but two facilities in my district alone that will be closing down. One of the ones that will close down, which is a third one I didn't—or a fourth one, depending on how you count them—that I didn't mention is converting to natural gas. But with all those expenditures having to be made by the power companies, it is reasonably expected that costs will go up as the power companies recoup their expenditures. Isn't that true?

Mr. MONIZ. I assume. I don't know the details of the rate case. But I assume that that would be the case.

Mr. GRIFFITH. And let me make an assumption, and you correct me if I am wrong. I would assume that you all are talking with EPA about any concerns related to reliability between the present and whenever natural gas can pick up the slack? But if we are going to lose 18 percent over the next 2 years, that is a pretty significant cliff—

Mr. MONIZ. And—

Mr. GRIFFITH [continuing]. For the power companies to adjust to, is it not?

Mr. MONIZ. And with FERC.

Mr. GRIFFITH. And with FERC. Sure. But that is a big—that is a steep cliff, is it not? Eighteen percent of coal being gone when it is about 40 percent?

Mr. MONIZ. Well, 60 gigawatts to 2020 would be a substantial amount. But again, analyses that have been done suggest that reliability will be preserved. That is also at the ISO level a lot, those calculations.

Mr. GRIFFITH. I hope you are right. I yield back.

Mr. MONIZ. Thank you.

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

Mr. GARDNER. Thank you, Mr. Chairman. And thank you to you, Mr. Secretary. And I join my colleagues in thanking you for your service as well.

I have just a couple of questions for you. In May of last year, President Obama was quoted as saying he has to make an executive decision broadly about whether or not we export liquefied natural gas at all. What discussions have you had with President Obama regarding the issue of LNG exports?

Mr. MONIZ. Well, and we have discussed this, including recently obviously in the context of the situation in Europe at the moment. And at this stage, we are carrying through with the process and the strategy as has been practiced. And again, as I noted earlier, one should not dismiss the scale of what has already been at least conditionally approved prior to the FERC approval, because the 9.3 BCF per day is already essentially equal to the exports to Qatar, the world's largest LNG exporter.

Mr. GARDNER. But has the crisis involving Russia and the Ukraine influenced your decision making or your timeframe at all with respect to LNG exports?

Mr. MONIZ. A major issue there is if you look at our last Order, the Jordon Cove Order of last week, I think it was, or the week before, there is a discussion of the international markets and putting LNG into international markets. But the major thing right now is we are going to have, as was announced—well, really announced—last week and discussed again in Brussels yesterday, we are going to have, under the G7 umbrella, an energy minister's process that was going to look at our collective energy security.

Mr. GARDNER. So we are exporting our energy security to other nations to make that decision?

Mr. MONIZ. No, no, no, no. Quite the contrary. Obviously—

Mr. GARDNER. So the G7 will make decisions on whether or not we expedite LNG exports?

Mr. MONIZ. No. We are going to have a meeting to discuss our collective interest in energy security. Now, obviously, the risks—

Mr. GARDNER. So we are waiting for the G7 to get back to us on whether or not we expedite LNG permitting?

Mr. MONIZ. Look, obviously, we are evaluating this ourselves—

Mr. GARDNER. But is—so are we waiting for G7 signoff?

Mr. MONIZ. The process we are talking about—there was a meeting already yesterday. And—

Mr. GARDNER. Of the G7?

Mr. MONIZ. No. There was a meeting yesterday of ESEU Secretary Kerry and DOE Deputy Secretary Poneman. And we will very soon be having a G7 process—

Mr. GARDNER. Let me just ask this, because I have a number of other questions, including whether or not you have taken the time to look at H.R. 6 in the House and whether or not you support the legislation making it easier to export. But I want to make this clear, so we are asking the G7 whether or not it is in the world's interest to export LNG from the United States?

Mr. MONIZ. No. I did not say that. We will be having a discussion around the whole set of issues of energy security, what it means for us, what it means for them.

Mr. GARDNER. And permitting—

Mr. MONIZ. It is not—

Mr. GARDNER. Do you see issues coming out of that?

Mr. MONIZ. It is not an LNG export caucus.

Mr. GARDNER. Well, let me just ask you this then, are you basing determinations on LNG exports in part on those discussions with the G7 nations?

Mr. MONIZ. I would use that as an input going forward. Of course.

Mr. GARDNER. So is it the President's—is it the administration's opinion that we will wait for G7 discussions before we approve further DOE permits?

Mr. MONIZ. No, I did not say that. No.

Mr. GARDNER. Well, I would like to know more about this, because I think it is alarming that we would wait for G7 nations for approval to export LNG.

Mr. MONIZ. Which is why I did not say we would wait.

Mr. GARDNER. You just said that part of your determinations would be made on discussions with G7.

Mr. MONIZ. As we go down the road, we—this is a long process.

Mr. GARDNER. To approve the permits is a long process?

Mr. MONIZ. Well, look, we have a public interest determination by law.

Mr. GARDNER. Should we or should we not expedite LNG permitting in this country?

Mr. MONIZ. We have been working expeditiously on a case by case basis, based upon substantial—

Mr. GARDNER. Could we do it faster than we already are?

Mr. MONIZ [continuing]. And making a public interest determination that we are required to make by law. If the law changes, we will follow the law.

Mr. GARDNER. Will the public interest determination weigh in part on the G7 discussions?

Mr. MONIZ. Not directly. That is our responsibility to do that.

Mr. GARDNER. But indirectly, the G7 discussions will weigh on a U.S. public interest determination?

Mr. MONIZ. Geopolitical issues have always been on the list of issues to address in the public interest determination. They are there. Now, obviously, discussing with our friends and allies energy security issues is part of a geopolitical consideration.

Mr. GARDNER. Is there any—

Mr. MONIZ. Which is balanced against things like domestic market considerations.

Mr. GARDNER. Is there anything in the law right now preventing DOE from a decision to approve all pending permits?

Mr. MONIZ. First of all, we cannot give approval until, at a minimum, the NEPA process is completed, which is at FERC.

Mr. GARDNER. DOE is waiting on FERC first before you make a decision? That is not what you mean?

Mr. MONIZ. Yes. The current approach is that we give a conditional—just to clarify: We have issued one final and six conditional approvals. There is only one final approval. That is the Sabine Pass Project in Louisiana. And they will start exporting in 2015. The additional six—and I have approved five of those—are conditional.

Mr. GARDNER. Conditionally—conditional.

Mr. MONIZ. Conditional approvals. They must also get NEPA process approval through FERC, although earlier—

Mr. GARDNER. But DOE—for your side, you don't wait for FERC to make their determination for your side to approve? You are saying that?

Mr. MONIZ. No. We have to wait. Yes.

Mr. GARDNER. OK.

Mr. MONIZ. By law, we—

Mr. GARDNER. Right.

Mr. MONIZ. WE must have the environmental—the NEPA approval.

Mr. GARDNER. Right.

Mr. MONIZ. And just to clarify, because two other members mentioned this earlier, the one distinction is that there are now some applicants for deep water LNG. So that would not be FERC, but

there would be an analogous MARAD determination that we would need to have on the environmental side.

Mr. GARDNER. I am running out of time here. In fact, I think I have run out of time. But another question, H.R. 6, the bill that we mentioned was in the House would provide expedited approval to World Trade Organization member nations. Wouldn't this bill make your job easier and reduce the time required to wait for DOE, and indeed improve our geopolitical security around the world?

Mr. MONIZ. I think the choice is to Congress whether it wants to or not want to emphasize the public interest determination.

Mr. GARDNER. Thank you, Mr. Chairman. Thank you.

Mr. WHITFIELD. Time has expired. At this time, I recognize the gentleman from Ohio, Mr. Johnson, for 5 minutes.

Mr. JOHNSON. Thank you, Mr. Chairman. And, Mr. Secretary, good to see you again.

Mr. MONIZ. Good to see you.

Mr. JOHNSON. Thank you for being here. I would like to ask a few questions about the American centrifuge program in Piketon, Ohio, which I think you know is a couple of frog jumps away from my district border, just across the county line. I first want to ask you—and I think I know the answer to this, because I asked you this the last time you were with us. Do you still believe the U.S.—the United States needs a domestic enrichment capacity for national security purposes?

Mr. MONIZ. For national security purposes, we need an American technology capacity for enrichment.

Mr. JOHNSON. OK. I think so, too. Over the last 2 years, the Department has invested 280 million to build, install and test the centrifuge machines needed to address this very critical national security purpose. Your Department actually owns the centrifuge machines and the support equipment. And testing over the past year has demonstrated its technical readiness. I understand that yesterday, when you testified before Energy and Water Development Subcommittee, you indicated that the Department was looking to use the transfer authority provided in the omnibus to fund the continued activities after the RD&D program concludes on April 15.

Mr. MONIZ. Correct.

Mr. JOHNSON. This would avoid the major disruptions from job losses, industrial demobilization and operational stoppage, and will likely save the taxpayers money in the long run. I want to commend you for that—for pursuing this course of action. I do have a couple of questions though about the timing. First, the language in the omnibus states that before the Department can transfer the 56.65 million, DOE must first submit a cost benefit report on all the options for securing the low enriched uranium fuel needed for national security purposes and your preference. And most importantly, that report must cite—or must sit with the two relevant appropriation subcommittees for 30 days and receive their approval before you can initiate the transfer. So the clock must run for at least 30 days, but the current funding for the enrichment activities expires April 15. So you can see mine and others concerns with regards to the timing. First, how are you going to fund the continued

operations after April 15 until the report has made it through the appropriations subcommittees?

Mr. MONIZ. We are working that assiduously at the moment. We think we can get through this.

Mr. JOHNSON. But you are determined to get through it?

Mr. MONIZ. That is absolutely the intent.

Mr. JOHNSON. OK. Second, I know that yesterday you said your Department was working to expeditiously work to finish the report. But can you give us any more precise timeline on when the Department's cost benefit report and reprogramming request might be sent to Congress?

Mr. MONIZ. I would prefer to check back with the people and get—I can get back to you shortly after this——

Mr. JOHNSON. Can you get back to me on——

Mr. MONIZ. Yes.

[The information follows:]

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On April 15th, the Department provided the required report to the requesting committees.

Mr. JOHNSON. OK. Thank you. Finally, I understand that there is about 10 million of funding that remains available for you to use from the 62 million that Congress appropriated in the fiscal year 2014 omnibus. Are you prepared to utilize those funds to continue operations and avoid a major disruption in the program to cover the gap until the transfer authority is received?

Mr. MONIZ. As I said, I think we have ways of getting through this period.

Mr. JOHNSON. OK. All right.

Mr. MONIZ. Right.

Mr. JOHNSON. Well, as you can imagine, I have some concerned constituents that have received warn notices recently, and only want to ensure that we don't have any work stoppages. Anything that I can do to help move this process along, I want you to know that I stand ready to help.

Mr. MONIZ. Thank you.

Mr. JOHNSON. I thank you for your leadership on this issue. Not only does this program support jobs for my constituents, but, as we discussed, it is vitally important for our national security. And I look forward to working with you on it.

Mr. MONIZ. I would just add that again, we are committed to preserving the technology and the IP. The management structure, for obvious reasons, may be transitioning.

Mr. JOHNSON. Sure.

Mr. MONIZ. Yes.

Mr. JOHNSON. Now, shifting gears just a little bit, going back to the LNG export issue. You and I have discussed LNG exports. I co-chair the LNG export working group here in the House. Some report—some press reports have indicated that there has been potentially some kind of deal struck between your Department and Senator Stabenow. You know, she was opposed to liquid natural gas exports. She was putting a hold on one of your committee's nominees coming through the Senate. And but now she has said hey, I am now more comfortable with what the Department is doing. Has there been some kind of deal struck between you and Senator Stabenow that we need to know about?

Mr. MONIZ. No, we—um-hum—

Mr. JOHNSON. Because quite honestly, Mr. Secretary, and I love the work that you are doing, you and I have a very different definition of expeditiously, especially with all of the opportunities for job creation and energy independence.

Mr. MONIZ. Um-hum.

Mr. JOHNSON. I just—I still fail to understand why it is taking so long to get these permits approved.

Mr. MONIZ. First, let me say, Senator Stabenow, of course, is by no means the only member of Congress who is concerned about the ramp rate of LNG exports. No one to my knowledge is—well, almost no one at least is arguing against LNG exports. It is this whole question of pace and cumulative impacts as it might have in terms of domestic prices for consumers and—

Mr. JOHNSON. So has there been any kind of deal made between—

Mr. MONIZ. No.

Mr. JOHNSON. I see.

Mr. MONIZ. So we have had—with her and with others, we have had discussions about what our process is and what the role is for cumulative impacts on the economy.

Mr. JOHNSON. OK.

Mr. MONIZ. Yes.

Mr. JOHNSON. Thank you, Mr. Secretary. I yield back, Mr. Chairman. Thank you.

Mr. WHITFIELD. Yes, sir. And I am going to have some concluding remarks that I want to make. Maybe there will be a question or two in there. And then if you want to respond to it, you are free to do so. And certainly, Mr. Rush, as well.

But I just wanted to comment on your response to Cory Gardner's question about his legislation, H.R. 6, conjured up in my mind what I am getting ready to say. You answered him by saying, you know, that is a legislative decision about whether or not the Congress will pass this legislation or not. And part of the animosity that is developed in the Congress with the President of the United States particularly has related to climate change. And particularly, when he has emphatically made it very clear that, "If Congress does not act in a way that I want it to act, then I am going to do what I want to do anyway." And the point that I would make is that Congress did act, in my view. Congress did not pass the Cap and Trade Bill. It was a Democratic-controlled Senate that did not pass the Cap and Trade Bill.

The House, last week, passed legislation. That was the first time ever that Congress gave EPA the authority to regulate greenhouse gases, CO₂ emissions. Now, I am not going to get into the court—Supreme Court decision. But this legislation passed Congress giving EPA the authority. And we cannot get the administration to focus on it. The President said he would veto that bill. So I take it from that that if we don't do precisely what he wants on global—on climate change, that, as he said, he will go it alone. And many people in his administration have said the same thing.

And so when I look at the—and he is doing that by executive order, by executive actions. And when I look at the budget here, electric delivery and energy reliability, \$180 million. Renewable energy alone, \$1.3 billion. And then when you look at the original legislation establishing the Department of Energy, it says the mission is to promote the interest of consumers through the provision of an adequate and reliable supply of energy at the lowest reasonable cost. And so many agencies of the Federal Government are totally focused on climate change. That is why so much money is going into that, even though it is contrary to the original mission statute.

And the bottom line of it turns out to be this: When the EPA issued that greenhouse gas regulation, which in effect makes it impossible to build a new coal plant in America—and I agree with you, Mr. Secretary, no one is getting ready to build a coal plant in America, because the natural gas prices are so low. But what if we find ourselves the way Europe has found themselves? The gas coming from Russia is so expensive that last year, Europe imported 53 percent of our coal exports, and they are building coal plants. So if our natural gas prices start going up, we don't have the option.

And then next year, 2015, they are going to be coming out with a regulation on existing coal-fired plants, in addition to the utility

MAC, in addition to the new. So we have genuine concerns about our ability to compete in the global marketplace. And we are moving so fast. The President's pushing so hard. I agree with Professor Turlington over at George Washington University who said the President is becoming a government into himself. So I just want to make that comment. And you may not agree with me on this, Bobby.

Mr. RUSH. I certainly don't agree with that.

Mr. WHITFIELD. But let me just conclude by saying thank you for being with us. We look forward to continued work this you on a lot of issues affecting our country. And we appreciate your being available all the time.

Mr. MONIZ. Thank you.

Mr. RUSH. Mr. Chairman, I just want to say, I don't agree with you on this. And I very rarely agree with you. So it is not out of the question that I don't agree with you right—at this present time. I think your characterization of the President is totally inadequate. And—so but we have had disagreements for a long time now. And I don't think either one of us is going to change our opinion about our President.

Mr. Secretary, one area that DOE can have a direct impact in helping to increase minority engagement is in the 17 publicly funded national research labs, and in areas of contracting and management and operations, technology transfers. I am finding that most of these labs are mostly failing in their outreach and partnerships with historically black colleges and universities, minority serving institutions, as well as minority contractors and entrepreneurial and in the whole are of minority engagement, they are willfully lacking in. I mean, almost heartbreakingly lacking you look at them—you look at the lineup and you visit these places and you see no diversity at all. And having seen diversity therein in decades, and some of them never had any diverse top level staffing and leadership. And I think that, as you indicated earlier, maybe the problem is a lack of minorities in key leadership positions, most—at the labs and maybe even at the Department itself. What do you think are some of the obstacles that we are—that we must overcome, some of the prohibitions? And is your Department sufficiently diverse to—in the decision making process to allow for more diversity in leadership—not only in the Department but in these labs? I mean, these labs are just enormous public taxpayer dollars. And some of them have—don't even remotely reflect any attempt at diversity. And I am really concerned about that. So can you give me some idea about how you—what you—how you view the problem? And I know we have had this discussion many times, you know, but I want to just refresh the discussion.

Mr. MONIZ. First of all, I think it is important that it is clearly understood that the Secretary considers this a priority. And we are promulgating this. We have raised it with the lab directors. And they have responded enthusiastically. Now, we have to do something about it. But frankly, when I raised this at the laboratory policy counsel, the reaction of the lab directors was, "God, you are right. We just have to do this." So that is a good start. But that is only a start. Number two, we have just in the last month, by the way, including at Argonne, in your neck of the woods, appointed

lab directors. In each case, we went through very carefully the nature of the search, its openness, et cetera. And, frankly, while those appointed themselves did not increase the diversity, each one of the three made very, very strong commitments to look at this.

I think that is what has been missing—and I am talking in the laboratory system. And the lab directors have responded very positively on this. It is not that it is totally missing, but we are not up to snuff in terms of what I would call leadership development programs. That it is not only for diverse candidates but includes a focus on diversity of understanding—I think as many corporations do extremely well. You are always looking at how you develop the leaders in the organization so that you have people who can come up. So that is a focus that we are going to advance, and we have started. But we have a long way to go.

Mr. RUSH. Mr. Secretary, I really look forward to working with you and see—as you well know, I am very passionate about this issue. I—and so I look forward to working with you on this issue.

Mr. MONIZ. Great.

Mr. RUSH. And, Mr. Chairman, I look forward to us having a discussion in terms of having a hearing on these and other matters.

Mr. WHITFIELD. Yes. Yes, and we are going to be setting down the next couple of days on your legislation, because our staff has been working together. But—well, that concludes today's hearing. Mr. Secretary, thank you once again. And thank you for your staff and all of your time and availability.

Mr. MONIZ. Thank you.

Mr. WHITFIELD. And the record will remain open for 10 days. And with that, the hearing is adjourned.

[Whereupon, at 12:55 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED THIRTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
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WASHINGTON, DC 20515-6115
Majority (2021) 225-2927
Minority (2021) 225-3641

May 1, 2014

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 Thursday, April 4, 2014, to testify at the hearing entitled "Fiscal Year 2015 Department of Energy Budget."

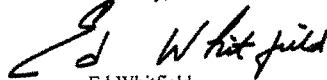
Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose 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, May 15, 2014. 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.

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

Attachment



Department of Energy
Washington, DC 20585

November 12, 2014

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
U. S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

On April 3, 2014, Secretary Ernest Moniz testified regarding "Fiscal Year 2014 Department of Energy Budget."

Enclosed are answers to questions that were submitted by Ranking Member Bobby L. Rush, Representatives Ralph M. Hall, John Shimkus, Lee Terry, Michael C. Burgess, Bill Cassidy, Cory Gardner, John Barrow, and you to complete the hearing record.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Lillian Owen, at (202) 586-2031.

Sincerely,



Christopher E. Davis
Principal Deputy Assistant Secretary
for Congressional Affairs
Congressional and Intergovernmental Affairs

Enclosures

cc: The Honorable Bobby L. Rush, Ranking Member



Printed with soy ink on recycled paper

QUESTIONS FROM CHAIRMAN ED WHITFIELD

- Q1. You made reference several times during the hearing to the \$6 billion this Administration has invested into clean coal, particularly CCS technologies.
- Q1a. Of this funding, please break out the sums already obligated to current, so-called first generation CCS demonstration projects (under the CCPI program, FutureGen 2.0, and the Industrial Carbon Capture and Storage Programs) and the sums obligated for research and development of second generation and transformational CCS technologies, with a specific listing for coal-based power generation.
- A1a. Over the past decade, the total investment in carbon capture and storage (CCS)

technologies has included \$4.45 billion for first generation technologies and \$3.15 billion for second generation and transformational technologies. The table below provides details on the obligations for the first generation technologies in the CCS Demonstration Program. With the exception of the three industrial carbon capture and storage projects (ADM, APCI, Leucadia), nearly all of the money obligated is for coal-based power generation.

Project	Obligation	Expenditure (as of July 2014)
Hydrogen Energy California	\$408,000,000	\$151,481,882
NRG/Petra Nova	\$166,804,425	\$7,000,000
Summit Texas Clean Energy	\$450,000,000	\$62,850,540
Southern Company	\$293,750,000	\$268,750,000
FutureGen 2.0	\$1,048,348,112	\$128,095,298
Air Products and Chemicals, Inc.	\$284,012,496	\$274,604,228
Archer Daniels Midland	\$141,405,945	\$92,302,147
Leucadia	\$261,382,310	\$15,515,358
Total	\$3,053,703,288	\$1,000,599,453

Q1b. Please list how much of this obligated funding has actually been expended, and DOE's projected annual spending on these obligations, until all current obligations are expended.

A1b. See the table provided in Q1a for a listing of the amount of obligated funding that has been expended on each carbon capture and storage demonstration project. It is difficult to provide the projected annual spending on these projects until they achieve financial close and enter into construction. Nearly all of the obligated funding is expected to be expended during the construction phase of the project.

Q2. Please identify and explain what programs, projects, research, or initiatives are eliminated or reduced by DOE's proposed reduction of \$114.8 million in Coal Programs, indicated at page 28 of DOE's budget justification.

A2. Carbon Capture FY15 Budget Impacts:

The FY 15 request will provide funding levels that support continued development of technologies that reduce the cost of capturing carbon dioxide from fossil energy power plants. Post-combustion activities will continue the scale-up of 2nd generation technologies through large-scale pilot projects and laboratory and bench-scale testing of transformational technologies for fossil-fuel-fired plants. This will include additional projects selected from competitive solicitation, including at least one large scale pilot project for a 2nd generation capture. The scale and number of projects is dependent on the research and development (R&D) and solicitation submittals in FY 2014. Activities will continue the support and testing of advanced pre-combustion capture slipstream projects through support of the National Carbon Capture Center and solicitations focused on scaling up advanced technologies to the small pilot scale.

Carbon Storage FY 2015 Budget Impacts:

- **Storage Infrastructure:** FY 15 funding maintains the current path for continuation of Regional Carbon Sequestration Partnership large-scale field projects and three existing small-scale field tests. It allows storage characterization and field projects for offshore and additional onshore small-scale field projects in geologic reservoirs. The scale and number of projects is dependent on the research and development and solicitation submittals in FY2014. No funding is planned in FY 2015 for CO₂ storage in enhanced oil recovery (EOR) fields or for improved EOR technologies to increase storage efficiency.
- **Geologic Storage Technologies:** Depending on the progress and outcome of FY 2014 research, the FY 2015 funding level focuses resources on current activities that are conducting initial development of the most promising tools and technologies to deliver safe and permanent storage options for CO₂.
- **MVAA:** Depending on the progress and outcome of FY 2014 research, the FY 2015 request continues funding for R&D projects and initiates preparation for field validation tests. Reduced funding maintains priority on targeted program research on most successful monitoring, verification and accounting and assessment
- **Focus Area for Carbon Sequestration Science:** The FY 15 funding level reflects refocused efforts on targeted key technical challenges (e.g., shifted one MVA effort from CO₂ and pressure plume monitoring to reservoir and seal performance, mechanical and pressure) identified in FY 2014.

AES FY 2015 Budget Impacts:

- Gasification: With the proposed FY 2015 gasification budget, this sub-activity will continue to strive for the development of technologies that will decrease the cost of gasification systems – including capital cost, efficiency and availability improvements – that convert fossil fuels to electricity and other marketable products, such as liquid transportation fuels and chemicals, with at least 90% plant emissions carbon capture. The poly-generation approach is expected to continue, since this approach will enable coal to provide whatever products will be most beneficial to U.S. energy stability, security and global economic competitiveness. The proposed funding level in FY 15 is sufficient to maintain stated level of activities.
- Fuel cell: In the fuel cell sub-activity area, the program will continue at a very low level effort and focus on materials development to refocus the program.
- Advanced Combustion: The sub-activity funding request enables the program to continue the development, through design and construction, of pressurized oxy-combustion and chemical looping combustion pilot-scale systems.
- Turbines: The FY 15 funding level focuses resources on the development of advances in 2nd generation hydrogen turbine component technologies. This will also accommodate a phase-in of component development activities for high pressure ratio and high temperature turbine technologies.
- The requested funding levels are sufficient to maintain the stated level of activities.

Crosscutting FY 2015 Budget Impacts:

The Crosscutting Program will continue a variety of activities:

- field testing of sensors and bench scale testing of advanced control methodologies;
- initiate research on advanced control technologies capable of self-organizing sensor networks for improved performance of complex power systems;
- development of materials capable of withstanding rapid ramping of thermoelectric power plant start-ups;
- verifying materials capable of operating under advanced steam cycle conditions (760°C/5000 psi) and gas turbine performance to 1465°C;
- assess increased plant efficiency and availability;
- integrate research activities on water management improvements in thermoelectric systems with a Department-wide research and development effort focused on identifying and mitigating challenges in water use and reuse;
- and CCSI and NRAP will continue software development efforts to improve sorbent based models for carbon capture technologies and for quantifying risk assessment of long term storage of CO₂ in saline reservoirs respectively.

The FY 15 requested funding level will continue to support the scope of 2nd gen sensors and controls R&D activities and the current transformation technology R&D will be evaluated. Only the most promising technologies will be pursued.

- Q3. Please explain the basis and justification for initiating the natural gas CSS demonstration program, and the timeline anticipated for reaching full-scale demonstration for power plants in commercial service.
- A3. Carbon capture and storage technologies will need to be broadly applied to meet long-term climate change goals. Carbon capture technologies have been developed on coal based applications for direct use on either flue gas or syngas. It is anticipated that carbon capture

technologies currently under development can be applied to natural gas power plants with minimal to moderate investment. Challenges associated with applying the current portfolio of carbon capture technologies to natural gas power plants lie mainly in the adaptation of these technologies to accommodate a lower concentration of carbon dioxide in the feed to the capture system. Different capture technologies will respond to a lower concentration in different ways, with varying capital and operating costs. This initiative is intended to extend the market for carbon capture technologies and effectively create an opportunity to apply carbon capture to a broader fossil-energy power generation fleet. The request would be competed to fund work that demonstrates existing technology to capture and store more than 75 percent of the carbon from treated emissions from a natural gas power system.

- Q4. Explain how the reduction in coal-oriented research comports with agency priorities, underscored by your observation at the budget hearing that “we are going to have to keep working to drive costs down” for coal-fired CCS?
- A4. The FY 2015 budget request will continue to advance coal-oriented research on technologies related to the reliable, efficient, affordable, and environmentally sound uses of coal which are essential to our Nation’s security and economic prosperity. This will include research, development, and demonstration efforts on advanced carbon capture and storage technologies to facilitate achievement of the President’s climate goals. The request allows continued scale-up of advanced carbon capture technologies through large-scale pilot tests that will focus on addressing the key issues of lowering the cost of carbon capture and reducing the energy penalty. The request also continues critical core research and development efforts that will lower the cost of geologic storage and monitoring of carbon dioxide. Support for Storage Infrastructure research and development efforts, such as those

by the Regional Carbon Sequestration Partnerships and other small and large-scale field tests, will continue to validate the long-term permanent storage of carbon dioxide.

Q5. The Energy Policy Act of 2005 authorized the Clean Coal Power Initiative and certain tax credits to assist development of next generation clean coal technology, including CCS that: “shall advance efficiency, environmental performance, and cost competitiveness well beyond the level of technologies that are in commercial service or have been demonstrated on a scale...sufficient to demonstrate that commercial service is viable...”

Q5a. Is it correct that four coal-based generation demonstration projects under this EPACT authorization for the Clean Coal Power Initiative, and that only one of the four – the Kemper facility – is presently under construction?

A5a. Yes, only the Southern Company’s integrated gasification combined cycle power plant located in Kemper County, MS, is under construction and is scheduled to begin operation in 2015. It should be noted that CCS technology has been and continues to be successfully deployed on a range of projects, and we anticipate ground breaking on several other projects, including coal power projects, this year.

Q5b. Do you believe these projects reflect technology that is already in, or demonstrated as viable for, commercial service in coal power plants? If so, please explain why DOE is funding these. If these technologies are already in commercial service, or demonstrated to be viable for commercial service, then they are not “well beyond” the level that are in commercial service or have been demonstrated for commercial service in coal-based electric generation.

A5b. CCS technology has been and continues to be deployed on a range of projects. Successful CCS pilot projects have demonstrated the viability of CCS technology. A number of technologies being demonstrated in the Clean Coal Power Initiative (CCPI) program have never been operated at commercial scale. For example, the transport gasifier and associated equipment being used in the Southern Company’s Kemper County integrated gasification combined cycle (IGCC) project have only been operated at about the 4 MWe scale (at the Power Systems Development Facility), but will be demonstrated at the 524

MWe scale at Kemper. NRG's post-combustion capture project will demonstrate a scale-up of MHI advanced amine technology from 25 MWe to 240 MWe. The three IGCC projects (HECA, Summit, and Southern Company) aim to demonstrate pre-combustion carbon dioxide capture and the use of hydrogen fuel for the gas turbines. All of these advanced technologies offer potential for reductions in plant capital and operating and maintenance costs while improving efficiency. While some of the technologies incorporated into CCPI demonstration projects have been operated individually at commercial scale, many have not been operated in the integrated fashion that is found in these projects.

Q5c. Does DOE continue to stand by its statement in the FY 2014 budget justification that "these demonstrations focus on first generation CCS technologies and seek to demonstrate that CCS can be integrated at commercial scale while maintaining reliable, predictable and safe plant operations. However, in the case of electricity generation, first generation CCS technology cost is not expected to be low enough to achieve widespread deployment in the near term?" If not, what part of the statement does DOE no longer support and why?

A5c. Yes, DOE still stands by these statements.

Q6. You reference, in response to a question about EIA projections on coal retirements from Rep. Griffith, that analyses that you have seen suggest that reliability "will certainly be preserved" if the EIA projected retirements occur over the next few years.

Q6a. Please identify what specific analyses you are referring to, and describe for each analysis the date on which it was prepared and by whom it was prepared.

A6a. In the Annual Energy Outlook 2014, EIA projects that 60 gigawatts of generating capacity, including 46 gigawatts of coal-fired plants, will retire from 2013 through the end of 2016. According to EIA's projections, over the next few years, most regions in the U.S. either have sufficient surplus generating capacity or have planned capacity additions that should provide for adequate generation resources. Based on expected peak demand, reserve margins are met on a regional basis, where necessary through the

addition of new capacity, particularly natural gas combined cycle plants and combustion turbines. The deployment of new capacity in these cases is comparable to that over the past decade.

Q6b. What is DOE doing to respond in the event reliability is not preserved?

A6b. While DOE believes that the compliance with the Environmental Protection Agency's recent power sector regulations¹ will not result in wide-spread reliability issues, DOE does have an emergency authority that can be exercised in the event that a reliability issue does arise. Currently, under section 202(c) of the Federal Power Act, the Secretary can order a generator to operate or a grid connection to be made when outages occur due to weather events or equipment failures, or when there is or may be insufficient electricity supply available. Section 202(c) orders are issued only if a determination is made that an emergency exists due to a sudden increase in the demand for electric energy, a shortage of electric energy, or a shortage of facilities for the generation or transmission of electric energy. The Secretary's 202(c) order can direct the temporary connection or operation of facilities for generation, delivery, interchange, or transmission of electricity in order to best meet the emergency and serve the public interest.

The Department views the issuance of 202(c) orders as a measure of last resort to be used only emergency situations, either proactively or reactively. Orders are available in limited emergency situations and are temporary solutions to imminent reliability threats. If a 202(c) emergency results from inadequate planning, DOE expects the affected entities to

¹ EPA's recent power sector regulations include: the Cross-State Air Pollution Rule (CSAPR); the Mercury and Air Toxics Standards (MATS) Rule for Electric Generation Units; the Coal Combustion Residuals (CCR) Rule; the CWA §316(b) – Cooling Water Intake Structures; and the Steam Electric Power Generating Effluent Guidelines. Some rules are still pending finalization.

take the necessary steps to resolve the problem in order to avoid the need for a continuing emergency order.

Finally, the Quadrennial Energy Review will assess the implications of various transmission system issues, including reliability, under different cases of baseload supply, and will likely examine questions of supply adequacy in greater detail in the next iteration of the QER.

- Q7. Could you please provide for the Committee a detailed response on how the current application process works today for approving LNG export facilities, including answers to the following:
- Q7a. What is the timeline of review for an application beginning with its filing date and ending with its conditional approval or rejection?
- A7a. Application Process Background: DOE's authority over exports of natural gas, including liquefied natural gas (LNG), arises under section 3 of the Natural Gas Act (NGA), 15 USC 717b, and section 301(b) of the DOE Organization Act, 42 USC 7151. An amendment of section 3 in the Energy Policy Act of 1992 (EPAct 92) resulted in two different sets of standards and procedures for processing applications to export LNG from the United States, including (1) standards and procedures for the export of LNG to countries with which the United States has not entered into a free trade agreement (FTA); and (2) standards and procedures for the export of LNG to countries with which the United States has entered into an FTA providing for national treatment for trade in natural gas (FTA countries).

In EPAct 92, Congress amended section 3(c) to the Natural Gas Act. At that time, Congress's attention was focused on North American trade, not on the potential impact of

the amendment on United States trade with other countries overseas. Section 3(c), as amended, created a different standard of review for applications to export natural gas, including LNG, to those countries with which the United States has in effect an FTA requiring national treatment for trade in natural gas. The amended section 3(c) requires such applications to be deemed consistent with the public interest and granted without modification or delay.

For long-term applications for authority to export LNG to FTA countries from proposed liquefaction facilities, once DOE confirms the application is complete, DOE processes those applications as expeditiously as possible, with a goal to issue an order within three months of receipt of the complete application, although actual timing will depend on a number of factors, including the on-going processing of prior applications.

For long-term applications for authority to export LNG to non-FTA countries from proposed liquefaction facilities, DOE conducts a public interest review. The specific information that DOE reviews in each case is included in the docket for that case. In addition, DOE may take administrative notice of authoritative public information. In all cases, the information that DOE draws upon and the analysis that DOE performs is clearly explained in each order. The resulting draft orders are sent to the Secretary of Energy for his review prior to issuance. DOE processes these applications as expeditiously as possible.

- Q7b. Can you explain the application process for short term vs. long term contracts? Does a facility need to receive DOE approvals each time it enters into a new contract?

A7b. DOE has separate process requirements for applications seeking authority to export LNG pursuant to contracts of two years or less, versus LNG exports involving contracts greater than two years.

The primary difference in applications submitted seeking authority to export LNG pursuant to short-term or spot market contracts of two years or less is that no short-term or spot market contracts are required to be submitted with the application. DOE issues “blanket” authorizations for those short-term applications that have been found to be in the public interest that permit exports pursuant to any short-term contract of two-years or less.

The process for applications seeking authority to export LNG pursuant to long-term contracts includes submission of those long-term contracts to DOE. In recent long-term LNG export authorizations, DOE has stipulated that applicants can submit those long-term contracts within 30 days of their execution if they were not submitted with the application. In addition, for long term LNG export applications, applicants have requested, and DOE has granted, authorization to export LNG pursuant to multiple long-term contracts under the same authorization.

Q7c. Is the application for a facility’s approval based on the volume of natural gas to be exported, the non-FTA country receiving the gas, or other criteria and if so what is that criteria?

A7c. DOE Regulations at 10 CFR 590.202 detail the information that applicants must include in their applications, including the “scope of the project, including the volumes of natural gas involved ... the dates of commencement and completion of the proposed import or export, and the facilities to be utilized or constructed.” In addition, applications include details on

whether the proposed LNG exports will be evaluated under Natural Gas Act (NGA) section 3(c) for exports to FTA countries, or under NGA section 3(a) for exports to non-FTA countries. The criteria that DOE uses to evaluate an application to export LNG to non-FTA countries is included in the Notice of Application that DOE issues once an application is received.

For example, in the Notice for the April 2, 2013, application by Sabine Pass Liquefaction, LLC, DOE/FE discussed its evaluation of the application as follows:

In reviewing this LNG export Application, DOE will consider any issues required by law or policy. To the extent determined to be relevant or appropriate, these issues will include the impact of LNG exports associated with this Application on domestic need for the gas proposed for export, adequacy of domestic natural gas supply, U.S. energy security, and the cumulative impact of the requested authorization and any other LNG export application(s) previously approved on domestic natural gas supply and demand fundamentals. DOE will also consider any other relevant issues, including the impact on the U.S. economy (GDP), consumers, and industry, job creation, U.S. balance of trade, international considerations, and whether the arrangement is consistent with DOE's policy of promoting competition in the marketplace by allowing commercial parties to freely negotiate their own trade arrangements. Parties that may oppose this Application should address these issues in their comments and/or protests, as well as any other issues deemed relevant to the Application.

- Q8. According to the Department of Energy's website, it appears as though the LNG export applications are seeking approval to ship LNG to "any country with which the United States does not have a FTA requiring national treatment for trade in natural gas..."

Therefore, what criteria does the DOE use to determine whether an LNG export facility is in the “public interest”?

A8. This question is also answered above in A7c.

Q9. In May of last year President Obama was quoted as saying he has to make “an executive decision broadly about whether or not we export liquefied natural gas at all”. What discussions have you had with President Obama regarding the issue of LNG exports?

A9. I became Secretary of Energy on May 21, 2013, after the quoted statement and after the Department had begun issuing approvals for LNG exports. While I was not part of that decision, I can assure you that while I have been Secretary, the Department has conditionally approved five export applications to non-FTA countries.

Q10. Currently 24 LNG export licenses await DOE consideration. At the current rate it will take years to move through the entire list. Generally speaking, the arguments for and against LNG exports are the same in each case. It seems an unnecessary burden for DOE to continually reject the opposition’s recycled arguments with each and every Order.

Q10a. DOE has existing authority to review and respond to applications in batches. If DOE is serious about acting “expeditiously” on LNG exports, why isn’t the agency reviewing these applications simultaneously?

A10a. Applications present issues unique to the specific circumstances of the particular case. In addressing the issues that are specific to a particular case, the decision will invariably supplement and refine the findings in prior cases and apply them to new factual circumstances in each case. In addition, when the docket for each application is created, and the application is noticed in the Federal Register, the public has an opportunity to participate in the proceedings. A simultaneous review and authorization of “batches” of, or all, pending applications would circumvent this review, prevent the evaluation of specific issues in each case, and decrease the public’s opportunity to participate.

Q10b. It appears that DOE would have no trouble defending the decision to approve all pending permits. Is there anything in law preventing DOE from doing so?

A10b. Simultaneous review and authorization of all pending applications would circumvent the

review of the application, prevent the evaluation of specific issues in each case, and decrease the public's opportunity to participate.

Q11. The Energy Information Administration (EIA) reported in February that the number of coal-fired power plant retirements will be higher than originally anticipated, and that an estimated 60 gigawatts (GW) of coal-fired capacity will retire by 2020. Notably, EIA expects "90% of the coal-fired capacity retirements [to] occur by 2016, coinciding with the first year of enforcement for the [Environmental Protection Agency's] Mercury and Air Toxics Standards." This means nearly 18% of all coal-fired generation in the United States will retire in the next two years.

Q11a. Is DOE concerned that the loss of these critical generation facilities in such a short timeframe will make it increasingly difficult to meet electricity demands in the next two years, thereby putting reliability at risk and driving up electricity prices for consumers? Why or why not?

A11a. While DOE believes that national-level reliability issues are not likely to result from compliance with the recent and proposed EPA power sector regulations, it should be noted that local reliability issues may still arise for other reasons as decisions regarding equipment retrofits, retirements and scheduling of equipment installations are made. DOE is proactively engaging with states, independent system operators (ISOs) and regional transmission organizations (RSOs) and other stakeholders to identify any potential local reliability concerns in an effort to help facilitate mitigation where possible. Additionally, DOE is also monitoring public retirement announcements of power plant units to identify any potential geographic areas where local reliability may be a concern. DOE encourages early engagement with state and Federal energy and environmental regulators to ensure that compliance with EPA's regulations does not create potential local reliability issues.

Furthermore, DOE will continue to offer technical assistance to stakeholders to help inform, rather than direct, decisions regarding compliance with EPA's regulations. Such

technical assistance may include information regarding retro-fit technologies and retirement alternatives and implications, among other areas. DOE can also provide guidance regarding the use of its emergency authority under Section 202(c) of the Federal Power Act, which DOE views as a tool of last resort to address reliability emergencies when all other options have been exhausted.

Q11b. Has DOE been coordinating with EPA and FERC to ensure that EPA regulations won't cause reliability problems or increase energy prices on consumers?

- i. If yes, which agencies and which DOE officials are consulting with EPA and FERC? In your response, please identify when such consultations have occurred and which EPA and FERC officials have engaged in the consultations.
- ii. If no, will DOE be consulting with those federal agencies? In your response, if consultations are planned please identify when such consultations will occur and which DOE officials will engage in those consultations.

A11b. DOE has been working with both EPA and FERC, including meeting periodically to address issues arising from EPA's regulations. Additionally, the three agencies have been hosting coordinated calls with several of the independent system operators/regional transmission operators (ISOs/RTOs) to identify any concerns as the ISOs/RTOs respond to plant owners' retro-fit and retirement decisions.

A11bi. DOE's Offices of Electricity Delivery and Reliability, Energy Policy and Systems Analysis (formerly DOE's Office of Policy and International Affairs), Fossil Energy, Energy Efficiency and Renewable Energy, Nuclear Energy, and General Counsel have been engaging with EPA's Offices of Air and Radiation, Water, Enforcement and Compliance Assistance, General Counsel, and Policy as well as FERC's Offices of

Electric Reliability, Energy Policy and Innovation, and General Counsel. Specific participation varied by topic area and over time. As noted above, DOE, EPA, and FERC have met periodically (starting in 2011 for the recent suite of regulations), and as needed, to discuss issues related to EPA's power sector regulations and coordination efforts regarding industry's compliance status. Most recently, DOE, EPA, and FERC met in March 2014 to share information learned about regional greenhouse gas compliance proposals from outside stakeholders and what the three agencies should be aware of from a reliability perspective.

Q12. In addition to CCS technologies, what is your position on advanced coal technologies, such as chemical looping, ultra-supercritical coal combustion and advanced ultra-supercritical coal combustion technologies? How will DOE be supporting these types of highly efficient, low-emitting technologies in addition to CCS?

A12. DOE recognizes the importance of advanced combustion technologies such as oxy-combustion, chemical looping, and ultra-supercritical coal combustion and is investing \$18M in FY 2014 to demonstrate these highly efficient, low-emitting technologies at small pilot scale in the 2016-18 timeframe.

Q13. One of DOE's statutory duties under the DOE Organization Act is to "promote the interests of consumers through the provision of an adequate and reliable supply of energy at the lowest reasonable cost."

Q13a. As Secretary of Energy, have you been consulted by EPA about the agency's proposed greenhouse gas regulation for power plants?

- i. If yes, please identify when such consultations have occurred and which DOE and EPA officials have engaged in the consultations.
- ii. If no, will DOE be consulting with EPA on this matter? In your response, if consultations are planned please identify when such consultations will occur and which DOE officials will engage in those consultations.

Q13b. If you have cost concerns or reliability concerns that may negatively impact consumers, will you raise them with EPA? Have you raised any such concerns?

- A13. DOE regularly consults with EPA on a variety of issues. In addition, as part of the interagency review process for the proposed carbon pollution standards coordinated by OMB/OIRA, DOE has participated in a number of briefings with EPA staff and others. DOE expects to have further consultations as the interagency review process continues.
- Q14. Do you believe renewable energy sources such as solar, wind, and geothermal can completely replace traditional sources of energy like coal, nuclear, and hydropower? If so, would such a transition come with an increase in energy prices?
- A14. DOE supports the President's all-of-the-above energy strategy. President Obama's goal is to generate 80 percent of our electricity from a diverse set of clean energy sources – including renewable energy sources like wind, solar, biomass, and hydropower; nuclear power; efficient natural gas; and clean coal - by 2035. The Office of Energy Efficiency and Renewable Energy has established goals for its technology development programs to make renewable electricity market competitive without subsidies.
- Q15. Advances in innovative technologies have played a major role in unlocking the vast oil and gas energy resources that have contributed to our new energy renaissance.
- Q15a. Under your leadership, how will DOE support the use of traditional energy resources – such as fossil fuels and nuclear energy – in advanced and innovative ways?
- A15a. The Department is committed to supporting energy innovation. The Office of Fossil Energy has and will continue to support numerous programs that seek to improve the utilization of fossil fuel-based resources in increasingly more efficient and environmentally responsible manners. For example, DOE supports:
- Initiation of pilot-scale design and construction for pressurized oxy-combustion and chemical looping systems which have potential to significantly lower the cost of carbon capture;
 - Full scale demonstrations of cutting edge technologies that capture, store/reuses carbon

dioxide from fossil fueled power plants and industrial facilities;

- Technologies developed under the Turbines Program which will provide an improvement of 3 - 5 % efficiency points by 2015 above the baseline and a 4 % points improvement (14 % above baseline) in overall IGCC plant efficiency. This is with CCS and reduced CO₂ emissions for multiple fuel types, including syngas and natural gas;
- Low cost sensors and controls to better optimize the operations of the power plant;
- High temperature materials research aimed at increasing the steam temperature in existing power systems and advanced;
- Improved water management and reduced overall consumption; and
- Advanced capture technologies that reduce energy penalties and water demands.

The Office of Nuclear Energy (NE) has and will continue to invest in a wide range of innovative technologies to make current plants last longer, new plants more economical, and used fuel safe for the environment. Some examples include cross cutting investments in materials research, instrumentation and control systems, and modeling and simulation that promise incremental improvements in all aspects of nuclear power. NE is also sponsoring an accelerated licensing initiative to support rapid deployment of Small Modular Reactors based on a new economic understanding of the efficiencies of factory produced small-scale nuclear generation. Finally, NE is investing in the next generation of advanced reactor and fuels technologies that are more tolerant of potential hazards while maintaining economics and efficiencies on par with existing light water reactors.

Benefiting fossil, nuclear, and solar, NE is investigating Supercritical CO₂ energy conversion systems to take heat and turn it into electricity with about 50% more efficiency than current systems.

In addition, the Office of Electricity Delivery and Energy Reliability's investments in modernizing the Nation's electric grid support the Administration's "All Of The Above" strategy. The FY 2015 request supports efforts to improve the resiliency, security, flexibility and efficiency of the grid that can accommodate a balanced portfolio of energy resources, including fossil fuels, nuclear energy, and renewable energy sources. Some examples of grid modernization investments include development of cutting-edge cybersecurity tools and solutions that can secure the grid against an increasingly sophisticated cyber threats; development of smart grid technologies for a higher performing, more resilient distribution systems; and advanced modeling and wide-area visualization tools that can give grid system operators real-time and predictive information and control.

- Q16. Over the past decade, the European Union has pursued a broad range of climate policies, including renewable energy subsidies for wind and solar power. Those climate policies have led to high energy costs that are threatening the competitiveness of many of Europe's energy intensive industries. Does the European experience with climate policies and rising energy costs raise any red flags for the U.S.? If not, why not?
- A16. The previous decade has seen many changes in both European and U.S. power systems – from regulatory to policy to infrastructure and markets. In 2012, renewable sources provided 22% of electrical energy in the EU countries plus Norway and Sweden ("Europe", hereafter), compared to 12% of electrical energy in the United States. In

Europe, variable renewable electricity sources – for example, wind and solar – provided 8% of electrical energy in 2012, compared to 4% in the U.S.

These figures obscure a wide range of renewable electricity penetration across states in both Europe and the U.S.; while the U.S. generally has lower capacity penetration of renewable electricity, certain areas (balancing authorities, states, etc.) have experienced high penetration. For example, in 2012, two states exceeded 20% wind energy penetration, and seven states exceeded 10% wind energy penetration. California and Nevada each had more than 1% penetration of solar energy, not including small capacity generators (less than 1 MW).

From a technical perspective, variable renewables require both long term and short term system flexibility. They often require robust transmission and/or distribution infrastructure to absorb energy fluctuations. At small penetrations – a few percent in most systems – the additional fluctuations will likely be dwarfed by those already seen on the demand side. Furthermore, a strong grid provides opportunity for geographic or technological smoothing of variability, and the ability to share flexible capacity. High penetration of renewables often requires flexibility in generation and demand. Smart grid technologies, demand response, and energy storage are examples of potentially important resources against uncertainty and short-term variability.

Though renewable generation costs have declined precipitously over the last decade, in some markets, renewable technologies still come at a cost premium compared to non-renewable resources. These costs do not take into account greenhouse gas reduction benefits or other environmental, economic development, and security benefits provided

by renewable energy, however. Recognition of these external benefits of renewable energy led policymakers in both Europe and the U.S. to implement mandates and incentives for renewable energy.

As the U.S. incorporates more variable generation into our electric grid, an integration strategy can be crafted with the benefit of lessons learned from the variety of approaches piloted by early European actors. Proven strategies that can be replicated going forward include public engagement around transmission, integrated planning, market rules that enable system flexibility, expanded access to diverse resources, and improved system operations.

DOE is working to continue reducing costs of renewable energy systems, understand the impact on utility business models and evaluate consumer interests in order to avoid the high cost impacts experienced by Europe. The Department views the integration of renewable capacity as a high priority issue and has increased work on the subject over the past six years. This includes significant work with the states and regions on long-term transmission planning with various all-of-the-above resource mixes, development of new tools for wind and solar integration in the Western Area Coordination Council and conducting several preliminary studies investigating the impact of intermittent energy resources on the grid.

- Q17. DOE has one active solicitation under its Title XVII loan guarantee program, announced in December 2013, for \$8 billion in loan guarantees for advanced fossil energy projects. Please provide relevant details regarding the response to this solicitation.
- A17. The Department issued a new Advanced Fossil Energy Projects Solicitation in December 2013 making up to \$8 billion in loan guarantees available. This solicitation was issued under

the Section 1703 loan guarantee program and is open to any fossil fuel project, covering the full spectrum from resource development to power generation to end use, which meets the Section 1703 eligibility criteria.

The Department has received Part I applications and is processing those applications. Projects that submitted Part I applications by the first application deadline on February 28, 2014 have already received initial responses regarding the Part I review of their applications and the Department is awaiting additional information required to proceed to due diligence. The Department expects to receive additional applications under future submission deadlines. Additionally, we are continuing due diligence on the remaining active fossil applications that were received under previous solicitations.

- Q18. What level of Title XVII loan guarantee activity does DOE anticipate in the coming year?
- Q18a. What are DOE's plans for remaining authorities and credit subsidy appropriations in energy efficiency and renewable energy?
- Q18b. What are DOE's plans for remaining authorities in nuclear generation (\$12.3 billion) and nuclear front-end (\$2 billion), as well as its mixed authority (\$4 billion)?
- A18. On April 16, 2014, the Department issued a draft Renewable Energy and Efficient Energy Projects Loan Guarantee Solicitation for public comment. The draft solicitation proposes to make available the remaining loan authority and appropriated credit subsidy for renewable energy and energy efficiency projects as well as \$1 billion in mixed use loan guarantee authority. When finalized, the solicitation is expected to help commercialize technologies that may be unable to obtain full commercial financing.

No decision has been made to allow new applications for either all, or a portion, of the remaining nuclear energy loan guarantee authority.

- Q19. Please detail DOE's 2014 plans for the Advanced Technology Vehicle Manufacturing (ATVM) loan program.
- A19. The Advanced Technology Vehicles Manufacturing (ATVM) Loan Program has supported the production of over 4 million cars and approximately 35,000 direct jobs across eight states, including California, Illinois, Michigan, Missouri, Ohio, Kentucky, New York and Tennessee. To date, the program has issued more than \$8 billion in loans including successful loans to Ford Motor Company, Nissan North America, and Tesla Motors.

While the economics of the automotive sector have improved, conversations with motor vehicle parts manufacturers highlight strong sector growth that is leading to capacity constraints and demand for expansion capital. In particular, with federal requirements increasing the nation's automobile fuel efficiency standards to 54.5 miles per gallon in 2025, we recognize the need for suppliers to accelerate investment in the manufacture of key fuel efficiency technologies.

As a result, the Department recently announced a number of steps it is taking to improve the ATVM program to help support domestic advanced vehicle and component manufacturing. In 2014, the Department will continue to process existing ATVM applications, accept new applications, and issue loans after careful due diligence is performed until the loan authority has been expended, as established by Congress in the Energy Independence and Security Act (EISA) of 2007.

- Q20. According to DOE's FY 2015 Budget Justification, the "Environmentally Prudent Development" program is supposed to conduct research on hydraulic fracturing and other shale gas production techniques to assist state authorities in crafting regulations.
- Q20a. What states specifically is DOE working with for this program?
- A20a. Much of our research is applicable to unconventional resource development in multiple states and geologic basins. State beneficiaries of DOE of research have previously included Alabama, Alaska, Arkansas, California, Colorado, Kentucky, Louisiana, Michigan, Mississippi, Montana, Nebraska, North Dakota, New York, Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia and Wyoming, among others.
- Q20b. What specific research has this program done that has been shared with stakeholders?
- A20b. DOE research has provided science, technology, and tools to assist states and industry in the deployment of best practices that reduce the environmental impacts of resource development on topics such as low environmental impact drilling practices, wellbore integrity, fracture control and measurement, water use, treatment and recycling, induced seismicity, methane detection, and data management systems for state regulatory agencies.
- Q21. DOE's FY 2015 budget would fund a new program to target "Emissions Mitigation from Midstream Infrastructure." Industry is already working with environmental groups to address this issue, so please explain why DOE believes this new program is necessary? What stakeholders have been consulted about the need for this program?
- A21. DOE's proposed natural gas midstream infrastructure research and development (R&D) is intended to focus on technology gaps that will not be addressed by others. DOE believes that by working primarily through its national laboratories, and in collaboration with other federal agencies, it can provide industry with advanced pipeline integrity technologies to detect and repair methane leaks and decrease greenhouse gas emissions through

improved operational efficiencies. It also believes that pipeline integrity management and maintenance can ensure the safety and reliability of the pipeline system as well as reduce methane leaks. DOE will also provide technical guidance for natural gas pipeline companies, local distribution companies, and regulatory bodies that can be used to consider GHG emissions when investments are made to restore/replace existing facilities, or to construct new ones.

This view has been fully informed by numerous discussions between the Department and key stakeholder representatives, including the National Association of Utility Regulatory Commissioners; the National Association of State Energy Officials; the North American Energy Standards Board; the American Gas Association; and the Gas Technology Institute. More recently, it has been reinforced through a series of formal and informal meetings with representatives of natural gas pipeline companies and local distribution companies.

- Q22. Part of the stated goal of the recent White House “Strategy to Reduce Methane Emissions” is to stop leaks of methane from natural gas pipelines. The House passed H.R. 1900 to help bring certainty to the natural gas permitting process. Is DOE going to look at federal permitting problems that may delay methane reduction efforts? If yes, please describe any such permitting problems under DOE review or expected to be evaluated.
- A22. Improving the efficiency of the federal process for permitting is important and is an issue the DOE will be considering in the President’s Quadrennial Energy Review (QER). The initial focus for the QER will be the Nation’s infrastructure for transporting, transmitting, and delivering energy. As part of the QER process, DOE will evaluate federal permitting

problems that are identified by industry as being an impediment to midstream infrastructure enhancements, including enhancements that will reduce methane emissions.

Q23. In a recent article relating to this past winter's cold weather, the *New York Times* explained that electricity outages and price increases could be exasperated in the future as "coal-fired power plants that utilities have relied on to meet the surge in demand are shuttered for environmental reasons." Similarly, American Electric Power's CEO stated that during January's cold weather "89% of our coal capacity slated for retirement in mid-2015" was running to provide power.

Q23a. What steps is DOE taking to ensure the loss of significant amounts of coal-fired power plants over the next few years will not make it put reliability at risk or increase electricity prices for consumers?

A23a. While DOE believes that national-level reliability issues are not likely to result from compliance with the recent and proposed Environmental Protection Agency (EPA) power sector regulations, it should be noted that local reliability issues may still arise for other reasons as decisions regarding equipment retrofits, retirements, and scheduling of equipment installations are made. DOE is proactively engaging with states, independent system operators/regional transmission organizations and other stakeholders to identify any potential local reliability concerns in an effort to help facilitate mitigation where possible. Additionally, DOE is monitoring public retirement announcements of power plant units to identify any potential geographic areas where local reliability may be of concern. DOE encourages early engagement with state and Federal energy and environmental regulators to ensure that compliance with EPA's regulations does not create potential local reliability issues.

DOE will continue to offer technical assistance to stakeholders to help inform, rather than direct, decisions regarding compliance with EPA's regulations. Such technical assistance

may include information regarding retro-fit technologies, retirement alternatives and implications. DOE will also provide guidance regarding the use of its emergency authority under Section 202(c) of the Federal Power Act, which DOE views as a tool of last resort to address reliability emergencies when all other options have been exhausted.

- Q24. Please explain how DOE's pursuit of the President's climate change agenda will not conflict with DOE's statutory duty under the DOE Organization Act to "promote the interests of consumers through the provision of an adequate and reliable supply of energy at the lowest reasonable cost."
- A24. DOE plays a significant role in the President's climate change agenda through its promulgation of energy efficiency regulations, support for clean and renewable resources, reducing greenhouse gas emissions from fossil fuels through carbon capture and sequestration, and support for new clean energy technology. These activities directly promote the interests of consumers in a carbon constrained economy and also contribute to reducing the costs of clean, adequate, and reliable energy supplies.
- Q25. In DOE's analysis of its March, 28, 2014 final rule for commercial refrigeration equipment energy conservation standards, the agency admitted that the rulemaking will have an adverse impact on small manufacturers.
- Q25a. How can the agency move forward in such a detrimental way, harming U.S. manufacturers and U.S. jobs?
- A25a. DOE is required by statute to follow specific criteria for prescribing amended standards for covered equipment, such as commercial refrigeration equipment. Any amended standard for covered equipment must be designed to achieve the maximum improvement in energy efficiency that is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A) and 6316(e)(1)) In deciding whether a proposed standard is economically justified, DOE must determine whether the benefits of the standard exceed its burdens. (42 U.S.C. 6295(o)(2)(B)(i) and 6316(e)(1)) DOE conducts a series of rigorous analyses to assess

and estimate the impacts of potential energy conservation standards on consumers, manufacturers—including small manufacturers—utilities, and the Nation as a whole, as the Department did in this case. While one of the Department’s analyses found that there is the potential for small manufacturers to face burdens, primarily the purchase of more costly components needed to comply with the standards required by the Final Rule, DOE is required by law to weigh both the costs and benefits in making a determination on the economic justification of potential amended standards. DOE estimates that this standard will yield annualized net benefits of between \$704 and \$888 million per year due to reductions in the energy consumed by the more efficient equipment, accruing largely to U.S. businesses that own and operate commercial equipment.

- Q25b. Is this rulemaking an example of the agency taking actions to implement the President’s Climate Action Plan?
- A25b. The Energy Policy and Conservation Act, as amended, required DOE to complete the Commercial Refrigeration Final Rule by January 1, 2013. 42 U.S.C. 6313(c)(6). The rulemaking was initiated to meet statutory requirements. The President’s Climate Action Plan includes a goal of 3 billion metric tons of carbon dioxide emissions reductions through 2030 from appliance standards and Federal Building codes.
- Q25c. What is the justification for moving forward with this standard when the agency itself admits that the rulemaking will have an adverse impact on small manufacturers?
- A25c. As discussed in the above response to question 25a, DOE must follow specific statutory criteria for prescribing amended standards for covered equipment, such as commercial refrigeration equipment. While the Department acknowledged the potential for small manufacturers to face compliance burdens associated with the Final Rule, DOE is required to weigh both the costs and the benefits in making a determination on the economic justification

of potential amended standards. DOE examined the impact of the standard on small businesses as required by the Regulatory Flexibility Act in Section VI. B. Ultimately, DOE concluded the benefits to the nation in the form of energy savings, emissions reductions, and the substantial operating cost savings to customers over the lifetime of the equipment, outweighed the burdens on manufacturers and that alternative, non-regulatory measures would not achieve similar levels of savings.

Q25d. What recourse does a small manufacturer have if they are unable to afford compliance with this new regulation?

A25d. If a manufacturer believes that its design is subjected to undue hardship by regulations, the manufacturer may petition DOE's Office of Hearings and Appeals (OHA) for exception relief or exemption from the standard pursuant to OHA's authority under section 504 of the DOE Organization Act (42 U.S.C. 7194), as implemented at subpart B of 10 CFR part 1003. OHA has the authority to grant such relief on a case-by-case basis if it determines that a manufacturer has demonstrated that meeting the standard would cause hardship, inequity, or unfair distribution of burdens.

Q25e. The new rulemaking effectively raises the minimum efficiency level beyond Energy Star to a level that is based on DOE's engineered product identified by DOE as "max tech." How does the agency justify setting the new minimums at the highest level technologically obtainable as determined by computer models and not actual commercial products?

A25e. DOE did not set the standards for commercial refrigeration equipment at the maximum technologically feasible ("max-tech") level considered. In fact, DOE rejected two more-stringent levels than that which the Department selected in the final rule because DOE's cost-benefit analysis found potential benefits would be outweighed by potential burdens

at those higher levels. See section V.C. of the Final Rule for a description of the Secretary's weighing of the benefits and burdens at these more stringent levels.²

DOE did rely, in part, on an engineering model to develop the potential standard *levels* for analysis. However, DOE did not rely exclusively on modeled theoretical designs to infer what could potentially be manufactured. On the contrary, based on product data in the ENERGY STAR certification directory, DOE was able to confirm that there are commercially available models on the market today at or above the standard level selected by DOE for each of the equipment classes for which data was available.

With respect to the engineering model, by way of background, it was originally developed in the previous (2009) commercial refrigeration equipment rulemaking and was vetted with stakeholders throughout that proceeding as well as this most recent rulemaking. DOE updated the inputs based on the latest stakeholder comments, supplier literature, manufacturer interviews, and other sources, and corroborated outputs with physical testing of available products on the market, which led to changes in the resulting engineering cost curves and therefore the levels considered for the amended energy conservation standards.

Q26. The Federal Energy Regulatory Commission has adopted a final environmental assessment (EA) on FERC Project No. 12690-005/Admiralty Inlet Tidal Project, and DOE is a cooperating Agency with FERC regarding the EA (DOE/EA-1949).

Q26a. What financial assistance has DOE provided the Admiralty Inlet project and what additional financial assistance does DOE plan to provide this project going forward?

² 79 FR 22277 (April 21, 2014). Available at: http://www1.eere.energy.gov/buildings/appliance_standards/rulemaking.aspx?ruleid=80

A26a. EERE's Wind and Water Power Technologies Office has obligated \$3,000,000, via a competitively selected award signed September 2013 for a total of \$10,000,000 in DOE funds (\$7M out-year mortgages), to Snohomish Public Utility District of Snohomish County (SnoPUD) in support of the Admiralty Inlet project. Currently up to \$0.5M may be invoiced, and the remaining \$2.5M is under holds pending sub-contracts approval and a final DOE NEPA decision. No further funding or follow-on awards are planned at this time.

Q26b. Identify what additional federal regulatory action, environmental assessments, or reviews may be conducted in connection with this project.

A26b. The Department of Energy has evaluated the Federal Energy Regulatory Commission Environmental Assessment (EA) and its supporting data. DOE is confident that the analysis conducted by the Federal Energy Regulatory Commission (Commission) in the Environmental Assessment provides adequate information for DOE to make an informed decision in compliance with the Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA (40 CFR Parts 1500–1508) and DOE's NEPA implementing procedures (10 CFR Part 1021.330 et seq.). DOE completed its evaluation of the EA and does not plan to conduct additional environmental reviews. DOE's decision will be to either prepare an Environmental Impact Statement or issue a Finding of No Significant Impact.

An integral part of the FERC and DOE process also involved consultation with outside agencies that have the technical expertise that assisted in the analysis in the EA. This included the Federal Communications Commission (FCC) and the Naval Seafloor Cable Protection Office (NSCPO). DOE does not have technical telecommunication cable experts on staff but has cooperated and had an active role with the FCC throughout their

NEPA and Licensing processes. DOE has also participated in the Technical Meetings organized by the FCC. Should DOE make a final NEPA decision to issue a Finding of No Significant Impact, all mitigation and provisions established during the NEPA process would be incorporated and enforced through DOE's funding contract.

- Q27. In light of questions concerning the appropriate separation distance between the Admiralty Inlet project and a submarine telecommunications cable between the United States and Japan, the Federal Communications Commission has asked the Communications Security, Reliability and Interoperability Council (CSRIC) to develop recommendations/guidelines for safe separation distances between submarine fiber optic cables and other sea bed uses, including for projects similar to the Admiralty Inlet project.
- Q27a. Describe any participation DOE will undertake in CSRIC process.
- A27a. A representative from DOE's Office of Electricity has participated in CSRIC, and the Office of Energy Efficiency and Renewable Energy is also willing to coordinate with CSRIC if asked.
- Q27b. How might any guidelines or determination from the CSRIC inform or affect DOE's decisions relating to the Admiralty Inlet project and/or any other future marine energy project?
- A27b. Though in general DOE has been in consultation with CSRIC, the Department will make its NEPA decision independent of the CSRIC process. EERE believes the fact that SnoPUD's project is an experimental prototype project makes it unlikely to set precedent. It would however, provide valuable information and data that can help the committee come to some meaningful decisions for larger scale MHK projects. For future marine energy projects, DOE would consider applicable guidelines and recommendations made by the CSRIC to the Federal Communications Commission for siting marine energy projects during the project planning and NEPA review process.
- Q28. In DOE's proposed budget there is substantially reduced funding for the Mixed Oxide

Fuel Fabrication Facility (MOX) currently under construction at Savannah River Site (SRS) in South Carolina. For the options currently under consideration for the disposition of surplus weapons plutonium, please provide the following information:

Q28a. The benefits and drawbacks of each option;

A28a. Irradiation of MOX Fuel in Light Water Reactors

- MOX fuel fabrication process based on existing, operating technology in France.
- Facility must be adapted to U.S. standards for construction and operation of nuclear facilities.
- Significant risk associated with construction and start-up of major nuclear facility.

Irradiation of Plutonium Fuel in Fast Reactors

- Design, construction, start-up and licensing of prototypical modular, pool-type advanced fast-spectrum burner reactor has significant technical risk.
- Design, construction, and start-up of a full scale metal fuel fabrication facility in an existing operating Category 1 facility faces significant technical challenges.
- Metal fuel fabrication process has only been operated at the pilot scale.

Immobilization (Ceramic or Glass Form) with high level waste

- Technical uncertainty of the can-in-canister technology and throughput.
- Technological uncertainty of the glass can-in-canister form for disposal in a geologic repository.
- Specific modifications and impacts to Waste Treatment and Immobilization Plant Project (WTP) are yet to be fully defined. WTP itself is still under construction. This is not a viable option for the Hanford Site

Down-blending and Disposal

- This carries the least risk.
- Two additional glove boxes would be installed to increase throughput; however, the technical requirements are known and in use today.

Deep Borehole Disposal

- Drilling the deep boreholes would be technically viable.
- Technical requirements for the certified waste form are yet to be defined.
- Concept is still under development.

Q28b. The to go lifecycle cost estimate for each option is;

A28b.

- MOX fuel irradiation in light water reactors - approximately \$25 billion.
- Plutonium Fuel Irradiation in Fast Reactors - approximately \$50 billion.
- Immobilization - approximately \$28 billion.
- Down-blending and disposal - \$8 billion.
- Deep borehole disposal - costs were not estimated but will likely be closer to the down-blending and disposal option.

Q28c. The length of time necessary for completion;

A28c.

- MOX fuel irradiation in light water reactors – complete around the 2040s timeframe
- Plutonium fuel irradiation in fast reactors- complete around the 2070s timeframe
- Immobilization - complete around the 2060s timeframe

- Down-blending and disposal – complete around the 2040s timeframe
- Deep borehole disposal- uncertain timeline because of the unknown and lengthy process expected for regulatory review, start-up, and qualification of the waste form.

Q28d. Whether the option is consistent with the U.S.-Russia Plutonium Disposition Agreement signed in 2000 by the Clinton Administration;

A28d. The PMDA provides for other disposition methods as may be agreed to by the Parties.

Q28e. Whether the option meets the “spent fuel standard” recommended by the National Academy of Sciences in their 1994 report “Management and Disposition of Excess Weapons Plutonium” chaired by Dr. John Holdren; and

A28e. Response: Of the five options, MOX fuel irradiation in light water reactors, plutonium fuel irradiation in fast reactors, and immobilization all meet the intent of the “spent fuel standard”. The 1994 report also discussed other ways to minimize accessibility of the plutonium by creating physical, chemical and radiological barriers. The other two options, down-blending and disposal, and deep borehole disposal, meet some of these barriers.

Q28f. If an option was considered in the 1990’s but was not chosen as the preferred option, please describe why it was not preferred then and what circumstances have changed in the intervening years that might alter that earlier conclusion.

A28f. Since 1995, numerous options have been analyzed and dismissed. After careful consideration, and as a result of the cost increases, DOE announced that it would assess alternatives to the current plutonium disposition approach. The following five options, all considered in the 1990s, were deemed the most reasonable to reassess at this time:

- Option 1: Irradiation of MOX Fuel in Light Water Reactors;
- Option 2: Irradiation of Plutonium Fuel in Fast Reactors;

- Option 3: Immobilization (Ceramic or Glass Form) with High-Level Waste;
- Option 4: Down-blending and Disposal; and,
- Option 5: Deep Borehole Disposal.

Q29. Under DOE's agreement with the State of South Carolina regarding the MOX facility, what is the amount of the penalty DOE must begin paying the State in 2016? Has this taxpayer liability been considered in conjunction with the decision to cease construction of the MOX plant?

A29. If the MOX Production Objective is not achieved as of January 1, 2016, the Secretary shall, subject to the availability of appropriations, pay to the State of South Carolina each year through 2021 \$1 million per day not to exceed \$100 million per year. While this was taken into account for the analysis, it is not included in the cost estimates for the options.

Q30. Under the MOX program, the ultimate disposition of the excess plutonium would be disposal in a geologic repository as spent fuel. For the options currently under consideration by DOE, please indicate the ultimate disposition path and location for disposal. Please list any modifications to existing authority that would be necessary for such alternative disposal paths.

A30. Irradiation of MOX fuel in light water reactors would require a full Nuclear Regulatory Commission (NRC) licensing process; several steps of which have already been completed for the MOX facility. Fuel qualification would also need to be conducted by the NRC, and utilities would need to be willing to use MOX fuel in their reactors. The MOX facility would be located in South Carolina, and fuel would be used around the country depending upon interest from utilities.

Irradiation of plutonium fuel in fast reactors would require a lengthy NRC licensing

process, including fuel qualification by the NRC and compliance with other NRC requirements similar to what already has been and will be required for the MOX process.

Immobilization (Ceramic or Glass Form) with high level waste is not a viable option as the Department needs to maintain its focus and resources at Hanford on completing the WTP for the tank waste immobilization. It would introduce unacceptable technical, regulatory, financial and other risks to the completion of WTP. It is not contemplated under current agreements with Washington State, and would also require qualification and permitting of this waste form in a geologic repository.

Down-blending and disposal would require significant engagement with federal, state, and local representatives before any decision to go forward with this option. Implementation would require Congressional action, including amendment to existing legislation or enactment of new legislation.

Deep borehole disposal would have significant regulatory challenges as well establishing the requirements for the qualified waste form.

- Q31. The 1994 NAS report and its successor report in 1995 indicate that time is a crucial security consideration in evaluating plutonium disposition options. Please describe whether any of the options could be brought into operation sooner than completion of the MOX plant.
- A31. Down-blending and disposal could begin in 2019 but would require federal and regulatory actions.
- Q32. Please provide an estimate of the number of people who will lose their jobs from transitioning the MOX plant from construction to cold-stand-by.

A32. We expect a rigorous discussion with Congress as we determine the best path forward.

While that discussion is ongoing, the Department will continue construction activities on the MOX project for the remainder of FY 2014. This interval will also give the Department the opportunity to complete a root cause analysis into the underlying causes of the cost escalation of the MOX project.

Q33. Vladimir Rybachenkov, a former official with the Russian plutonium disposition effort, indicated in a recent paper that Russia might be favorably disposed to revising the agreement since there are changes they would also like to make including removal of the prohibition on the reprocessing of the spent fuel and blanket from their fast reactor. Mr. Rybachenkov also notes the capability of their fast reactor for "...producing more plutonium than it consumes and whose quality may even surpass that of the weapons plutonium."

Q33a. Please explain the ramifications of Russia pursuing such a course of action.

Q33b. Please describe the extent to which you considered this ramification in your decision to put the MOX plant into cold standby.

Q33c. Would you accept such a modification to the U.S.-Russia Plutonium Disposition Agreement. If not, why not?

A33. We understand that that paper is the product of a non-governmental think tank and have no indication that it has any official standing.

The U.S. remains fully committed to the U.S.-Russia Plutonium Management and Disposition Agreement (PMDA) and has no intention of amending or reopening its provisions. That agreement (paragraph 1 of Article III) allows for disposition by irradiation as nuclear fuel or by "any other methods that may be agreed by the Parties in writing." Adding a new disposition method or option would only be exercising that authority granted to the Parties.

Russia has not indicated to us that it wishes to pursue a course to amend the PMDA. It has indicated that it remains committed to the agreement and to its program.

- Q34. Mr. Rybachenkov also indicated that: "It seems that if the US side chooses an alternative plutonium disposition method, preservation of the international monitoring provision in the Agreement will not be a priority for Russia." Please indicate whether you would accept such a modification to the agreement.
- A34. Again, the United States has no indication that Russia wishes to amend or reopen the provisions of the PMDA. We also have no indication that Russia's commitment would be less because the United States wished to add another disposition method pursuant to the PMDA's provisions.
- Q35. Following up on my discussion during the hearing about the Paducah DOE site, communication between the State of Kentucky, the City of Paducah and the Department of Energy is vitally important as the Paducah Gaseous Diffusion Plant transitions from operating to full scale decommissioning and decontamination. As such, it is important that there be a full time manager on site. Can you provide a timeline of when a manager will be hired?
- A35. The Paducah Site Lead position has been filled effective June 15, 2014.

QUESTIONS FROM REPRESENTATIVE RALPH HALL

I am writing to follow up with a question that I asked during your budget presentation to the Energy and Commerce Committee. It related to DOE's "Order of Precedence" for considering conditional approval applications for LNG exports to non-Free Trade Agreement Countries.

As you know, your predecessor, Secretary Chu, prioritized DOE's consideration queue according to when LNG project developers had pre-filled their applications with the Federal Energy Regulatory Commission (FERC) for construction approval and satisfaction of relevant provisions of the National Environmental Policy Act (NEPA).

While I do not argue with DOE's having to formulate some set of priorities for dealing with 30 or so applications, I believe your predecessor's Order of Precedence discriminates against offshore projects that are not under FERC's jurisdiction. You mentioned the parallel regulatory process at the Department of Transportation's Maritime Administration (MarAd), which seemed to be ignored by DOE when it established its list of priorities based on FERC filings.

Indeed, it wasn't until after Congress had acted in December 2012 to amend the Deepwater Port Act of 1974, that offshore LNG projects were placed under MarAd's jurisdiction for much of the same review that onshore projects are given by FERC. But by then, your predecessor's Order of Precedence had been set according to a FERC-only process in which offshore projects had no place. These projects seem to be left out in the cold, and accorded, therefore, a diminished place in the queue, over which developers had no control.

Q1. Do you intend that DOE establish a separate and simultaneous system for processing conditional approval applications for offshore LNG export terminals that are under the jurisdiction of MarAd?

Q1a. If so, when? Timing is a vital consideration in the financing of LNG facilities, and your prompt action could resolve some major uncertainties.

A1a. DOE's role with respect to LNG exports to non-free trade agreement countries is to

consider whether the proposed exports are in the public interest pursuant to Section 3(a) of the Natural Gas Act and either to approve or deny the proposed exports on that basis.

While DOE is responsible for export of the natural gas as a commodity, other agencies are responsible for approving the siting and construction of LNG terminals: pursuant to Section 3(e) of the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) is responsible for proposals to site and construct LNG terminals onshore or in state waters;

and, pursuant to Section 3(9) of the Deepwater Ports Act, as amended by Section 312 of The Coast Guard and Maritime Transportation Act of 2012 (Pub. L. 112-213), the Maritime Administration within the Department of Transportation (MARAD) is responsible for LNG terminals located in deepwater ports.

Companies seeking to export natural gas from new or modified LNG terminals located onshore or in state waters have typically applied in parallel to both DOE and FERC. This is an efficient approach as it allows both agencies to proceed in their reviews simultaneously rather than sequentially. We believe it would be prudent for companies seeking to export natural gas from LNG terminals located in deepwater ports also to apply in parallel to both DOE and MARAD. To date, DOE has received two applications to export natural gas from MARAD-jurisdictional facilities. To our knowledge, neither of these applicants have yet applied to MARAD or begun the environmental review process there, although nothing in the applicable statutes or regulations would stop them from doing so.

The Department is processing the pending applications to export liquefied natural gas to non-free trade agreement countries on a case-by-case basis as expeditiously as possible in view of the level of appropriate due diligence activities, given that the orders on export applications are complex documents that must withstand public and legal scrutiny.

Q1b. If not, then why note? A decision to not establish a separate and simultaneous process would leave MARAD projects stranded in a FERC-defined template that is inappropriate given the action taken by Congress in December 2012.

A1b. Answered in A1a.

QUESTIONS FROM REPRESENTATIVE JOHN SHIMKUS

- Q1. In a letter to this Committee, dated January 6, 2014, Asst. Secretary Peter Lyons stated DOE would honor NRC's request to complete a groundwater supplement to the Yucca Mountain EIS and indicated steps had been taken to do so including procuring contractors' services and drafting a notice of intent. However, on February 28th, DOE notified NRC that it would NOT prepare that EIS supplement. Please describe the basis and rationale for revering the decision communicated to this Committee in the January 6 letter.
- A1. As explained in the Department's February 28, 2014 letter to the Nuclear Regulatory Commission (NRC), the NRC is the ultimate adjudicator in the Yucca Mountain license proceeding, and the NRC, rather than the Department, must eventually determine whether any groundwater analysis is sufficient and whether adoption of the Department's environmental review, as supplemented, is practicable. Accordingly, the Department is committed to providing the NRC an updated version of the report it provided to the NRC on July 30, 2009, entitled, *Analysis of Postclosure Groundwater Impacts for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada*. This updated analysis will, in the view of Department staff, provide the NRC with substantially all of the technical information necessary to inform a draft environmental impact statement.
- Q2. In its FY 2015 budget proposal, DOE requests \$24 million derived from the Nuclear Waste Fund. Please provide an itemized list of the specific activities DOE proposes to undertake with those funds including a detailed description the of the need for each activity, the work product each activity is expected to yield and the section of the Nuclear Waste Policy Act authorizing the activity.
- A2. With the \$24 million requested in the President's FY2015 budget request DOE proposes to undertake activities required to support preliminary generic process development and other non-R&D activities related to storage, transportation, disposal, and consent-based

siting. The President's FY 2015 request continues and expands on integrated waste management system activities that were undertaken in FY 2014.

- Q3. Please provide DOE's current projection for the Government's liability in FY 2015 for its failure to accept spent fuel under the standard contracts with utilities and whether this liability is accounted for within DOE's budget.
- A3. As of September 30, 2013, the Government's remaining liability resulting from the delay in beginning the acceptance of spent nuclear fuel in accordance with the provisions of the Standard Contract is estimated to be approximately \$21.4 billion. The calculations that support the liability estimate and the memo were finalized on October 30, 2013. Under current law, any damages or settlements in this litigation will be paid out of the Judgment Fund.
- Q4. Please provide projections of the Federal Government's cumulative liability in the years, 2015, 2020, 2025, 2030, 2040, 2045, and 2050 assuming no spent fuel acceptance by DOE until 2048.
- A4. The only available projection of the Federal Government's liability resulting from the delay in beginning the acceptance of spent nuclear fuel in accordance with the provisions of the Standard Contract is provided in A3 above.
- Q5. Please provide the Committee with a detailed schedule and budget for restarting the Yucca Mountain Repository program and commencing spent fuel acceptance following construction authorization by the Nuclear Regulatory Commission.
- A5. No such schedule or budget has been developed by the Department. The Administration determined that Yucca Mountain is not a workable solution, convened a Blue Ribbon Commission to evaluate options, and released its new *Strategy for the Management and Disposal of Used Nuclear Fuel and High Level Waste* in January 2013. The Department's FY 2015 budget supports the Strategy.

- Q6. Please describe any plans under consideration by DOE for reversing the policy of disposing defense waste and spent nuclear fuel in the same repository.
- A6. Disposal of defense wastes alongside commercial wastes is the current policy in accordance with the 1985 decision to use a single repository for both commercial and defense wastes. There has been no decision to reverse this policy.
- Q7. Please provide the Committee with a detailed schedule and cost estimate for disposal of defense waste in a defense-only repository.
- A7. Disposal of defense wastes alongside commercial wastes is the current policy in accordance with the 1985 decision to use a single repository for both commercial and defense wastes. There has been no decision to reverse this policy and therefore no detailed schedule and cost estimate for disposal of defense waste in a defense-only repository has been developed. The Department's nuclear waste program schedule and budget support the *Strategy for the Management and Disposal of Used Nuclear Fuel and High Level Waste*, including the use of consent-based siting and the deployment of consolidated interim storage in the near term.
- Q8. To date, what is the total amount paid into the Nuclear Waste Fund for defense waste disposal and what portion of the total contribution to the total cost of the repository does that amount represent?
- A8. As of September 30, 2013, the Government has provided \$3.758 billion for defense waste disposal.

QUESTION FROM REPRESENTATIVE LEE TERRY

- Q1. Looking at the overall budget for Applied Energy Programs, I find it interesting that batteries and electric vehicles are funded at a much higher level than cyber-security. It seems to me that cyber-security is urgent where as other items should be less urgent. Can you explain the discrepancy?
- A1. DOE views cybersecurity as a high priority for the Department. The budget request for fiscal year 2015 includes more than \$300 million for activities to strengthen the protection of the DOE enterprise from cyber attacks, bolster the U.S. Government's capabilities to address cyber threats, and improve cybersecurity in the U.S. energy sector in partnership with industry and other Federal agencies. The FY 2015 budget request for EERE's Vehicles Program is \$359 million, which includes \$100 million for advanced battery technologies. The research and development supported by this investment, among others, would result in technologies that enhance our national energy security by reducing our dependence on imported oil and critical materials, such as rare earths.

QUESTIONS FROM REPRESENTATIVE MICHAEL BURGESS

- Q1. Model building energy codes are developed by industry groups, and originally DOE was authorized to serve as a technical advisor during the development of these codes. DOE's role, however, has expanded over time and now, in my view includes advocacy. DOE representatives even pursue very aggressive energy goals that increase the cost of housing. Do you think this is an appropriate role for the agency?
- A1. DOE is directed by statute to periodically review the technical and economic basis of building energy codes, and participate in industry processes for review and modification, including seeking adoption of all technologically feasible and economically justified energy efficiency measures. (42 USC 6836) This role has been consistent since adoption of the statute.

In fulfilling its charge, DOE evaluates efficiency concepts for energy savings potential and cost-effectiveness, and develops proposals for model building energy codes, such as the International Energy Conservation Code (IECC). DOE relies upon an established methodology in evaluating the energy and cost impacts associated with building energy codes, which was developed through a transparent process based on feedback from the general public, and provides all analysis and supporting documentation as required by the International Code Council (ICC). In addition, prior to submission to the ICC development and public hearing process, DOE publishes its efficiency concepts, supporting analysis, and eventual code change proposals for public review and comment via the Federal Register.

- Q2. Some of my constituents have advocated for energy neutral tradeoffs in the code. These would maintain the same energy use, but would give builders and homeowners more flexibility in reaching these energy goals at a lower construction cost. DOE has not supported such reasonable code changes in the past. Can you explain why?
- A2. The International Energy Conservation Code (IECC) contains both prescriptive and performance-based compliance paths, including options for tradeoffs between residential

building systems. The allowance for energy to be traded between residential building envelope and mechanical systems is a concept that previously existed in the code, but was removed following the 2006 IECC. While some remain in favor of the equipment tradeoff, others support different methods of achieving whole-building energy savings. Also, while tradeoffs between envelope and mechanical systems are no longer allowed by the IECC, tradeoffs between building envelope systems are permitted.

In developing proposals for the 2015 IECC, DOE solicited public comments on draft code changes, including the topic of equipment tradeoffs. Stakeholder feedback yielded a polarized mix of support and opposition surrounding a reinstatement of equipment tradeoffs within the IECC, and DOE did not pursue an analysis or proposal on this topic.

As part of recent 2015 IECC development, as administered by the ICC, other organizations did submit proposals targeting such tradeoffs, but these proposals were ultimately rejected by the ICC. However, DOE notes that the 2015 IECC will include an additional compliance path based on achievement of a specified home energy rating index, which includes additional allowances for whole-building tradeoffs, including tradeoffs between building envelope and mechanical systems. The ICC is expected to publish the 2015 IECC in June 2014.

- Q3. GAO recently submitted to your agency for comment the first of two reports it is issuing at Senator Markey's and my request detailing the issues surrounding DOE's actions taken to assist USEC's American Centrifuge Project, many of which have had serious, negative impacts on the domestic uranium industry. GAO's draft report details a number of areas where DOE has taken action where GAO found DOE to lack authority to have taken such action. After reviewing GAO's findings in the first report, has DOE made any changes to the way it makes its Secretarial Determination, pursuant to Section 3112(d) of the USEC Privatization Act?

- A3. As you may be aware, the Department does not agree with GAO's analysis and conclusions regarding DOE's compliance with section 3112(d) of the USEC Privatization Act and other requirements related to its uranium transactions. DOE provided a detailed response to GAO's criticisms, explained its positions, and identified appropriate actions to be taken in the future in response to GAO's concerns.
- Q4. Has this first GAO report resulted in DOE making changes to any other procedures, operations, or agency actions pertaining to USEC, DOE's support for any of USEC's current or former operations, or the transfer of uranium or direct payments to USEC or any other entities?
- A4. DOE carefully considered the recommendations and findings in the GAO report. As in the past, DOE's future transfers or sales of uranium and any future interactions with USEC will comply with all applicable law and DOE will continue to seek opportunities to improve the way it carries out its missions.
- Q5. Please provide the following documents:
- Q5a. The recently completed, official use only, report required under Section 321 of the Omnibus Appropriations Act for Fiscal Year 2014 that includes a cost-benefit analysis of available and prospective domestic enrichment technologies for national security needs and the scope, schedule, and cost of the preferred option. This report was required to be submitted to the House and Senate Appropriations Committees in order for the Secretary of Energy to transfer up to \$56.65 million of the NNSA funds to further the research, development, and demonstration of national nuclear security-related enrichment technologies.
- A5a. The report was completed and delivered to the House and Senate Appropriations Committees on April 15. We will provide copies of the report to the House Energy and Commerce Committee.
- Q5b. A complete inventory of DOE's uranium that is not included in its Excess Uranium Inventory Management Plan (i.e., uranium that has not been deemed "excess").

- A5b. A classified report containing the complete inventory of DOE's uranium that is not included in its Excess Uranium Inventory Management Plan will be provided to the House Energy and Commerce Committee.

QUESTIONS FROM REPRESENTATIVE BILL CASSIDY

- Q1. As the U.S Department of Energy finalizes locations for its Quadrennial Energy Review Task Force, I ask that you not only include Louisiana as one of the destinations for the public regional meetings (I understand location logistics are currently being finalized), but I ask that you also work with the Louisiana Oil and Gas Association during the development and review of petroleum product transmission & distribution policy. Over 88 percent of U.S. oil rigs are located on the state's outer continental shelf, Louisiana is the 2nd largest crude oil producer (including offshore production) and the 3rd largest natural gas producer in the nation. Louisiana has significant intellectual capital and assets that should be leveraged for the discussion of both upstream and downstream operations for energy distribution and transmission.
- A1. The Department acknowledges the importance of Louisiana to the nation's energy situation, and a public stakeholder meeting on the Quadrennial Energy Review (QER) in Louisiana has been priority from the very early days of establishing this process. The Louisiana QER meeting was held at the LSU Health Sciences Center - New Orleans on May 27, 2014. EPSA will review any comments submitted by the Louisiana Oil and Gas Association (LOGA) and other stakeholders during this QER process.
- A report by the non-partisan Congressional Research Service shows that the 15 lease sales in U.S. waters that are included in President Obama's five-year plan represent the lowest number of lease sales ever proposed in a plan since the process began in 1980.
- Q2a. I realize offshore energy production is regulated by the Department of Interior and not Energy, but shouldn't offshore energy production be a part of the national energy strategy?
- A2a. The President's All-of-the-Above Energy Strategy supports an all-inclusive approach to energy sources, including the continued research and development of offshore oil and gas. The "Blueprint for a Secure Energy Future" specifies that the Administration encourages the exploration, development, and production of oil and natural gas, including offshore, but identifies that it must be accomplished safely, responsibly, and efficiently.

In addition, the Consolidated Appropriations Act, 2014 (H.R. 3547) Division D – Energy and Water Development and Related Agencies Appropriations Act, 2014 Explanatory Statement notated that in FY14, \$10,000,000 would be allocated by the Department for use in activities to improve the economic viability, safety, and environmental responsibility of offshore exploration and production in challenging conditions, of exploration and production from unconventional natural gas and other petroleum resources, and of production by small producers.

- Q2b. Since the President took office, oil and gas production has decreased in federal offshore waters. This means fewer jobs for working Americans, fewer opportunities in the energy service industry, why wouldn't the Administration want all Americans to have these opportunities? What can you do in your role as Energy Secretary to advance offshore energy production?
- A2b. The Department of Energy is currently conducting research focused on ensuring offshore and unconventional resources are developed safely and sustainably. In addition, the Department is utilizing our FY 2014 appropriations for activities to improve the economic viability, safety, and environmental responsibility of offshore exploration and production in challenging conditions.
- Q3. At what point did you learn that Mr. Chu's FERC-based "Order of Precedence" ignored – and discriminated against – MarAd-jurisdictional offshore projects that legally couldn't fit any kind of DOE queue that was based on develops' pre-filings at FERC?
- A3. The process that established the "Order of Precedence" includes a provision that DOE would review long-term LNG export applications to non-free trade agreement countries received after December 5, 2012, in the order the applications are received by DOE. After that date, any such application received by DOE, whether FERC or MARAD

jurisdictional, would receive the same treatment in their placement in the “Order of Precedence”.

DOE’s role with respect to LNG exports to non-free trade agreement countries is to consider whether the proposed exports are in the public interest pursuant to Section 3(a) of the Natural Gas Act and either to approve or deny the proposed exports on that basis.

While DOE is responsible for export of the natural gas as a commodity, other agencies are responsible for approving the siting and construction of LNG terminals: pursuant to Section 3(e) of the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) is responsible for proposals to site and construct LNG terminals onshore or in state waters; and, pursuant to Section 3(9) of the Deepwater Ports Act, as amended by Section 312 of The Coast Guard and Maritime Transportation Act of 2012 (Pub. L. 112-213), MARAD is responsible for LNG terminals located in deepwater ports.

Companies seeking to export natural gas from new or modified LNG terminals located onshore or in state waters have typically applied in parallel to both DOE and FERC. This is an efficient approach as it allows both agencies to proceed in their reviews simultaneously rather than sequentially. We believe it would be prudent for companies seeking to export natural gas from LNG terminals located outside state waters also to apply in parallel to both DOE and MARAD. To date, DOE has received two applications to export natural gas from MARAD-jurisdictional facilities. To our knowledge, neither of these applicants have yet applied to MARAD or begun the environmental review process there, although nothing in the applicable statutes or regulations would stop them from doing so.

The Department is processing the pending applications to export liquefied natural gas to non-free trade agreement countries on a case-by-case basis as expeditiously as possible in view of the level of appropriate due diligence activities, given that the orders on export applications are complex documents that must withstand public and legal scrutiny.

- Q4. When were you first made aware that non-FERC projects even existed?
- A4. The first LNG export project within the jurisdiction of the Maritime Administration (MARAD), Main Pass Energy Hub LLC, applied to DOE for an authorization to export LNG to free trade agreement (FTA) countries in September 2012. That application was granted on January 4, 2013. Freeport McMoRan Energy LLC, Main Pass Energy Hub LLC's corporate affiliate, applied to DOE for an authorization to export LNG to both FTA and non-FTA countries on February 22, 2013. Each of these events occurred prior to my tenure as Secretary.
- Q5. When were you first made aware of Congressional requests going back to April 2013 that a "separate and simultaneous" conditional approval process be established by DOE for MarAd projects that were made "homeless" by Mr. Chu's original FERC-based queue?
- A5. The order of precedence announced in December 2012 prioritized applications that had already begun NEPA review at FERC, but only for applications received by the Department prior to that date. All applications received after that date were to be reviewed in the order received by DOE. As noted above, no deepwater projects had applied to DOE for non-FTA export authority prior to December 2012, and therefore would not have been affected by the queue as established.

On May 29, 2014 the Department announced a proposed procedural change pursuant to which it would no longer issue conditional authorizations but would evaluate all LNG

export applications to non-FTA countries in the order in which they are ready for final decision. This proposed procedure, like its predecessor, will place FERC-jurisdictional and MARAD-jurisdictional projects on equal footing regarding the timeliness of their review by the Department. Regardless of where the applicant now stands in the queue, following the proposed process change, DOE would consider the application as soon as it has completed its NEPA review, — whether that review is conducted by FERC or MARAD.

- Q6. Why have you ignored several Congressional requests for a “separate and simultaneous process” for MarAd-jurisdictional projects, and why has your senior staff seemingly dismissed the same request from DOE’s sister agency?
- A6. DOE has received and responded to letters from members of Congress and from MarAd that have requested that DOE establish a separate and simultaneous process for MarAd jurisdictional projects.
- Please see the response to question 3.
- Q7. On October 18, 2013, Acting MarAd administrator Paul Jaenichen wrote to your Deputy Chief of Staff, Jonathan Levy, asking for the same “separate and simultaneous” review process that many members of Congress had already requested for offshore LNG terminals.
- A7. See answer A6.
- Q8. Why has Deputy Chief of Staff Jonathan Levy never respond to Acting MarAd Administrator Jaenichen’s written request? Will either Mr. Levy or you finally respond to MarAd now six months later?
- A8. My understanding is that Mr. Levy responded contemporaneously to acting Administrator Jaenichen via telephone. There is nothing in DOE’s process — either currently or under the proposed change — to prevent applicants from moving forward with their NEPA review.
- Q9. Will you now recognize that then-Secretary Chu’s original FERC-based queue is flawed for its having ignored non-FERC jurisdictional projects, and will you now finally establish a

separate and simultaneous conditional approval queue for MarAd-jurisdictional LNG export terminals?

- A9. When DOE established the order of DOE's review of pending long-term applications to export LNG to non-FTA nations, DOE gave precedence to those applicants that had made the greatest strides toward obtaining a final decision on the proposed exports. After December 5, 2012, any long-term application to export LNG to non-FTA countries received by DOE, whether FERC or MARAD jurisdictional, would be placed in the "Order of Precedence" in the order received, and therefore a MARAD jurisdictional application would not be treated differently than a FERC jurisdictional application received after December 5, 2012.

Please see the response to question 3.

- Q10. In the Consolidated Appropriations Act of 2014, we provided some \$343 million for MOX Construction activity this year. We did not provide for or permit any expenditure of appropriated funds for any "cold standby" or "mothballing" of the MOX facility.
- Q11. By what authority does DOE decide, on its own, to effectively cancel a major construction project, which Congress – during periods of both Republican and Democrat control – has decided over the years (as recently as January) to continue? Please provide us your view of our appropriations authority and your freedom to circumvent it.

- A10/11. The MOX project has not been cancelled, and the Department has determined and has communicated to the contractor, MOX Services, that the Department will continue with construction activities through FY 2014, retaining the key nuclear engineers and other highly-skilled workers. However, given that the Department has determined that the MOX fuel approach is significantly more expensive than anticipated, NNSA intends to work with the contractor on a plan for placing the project in cold standby during FY 2015, and we are continuing our ongoing discussions with Congress as they review and

evaluate the FY 2015 budget request, while the Department further studies more efficient options for plutonium disposition.

- Q12. The MOX project is debated every year in Congress based on construction cost estimates provided us by DOE. What's new this year is your introduction of a vague and unsubstantiated estimate of \$30 billion in "life cycle" costs.
- Q13. Please provide the Committee a full accounting to substantiate your \$30 billion estimate. Please explain all methodologies and assumptions used to arrive at a figure that is, again, new to the discussion.

A12/13. The \$30 billion life cycle cost estimate (LCCE) includes a \$10.5 billion total project cost for the MOX Fuel Fabrication Facility (MFFF) with a projected completion date of 2027. This is approximately over \$2 billion more than was in used in the \$24 billion LCCE reviewed by the GAO. This analysis was conducted by the U.S. Army Corps of Engineers. In addition, the Los Alamos National Laboratory (LANL) steady state operations estimate provided by LANL was reviewed by an independent review team (independent of LANL), which concluded that the estimate was closer to \$5 billion versus the \$2.9 billion used in the \$24 billion LCCE reviewed by the GAO. Furthermore, due to the MFFF projected completion date of 2027, operations for the MFFF and Waste Solidification Building would also be delayed, contributing to the cost increase due mainly to compounded escalation associated with pushing operations far out into the future.

- Q14. Given that DOE's application of a "life cycle" cost estimate seems unique to its treatment of MOX, then accounting consistency across all major DOE construction programs would demand the same. This would include, for instance, the Waste Treatment and Immobilization (WTP) project at Hanford in Washington State, and the Uranium Processing Facility (UPF) at the Y-12 National Security Complex at Oak Ridge in Tennessee.
- Q14a. Please provide the Committee with DOE's most recent "life cycle" cost estimate for the WTP at Hanford. Please specify how your methodologies and assumptions track with, or differ from, those that DOE has applied to MOX.

A14a. The Waste Treatment and Immobilization Plant (WTP) is the cornerstone of the River Protection Project's mission to clean up hazardous and radioactive waste contained in underground storage tanks at the Hanford Site in southeastern Washington State. It is a one-of-a-kind facility to turn 56 million gallons of radioactive tank waste located at the Hanford Nuclear Reservation into an immobilized form using a process called vitrification.

The construction cost for WTP will undergo a re-estimation pending resolution of technical issues. Specific WTP subprojects not impacted by the major technical issues are currently undergoing a re-estimation. The most recent cost estimate for the construction of the Waste Treatment Plant (WTP) is \$12.3 billion. This estimate includes direct contractor costs and DOE contingency. The estimate for direct construction costs was prepared by the construction contractor using standard industry practice existing in 2006. It was reviewed by external independent entities including the U.S. Army Corps of Engineers. The current total tank farm operations estimate is \$62.2 billion through the year 2050; which in addition to WTP operations and maintenance, includes operation of the tank farm, waste feed delivery to WTP, closure of emptied tanks, and all other ancillary tasks necessary to complete the liquid waste treatment mission.

The Department follows similar management and cost estimating procedures for other projects including when necessary to provide information for decision makers to respond to project execution that does not meet established objectives.

Q14b. Please also provide the Committee with DOE's most recent "life cycle" cost estimate for the UPF at Oak Ridge. Again, please specify how your and assumptions track with, or differ from, those that DOE applied to MOX.

A14b. The UPF Project is needed to ensure the long-term viability, safety, and security of the Enriched Uranium (EU) capability in the United States. UPF is a unique facility that will support the Nation's nuclear weapons stockpile, down blending of EU in support of nonproliferation, and provide uranium as feedstock for fuel for naval reactors.

The most recent life-cycle estimate was completed in April 2009 for the CD-1 Analysis of Alternatives. The estimates were \$9.1B for a new UPF building and \$12.3B to upgrade the existing facilities, with a recommendation to pursue the cheaper former option. Both estimates are in 2007 dollars and include all investments related to construction, operations and maintenance, deactivation and decommissioning, and other productivity improvements from FY 2007 through FY 2074.

QUESTIONS FROM REPRESENTATIVE CORY GARDNER

- Q1. The University of Colorado estimates that 68,000 jobs could be lost in Colorado if hydraulic fracturing is prohibited. As you may know, there is the potential for a statewide fracking ban on the ballot this November in Colorado. I oppose any attempts to ban hydraulic fracturing, which would greatly harm our state and local economies and eliminate Colorado jobs. Where do you stand on hydraulic fracturing and what is your position regarding a potential ban on fracking in Colorado?
- A1. Research conducted by the U.S. government and industry over a number of decades led to the development and commercial deployment of horizontal drilling and hydraulic fracturing technologies. The advancements of combined horizontal drilling and hydraulic fracturing technologies have dramatically increased the nation's technically-recoverable domestic unconventional oil and natural gas (UOG). The new economics enabled by these technological innovations have greatly expanded the production of these resources. The increase in UOG production in recent years has given a glimpse of the potential for UOG development to enhance America's energy, economic, and environmental security, and create significant income, employment, and other benefits crucial to the States', including Colorado, and the country's economy. However, these resources must be developed safely, efficiently, and in an environmentally responsible way.

Title X of the Energy Policy Act of 1992 requires the Department to reimburse, at last annually, licensees of active uranium and thorium processing sites for costs incurred to remediate Federal-related byproduct material. These sites were commercially operated mills which provided uranium and thorium concentrate in support of U.S. defense programs. Today, many of these sites are located in or near minority and economically distressed communities.

As a result of the Energy Policy Act legislation, thirteen active uranium licensees and one active thorium licensee (located in seven states: Colorado, Illinois, New Mexico, South Dakota, Utah, Washington, and Wyoming) were identified by DOE as qualifying for reimbursement under Title X. From FY 1994 until FY 2008 the Department provided ample resources within its annual budget request to reimburse these licensees for the work they executed toward bringing these sites to substantial closure.

Unfortunately, the Department has shirked its obligations under Title X since FY 2009 by including no funding in its annual budget request to Congress. As a result, the program has accumulated over \$54 million in unpaid claim balances as of December 2013.

It is my understanding that at least one of these sites is facing demobilization because it continues to wait for over \$15 million in reimbursements from the Title X program for work already completed. The said irony is that demobilization will significantly increase the cost to complete this project at a time when this site is within 2 years of achieving completion. It is unacceptable for the federal government to abandon communities with unfinished radioactive waste remediation projects that at best will have no restart date in sight and at worst will remain a hazard to peoples' health forever without further intervention.

Q2. Why has the Department failed to include sufficient resources within its annual budget submissions to reimburse the Title X licensees for their efforts to bring these sites to closures, despite legal obligations to do so?

A2. Taking many variables into account, the Environmental Management program has generally prioritized its cleanup activities as follows:

- Activities to maintain a safe, secure, and compliant posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Spent (used) nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, stabilization, and disposition
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning.

The Department supports the Title X Uranium and Thorium Reimbursement Program and has been able to provide reimbursements to uranium and thorium licensees through fiscal year (FY) 2012.

- Q3. Absent fulfilling this legal obligations what plan does the Department have to remediate those sites?
- A3. In accordance with section 765.20(g) of 10 CFR Part 365 (revised), the Department continues collection of annual claims. Each year, the Department publishes a Federal Register Notice requesting uranium and thorium licensees to submit their claims to the Department for cleanup work performed in the prior fiscal year, which identifies that the ability to reimburse approved claims is subject to the availability of funding. Any remaining unpaid approved claims are carried over to the next fiscal year, until they can be paid in full by the Department.

The Department does not have the authority to conduct the actual physical cleanup at these privately owned sites.

QUESTIONS FROM RANKING MEMBER BOBBY RUSH

- Q1. Of the DOE's \$27.9 billion budget request, what is the amount allocated to the Office of Impact and Diversity (OEID), the department primarily responsible for enacting the Minorities in Energy Initiative (MIE), both in terms of dollars and in percentage?
- A1. Of the DOE's \$27.9 billion FY 2015 budget request, the Office of Economic Impact and Diversity (OEID) budget request is \$7,247,000, or 0.026% of the DOE budget request.
- Q2. Does this budget adequately reflect the priority of reaching out and engaging minorities in the energy sector for both you and President Obama, and if it does not, what additional funding can be added to show its importance to the Administration?
- A2. Started in September 2013, MIE is currently supported by existing OEID funds. While the near-term budget for OEID engagement of minorities in the energy sector through MIE is bound by FY 2014 appropriation and FY 2015 budget request, the program is a DOE initiative and a Secretarial priority. In pursuing MIE outcomes, OEID coordinates efforts with program offices and National Labs to leverage resources and activities that align with the OEID mission and MIE focus areas.
- MIE aligns with the long-standing mission of OEID and is a sustainable platform for enhanced achievement of the original statutory mandate of ensuring that minorities have an opportunity to fully engage in the programs of the Department and the overall energy sector. MIE provides increased emphasis on minority community engagement, adds the Ambassador program; strengthens science, technology, engineering and mathematics (STEM) education; expands economic development; and adds climate change awareness.
- Q3. What was the budget for OEID before MIE was established and has this budget increased in order to account for added duties and responsibilities?

- A3. The OEID budget is \$8,956,000 for FY 2014. The FY 2015 request is \$7,247,000. The budget decrease from FY 2014 to FY 2015 is due to transition of the Office of Small and Disadvantaged Business Utilization from OEID to a separate program office. Taking this office transfer into consideration, the net budget increase request for OEID in FY 2015 is \$794,000.
- Q4. Does OEID have the budget, staff, resources, and authority to fully and effectively make the MIE successful by engaging minority communities and helping them gain access to the enormous opportunities available within all the different aspects of the energy sector?
- A4. OEID engages the minority communities through a holistic, long-term approach to supporting increases in awareness; energy literacy; STEM workforce development; and business expertise of historically underserved communities, which enables us to best accomplish our objectives.
- Q5. How will the MIE initiative be supported by other departments within the agency?
- A5. OEID will serve as a resource and partner to DOE program offices to better engage and support minority and tribal communities. Program offices will continue to include relevant aspects of MIE as part of their engagement of minority communities. They will assist OEID in measuring the level of engagement of these communities and the outcomes. Additionally, program offices provide technical assistance and advise OEID on how to best engage external communities in specific areas within the energy sector.
- Q6. How does the entire agency reflect the mission of the MIE through its own hiring and promotion of diverse candidates into leadership positions to ensure that the interests and concerns of minority communities are proactively addressed?
- A6. The Department of Energy understands the importance of a diverse workforce and leadership structure in fulfilling our external obligations to minority communities, as well

as enhancing our internal capabilities to address complex energy challenges. The entire Department is committed to being inclusive of our minority communities across all of our mission responsibilities, including MIE. Through our diversity and inclusion strategy, we not only place emphasis on the availability of minority leaders for community outreach, but also work to equip all of our leaders to effectively engage minority communities.

DOE recruitment practices include advertisements in media that serve predominantly minority communities, very strong relationships with minority serving institutions, and activities with numerous organizations having direct access to those communities. We continually review our selection and promotion practices to ensure proper attention to establishing recruitment strategies to attract and grow a diverse pool of talent, especially at the senior and executive levels.

Q7. Of the 17 publicly-funded national research labs, how many are operated and/or managed by minority firms outright or in partnerships with other firms?

A7. None of the Department's national research laboratories are managed by minority firms.

However, some of the entities that manage the Office of Science laboratories are comprised of university consortia that include minority serving institutions. For example, Fermi National Accelerator Laboratory (Fermi) is operated by the Fermi Research Alliance, LLC., which is a partnership between the Universities Research Association, Inc. (URA) and the University of Chicago. URA is a consortium of 88 universities, including some minority serving institutions. Thomas Jefferson National Accelerator Laboratory is managed by Jefferson Science Associates, LLC., which is a partnership between the Southeast Universities Research Association (SURA) and PAE Applied

Technologies. SURA is a consortium of 23 universities including several minority serving institutions.

- Q8. Do minorities make up a significant part of the leadership teams for any of the 17 labs and what steps are needed to increase the number of minorities in these leadership positions?
- A8. The National Renewable Energy Laboratory (NREL) has two Executive Leadership team members who self-identify as minorities and three female team members. At the Idaho National Laboratory (INL), women and minorities make up 21% of the leadership team. Women and minorities make up 26% of the total management ranks at INL. Minorities do not make up a significant part of the senior leadership at the ten Science national laboratories. The DOE laboratory contractors are required to provide diversity plans on an annual basis. The plans address workforce diversity and results-oriented Equal Employment Opportunity and Affirmative Action programs. Recruitment of minorities into leadership positions is highly encouraged by DOE.
- Q9. What are the levels of engagement with minority contractors/subcontractors doing business at Argonne and Fermi labs in Illinois and what are the levels of minority contractors/subcontractors doing business with all of the labs nationally?
- A9. In FY2013, The Argonne National Laboratory subcontracted \$21,175,086 to small, disadvantaged businesses, accounting for 7% of the lab's total subcontracting dollars. Additionally, the laboratory awarded \$649,306 to large minority businesses. The Fermi National Accelerator Laboratory subcontracted \$8,256,000 or 6.3% of total FY2013 spend to small disadvantaged businesses. Nationally, our labs typically meet or exceed their minority subcontracting goals.

Q10. What steps are needed in order to increase the levels of minority contractors/ subcontractors doing business with all of the national labs and what steps has the agency taken under your leadership?

A10. All of our labs re-negotiate their subcontracting goals on an annual basis. In addition to specific dollar and percentage goals, DOE requires that our laboratory contractors conduct outreach activities. At each of the national labs, outreach activities are recorded and submitted monthly to DOE. These various outreach activities include, but are not limited to: attending business/ minority related conferences hosted by DOE and other agencies, holding one-on-one networking activities, maintaining websites disclosing subcontracting opportunities, and maintaining relationships through a mentor-protégé program. Additionally, each of DOE's lab contractors has a small business program manager that is focused on subcontracting opportunities for various socio-economic groups.

The Office of Small and Disadvantaged Business Utilization (OSDBU) is focused on assisting the Department to achieve its statutory goals for small disadvantaged (SDB), women-owned (WOSB), HUBZone and service-disabled veteran owned (SDVOSB) small businesses. In FY2013 the Department achieved the following results for prime and subcontracting awards: SDB (\$2 billion), WOSB (\$1.7 billion), HUBZone (\$.4 billion) and SDVOSB (\$.3 billion).

The OSDBU is providing outreach opportunities for small businesses and minority contractors specifically to engage the Department of Energy. The objective of the outreach events is to assist small businesses in navigating the Department's procurement process, identify upcoming contract opportunities and connect small businesses with the

appropriate staff to build meaningful relationships. The OSDBU has recently hosted women-owned, HUBZone and service-disabled veteran owned small business events in Washington, DC. In addition, the OSDBU is participating with the following minority-related organizations in webinars or as conference participants to increase awareness of contract opportunities: Women Impacting Public Policy, Women Construction owners and Executives, US Women's Chamber of Commerce, Women's Business Enterprise National Council, National Center for American Indian Enterprise Development, Greater Washington Hispanic Chamber of Commerce, led breakout session at the 2014 National 8(a) Association Winter Conference, US Pan Asian American Chamber of Commerce, US Black Chamber of Commerce and the Minority Business Development Agency. In FY2013, the OSDBU participated in over 50 outreach events in addition to the national labs' outreach activities. The OSDBU is hosting our 13th Annual Small Business Forum & Expo in Tampa, FL on June 10th through June 12th. This event is being actively marketed with the aforementioned organizations and other small business stakeholders.

Q11. How well are the Management and Operations (M&O) Contractors adhering to the diversity clauses in their contracts and what steps are needed to improve this record?

A11. All of our lab M&O contractors adhere to the diversity clauses in their contracts by submitting annual diversity plans. The plans focus on promoting diversity and must address: 1) the contractor's work force, 2) educational outreach, 3) community involvement and outreach, 4) subcontracting, 5) economic development (including technology transfer), and 6) the prevention of profiling based on race or national origin.

Q12. What are the levels of participation for minority business and minority-serving institutions in research and development and technology transfer at the national labs and what steps are needed to increase these types of partnerships?

A12. DOE Headquarters currently does not collect the level of participation by business and minority-serving institutions engaged in the DOE laboratories' Work for Others (WFO), Cooperative Research and Development Agreements (CRADAs), Agreements for Commercializing Technology (ACTs) and other technology transfer mechanisms. We are in the process of collecting this information and will report back to the committee separately.

Some specific examples of actions that are being taken to increase these types of partnerships follow.

The INL participates with minority/small businesses through technology licensing and CRADAs. From FY 2012 - FY 2014, the INL executed new license agreements with 30 minority/small businesses. Additionally, from FY 2012 – FY 2014, the INL completed cooperative research under the WFO and CRADA programs with 23 minority/small businesses.

The INL continually seeks licensing and research with minority/small businesses; however some limitations include the DOE requirement for full cost recovery, which smaller businesses have fewer resources to cover. When possible, the INL seeks and supports research and development through the DOE Small Business Innovation Research and Small Business Technology Transfer programs.

As an applied science laboratory, the NREL engages many small businesses in research, development, demonstration and deployment activities. The Laboratory engages these companies through several different agreement forms, including subcontracts, WFO, and CRADAs. Of the seven companies that have been recruited into NREL's mentor protégé program, four are research and development companies. Recently, DOE approved a new pilot program, Agreements for Commercializing Technology (ACT), designed to allow the labs to enter into more industry-like agreements. Continued use of new and innovative programs, which allow small businesses to access the DOE labs more easily, will increase these types of cooperative relationships.

Savannah River National Laboratory (SRNL) has been working with colleges (such as Georgia Tech) to recruit minority graduates, as well as advertising in journals targeted at minority scientists. Also, SRNL is anticipating having 7 minority interns this summer from historically black colleges and universities which have received grants from DOE.

QUESTION FROM REPRESENTATIVE JOHN BARROW

- Q1. As you know, the Strategic Petroleum Reserve (“SPR”) was established pursuant to the Energy Policy and Conservation Act to store crude oil that could be deployed in an emergency to minimize the impact of petroleum supply disruptions. In 2000, a separate Northeast Heating Oil Reserve was established solely to address disruptions for that product, and the Reserve was placed strategically in the region of the country most dependent on that fuel. What do you think about establishing a reserve of refined products like gasoline?
- A1. As part of the Obama Administration’s response to Superstorm Sandy, the Secretary of Energy, Ernest Moniz, announced on May 2, 2014, the creation of a one million barrel refined petroleum product reserve containing gasoline to be located in the Northeast. The new reserve complements the Northeast Home Heating Oil Reserve (NEHHOR), a one million barrel supply of diesel for the Northeast. Emergency withdrawals from NEHHOR were used for the first time in response to Superstorm Sandy to supply first responders and emergency generators in the region.