

**ENERGY AND WATER DEVELOPMENT  
APPROPRIATIONS FOR FISCAL YEAR 2016**

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**HEARINGS**

BEFORE A

SUBCOMMITTEE OF THE  
**COMMITTEE ON APPROPRIATIONS**  
**UNITED STATES SENATE**

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

ON

**H.R. 2028**

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2016, AND FOR OTHER PURPOSES

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**Department of Defense—Civil  
Department of Energy  
Department of the Interior**

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**ENERGY AND WATER DEVELOPMENT  
APPROPRIATIONS FOR FISCAL YEAR 2016**

**WEDNESDAY, FEBRUARY 11, 2015**

U.S. SENATE,  
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,  
*Washington, DC.*

The subcommittee met at 2:28 p.m., in room SD-192, Dirksen Senate Office Building, Hon. Lamar Alexander (chairman) presiding.

Present: Senators Alexander, Cochran, Collins, Murkowski, Graham, Hoeven, Lankford, Feinstein, Tester, Udall, Merkley, and Coons.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

**STATEMENT OF HON. THOMAS P. BOSTICK, LIEUTENANT GENERAL,  
COMMANDER**

OPENING STATEMENT OF SENATOR LAMAR ALEXANDER

Senator ALEXANDER. The Subcommittee on Energy and Water Development will please come to order.

This is the first hearing, not just of our subcommittee, but of the entire Appropriations Committee.

How is that, Senator Feinstein? So we are the early birds.

I want to say at the outset what a privilege it has been to work with the Senator from California over the last few years when she has been chairman and I have been the ranking member. Our seats have switched, but the relationship hasn't changed. And I look forward to treating her with at least as much courtesy as she has always treated me. I am going to see if I can outdo her, because it is a treat to work with somebody who is capable of making a decision, expressing herself well, and easy to work with.

So, Senator Feinstein, I look forward to our continued good relationship.

This morning, we are having a hearing to review the President's fiscal year 2016 funding request and budget justification for the U.S. Army Corps of Engineers and the Bureau of Reclamation, which is part of the Department of the Interior. Senator Feinstein and I will each have an opening statement, and then each Senator may have up to 5 minutes for a statement in the order in which they arrived.

Senator Graham has let me know that he has a 3 o'clock hearing, so if the Senators don't mind, I will try to work him in before 3 o'clock, as a courtesy to him.

We will then turn to the witnesses for their testimony. Each witness will have 5 minutes. We would appreciate you summarizing your testimony in that time. We will include their full statements in the record. Then Senators will be recognized for 5 minutes of questions in the order in which they arrived.

I want to thank the witnesses for being here today, and thank Senator Feinstein for working with me on this.

Our witnesses include Jo-Ellen Darcy, the Assistant Secretary of the Army for Civil Works. Welcome, Secretary Darcy.

Estevan López, Commissioner for the Bureau of Reclamation. Mr. López, welcome.

Jennifer Gimbel, Principal Deputy Assistant Secretary for Water and Science for the Department of Interior. That is a long title. Nice to see you.

And Lieutenant General Thomas P. Bostick, Chief of Engineers for the U.S. Army Corps of Engineers. We welcome you.

Governing is about setting priorities, and unfortunately, the President's budget request for these agencies shows a failure to do so, in my opinion.

The overall budget proposes spending that exceeds the budget caps established by the Budget Control Act of 2011 by about \$74 billion. One of the priorities the President often speaks about is our Nation's infrastructure. Yet despite all the proposed new spending and all that talk, this proposal cuts the Corps' budget by \$751 million, or 14 percent below last year's actual spending level.

This budget proposes cutting the Corps' funding to the actual level of spending in 2007. We are literally moving backward on an agency that is crucial to maintaining our country's infrastructure.

The reason this is such a problem is that the U.S. Army Corps of Engineers touches the lives of almost every American. The Corps maintains our inland waterways. It deepens and keeps our ports open. It looks after many of our recreational waters and land. It manages the river levels to prevent flooding. Its dams provide emission-free, renewable, hydroelectric energy.

All of these activities attract the intense interest of the American people and of their United States Senators.

I can recall when I was a member of the Environment and Public Works Committee, after a flooding of the Missouri and Mississippi rivers 4 years ago, a whole room full of Senators showed up to ask for more money to deal with what went wrong and what went right on the disaster relief efforts. So there is a real interest in these proposals.

The reality is that for all the Corps does, there are many things it could do better, and setting priorities in our spending is one way to better invest taxpayer dollars.

An important example of the administration's failure to set priorities in my home State of Tennessee is the lack of funds in the President's budget request to restart replacement of Chickamauga Lock. Congress has done its job over the last 3 years to move ahead promptly on replacing Chickamauga Lock, and it is disappointing that the administration has failed to do its job.

Here is what we have done. Congress, first, passed a law that reduced the amount of money that comes from the Inland Waterways Trust Fund to replace Olmsted Lock, a project in Illinois and Kentucky that was soaking up almost all of the money that is available for inland waterway projects.

Second, Congress worked with the commercial waterways industry to establish a priority list for projects that needed to be funded, on which Chickamauga Lock ranks near the top, in fourth place.

And third, just this past year, working together, we enacted a user fee increase that commercial barge owners asked to pay in order to provide more money to replace locks and dams across the country, including Chickamauga Lock.

These are three extremely important steps to give our country the inland waterways that we need. These three things taken together should make it possible for the Corps of Engineers to move rapidly to begin to replace Chickamauga Lock.

The problem with Chickamauga Lock is it is made of aging concrete. It could fail if we don't replace it. In fact, in October of last year, the lock was closed for several days. It was closed to all navigation traffic for emergency repairs after an inspection revealed cracks in the concrete.

The project is not just important to Chattanooga, but to all of eastern Tennessee because of the number of jobs affected. We are almost out of time for a solution. The lock could close in a few years unless progress is made.

That would throw 150,000 trucks on Interstate 75. It would increase the cost of shipping to Oak Ridge, to the national laboratory, and to the weapons areas, and to manufacturers across the State.

So you can see how Chickamauga Lock, and other projects like it across the country, ought to be a priority, and why the Corps' budget should make it a priority.

In addition to the Corps, we fund the Bureau of Reclamation. The Bureau of Reclamation delivers water to one in five Western farmers, irrigating 10 million acres of some of the most productive agricultural land in the world.

I would note that this is the first time that Commissioner López and Secretary Gimbel have appeared before this subcommittee, and we welcome them both.

Without the infrastructure that these two agencies provide, our Nation would be vastly different. With that in mind, we are here today to discuss the administration's fiscal year 2016 budget request for both agencies. I will look forward to the testimony.

Before I turn to Senator Feinstein for her statement, I would like to note that this is Roger Cockrell's last hearing, at least the last one he will attend in his capacity with us as a staff member of the Appropriations Committee. He is retiring at the end of the month, and we are going to miss him.

For the past 14 budget cycles, Senators on the subcommittee, whether Republicans or Democrats, have been well served by Roger's expertise on both the Corps of Engineers and the Bureau of Reclamation. It is hard to think of anybody inside or outside Washington who matches Roger in knowledge or experience. It is hard to think of a water resources bill that has not benefited from his guidance.

So, Roger, on behalf of the subcommittee, I wish to thank you for your service over these many years and to wish you and your family the best in your retirement.

[The statement follows:]

PREPARED STATEMENT OF SENATOR LAMAR ALEXANDER

I would like to thank our witnesses for being here today, and also Senator Feinstein, who I will be working with on the appropriations bill that this subcommittee considers.

Our witnesses today include:

—Jo-Ellen Darcy, Assistant Secretary of the Army for Civil Works

—Lieutenant General Thomas P. Bostick, Chief of Engineers for the U.S. Army Corps of Engineers

—Estevan López, Commissioner for the Bureau of Reclamation

—Jennifer Gimbel, Principal Deputy Assistant Secretary for Water and Science for the Department of Interior

This is my first budget hearing as chairman of the Appropriations Subcommittee on Energy & Water Development.

Governing is about setting priorities, and unfortunately, the president's budget request for these agencies shows a failure to do so.

The president's overall budget proposes spending that exceeds the budget caps established by the Budget Control Act of 2011 by about \$74 billion. One of the priorities he speaks about often is our Nation's infrastructure.

Yet despite all that proposed new spending and all that talk, this proposal cuts the Corps' budget by \$751 million, or about 14 percent below last year's actual spending level. This budget proposes cutting the Corps' funding to the actual level of spending in 2007—we are literally moving backward, on an agency that is crucial to maintaining our country's infrastructure.

The reason this is such a problem is that the U.S. Army Corps of Engineers touches the lives of all Americans. The Corps maintains our inland waterways, keeps our ports open, looks after many of our recreational waters and land, manages the river levels to prevent flooding, and its dams provide emission-free, renewable hydroelectric energy.

All of these activities attract the intense interest of the American people, and of their United States Senators. I can recall when, after the flooding of the Missouri and Mississippi rivers 4 years ago, eight Senators showed up at a Senate Environment and Public Works Committee hearing to discuss what went right and what went wrong with disaster relief efforts.

The reality is that for all the Corps does there are many things it could do better, and setting priorities in our spending is one way to better invest taxpayer dollars.

An important example of the administration's failure to set priorities is in my home State of Tennessee: the lack of any funds in the president's budget request to restart replacement of Chickamauga Lock. Congress has done its job to move ahead promptly on replacing Chickamauga Lock, and it's disappointing the Obama administration has failed to do its job.

First, Congress passed a law that reduced the amount of money that comes from the Inland Waterways Trust Fund to replace Olmsted Lock, a project in Illinois and Kentucky that was soaking up almost all of the money that is available for inland waterway projects. Second, we worked with the commercial waterways industry to establish a priority list for projects that needed to be funded, on which Chickamauga ranks near the top, in fourth place. And third, just this past year we enacted a user fee increase that commercial barge owners asked to pay in order to provide additional funds to replace locks and dams across the country, including Chickamauga Lock.

Those three things taken together should make it possible for the Corps of Engineers to move rapidly to begin to replace Chickamauga Lock. The problem with Chickamauga Lock is it's made of aging concrete and could fail if we don't replace it. In fact, in October of last year, the lock was closed for several days to all navigation traffic for emergency repairs after an inspection revealed cracks in the concrete.

This project is important not just to Chattanooga, but to all of East Tennessee because of the number of jobs affected. We are almost out of time for a solution—the lock could close in a few years unless progress is made, throwing 150,000 trucks on I-75 and increasing the cost of shipping goods for Oak Ridge, Y-12, and manufacturers across the State.

So you can see how Chickamauga Lock—and other projects like it across the country—ought to be a priority, and why the Corps' budget should be a priority.



In addition to the Corps, we fund the Bureau of Reclamation.

The Bureau of Reclamation delivers water to one in five Western farmers, irrigating 10 million acres of some of the most productive agricultural land in the world.

I would note that this is the first time that Commissioner Lopez and Secretary Gimbel have appeared before this subcommittee, and we welcome them.

Without the infrastructure that these two agencies provide, our Nation would be vastly 2016 budget request for these two agencies. I'll look forward to the testimony of our witnesses, but first would like to hear from our subcommittee's ranking member, Senator Feinstein.

Senator ALEXANDER. Now, Senator Feinstein.

STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Thank you very much, Mr. Chairman.

I just want to begin by saying what a sincere pleasure it has been for me to work with you. I had the same relationship with Senator Chambliss on Intelligence. Regardless of who is in your seat today, I really believe we are a good working team. Where we disagree, we work it out. Where we come together, I think the Nation is better for it.

So it has been a really great pleasure for me to work with you. I look forward to being ranking member on your subcommittee. I look forward to our getting our nuclear waste bill done that we have worked for 4 years now, put together with Lisa Murkowski, and then Jeff Bingaman, and then Jeff left and it was Wyden, and then Mary Landrieu, and now Maria Cantwell. That has been a very high priority for me and I know it is for you, too.

So it has been a very good relationship, and I really appreciate it. I want you to know that.

Senator ALEXANDER. Thank you.

Senator FEINSTEIN. If I could just say a word about Roger, too. I think you said it all, Mr. Chairman. But he joined the committee in 2003. He had a 23-year career with the Army Corps of Engineers' Vicksburg District. He has worked on 14 successive Energy and Water appropriations bills. He was involved in supporting critical national projects like the restoration of the Everglades. And I think most importantly, he has detailed knowledge of the appropriations process and the budgets of both the Corps and the bureau. And he was instrumental in shaping the Federal Government's response to hurricanes Katrina and Sandy.

He has been a tremendous resource for me personally. And, actually, there is no one I would trust more than Roger Cockrell when it came to this particular budget.

So, Roger, I am really so sorry that you are leaving. Our side is, and it is great to know the other side is as well. We all want to wish you the very, very best. So thank you so much.

Okay, Mr. Chairman, I very much agree with you about your comments on the budget. I found it very surprising that there was a 13.8 percent drop in the Corps' budget and a 2.2 percent drop in Reclamation's budget.

Candidly, it is really not acceptable when we consider all of the water resource needs our Nation faces. It is particularly troubling when there is such a big push for infrastructure spending elsewhere in the administration's budget. I don't know how they came to leave this out here, unless they knew that we were all pas-

sionate about it and we would probably put the money back here, at least that is kind of what I hope we do.

As I often say, the work these agencies do affects more people on a daily basis than anything else in this bill. So I am a big fan of both of your agencies.

You are responsible for improving our flood protection systems, maintaining and improving navigation channels and ports, providing ecosystem restoration, and perhaps most importantly, providing water for irrigation and municipal and industrial purposes.

It is clear that in order to maintain and modernize our existing infrastructure to meet 21st century demands, we need sufficient budgets to accomplish real benefit. This budget, regretfully, does not do this.

The ports and channels handled by the Corps handled more than 2.3 billion tons of cargo. Flood control infrastructure owned or managed by the Corps prevents more than \$36 billion in annual damages. And Corps recreation facilities serve more than 370 million visitors each year. Most people don't know that, that the Army Corps of Engineers runs these recreation facilities.

So I think we need to help with this shoestring budget. I am concerned that your budgets have been so tight for so long. We talked about Chickamauga. Well, in my State I would talk about the California drought.

We are in the fourth year of the worst drought. We've got wells running dry. We have people unable to have drinking water or bathing water. We have about 800,000 acres of land that is being fallowed because farmers can't plant.

I must say that Reclamation has just been a tremendous help to us in that regard, by working to run the systems, to work with the State system, run both systems much more efficiently. We need to keep this up.

What I am here to say is that I intend to work in every way possible to be cooperative with the chairman and try to do those things that can improve the situation for all of the States that are represented here.

So I thank you, Mr. Chairman. That really completes my remarks.

Senator ALEXANDER. Thank you, Senator Feinstein.

We have a tradition in the subcommittee of giving the Senators who are here an opportunity to make opening statements, if they would like, up to 5 minutes. We will do it back and forth in order of arrival. We will begin with Senator Cochran.

#### STATEMENT OF SENATOR THAD COCHRAN

Senator COCHRAN. Mr. Chairman, thank you for the opportunity of questioning our witnesses here today and to join you in welcoming them to our hearing. I have prepared an opening statement for the subcommittee's hearing. I will ask unanimous consent that statement be printed at this point in the record, and I will reserve my questions until the regular order.

[The statement follows:]

## PREPARED STATEMENT OF SENATOR THAD COCHRAN

Mr. Chairman, thank you for convening this hearing to review the President's fiscal year 2016 Budget request for the U.S. Army, Corps of Engineers and the Bureau of Reclamation. I appreciate the good work conducted by these agencies, and I look forward to learning more about their fiscal year 2016 funding needs.

The activities carried out by the Army Corps help provide our country with the basic necessities to survive and prosper. Its civil works responsibilities support initiatives focused on navigation and waterborne commerce, flood prevention and storm damage reduction, environmental restoration, among other important activities. Without adequate funding, the Corps cannot perform these functions effectively, which would result in greater risk of catastrophic flooding and adverse impacts on our Nation's economy.

Today I look forward to engaging in meaningful discussion with our distinguished members of the panel, because I have deep concerns with various aspects of the President's fiscal year 2016 Civil Works request. As Chairman of the Senate Appropriations Committee, I am aware of the challenges associated with outlining funding for all of the executive departments and independent agencies within the Federal Government. However, we cannot lose sight of the important work performed by the Army Corps and their responsibilities to the Nation.

The funding levels proposed by the administration for all of the Corps important infrastructure accounts—Investigations, Construction, Operation & Maintenance, and Mississippi River & Tributaries (MR&T)—are far below the levels provided by Congress in the recently enacted fiscal year 2015 Omnibus appropriations bill. On the other hand, the President's budget requests increases for the Corps' regulatory programs and agency expenses, which is again cause for concern. Considering the President's comprehensive budget is expected to exceed the caps for discretionary spending set by the Budget Control Act of 2011 by \$74 billion, I question the level of priority this administration is placing on our Nation's critical infrastructure.

Going forward, one of the most pressing issues this subcommittee must address pertains to the President's request for the Mississippi River & Tributaries (MR&T) project, which reflects neither the need nor the importance of this valuable flood control program. For fiscal year 2016, the administration has requested \$225 million for MR&T, which is far below the amount Congress had annually provided over the last 30 years.

In light of my concerns about the Corps Civil Works budget, I am pleased to have the opportunity to discuss these important matters so they can be addressed in the appropriations process. These hearings are designed for that specific purpose, and I am confident that our subcommittee will benefit from the valuable insight provided today by Lieutenant General Bostick and Assistant Secretary Darcy.

I appreciate today's witnesses appearing before this subcommittee, and I look forward to hearing their testimony.

Senator ALEXANDER. Thank you, Senator Cochran. It will be included.

Next, Senator Merkley.

## STATEMENT OF SENATOR JEFF MERKLEY

Senator MERKLEY. Thank you very much, Mr. Chairman. This is the first hearing of the subcommittee that I have been a part of as a new member, so I am delighted to join the subcommittee on these issues of energy and water and, of course, today, particularly water.

The Army Corps of Engineers and Bureau of Reclamation, these organizations reverberate in so many issues that we encounter in Oregon. So I look forward to hearing their testimony and exploring ways that we can maximize the effectiveness of their good work on the ground. Thank you very much.

Senator ALEXANDER. Thank you, Senator Merkley.

Senator Udall.

## STATEMENT OF SENATOR TOM UDALL

Senator UDALL. Thank you very much, Chairman Alexander. I am back on the subcommittee, and I look forward to it. I know that you and Senator Feinstein work very well together, and I look forward to being a part of that team. I really appreciate your good bipartisan work.

I want to take a minute to congratulate Commissioner Estevan López, the new Commissioner of the Bureau of Reclamation. Estevan is a native New Mexican. We are proud of him and pleased to have him represent our State in such an important leadership role.

I want to welcome you to your first hearing as Commissioner before this subcommittee.

Commissioner López understands the issues that are critically important to the West. He has more than 20 years of experience in water management policy. We really look forward to working with you on those issues.

As you all know, issues of drought and future water supply are critically important to the State of New Mexico. Climate change and prolonged drought have meant devastating wildfires. Extreme weather events alter our watersheds. Competing interests from municipalities, agriculture, wildlife, and industry strain our limited water resources.

Programs that help provide sustainable water management are crucial and need to be adequately funded. I am pleased to see the President's budget has highlighted some of these priorities to ensure support for important tribal water settlements and grant programs, for instance, programs like WaterSMART, which promotes public-private partnerships for much-needed infrastructure funding.

I intend to work my colleagues to make sure that this program and others like it have the resources they need.

With that, I look forward to hearing from today's witnesses and yield back the balance of my time, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Udall. Welcome to the subcommittee. Welcome back.

And, Senator Merkley, welcome to you.

Senator Tester.

## STATEMENT OF SENATOR JON TESTER

Senator TESTER. I want to echo the statements of many of the subcommittee participants in thanking Chairman Alexander and Ranking Member Feinstein for your ability to work together and your common-sense approach to everything in the Senate, but especially this issue, water resources. It is very, very important, and I want to thank the panelists for being here.

I just stepped in, I sat down, and I drink this water. I did not think one thing about it. I just assumed that it would be here, not a problem. And that is part of the problem. The fact is that good water resources take planning and dollars, because you have to have the infrastructure to support it. That is your job, and it is our job to make sure you have the tools and the resources to be able

to do your job and do it right. Everything from agriculture to recreation to just the basic necessities of life is water.

I look forward to working with everybody at the table today and a whole lot of other folks to make sure that we have the water infrastructure in this country to meet the needs of a 21st century United States of America. So thank you all for your work.

Senator ALEXANDER. Thank you, Senator Tester.

Senator Collins and Graham, we want to give each of you a chance to make an opening statement.

Senator Graham, you have a hearing at 3 p.m.?

Senator GRAHAM. Yes, Mr. Chairman. We are doing the pay and benefits reform commission.

Senator ALEXANDER. Senator Collins, would you mind?

We will go to Senator Graham and then Senator Collins.

Senator GRAHAM. This is an opening statement?

Senator ALEXANDER. Yes.

#### STATEMENT OF SENATOR LINDSEY GRAHAM

Senator GRAHAM. I thank you for coming.

Roger, you will be missed. You have done an incredible job for a long period of time.

To our witnesses, you have been great working with Charleston and other areas important to South Carolina. I will come back and ask you questions about the Port of Charleston.

As to the committee, I hope we can find a way to fix sequestration. You cannot get there from here. Anything and everything should be on the table. The projects we need as a Nation are enormous; the money is insufficient. If we do not fix sequestration, we are going to run into infrastructure nightmares all over the country.

I cannot think of a better duo to do this than our chairman and ranking member.

Senator ALEXANDER. We will count on you to be the platoon leader.

Lindsey, I think we may have a vote around 3:45 or 4:00, but we will arrange to give every Senator an opportunity to ask the questions you want to ask of the witnesses, even if votes come in the middle of it.

Senator Collins.

#### STATEMENT OF SENATOR SUSAN M. COLLINS

Senator COLLINS. Thank you very much, Mr. Chairman. I want to thank you and the ranking member for holding this hearing today to review the fiscal year 2016 budget submissions for the Army Corps of Engineers and the Bureau of Reclamation.

The Army Corps projects are particularly important in my State, and they play such an important role in local economies. There is an ongoing need to address the maintenance backlog and to ensure that our ports and harbors are properly maintained.

A great example of that for which I want to thank the Army Corps is the cooperative work that it did with the town of Yarmouth this past fall to dredge the Royal River. The river was gradually filling up to the point where it threatened the survival

of the marina that was located there and would have affected the economy of the region.

The Army Corps worked very closely with the town, both financially and in the timing, and I really appreciate that project being done.

I also want to salute the efforts of the chairman and ranking member for working with me and other members of the subcommittee last year to include the \$42.5 million for operation and maintenance at small, remote, or subsistence navigation harbors and waterways.

In a State like mine, with an extensive coastline, those small harbors are just as critical to the coastal communities as large, better-known harbors are in this country. They are truly the economic lifeblood for many small and rural communities. And the funding for their maintenance dredging is critically important.

Sometimes that is not fully accounted for under the Corps' budget metrics, which tend to favor larger ports. That is why the money that has been set aside in recent years is so important.

I am extremely pleased to learn that the Corps' business fiscal year 2015 work plan includes \$2.9 million for maintenance dredging at Beals Harbor in Maine, and \$1.2 million for Pig Island Gut—that probably doesn't trippingly come off the tongues of many here—which is also in the Beals area. If all goes well, those projects, which are absolutely essential, will begin this fall.

Finally, I want to associate myself with the comments made by the chair and ranking member about the cuts to the Army Corps budget. The cuts are deep. The needs are great. And I hope we can work together to try to narrow the gap.

Thank you very much, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Collins.

Senator Lankford, each of the Senators has made a short opening statement. You are welcome to make one too, if you would like to do that.

Senator LANKFORD. Why don't I just submit one for the record, so we can get on with the testimony?

Senator ALEXANDER. Thank you, Senator Lankford.

We will move on to the testimony. I have introduced the witnesses, so, General Bostick, why don't we begin with you and then go right down the line? If each of you would summarize your remarks in about 5 minutes, we would appreciate it.

#### SUMMARY STATEMENT OF LIEUTENANT GENERAL THOMAS P. BOSTICK

General BOSTICK. Thank you, Mr. Chairman and members of the subcommittee. I am honored to testify before your subcommittee today along with the Honorable Jo-Ellen Darcy on the President's fiscal year 2016 budget for the Civil Works Program of the United States Army Corps of Engineers.

This is my third time to testify before the subcommittee on the civil works budget. Thank you for your support in the past, and I look forward to your continuing efforts together in the future.

I have been in command for nearly 3 years, and I would like to provide a brief update on our four campaign goals, which drive the organization.

First, support to national security. The Corps supports the national security of the United States. We continue to work in more than 110 countries using our civil works and military missions, water resources, and research and development expertise to support our Nation's combatant commanders. Army Corps employees, both military and civilian from all across the Nation, have volunteered and continue to volunteer to provide critical support to our military and for humanitarian missions abroad.

Second, transform civil works. Civil works transformation focuses on four broad areas. First, we are modernizing the project planning process. Second, we're enhancing the budget development process through a systems-oriented approach that includes significant collaboration. Third, we are developing an infrastructure strategy to evaluate the current inventory of projects that will help identify priorities and develop better solutions to water resources challenges. And fourth, we're improving methods of delivery, to produce and deliver sound decisions, products, and services that will improve the ways in which we manage and use our water resources.

Since the inception of civil works transformation in 2008, 42 chief's reports have been completed. During that 7-year period, 13 chief's reports were completed in the first 4 years and 29 chief's reports were completed in the last 3. This is clear evidence that we are learning and becoming more efficient in our processes.

In our third campaign plan goal, we must continue to be proactive and develop improved strategies to reduce disaster risks, as well as respond to natural disasters when they do occur. I continue to be very impressed at the work of the Army Corps of Engineers in this area.

One great example of this proficiency is with Hurricane Sandy recovery work. The flood control and coastal emergency program is over 95 percent complete. The Sandy operations and maintenance program is over 70 percent complete and on schedule to be 100 percent complete by the end of 2016.

I am pleased to highlight that the Army submitted the North Atlantic Coast Comprehensive Study on schedule to Congress and the American people on 28 January 2015.

And our fourth goal is to prepare for tomorrow. This is about our people, ensuring that we have a pipeline of talented military and civilian teammates as well as a strong workforce development and talent management program.

Equally important is helping the Nation's wounded warriors and soldiers transition out of Active Duty to find fulfilling careers. Last year, we set a goal to assist 125 transitioning wounded warriors, and we exceeded that goal by more than 50 percent. Nearly 200 wounded warriors found permanent positions within the Corps and other organizations.

We are also focused on research and development efforts that will help some of the Nation's toughest challenges.

Mr. Chairman, I ask that you and other members refer to my complete written testimony submitted to the subcommittee for the fiscal year 2016 budget for specifics.

Thank you again for this opportunity. I look forward to your questions.

[The statement follows:]

## PREPARED STATEMENT OF LIEUTENANT GENERAL THOMAS P. BOSTICK

Mr. Chairman and members of the subcommittee: I am honored to be testifying before your committee today, along with the Assistant Secretary of the Army for Civil Works, the Honorable Jo-Ellen Darcy, on the President's fiscal year 2016 Budget for the Civil Works Program of the United States Army Corps of Engineers (Corps). This is my third time before this Subcommittee to testify on the Civil Works budget; thank you for your support in the past, and I look forward to continuing to work together.

I have been in Command of the Corps for nearly 3 years, and I want to briefly update you on the four Campaign Plan Goals for the Corps.

First, *Support National Security*. The Corps supports the National Security of the United States. We continue working in more than 110 countries, using our Civil Works, Military Missions, and Water Resources Research and Development expertise to support our Nation's Combatant Commanders. We are proud to serve this great Nation and our fellow citizens, and we are proud of the work the Corps does to support America's foreign policy. Civilian Army Corps employees from across the Nation have volunteered—and continue to volunteer—to work, in a civilian capacity, to provide critical support to our military missions abroad and humanitarian support to the citizens of those nations. Many of them have served on multiple deployments.

Second, *Transform Civil Works*. The four elements of the Civil Works Transformation strategy will make the Corps more efficient and effective while continuing to support the Nation by addressing some of our greatest infrastructure needs. Civil Works Transformation focuses on modernizing the project planning process; enhancing the budget development process through a systems-oriented approach and collaboration; evaluating the current inventory of projects and the portfolio of proposed water resources projects using an infrastructure strategy to identify priorities and develop better solutions to water resources problems; and improving methods of delivery to produce and deliver sound decisions, products, and services that will improve the ways in which we manage and use our water resources.

Since the inception of Civil Works Transformation efforts in 2008, 42 Chief's reports have been completed. In 7 years, 13 Chief's Reports were completed in the first 4 years, and 29 Chief's Reports completed in the last three; we are learning and becoming more efficient in our processes.

Third, we must continue to be proactive and develop better strategies to *Reduce Disaster Risks*, as well as respond to natural disasters when they do occur, under the National Response Framework, National Disaster Recovery Framework, Public Law 84-99 as amended, and Corps project authorities for flood risk management. I continue to be amazed at the work the Army Corps does in this arena. One great example of this proficiency is the Hurricane Sandy recovery work ongoing in three of our Divisions. The Flood Control and Coastal Emergency (FC&CE) program is over 95 percent complete. At the end of 2014, the South Atlantic Division completed its Sandy Operation and Maintenance program; with nearly 70 percent complete, both the North Atlantic Division and Great Lakes and Ohio River Division O&M programs are on schedule to be 100 percent complete by the end of 2016. And I'm pleased to highlight that the Army submitted the North Atlantic Coast Comprehensive Study to Congress and the public on 28 January 2015. This 2-year study addresses coastal storm and flood risk from New Hampshire to Virginia and provides a Coastal Storm Risk Management Framework, data, and tools such as the Sea Level Change Calculator that are now available online to help all stakeholders better assess vulnerabilities and adopt forward thinking floodplain management strategies.

Fourth, *Prepare for Tomorrow*. This is about our People—ensuring we have a pipeline of Science, Technology, Engineering and Mathematics workers, as well as Workforce Development and Talent Management. Equally important is helping the Nation's Wounded Warriors and Soldiers transitioning out of active duty to find fulfilling careers. I am proud that last year we set a goal to assist 125 transitioning Wounded Warriors, and we exceeded that goal by more than 50 percent. Nearly 200 Wounded Warriors found permanent position within the Corps and other organization.

We are also focused on Research and Development efforts that will help solve some of the toughest challenges facing the Army and the Nation. Civil Works Program research and development provides the Nation with innovative engineering products, some of which can have applications in both civil and military infrastructure spheres. By creating products that improve the efficiency of the Nation's engineering and construction industry and providing more cost-effective ways to operate



and maintain public infrastructure, Civil Works program research and development contributes to the national economy.

#### SUMMARY OF FISCAL YEAR 2016 BUDGET

The fiscal year 2016 Civil Works Budget is a performance-based budget, which reflects a focus on the work that will provide the highest net economic and environmental returns on the Nation's investment or address a significant risk to safety. Investments in the Civil Works program will reduce the risks of flood impacts in communities throughout the Nation, facilitate waterborne transportation, restore and protect significant aquatic ecosystems, generate low-cost renewable hydropower and support American jobs. Continued investment in critical Civil Works infrastructure projects is an investment in the Nation's economy, security and quality of life—now and in the future.

The Budget focuses on high performing projects and programs within the three main water resources missions of the Corps: commercial navigation, flood and storm damage reduction, and aquatic ecosystem restoration. The fiscal year 2016 Budget includes \$4.732 billion in gross discretionary funding to fund Civil Works activities throughout the Nation, including the construction of water resources projects that will provide high economic, environmental and public safety returns on the Nation's investment. Second, in the Operation and Maintenance program, the Budget focuses on investments that address infrastructure maintenance needs on a risk assessment basis. The budget also proposes an increase in funding for the Regulatory program to better protect and preserve the Nation's water-related resources.

#### INVESTIGATIONS PROGRAM

The fiscal year 2016 Budget provides \$97 million in the Investigations account, and \$10 million in the Mississippi River and Tributaries account to fund projects, programs, and activities that will enable the Corps to evaluate and design projects that are the most likely to be high-performing within the Corps three main mission areas. The Budget also supports the Corps planning and technical assistance programs, including using its expertise to help local communities increase their resilience to risks such as the flood risks in coastal communities associated with sea level rise.

#### CONSTRUCTION PROGRAM

The goal of the construction program is to produce as much value as possible for the Nation from the available funds. The Budget provides \$1.172 billion for the Construction account, and \$62 million in the Mississippi River and Tributaries account, to further this objective and gives priority to the projects with the greatest net economic and environmental returns per dollar invested, as well as to projects that address a significant risk to safety. The Budget includes funds for four high-priority construction new starts: Port Lions Harbor (Deepening and Breakwater), Alaska; Coyote and Berryessa Creeks, Berryessa Creek, California; Ohio River Shoreline, Paducah, Kentucky; and Marsh Lake, Minnesota River Authority, Minnesota. In keeping with our Civil Works transformation strategy, the Budget also allocates construction funding to complete projects and deliver their benefits to the Nation sooner.

The Corps uses objective performance measures to establish priorities among projects. These include benefit-to-cost ratios for projects that are being funded primarily due to their economic outputs. For projects funded on the basis of their environmental return, those projects that are highly effective at restoring degraded structure, functions or processes of significant aquatic ecosystems on a cost-effective basis are given priority. The selection process also gives priority to dam safety assurance, seepage control, and static instability correction projects and to projects that address a significant risk to safety.

#### OPERATION AND MAINTENANCE PROGRAM

All structures age over time with a potential decline in reliability. With proper maintenance and periodic rehabilitation, we can extend for many years the effective lifetime of most of the facilities owned or operated by, or on behalf of, the Corps. As stewards of this infrastructure, we are working to ensure that its key features continue to provide an appropriate level of service to the American people. In some cases, this is proving to be a challenge.

The Corps strives to continually improve the efficiency and effectiveness of its investigations, construction, and operation and maintenance programs. In fiscal year 2016, the Corps will further expand the implementation of a modern asset manage-

ment program, dedicating an increased amount of its O&M funding to the key features of its infrastructure and for work that will reduce long-term O&M costs in real terms, while implementing an energy sustainability program and pursuing efficiencies in the acquisition and operation of its information technology.

The Budget for the operation and maintenance program provides \$2.71 billion in the Operation and Maintenance (O&M) account, and \$152 million in the Mississippi River and Tributaries account. Our focus in this program is on the operation and maintenance of key commercial navigation, flood and storm damage reduction, hydropower, and other facilities. The Budget gives priority to those coastal ports and inland waterways with the most commercial traffic, and includes \$915 million to be spent from the Harbor Maintenance Trust Fund. The Budget also funds small harbors that support significant commercial fishing, subsistence, or public transportation benefits. The Budget provides operation and maintenance funding for safety improvements at Federal dams and levees based on the risk and consequence of a failure. According to our analyses, almost half of the 707 Corps dams will likely require some form of modification or risk reduction measure in the future if they are to continue to serve their original purposes.

Generally, the O&M program supports completed works owned or operated by the Corps, including administrative buildings and laboratories. Work to be accomplished includes: operation of the locks and dams along the inland waterways; dredging of inland and coastal Federal channels; operating multiple purpose dams and reservoirs for flood risk reduction, hydropower, recreation, and related purposes; maintenance and repair of the facilities; monitoring of completed coastal projects; and general management of Corps facilities and the land associated with these purposes.

The fiscal year 2016 Budget provides \$212 million in Operation and Maintenance for hydropower activities in order to maintain basic power components such as generators, turbines, transformers and circuit breakers at Corps hydropower facilities to keep them operating efficiently and effectively. The Corps is the largest hydropower producer in the U.S., producing 24 percent of the Nation's hydropower.

#### REIMBURSABLE PROGRAM

Through the Interagency and International Services (IIS) Reimbursable Program, the Civil Works program helps other Federal agencies, State, local, and tribal governments, and other countries with timely, cost-effective implementation of their programs. These agencies can turn to the Corps of Engineers, which already has these capabilities, rather than develop their own internal workforce and expertise to oversee project design and construction. Such intergovernmental cooperation is effective for agencies and the taxpayer by using the skills and talents that we bring to our Civil Works and Military Missions programs. The work is principally technical oversight and management of engineering, environmental, and construction contracts performed by private sector firms, and is financed by the agencies we service. IIS Reimbursable Program activities in support of our domestic stakeholders totaled \$905 million in fiscal year 2014. We only accept agency requests that are consistent with our core technical expertise, in the national interest, and that we can execute without impacting our primary mission areas.

#### EMERGENCY MANAGEMENT

The fiscal year 2016 Budget proposes an increase in funding for the Flood Control and Coastal Emergencies account to enable the Corps to prepare for emergency operations in response to natural disasters. The Budget for the emergency management program also includes \$4.5 million for the National Emergency Preparedness Program as well as \$3 million in the Investigations account for the Corps participation in the development and expansion of interagency teams, known as Silver Jackets, which collaboratively reduce the risks associated with flooding and other natural hazards. The Silver Jackets is an innovative program providing a common forum to address State and local flood risk management priorities. Silver Jacket programs are developed at the State level. Currently, there are 43 active teams (42 States and the District of Columbia); the ultimate goal is to offer an interagency team in every State.

#### CONCLUSION

The fiscal year 2016 Budget represents a continuing, fiscally prudent investment in the Nation's water resources infrastructure and restoration of its aquatic ecosystems. The U.S. Army Corps of Engineers is committed to a performance-based Civil Works Program, based on innovative, resilient, sustainable, risk-informed solutions.

Thank you, Mr. Chairman and members of the subcommittee. This concludes my statement. I look forward to answering questions you or other members of the subcommittee may have.

Senator ALEXANDER. Thank you, General.  
Secretary Darcy.

**STATEMENT OF HON. JO-ELLEN DARCY, ASSISTANT SECRETARY OF  
THE ARMY FOR CIVIL WORKS**

Ms. DARCY. Thank you, Mr. Chairman, and distinguished members of the subcommittee. Thank you for the opportunity to present the President's budget for the Civil Works Program of the Army Corps of Engineers for fiscal year 2016.

This year's civil works budget reflects the administration's priorities through targeted investments in the Nation's water resources infrastructure, including dams and levees, navigation, and the restoration of ecosystems.

It supports a civil works program that relies on a foundation of strong relationships between the Corps and local communities, which allows us to work together to meet their water resources needs.

The budget also helps us in our efforts to promote the resilience of communities to respond to the impacts of climate change. We are investing in research, planning, vulnerability assessments, pilot projects, and evaluations of the value and performance of non-structural and natural measures.

The budget also helps us to maintain and improve our efforts on sustainability. For example, we are reducing the Corps' carbon footprint by increasing renewable electricity consumption, reducing greenhouse gas emissions, and reducing non-tactical vehicle petroleum consumption.

We are also advancing our sustainability efforts by using innovative financing techniques, such as energy savings performance contracts.

We are making important investments to promote the sustainable management of the lands around Corps facilities by providing funds to update the plans that govern how we manage our facilities and to help combat invasive species.

The budget also focuses on maintaining the water resources infrastructure that the Corps owns and manages, and on finding innovative ways to rehabilitate it, hand it over to others, or retire it.

Here are some of the funding highlights for this year's budget. It provides \$4.7 billion in gross discretionary appropriations for the Army Civil Works Program, focusing on investments that will yield high economic and environmental returns or address a significant risk to public safety.

The budget focuses funding on our three major mission areas, allocating 41 percent to commercial navigation, 27 percent to flood and storm damage reduction projects, and 9 percent to aquatic ecosystem restoration.

Other effective and sound investments include allocating 5 percent of the budget to hydropower, 2 percent to the cleanup of sites contaminated during the early years of the Nation's nuclear weapons program, and 4 percent to regulatory activities.

Overall, the budget funds 57 projects, nine of those to completion. It also funds 54 feasibility studies, 13 of those to completion.

The budget also includes four new construction starts, two of which the Corps will complete in 1 year.

The budget funds inland waterway capital investments at \$974 million, of which \$53 million will be derived from the Inland Waterways Trust Fund. The budget provides \$950 million from the Harbor Maintenance Trust Fund to maintain coastal channels and related works, matching the highest amount ever budgeted.

The \$44 million is provided for our comprehensive levee safety initiative that will help ensure that all Federal levees are safe and in line with the Federal Emergency Management Administration standards. This initiative will provide nonfederal entities with access to levee data that will inform them on safety issues.

The budget supports a Corps program that has a diverse set of tools and approaches to working with local communities, whether this means funding projects with our cost-sharing partners or providing planning assistance and technical expertise to help communities make better informed decisions.

This year, the President's civil works budget provides \$31 million for the Corps to provide local communities with technical and planning assistance to help them develop and implement nonstructural approaches to improve their resilience to the impacts of climate change.

We continue to contribute to the Nation's environmental restoration and the budget provides funding to restore several large ecosystems that have been the focus of interagency collaboration, including the California Bay Delta, the Chesapeake Bay, the Everglades, the Great Lakes, and the Gulf Coast.

Other funded Corps efforts include the Columbia River, portions of Puget Sound, and priority work in the upper Mississippi, as well as Missouri rivers.

Finally, this budget provides \$6 million for the Corps' Veterans Curation Program, which was started in 2009 with support from the American Recovery and Reinvestment Act. The program offers veterans the opportunity to learn tangible work skills and gain experience by rehabilitating and preserving federally owned or administered archaeological collections found at the Corps' projects.

Mr. Chairman, if you could indulge me in having me give my personal thanks to Roger Cockrell, as well. He has been a longtime friend, a personal friend, as well as a friend to the Army and a friend to the Corps of Engineers. He will be truly missed.

[The statement follows:]

PREPARED STATEMENT OF HON. JO-ELLEN DARCY

Thank you Chairman Simpson and distinguished members of the subcommittee for the opportunity to present the President's Budget for the Civil Works program of the Army Corps of Engineers for fiscal year 2016. We are pleased to have an opportunity to further expand on the Administration's priorities and goals. Those priorities include promoting resilient communities in the wake of the impacts of climate change and sea level rise; fostering and maintaining strong partnerships with local communities; and practicing sustainability and sound stewardship across all our missions. I also want to take this opportunity to touch on points that this committee has raised in the past.

This year's Civil Works Budget reflects the Administration's priorities through targeted investments in the Nation's water resources infrastructure, including dams and levees, navigation, and the restoration of aquatic ecosystems.

The 2016 Civil Works Budget provides \$4.7 billion in discretionary appropriations for the Army Civil Works program, focusing on investments that will yield high economic and environmental returns or address a significant risk to safety.

The Budget focuses on funding our three major mission areas:

- 41 percent of funding is allocated to commercial navigation,
- 27 percent to flood and storm damage reduction,
- And 9 percent to aquatic ecosystem restoration.

Other practical, effective, sound investments include allocating 5 percent of the Budget to hydropower, 4 percent to regulatory activities, and 2 percent to the clean-up of sites contaminated during the early years of the Nation's nuclear weapons program.

The Civil Works program, which this Budget supports, relies on the strong relationships between the Corps and local communities; these strong relationships allow us to work together to meet their water resources needs across all of our missions, as well as to address broader water resources challenges that are of concern at the national or regional level.

The Budget supports a Civil Works program that has a diverse set of tools and approaches to working with local communities, whether this means funding studies and projects with our cost-sharing partners, or providing planning assistance and technical expertise to help communities make better informed decisions.

#### PLANNING MODERNIZATION

This Budget supports the continued implementation of Corps efforts to modernize its planning process. The Budget provides funding in the Investigations account for 54 feasibility studies, and funds 13 of them to completion.

Section 1002 of the Water Resources Reform and Development Act of 2014 repeals the requirement for the Corps to conduct a federally funded reconnaissance study prior to initiating a feasibility study. This creates an accelerated process which allows non-Federal project sponsors and the Corps to proceed directly to the cost shared feasibility study. The Budget reflects that change, and does not propose any new reconnaissance studies.

The Budget reflects full implementation of the SMART (Specific, Measurable, Attainable, Risk Informed, Timely) planning initiative, under which each feasibility study is to have a scope, cost, and schedule that have been agreed upon by the District, Division, and Corps Headquarters. The Budget supports efficient funding of these studies.

Studies generally are funded with the presumption that they will complete in 3 years and for \$3 million (\$1.5 million Federal). For most studies, the Corps estimates that it will spend \$300,000 in the first year, \$700,000 in the second year, and \$500,000 in the final year. In the first year, the Corps will work to identify the problem, develop an array of alternatives, and begin the initial formulation. The bulk of the study costs are anticipated to be incurred during year two, as the alternatives are narrowed down and a Tentatively Selected Plan is identified, which requires more detailed feasibility analysis and formulation. During the third year, the focus is on completing the detailed feasibility analysis, State and agency review, and finalizing the Chief's Report. There are limited exceptions to this funding stream, where the Corps has approved an increase in the study cost or an extension in its schedule based on factors such technical complexity, public controversy, the need for more detailed work to address a specific issue, or the overall cost of a proposed solution.

The Budget includes funding to complete two ongoing preconstruction engineering and design efforts. Within the past year, the Corps has initiated 19 new studies under the fiscal year 2014 and fiscal year 2015 work plans. The Budget does not propose additional new studies for fiscal year 2016. Instead, the Corps would focus on managing its existing portfolio of ongoing studies and bringing them to a conclusion. However, the Budget does propose two important, new initiatives in the Investigations account—the North Atlantic Coast Comprehensive Study Focus Areas; and Disposition of Completed Projects. Both of these are funded as remaining items.

#### *North Atlantic Coast Comprehensive Study Focus Areas*

The Disaster Relief Appropriations Act, 2013, tasked the Corps to work with a variety of partners to conduct a Comprehensive Study of the coastal areas affected by Hurricane Sandy to evaluate flood risks and, as part of this study, to identify areas warranting further analysis and institutional and other barriers to reducing flood risks. The Water Resources Reform and Development Act, 2014, provided further requirements to the study. In January of 2015, the U.S. Army Corps of Engineers released to the public the North Atlantic Coast Comprehensive Study (NACCS) detailing the results of a 2-year effort to address coastal storm and flood

risk to vulnerable populations, property, ecosystems, and infrastructure in the North Atlantic region of the United States affected by Hurricane Sandy in October 2012.

Within the NACCS, nine focus areas were identified and analyzed. There is a new remaining item included in the fiscal year 2016 Budget in the Investigations account to follow on with additional analysis into those focus areas; in-depth studies of three of the nine areas—New York-New Jersey Harbor, the New Jersey Back Bays, and Norfolk, Virginia—will be undertaken beginning in fiscal year 2016 under this remaining item.

#### *Disposition of Completed Projects*

The Corps would use the funds provided under the new remaining item for Disposition of Completed Projects to develop a process to help identify projects that it could sell or transfer to other parties, and to determine the viability of such a divestiture and what actions would be necessary to make it happen. In the future, funds provided through this line item would primarily be used to undertake studies or analyses of options for candidate projects to support specific divestiture recommendations.

#### CONSTRUCTION

The Budget for the construction program funds 53 ongoing efforts, and four new ones. It funds nine of them to completion. Several of these efforts are in fact programs, which comprise multiple projects. For transparency, the supporting budget justification materials for each of these programs display their constituent parts separately. For example, the South Florida Ecosystem Restoration Program includes many projects. Some of these projects are part of an integrated, ongoing Federal and State effort to restore the unique aquatic ecosystem of the Everglades; while others primarily seek to restore the aquatic ecosystems of surrounding areas. This year's Budget also presents the main stem flood damage reduction features of the Lower Mississippi River together, since they are the component parts of a single, integrated project.

The Corps continues to contribute to the Nation's efforts to restore degraded environments; to that end, the Budget for the Corps funds restoration of several large aquatic ecosystems that have been a focus of interagency collaboration, including the California Bay-Delta, the Chesapeake Bay, the Everglades, the Great Lakes, and the Gulf Coast. Other funded efforts include the Columbia River, portions of Puget Sound, and priority work in the Upper Mississippi and Missouri Rivers.

The Budget requests funds sufficient to complete nine construction projects. Among these is the Chicago Sanitary and Ship Canal Dispersal Barrier in Illinois; the Budget will allow the Corps to physically complete Permanent Barrier I and appurtenant features. Finishing this project has been a high priority of both the Administration and Congress and I am pleased that the Corps will be able to deliver a solution that will reduce the risk of migration of Asian carp and other invasive species between the Great Lakes and Mississippi River through the Chicago Area Waterway System (CAWS). After fiscal year 2016, work for this project will be limited to operation and maintenance and will be funded through the Operation and Maintenance account.

The Budget also helps to further combat the spread of invasive species by its proposals for funding work associated with the Great Lakes and Mississippi River Interbasin Study (GLMRIS). The Budget supports efforts to reduce the risk of interbasin transfer of aquatic nuisance species through the CAWS in the vicinity of Brandon Road Lock and Dam. The Brandon Road effort will assess the viability of establishing a single point to control the one-way, upstream transfer of aquatic nuisance species from the Mississippi River basin into the Great Lakes basin near the Brandon Road Lock and Dam located in Joliet, Illinois. Carryover funds are being used to develop a scope, schedule, and cost for a study. This is needed as a basis for further action to undertake a feasibility-level evaluation of options to support a decision. The Budget includes funding to continue this effort.

Another completion of note is the Main Tunnel System (Stage 1) of the McCook Reservoir, Illinois project. The \$9 million in the Budget coupled with the additional funds provided in the fiscal year 2015 work plan will allow the Corps to complete this work on a schedule that will support the non-Federal sponsor, the Metropolitan Water District of Greater Chicago, in meeting its requirements under the Clean Water Act by December 2017.

Also funded to completion are two dam safety projects in Oklahoma—Pine Creek Lake and Canton Lake—that will result in reduced dam safety action classification ratings as a result of the construction.

*Dam and Levee Safety*

Over the last several years, Congress has funded the dam safety program at a lower level than the Budget, based on revisions of capabilities that the Corps has provided to Congress subsequent to the Budget submission; these revisions—often but not always showing a lower capability than requested in the Budget—are caused by a variety of factors, including savings from contract awards, process efficiencies, and unforeseen changed conditions. The Budget includes \$310 million (not including \$24 million for the Dam Safety remaining item) for the dam safety program that, when coupled with anticipated unobligated carryover balances on these important projects, will ensure that each of the Dam Safety Action Classification (DSAC) I and DSAC II projects funded in the Budget is able to progress as efficiently and effectively as possible toward risk reduction.

The Budget also provides \$44 million for a comprehensive levee safety initiative that will help ensure that all Federal levees are safe and in line with the Federal Emergency Management Administration standards.

*Inland Waterways*

The overall condition of the inland waterways has improved over the last few years. The number of lock closures due to preventable mechanical breakdowns and failures lasting longer than 1 day and lasting longer than one week has decreased significantly since fiscal year 2010. However, the lock closures that do occur result in additional costs to shippers, carriers, and users. That is why the Budget continues to provide a high level of funding to operate and maintain the inland waterways, with emphasis on those that together carry 90 percent of the commercial traffic.

The Budget funds inland waterways capital investments at \$974 million, of which \$53 million will be derived from the Inland Waterways Trust Fund (IWTF). With the passage of the Water Resources Reform and Development Act of 2014 (WRRDA 2014), the Olmsted Locks and Dam, Ohio River, Illinois and Kentucky project is now cost-shared 85 percent General funds and 15 percent IWTF. This change reduced the cost of this project to the navigation users by around \$500 million, and increased the amount that Federal taxpayers will have to pay by an equivalent amount. In the ABLE Act, the Congress also increased the tax on diesel fuel used in commercial transportation on certain of the inland waterways. As a result of both of these changes, over the next few years there will be somewhat more money in the IWTF to support the user-financed share of inland waterways capital investments.

The Administration has proposed legislation to reform the way that we finance capital investments for navigation on the inland waterways. The Administration's proposal includes a new user fee to produce additional revenue from the users to help finance long-term future capital investments in these waterways to support economic growth. We would like to work with the Congress to enact this legislation.

The Corps also is working to develop a Capital Investment Program for the inland waterways. It will coordinate this effort with stakeholders and the Inland Waterways Users Board to provide an opportunity for their input. The process will include development of objective nationwide criteria to provide a framework for deciding which capital investments should have priority for funding from a national perspective.

## OPERATION AND MAINTENANCE

The Budget provides \$2.71 billion for Operation and Maintenance, with \$1.08 billion for operation and \$1.44 billion for maintenance, and an additional \$186 million for remaining items. This encompasses a wide range of activities, from operating and maintaining our locks and dams to monitoring the condition of dunes and berms that reduce the risk of flooding in a hurricane from wave action and storm surges, running the Corps recreation facilities that are visited by millions of Americans each year, and helping us be responsible stewards of the lands associated with Corps projects and operate them in an increasingly sustainable fashion.

For example, the Budget helps us maintain and improve our efforts on sustainability. We are reducing the Corps' carbon footprint by:

- increasing renewable electricity consumption,
- reducing greenhouse gas emissions,
- and reducing non-tactical vehicle petroleum consumption.

The Budget continues to support the Corps' actions to improve the sustainability of our facilities and projects, by participating in Energy Savings Performance Contracts, which are innovative tools that enable us to work with non-Federal partners in financing improvements that otherwise might be postponed due to competition for

scarce Federal dollars, and which can help to make upgrades to our facilities in ways that have immediate positive impacts, such as by cutting power consumption from lighting and buildings.

We are also making important investments to promote the sustainable management of the lands around Corps facilities; the Budget provides \$2.3 million to update 22 of the Master Plans that govern how we manage our facilities, which will help us make better decisions about how to use the land and keep it healthy, such as by combating invasive species.

#### *Harbor Maintenance Trust Fund*

The Budget provides \$915 million from the Harbor Maintenance Trust Fund (HMTF) to maintain coastal channels and related work, matching the highest amount ever budgeted. This includes \$856 million from the O&M Account, \$2 million from the Mississippi River & Tributaries account, and \$57 million from the Construction account.

#### *Levels of Service*

At some of our navigation projects, we have adopted changes to the level of service at low commercial use locks (those with less than 1,000 commercial lockages per year). The Corps has worked with navigation stakeholders to reduce impacts to commercial users. Generally, commercial traffic will be able to continue to use the locks at certain times. The intent of this effort is to focus the available Federal resources on maintenance that will extend the service life of these or other navigation locks.

#### RESEARCH AND DEVELOPMENT

Research, Development, and Technology is a component of the Science and Technology portfolio of the Corps and continues to address key strategic technology needs to inform policy-making and business processes. The fiscal year 2016 Budget includes \$18.1 million for research and development. This funding will be used to extend the service life of water resources infrastructure through research, use of novel materials, and technology transfer. Research, Development, and Technology efforts address ways to maintain or improve the reliable and efficient operation of marine transportation, continued development of tools for flood and coastal storm preparation and recovery, and capabilities that address ecosystem restoration, sustainable environmental management, and changing environmental conditions.

#### REMAINING ITEMS

The Budget includes \$61 million in the Investigations account, \$47 million in the Construction account, and \$186 million in the Operation and Maintenance account for remaining items.

Annual funding for these remaining items is determined based on current needs, such as the increased focus on technical assistance to States and local communities to improve resilience to climate change.

This year, the President's Civil Works Budget provides \$31 million for the Corps to provide these resources to local communities, to improve their resilience to the impacts of climate change and sea level rise.

#### REGULATORY PROGRAM

The Budget includes a \$5 million increase from the fiscal year 2015 Budget level for the Regulatory program, which is necessary to implement Clean Water Act (CWA) rulemaking activities while maintaining staffing needs, adequate scientific and technologic support, and Regulatory strategic priorities. This increase is based on estimates derived from the EPA Economic Analysis to support revisions to the definition of waters of the United States and would support certain actions to facilitate implementation, such as changes to documentation forms, training, science and technology development, and public outreach. Without the increase over 2015 levels, resources could be shifted away from permit evaluation, affecting processing times and increasing the time it takes to render a permit decision.

#### ALTERNATIVE FINANCING AND PUBLIC-PRIVATE PARTNERSHIPS

As part of looking to the future of the Army's Civil Works program, we are considering potential tools to expand and strengthen our already strong partnerships, especially in the area of Alternative Financing. As part of this effort, we are actively talking with potential non-Federal partners about their ideas for how we can work together and soliciting suggestions and best practices from others in the Federal Government with experience in this area.



As part of this effort, we are considering new authorities, such as Section 5014 of the Water Infrastructure Finance and Innovation Act (WIFIA), and other parts of WRDDA 2014. We are focusing on understanding how we could structure programs to provide efficient forms of Federal assistance and partnership under authorities, including identifying potential challenges to implementation and what additional tools we may need to successfully engage in public-private partnerships. There are limitations on how such structures can be applied to the Civil Works program, but we are working on developing several pilots to flesh out opportunities associated with alternative financing.

We are also considering other approaches to public-private partnerships, such as by expanding use of existing authorities. In some cases, non-Federal sponsors have expressed interest in contributing funds to enable work to occur more quickly than it could with just Federal funds. Before entering into an agreement to accept such funds, the Corps carefully evaluates its overall workload to ensure that execution of the proposed work will not adversely affect directly-funded programs, projects and activities.

#### VETERANS CURATION PROGRAM

Finally, this Budget provides \$6 million for the Corps' Veterans Curation Program, which was started in 2009 with support from the American Recovery and Reinvestment Act. This program offers veterans the opportunity to learn tangible work skills and gain experience by rehabilitating and preserving federally owned or administered archaeological collections found at Corps projects.

Thank you all for attending today. General Bostick will provide further remarks on the Army Corps of Engineers 2016 Budget.

Senator ALEXANDER. Thank you, Secretary Darcy.  
Commissioner López.

## DEPARTMENT OF THE INTERIOR

## BUREAU OF RECLAMATION

## STATEMENT OF HON. ESTEVAN LÓPEZ, COMMISSIONER

Mr. LÓPEZ. Thank you, Chairman Alexander, Ranking Member Feinstein, and members of the subcommittee. It is an honor and pleasure to appear before this subcommittee to discuss the President's fiscal year 2016 budget for the Bureau of Reclamation. I appreciate the time and consideration given to understanding Reclamation's budget, projects, and programs. I look forward to working collaboratively with you to continue to address complex water issues in the West. I have submitted detailed testimony for the record.

Reclamation's overall fiscal year 2016 budget is \$1.1 billion. It allocates funds based on objective and performance-based criteria designed to effectively implement Reclamation's programs and management responsibilities for its water and power infrastructure in the West. At this time, I would like to give you some highlights of that budget.

The budget supports the Powering Our Future initiative by including \$1.3 million to implement an automated data collection and archival system to aid in hydropower benchmarking, performance testing, and strategic decisionmaking; to investigate Reclamation's capability to integrate large amounts of renewable resources, such as wind and solar power to the electric grid; and to assist tribes in developing renewable energy sources.

Reclamation's budget supports Interior's Strengthening Tribal Nations initiative, through endangered species recovery, rural water projects, and water rights settlement programs. The budget includes \$112.5 million for the planning and construction of five recent Indian water rights settlements. Reclamation's Native American Affairs Program is funded at \$10.9 million for activities with tribes, including technical assistance, Indian water rights settlement negotiations, and implementation of enacted settlements, as well as outreach to Tribes.

The budget includes \$36.5 million for rural water projects, of which \$18 million is for the operation and maintenance of completed tribal systems. A remaining \$18.5 million is for the continued construction of authorized projects, which benefit both tribal and nontribal communities.

The budget supports the Engaging the Next Generation initiative by continuing to provide work and training opportunities by leveraging funding through agreements with conservation partnerships, such as the 21st Century Conservation Service Corps.

The budget supports ecosystem restoration, providing \$158 million to operate, manage, and improve California's Central Valley Project (CVP), including \$35 million in current appropriation for the San Joaquin Restoration Fund. Within the CVP total, the Trinity River Restoration Program is proposed at \$11.9 million with an additional \$1.5 million in the Central Valley Project Restoration Fund.

The budget provides \$437.7 million at a project level for water and power facilities operation, maintenance, and rehabilitation ac-

tivities. Reclamation's highest priority is the safe, efficient, economic, and reliable operation of its facilities, ensuring system and safety measures are in place to protect those facilities and the public.

The budget provides \$88.1 million for Reclamation's Safety of Dams program, which includes \$66.5 million to correct and identify safety issues, \$20.3 million for safety evaluations of existing dams, and \$1.3 million to oversee the Interior Department's Safety of Dams program.

Consistent with the direction in the President's 2013 Climate Action Plan, Reclamation is developing and implementing approaches for climate change adaptation to understand and effectively adapt to the risks and impacts of a changing environment on Western water management, including through Interior's WaterSMART program.

Principal Deputy Assistant Secretary Gimbel is going to describe the WaterSMART program, so I won't repeat that here.

The Science and Technology Program is funded at \$16.6 million for water resources research to improve capability to manage water resources under multiple stressors, including a changing climate. Reclamation is committed to working with its customers, Federal, State, and Tribal partners and other stakeholders to find ways to meet our challenging water resource demands in 2016 and into the future.

This completes my statement. I would be happy to answer questions at the appropriate time.

[The statement follows:]

PREPARED STATEMENT OF HON. ESTEVAN LÓPEZ

Thank you Chairman Alexander, Ranking Member Feinstein and members of this subcommittee for the opportunity to discuss with you the President's fiscal year 2016 budget for the Bureau of Reclamation.

I appreciate the time and consideration this subcommittee gives to reviewing and understanding Reclamation's budget, projects, and programs and I look forward to working with the committee in the future as Reclamation continues to address water issues in the West. Reclamation is committed to prioritizing and implementing its overall program in a manner that serves the best interest of the American public.

Reclamation's fiscal year 2016 budget sustains our efforts to deliver water and generate hydropower, consistent with applicable Federal and State law, in an environmentally responsible and cost-efficient manner. It also supports the Administration's and Department of the Interior's (Department) priorities to ensure healthy watersheds and sustainable, secure water supplies; build a landscape-level understanding of our resources; celebrate and enhance America's great outdoors; power our future; strengthen tribal nations; and engage the next generation.

The extreme and prolonged drought facing the Western States affects many major river basins in the Western States. The effects of the current drought on California's Sacramento and San Joaquin River Basins, water, its agricultural economy, and its communities are particularly acute. Another basin crucial for seven States and a number of Native American Tribes—in addition to two countries—is the Colorado River Basin. Nearly 35 million people rely on the Colorado River for some, if not all, of their municipal and industrial needs. The Basin is currently experiencing a historic drought that has not been witnessed in over 100 years of recorded history. Lake Mead, behind Hoover Dam on the Colorado River, has reached its lowest level since filled more than 75 years ago. Snowpack, which acts like reservoir storage for many western basins, is below normal in many areas.

This budget addresses priorities by allocating funds based on objective and performance-based criteria to most effectively implement Reclamation's programs and its management responsibilities for its water and power infrastructure in the West. Climate variability adaptation, water supply, water conservation, improving infra-

structure, sound science to support critical decisionmaking, and ecosystem restoration were balanced in the formulation of the fiscal year 2016 budget. Reclamation continues to look at ways to more efficiently plan for the future challenges faced in water resources management and to improve the way it does business.

This budget focuses on meeting National priorities for: Indian water rights settlements, ecosystem restoration, and healthy watersheds and sustainable, secure water supplies. In order to meet Reclamation's mission goals, we are building a landscape-level understanding of our resources and the protection and restoration of the aquatic and riparian environments influenced by our operations. Ecosystem restoration involves a large number of activities, including Reclamation's Endangered Species Act recovery programs, which directly address the environmental aspects of the Reclamation mission. This includes increased efforts to support Platte River Recovery to meet key timelines in the partnership with the States of Colorado, Nebraska, and Wyoming. Reclamation is engaged in several river restoration projects.

#### WATER AND RELATED RESOURCES

The 2016 budget for Water and Related Resources, Reclamation's principal operating account, is \$805.2 million. The fiscal year 2016 budget shifts \$112.5 million from this account to establish a separate Indian Water Rights Settlement Account and \$35.0 million for a separate discretionary account within the San Joaquin River Restoration Fund.

The 2016 budget includes a total of \$367.4 million at the project and program level for water, energy, land, and fish and wildlife resource management and development activities. Funding in these activities provides for planning, construction, water sustainability activities, management of Reclamation lands, including recreation areas, and actions to address the impacts of Reclamation projects on fish and wildlife.

The budget also provides a total of \$437.7 million at the project level for water and power facility operations, maintenance, and rehabilitation activities. Reclamation emphasizes safe, efficient, economic, and reliable operation of facilities, ensuring systems and safety measures are in place to protect the facilities and the public. Providing adequate funding for these activities continues to be one of Reclamation's highest priorities.

#### HIGHLIGHTS OF THE 2016 BUDGET FOR WATER AND RELATED RESOURCES

I would like to share with the committee several highlights of the Reclamation budget. Reclamation's budget continues to promote and support efficient water management, increased renewable energy production, the construction of new infrastructure and sound maintenance of existing facilities, restoration of aquatic environments, and the continued use of applied science and new technologies to help ensure sustainable water deliveries and energy production. As a result, Reclamation continues to play an important role in providing a strong foundation for economic activity across the American West.

*WaterSMART Program*—One method Reclamation employs to stretch water supplies in the West and prepare for these ongoing challenges is the WaterSMART (Sustain and Manage America's Resources for Tomorrow) Program. The programs included in WaterSMART are collaborative in nature and work to effectively achieve sustainable water management. WaterSMART Grants, Title XVI Water Reclamation and Reuse, and the Water Conservation Field Services Program, along with other Reclamation activities, support the Department's Priority Goal for Water Conservation. The Basin Studies component of WaterSMART supports the Department's priority for Ensuring Healthy Watersheds and Sustainable, Secure Supplies.

In the 2016 budget, Reclamation proposes to fund WaterSMART at \$58.1 million. The WaterSMART components include: WaterSMART Grants funded at \$23.4 million; the Basin Study Program funded at \$5.2 million; the Title XVI Water Reclamation and Reuse Program funded at \$20.0 million; Water Conservation Field Services Program, funded at \$4.2 million; the Cooperative Watershed Management Program, funded at \$250,000; the Drought Response program, funded at \$2.5 million, and the Resilient Infrastructure program, funded at \$2.5 million.

*Rural Water Projects*—Congress specifically authorized Reclamation to undertake the design and construction of six projects intended to deliver potable water supplies to specific rural communities and Tribes located primarily in Montana, New Mexico, North Dakota, and South Dakota. The 2016 Reclamation budget includes \$36.5 million for rural water projects, \$18.0 million of that total is for operation and maintenance of completed tribal systems and the remaining \$18.5 million is for continued construction for authorized projects.

*Dam Safety Program*—A total of \$88.1 million is provided for Reclamation’s Safety of Dams Program, which includes \$66.5 million to correct identified safety issues. Funding also includes \$20.3 million for safety evaluations of existing dams and \$1.3 million to oversee the Interior Department’s Safety of Dams Program.

*Site Security*—A total of \$26.2 million is provided for Site Security to ensure the safety and security of the public, Reclamation’s employees, and key facilities. This funding includes \$4.1 million for physical security upgrades at high risk critical assets and \$22.1 million to continue all aspects of Bureau-wide security efforts including law enforcement, risk and threat analysis, personnel security, information security, risk assessments and security-related studies, and guards and patrols.

*Powering Our Future*—To support the Powering Our Future initiative, the 2016 Reclamation budget includes \$1.3 million to implement an automated data collection and archival system to aid in hydropower benchmarking, performance testing and strategic decisionmaking; investigate Reclamation’s capability to help integrate large amounts of renewable resources such as wind and solar into the electric grid; and work with Tribes to assist them in developing renewable energy sources. These important projects will assist in the production of cleaner, more efficient renewable energy.

*Strengthening Tribal Nations*—The 2016 Reclamation budget supports the Strengthening Tribal Nations initiative through a number of activities and projects. For example, the budget includes \$10.9 million for Reclamation’s Native American Affairs Program in support of Reclamation activities with Tribes, including technical assistance, Indian Water Rights Settlement negotiations, implementation of enacted settlements, and outreach to Tribes; and \$15.3 million to continue the operation and maintenance associated with the delivery up to 85,000 acre-feet of water to the Ak-Chin Indian Community. Ongoing authorized rural water projects also benefit both tribal and non-tribal communities. Projects in the fiscal year 2016 budget benefiting Tribes include the rural water component of the Pick-Sloan Missouri Basin Program, Garrison Diversion Unit; Fort Peck Reservation/Dry Prairie; and Rocky Boy’s/North Central Montana; and operation and maintenance funding only for tribal features of the Mni Wiconi Project following completion of construction. Numerous other projects and programs, such as the Columbia/Snake River Salmon Recovery Program, Klamath Project, and the Yakima River Basin Water Enhancement Project also benefit Tribes. In 2016, \$112.5 million for planning and construction of five recent Indian Water Rights Settlements is being proposed in a new separate account as described below.

*Ecosystem Restoration*—To meet Reclamation’s mission goals of securing America’s energy resources and managing water in a sustainable manner for the 21st century, our programs also focus on the protection and restoration of the aquatic and riparian environments influenced by our operations. Ecosystem restoration involves many activities, including Reclamation’s Endangered Species Act recovery programs, which directly address the environmental aspects of the Reclamation mission. In 2016, a total of \$122.1 million in Reclamation’s budget directly supports the goals of the America’s Great Outdoors Program, through local and basin-wide collaboration in watershed partnerships.

The budget has \$24.4 million for Endangered Species Act Recovery Implementation programs including \$17.5 million in the Great Plains Region to implement the Platte River Endangered Species Recovery Implementation program. Within California’s Central Valley Project, \$11.9 million is for the Trinity River Restoration Program, with an additional \$1.5 million from the Central Valley Project Restoration Fund.

Many other projects and programs also contribute to ecosystem restoration including the Lower Colorado River Multi-species Conservation Program, Middle Rio Grande Endangered Species Act Collaborative Program, the Columbia/Snake River Salmon Recovery Program, and the Yakima River Basin Water Enhancement Project.

*Engaging the Next Generation*—By September 30, 2017, the Department of the Interior will provide 100,000 work and training opportunities over four fiscal years, 2014 through 2017, for individuals ages 15 to 35 to support the mission of the Department. In fiscal year 2016, Reclamation will continue to provide work and training opportunities by leveraging funding through agreements with 21st Century Conservation Service Corps partners and through other conservation partnerships.

*Climate Change Adaptation*—Consistent with the direction in the President’s 2013 Climate Action Plan, Reclamation is developing and implementing approaches to understand, and effectively adapt to, the risks and impacts of a changing environment on western water management. Some examples include:

- The Basin Study Program takes a coordinated approach to assess risks and impacts; develop landscape-level science; communicate information and science to

- other entities and agencies; and work closely with stakeholders to develop adaptation strategies to cope with water supply and demand imbalances in a collaborative manner.
- The Drought Response Program will implement, under existing authorities, a comprehensive new approach to drought planning and will implement actions to help communities manage drought and develop long-term resilience strategies.
  - Through the Resilient Infrastructure Program, Reclamation will proactively maintain and improve existing infrastructure for system reliability, safety, and efficiency for water conservation to prepare for extremes and to support healthy and resilient watersheds. Reclamation will continue to develop, implement, and test an enhanced decisionmaking criteria framework for selecting resilient infrastructure investments and will identify opportunities to integrate operational efficiencies more compatible with climate variability adaptation goals, as part of the Bureau's ongoing infrastructure investments.
  - Reclamation's Science and Technology Program conducts water resources research to improve capability for managing water resources under multiple stressors, including a changing climate. This research agenda will collaborate with and leverage the capabilities of the Interior Climate Science Centers.
  - Reclamation's WaterSMART Grants, Water Conservation Field Services, and Title XVI Programs are enabling the West to better adapt to the impacts of a changing environment by helping to conserve tens of thousands of acre-feet of water each year in urban and rural settings, and on both large and small scales. The 2016 Water and Related Resources budget provides \$123.0 million to operate, manage, and improve California's Central Valley Project. The next three accounts are also related to California water and restoration.

#### SAN JOAQUIN RIVER RESTORATION FUND

Reclamation proposes \$35.0 million of current funds for the San Joaquin River Restoration Fund account in 2016. The 2016 budget funds activities consistent with the settlement of Natural Resources Defense Council v. Rodgers as authorized by the San Joaquin River Restoration Settlement Act. The Act includes a provision to establish the San Joaquin River Restoration Fund to implement the provisions of the Settlement. The Settlement's two primary goals are to restore and maintain fish populations, and restore and avoid adverse impacts to water supplies. Under the Settlement, the legislation provides for nearly \$2.0 million in annual appropriations from the Central Valley Project Restoration Fund for this purpose.

#### CENTRAL VALLEY PROJECT RESTORATION FUND

The 2016 budget includes a total of \$49.5 million for the Central Valley Project Restoration Fund (CVPRF). This amount is determined on the basis of a 3-year rolling average not to exceed \$50.0 million per year and indexed to 1992 price levels. These expenditures are offset by collections estimated at \$49.5 million from mitigation and restoration charges authorized by the Central Valley Project Improvement Act.

#### CALIFORNIA BAY-DELTA RESTORATION

The 2016 budget provides \$37.0 million for California Bay-Delta Restoration, equal to the 2015 budget. The account focuses on the health of the Bay-Delta ecosystem and improving water management and supplies. The budget will support the coequal goals of environmental restoration and improved water supply reliability, under the following program activities including: \$1.7 million for a Renewed Federal State Partnership, \$7.2 million for Smarter Water Supply and Use, and \$28.1 million for Habitat Restoration. These program activities are based on the Interim Federal Action Plan for the California Bay-Delta issued December 22, 2009.

#### INDIAN WATER RIGHTS SETTLEMENTS

In 2016, Reclamation will enhance support of tribal nations. The 2016 budget proposes \$112.5 million for Indian Water Rights Settlements (IWRS), in a new account of the same name. Reclamation is proposing establishment of an Indian Water Rights Settlements account to assure continuity in the construction of the authorized projects, and to highlight and enhance transparency in handling these funds. This account is proposed to cover expenses associated with the four Indian water rights settlements contained in the Claims Resolution Act of 2010 (Public Law 111-291) and the Navajo-Gallup Water Supply Project within Title X of the Omnibus Public Land Management Act of 2009 (Public Law 111-11).

Of this amount, \$6.0 million is for the Aamodt Settlement (Pueblos of Nambe, Pojoaque, Tesuque and San Ildefonso in New Mexico); \$12.8 million for the Crow Settlement (Crow Tribe in Montana); \$89.7 million for the Navajo-Gallup Settlement (Navajo Nation in New Mexico); and \$4.0 million for the Taos Settlement (Taos Pueblo in New Mexico). These settlements will provide permanent water supplies and offer economic security for the Tribes and pueblos described above. The agreements will build and improve reservation water systems, rehabilitate irrigation projects, construct a regional multi-pueblo water system, and codify water-sharing arrangements between Indian and neighboring communities.

Construction will take place over time, and annual funding requirements will vary from year to year. Per the Claims Resolution Act of 2010, in addition to the discretionary funding included in this budget, additional mandatory funds have already been made available to Reclamation, in order to realize the deadlines mandated in the settlement acts. The White Mountain Apache Tribe activities will continue in 2016 using mandatory funds.

#### POLICY AND ADMINISTRATION

The 2016 budget for Policy and Administration, the account that finances Reclamation's central and regional management functions is \$59.5 million. The account supports activities necessary to the management and administration of the bureau which are not chargeable directly to a specific project or program, such as corporate oversight, policy and overall program management, budget preparation, finance and procurement, and management of safety and health, human resources, and information technology.

#### PERMANENT APPROPRIATIONS

The total permanent appropriation of \$117.4 million in 2016 primarily includes \$114.2 million for the Colorado River Dam Fund. Revenues from the sale of Boulder Canyon power are placed in this fund and are available without further appropriation to pay for operation and maintenance of the project and other costs.

#### 2016 THROUGH 2018 PRIORITY GOAL FOR WATER CONSERVATION

Priority goals are a key element of the President's agenda for building a high-performing government. The priority goals demonstrate that our programs are a high value to the public and they reflect achievement of key Departmental milestones. These goals focus attention on initiatives for change that have significant performance outcomes, which can be clearly evaluated, and are quantifiable and measurable in a timely manner. Reclamation's participation in the Water Conservation priority goal helps to achieve these objectives.

The 2016 budget will enable Reclamation to achieve water conservation capability for agricultural, municipal, industrial, and environmental uses in the western United States by 975,000 acre-feet (since 2009) through September 30, 2016. This will be accomplished through the use of the WaterSMART Program to assist communities in stretching water supplies while improving water management and increasing the efficient use of water. Reclamation has already exceeded the prior goal of 840,000 acre-feet by the end of fiscal year 2015 by partnering with States, Indian Tribes, irrigation and water districts and other organizations with water or power delivery authority to implement programs resulting in water conservation.

Reclamation is participating in the following priority goals to help achieve the objectives set out by the President: Water Conservation, Renewable Energy, Climate Adaptation, and Youth Employment and Training. The Department is currently employing a set of internal measures and milestones to monitor and track achievement of the Priority Goals.

Reclamation is requesting two significant changes in authorizations for which language is included in our fiscal year 2016 request. The first is to extend the California Federal Bay-Delta Authorization Act, as amended, from 2016 to 2018, so the CALFED program can continue its critical mission—even more important given the current drought. Language is also included as part of the 2016 Budget to increase the authorized appropriations ceiling of Section 9504(e) of the Secure Water Act of 2009 from \$300 million to \$400 million. The latter provides much of the funding for Reclamation's WaterSMART program, which is one of our most effective programs.

Importantly, the 2016 budget demonstrates Reclamation's commitment to addressing the water and power demands of the West in a fiscally responsible manner. This budget continues Reclamation's emphasis on cost-effectively managing, operating, and maintaining its public infrastructure, and in delivering water and power in an environmentally and economically sound manner, in the interest of the American public. Reclamation is committed to working with its customers, States, Tribes,

and other stakeholders to find ways to balance and support the mix of water resource demands in 2016 and beyond.

CONCLUSION

This completes my statement. I would be happy to answer any questions.

Senator ALEXANDER. Thank you, Commissioner López.  
Ms. Gimbel.

**STATEMENT OF JENNIFER GIMBEL, PRINCIPLE DEPUTY ASSISTANT SECRETARY FOR WATER AND SCIENCE**

Ms. GIMBEL. Good afternoon, Chairman Alexander, Senator Feinstein, members of the subcommittee. I am Jennifer Gimbel, Interior's Principal Deputy Assistant Secretary for Water and Science. I appreciate the opportunity to talk with you about Water and Related Programs at the Department of the Interior.

My office oversees the Bureau of Reclamation and USGS activities. I am particularly pleased today to join Senator Udall in introducing Commissioner Estevan López. We are fortunate to have someone of the caliber and with the experience of Commissioner López at the helm of the Bureau of Reclamation.

I will highlight just a few of our overall programs with respect to water challenges across the country.

It is well known that we are facing unprecedented pressure on our water supplies all across the Nation, but particularly in the West. We continue to experience drought not only in California but on the Colorado River and the Rio Grande River basins.

Population growth, aging infrastructure, a changing climate, increased domestic energy development, and recognition of ecosystem needs are all challenging the already scarce supplies. This subcommittee is well aware of these challenges.

This administration continues to put high priority on addressing these challenges both in the short- and long-term. The specific focus of Interior's WaterSMART program is to secure and stretch water supplies and to provide tools that allow water managers to continue to move toward sustainability.

To date, Reclamation has helped to create an additional supply of more than 860,000 acre-feet of water for the West. That is enough water to supply nearly 1 million families of four for a year.

In 2016, Reclamation proposes to fund WaterSMART at \$58.1 million. Those programs include \$23.4 million for the WaterSMART water efficiency grants, \$20 million for Title XVI Water Reclamation and Reuse funding, and \$5.2 million for Basin Studies, which have broad State and local support.

Basin Studies are an excellent tool that allows Reclamation to work with water managers and other water interests by convening a collaborative and proactive analysis of particular watersheds and working with stakeholders to identify options and strategies to respond to changing needs and anticipated shortages.

Although not under your jurisdiction, I thought you would be interested to know that USGS is asking for \$31 million under the WaterSMART program to help understand the quantity and quality of our water resources nationwide.

This year California is in the bull's eye with respect to drought. Interior, with the Departments of Agriculture and Commerce, is continuing to work with the State of California to pursue projects



that might help stretch California water supplies. In December of this year, Reclamation and partner agencies developed a draft Interagency 2015 Drought Strategy. I know Senator Feinstein is very familiar with this strategy.

On the Colorado River, Reclamation has been working with municipal providers in Arizona, California, Nevada, and Colorado on a Colorado River System Conservation Pilot Program to begin to address long-term imbalance on the Colorado River.

Finally, the Central Utah Project Completion Act Office, or CUPCA, is under the auspices of the Office of Water and Science. In this budget, we are no longer proposing that CUPCA be integrated into Reclamation. We will keep it a separate program in Interior, and we are requesting \$7.3 million for the budget for that this year.

The budgets of the Department of the Interior and the Bureau of Reclamation support these water priorities. We very much appreciate the support this subcommittee has shown for Reclamation's mission and projects over the year. That concludes my oral statement.

[The statement follows:]

PREPARED STATEMENT OF JENNIFER GIMBEL

Chairman Alexander, Ranking Member Feinstein and members of this subcommittee, I am pleased to appear before you today to discuss the President's fiscal year 2016 budget for the Department of the Interior's Bureau of Reclamation and Central Utah Project Completion Act. I would like to thank the members of this subcommittee for your efforts to enact a fiscal year 2015 appropriation, and for your ongoing support for our initiatives.

The 2016 budget request is \$13.2 billion for the Department of the Interior. The Secretary will testify later this month before various Congressional committees on the Department's request. I am here today to discuss the President's fiscal year 2016 budgets for the Bureau of Reclamation and the Central Utah Project Completion Act, which is a Department of the Interior program that reports to the Office of Water and Science. My office is also responsible for the United States Geological Survey, which is funded by the Interior and Environment Subcommittee. As in the past, we are thankful to the subcommittee for your continued support of these programs.

INTRODUCTION

The Department of the Interior's mission affects the lives of all Americans. Interior has stewardship of 20 percent of the Nation's lands, oversees the responsible development of 21 percent of U.S. energy supplies, is the largest supplier and manager of water in the 17 western States, maintains relationships with 566 federally recognized Tribes, and provides services to more than two million American Indian and Alaska Native peoples. This budget enables the Department to carry out its important missions in resource stewardship, balanced development of energy and mineral resources, water management and conservation, providing opportunities to youth and veterans, resilience in the face of a changing climate, advancement of self-determination and stronger communities for tribal Nations, and fulfilling commitments to Insular communities. The Interior Department's fiscal year 2016 budget maintains core capabilities to meet these responsibilities and proposes investments in key priorities.

ENSURING HEALTHY WATERSHEDS AND SUSTAINABLE, SECURE WATER SUPPLIES

The 2016 budget addresses the Nation's water challenges through investments in water conservation, sustainability, and infrastructure critical to the arid Western United States and its fragile ecosystems.

*Drought*

Ongoing and multi-year droughts in California and across other Western States are resulting in water shortages impacting agriculture, municipalities and ecosystem functions and underscoring the importance of improving the resilience of

communities to the effects of climate change. In 2014, Reclamation awarded \$17.8 million in WaterSMART water and energy efficiency grants and \$20.0 million in Title XVI Water Reclamation and Reuse projects that contribute significantly to drought response and resilience. In November 2014, Reclamation awarded \$9.2 million for 131 research projects within five research priority areas. The research projects are leveraged with partners providing \$3.8 million in non-Federal cost sharing.

The Departments of the Interior, Agriculture, and Commerce are continuing their work with the State of California to accelerate water transfers and exchanges, provide operational flexibility to store and convey water, expedite environmental review and compliance actions, and to pursue new or fast-track existing projects that might help stretch California's water supplies. In December 2014, Reclamation and partner agencies developed a draft Interagency 2015 Drought Strategy for the Central Valley Project (CVP) and State Water Project (SWP) which outlines a preliminary framework for the Drought Contingency Plan for Operations of the CVP and SWP, the Drought Contingency Biological Monitoring Plan, and other Drought-Related Measures.

The U.S. Geological Survey is providing California managers and residents with timely and meaningful data to help decisionmaking and planning for the State's water resources as drought affects stream flow across the State, reducing reservoir replenishment, and increasing groundwater depletion. In December 2014, the USGS released an interactive California Drought visualization Web site to provide the public with atlas-like, State-wide coverage of the drought and a timeline of its impacts on water resources.

In the Colorado River Basin, Reclamation is working with the seven Basin States to craft new strategies to ensure critical infrastructure, such as the Hoover and Glen Canyon Dams, continues to operate as intended and to assist agricultural and municipal users in addressing current and future water challenges. In July 2014, Reclamation and municipal water providers in Arizona, California, Nevada, and Colorado signed a landmark water conservation agreement called the Colorado River System Conservation Program to address the long-term imbalance on the Colorado River caused by years of drought conditions.

In the Klamath River Basin, Interior is working with other Federal agencies, Oregon, California, Tribes and local stakeholders to implement authorized actions designed to alleviate the impacts of drought by reducing water demand in conjunction with activities that improve habitat, and restore fisheries.

#### *WaterSMART*

The budget includes \$89.0 million for WaterSMART programs in Reclamation and the U.S. Geological Survey, a \$22.1 million increase from 2015, to assist communities in stretching water supplies and improving water management. This funding supports the Department's goal to increase by 975,000 acre-feet, the available water supply for agricultural, municipal, industrial, and environmental uses in the Western United States through water-conservation programs by the end of fiscal year 2016. The budget includes \$5.2 million for Reclamation's Basin Studies program. The WaterSMART program's Basin Study component leverages funding and technical expertise from the Bureau of Reclamation in a collaborative effort with knowledgeable State and local water practitioners. Basin Studies aim to identify practical, implementable solutions to existing or anticipated water shortages and to support related efforts to ensure sustainable water supplies. The Basin Studies conducted to date advanced the state of knowledge about the dynamics of each particular watershed and generated a collective expertise to formulate constructive actions to address imbalances.

In addition to \$1.1 billion requested for the Bureau of Reclamation within the jurisdiction of the Energy and Water Subcommittee, the budget also requests over \$220 million for the U.S. Geological Survey's water programs to provide scientific monitoring, research, and tools to support water management across the Nation. USGS research conducted under the Department's WaterSMART program includes characterizing long-term trends in streamflow, assessing groundwater availability, quantifying water losses to the atmosphere, estimating water use requirements, and developing tools to understand the ecological impacts of changes in water availability.

#### POWERING OUR FUTURE

To encourage resource stewardship and development objectives, Interior is shifting from a reactive, project by project resource planning approach to more predictably and effectively managing its lands and resources. Interior's focus on powering

America's energy future supports an all-inclusive approach including conventional and renewable resources on the Nation's public lands.

#### HYDROPOWER

Hydropower is a very clean and efficient way to produce energy and is a renewable resource. Each kilowatt-hour of hydroelectricity is produced at an efficiency of more than twice that of any other energy source. Further, hydropower is very flexible and reliable when compared to other forms of generation. Reclamation maintains 475 dams and over 8,000 miles of canals and owns 76 hydropower plants, 53 of which are operated and maintained by Reclamation. On an annual basis, these plants produce more than 40 billion kilowatt hours of electricity, enough to meet the entire electricity needs of over 3.5 million households.

The Department signed a Memorandum of Understanding (MOU) with the Department of Energy and U.S. Army Corps of Engineers in 2010 to increase collaboration among those agencies and strengthen the long-term relationship among them to prioritize the generation and development of sustainable hydropower. This Administration is committed to increasing the generation of environmentally sustainable, cost-effective hydropower on existing dams and conduits for our national electricity supplies as efficiently as possible. Activities under this MOU have been ongoing, and have resulted in accomplishments such as assessments of potential conventional and pumped-storage hydropower resources on Federal and non-Federal lands and facilities; a collaborative basin-scale pilot project in the Deschutes Basin (Oregon) and the Bighorn Basin (Wyoming and Montana); and grant opportunities for research and development of new technologies.

Reclamation is supporting non-Federal development of hydropower through Lease of Power Privilege (LOPP), and updated the LOPP Directive and Standard in 2014 to incorporate the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act (PL 113–24) of 2013. As a result of Reclamation's focus on non-Federal hydropower development and the implementation of PL 113–24, there are now 9 LOPP hydropower projects online with 19 additional projects moving through the process. The LOPP process allows new hydropower development while preserving, maintaining, and sometimes enhancing environmental protections to ensure that any new projects will be developed in an ecologically sensitive and environmentally sustainable manner.

Additionally, Reclamation is working with Federal and non-Federal partners to restore species in ecosystems that were damaged by past Federal multipurpose dam construction. For example, the budget includes \$18 million for restoration of endangered salmon on the Columbia and Snake Rivers to ensure that the Federal Columbia River Power System can meet Endangered Species Act requirements and Reclamation's Pacific Northwest Region can continue to generate approximately 23.7 million MWh of electricity (net) per year.

To further support the Powering Our Future initiative, the 2016 Reclamation budget includes \$1.3 million to implement an automated data collection and archival system to aid in hydropower benchmarking, performance testing and strategic decisionmaking; investigate Reclamation's capability to integrate large amounts of energy generated by renewable resources such as wind and solar into the electric grid; and work with Tribes to assist them in developing renewable energy sources. These important projects will assist in the production of cleaner, more efficient, ecologically sensitive, renewable energy.

#### STRENGTHENING TRIBAL NATIONS—INDIAN WATER SETTLEMENTS

The Department's programs maintain strong and meaningful relationships with native and insular communities, strengthen the government-to-government relationships with federally recognized Tribes, promote efficient and effective governance, and advance self-governance and self-determination. The 2016 budget makes significant new investments to improve Interior's capacity to work with and support Tribes in the resolution of their water rights claims and develop sustainable water sharing agreements and management activities.

Interior's investments in Indian Water Settlements total \$244.5 million in Reclamation and Indian Affairs for technical and legal support and for authorized water settlements, an increase of \$73 million over 2015. This includes \$40.8 million for Interior-wide technical and legal support, and \$203.7 million for settlement implementation, of which \$136.0 million is funded by the Bureau of Reclamation. In 2016, Interior will complete the funding requirements for the Taos Pueblo Indian Water Rights Settlement Act.

## ENGAGING THE NEXT GENERATION

By September 30, 2017, the Department of the Interior will provide 100,000 work and training opportunities over 4 fiscal years, 2014 through 2017, for individuals ages 15 to 35 to support the mission of the Department. To meet the Secretary's challenge to Engage the Next Generation, Reclamation will strive to expand youth programs and partnerships to accomplish high priority projects, promote quality participant experiences, and provide pathways to careers for young people through temporary positions with the bureau, as conservation interns, or as part of conservation work crews in conjunction with partnering organizations.

## CENTRAL UTAH PROJECT

The Central Utah Project Completion Act (CUPCA), Titles II—VI of Public Law 102-575, provides for completion of the Central Utah Project (CUP) by the Central Utah Water Conservancy District (District). The Act also authorizes funding for fish, wildlife, and recreation mitigation and conservation; established an account in the Treasury for deposit of these funds and other contributions; established the Utah Reclamation Mitigation and Conservation Commission to coordinate mitigation and conservation activities; and provides for the Ute Indian Rights Settlement.

The 2016 budget for the Department of the Interior's CUPCA program is \$7.3 million. Of this amount, \$6.3 million will be expended from this account and \$1.0 million will be transferred to the Utah Reclamation Mitigation and Conservation Account for use by the Utah Reclamation Mitigation and Conservation Commission. The 2016 budget provides funding to continue the partnership with the Central Utah Water Conservancy District in the ongoing construction of the Utah Lake System facilities. The 2016 budget will also continue Interior's required program oversight activities and endangered species recovery program implementation through the Department's CUPCA Office.

## CONCLUSION

Thank you for the opportunity to testify on behalf of the President's 2016 budget for the Department of the Interior and the Bureau of Reclamation. We have the opportunity to positively impact our Nation's future for all generations through wise investments, collaboration, and new and innovative ideas to meet the future needs for the growth and prosperity of our Nation.

I look forward to working with the committee to implement this budget. This concludes my testimony and I am happy to answer questions.

Senator ALEXANDER. Thank you very much.

Now we will begin a round of 5-minute questions. We have a vote at 3:45. What we will do is just go right on through the vote, and I will go over and vote at about 3:45. We will just pass the gavel around so we can keep going and give every Senator a chance to ask his or her questions.

## INLAND WATERWAYS TRUST FUND

Let me begin, Ms. Darcy, if I may, with you. I am disappointed that there is no funding in the President's budget to begin replacement of Chickamauga Lock. But let me put it on a more national scope than that.

Two or 3 years ago, several of us, Senator Graham, I, others, sat down with the staffs of various Senators and said let's put aside all the practical problems. What do we need to do for a great country to have the kind of inland waterway system that it should have? And the staff came back with a plan. We talked with the Vice President about it and talked it around ourselves. In fact, we have gotten it done.

As I mentioned earlier, number one, we passed a law that excluded the Olmsted Lock or reduced the amount of money we spent on the Olmsted Lock, because it was soaking up all the money available for the inland waterway. Second, we worked with the industry and with the administration and we established a priority

list of which inland water projects should go in order, so it wouldn't be just a log-rolling exercise by senators and congressmen. Then, third, we enacted a user fee increase. In other words, the commercial users of the inland waterways volunteered, and we approved at the end of last year increasing the amount of money they pay to go through the locks.

So we did all three of those things, and all three of those things together should make it possible for the Corps over the next several years to do what we need to do in our country for inland waterways.

However, the Corps' budget does not propose to spend all of the money that is available in the Inland Waterways Trust Fund, specifically \$57 million is not being spent, according to information we have from your staff. So my question is, why did we go to all the trouble to increase the user fee if you are not going to spend it?

Ms. DARCY. Well, Senator, we are spending some of it. As you know, the Inland Waterways Trust Fund funds every other project but Olmsted on a 50-50 cost share. And the overall budget number for us within our construction account needs to be able to meet that other cost share.

In the case of Olmsted, we need to find 85 percent. And the other projects that are funded in this year's budget Monongahela Lock 2, 3, and 4, we had to find the 50 percent within the rest of the budget.

Senator ALEXANDER. You are saying you don't have enough appropriated money to match the trust fund money?

Ms. DARCY. In the President's proposed budget, we do not have an equal amount.

Senator ALEXANDER. Well, it is disappointing to me and hard to go back to the people whose taxes we raised, basically, and say we took your money but we are just going to put it on the shelf for a while. I would like to find a way, if I may, working with you to be able to fully fund the plan for building a great inland waterway system in this country. It will take several years.

#### CHICKAMAUGA LOCK

General Bostick, let me go to you. It is my understanding that between \$3 million and \$9 million could be appropriately used this year to restart work on Chickamauga Lock.

For example, with just \$3 million, the Corps could award a base contract to get started on the highest priority and earliest work, which is grouting the cofferdam. I am getting down to details here, but that is what we need to do. If \$6 million were available, the Corps could also start anchoring the cofferdam and construct a small pile wall.

In other words, if you had \$3 million, or if you had \$6 million, and you decided to spend it, you could begin to do work on the Chickamauga Lock, which is the fourth highest priority, which we are going to do, and which is in danger of being closed if we don't do this.

My understanding is also that your work plan does not obligate nearly \$6 million that could be spent on the lock or other critical waterway projects. So why don't you spend the available \$6 million to get started on the Chickamauga Lock, General Bostick?

General BOSTICK. First, Mr. Chairman, I would like to thank you and the subcommittee for the work you have done. I think all of those efforts to try to help our inland waterways are going to pay off in the future, and some immediately.

From a bigger picture, part of what we have to do is really look at the capital projects as a whole. And although we have priorities, we don't feel like we have done all of our work to properly assess those projects, and Chickamauga is one of them, on the economic benefits and the requirements that they have in maintenance.

So we are completing this capital projects report. That should be done by the summer of this year. And I think that will help us get a framework on how we should spend the taxpayer dollars.

The other thing I would address is on the work plan. There are opportunities in the months ahead to use that additional \$6 million. We will have, by the end of the month, provided some recommendations to Secretary Darcy, and she will work with the administration to determine the way ahead.

Senator ALEXANDER. Good. I have an opportunity to suggest for you for that \$6 million. I understand what you are saying, but I hope you understand what I am saying. We have developed the plan. We worked with you. We think you are doing a good job with the money you have. But if we are going to raise that money from the commercial barge people, we ought to spend it. That is what it is for.

And if we have a lock on the priority list and with \$3 million to \$6 million we can move along with it, I would suggest we do it.

My time is up. Senator Feinstein.

#### SAN FRANCISCO BAY SHORELINE STUDY

Senator FEINSTEIN. Thanks very much, Mr. Chairman. I am going to begin with a subject that I am very frustrated about, and that is the South San Francisco Bay shoreline study. I have had several conversations with Secretary Darcy about this, so, General Bostick, I would like to involve you in this, too.

This bay line study was congressionally authorized in 2002. That is 13 years ago. The work began in 2005. The purpose was to recommend flood risk management and ecosystem restoration projects along South San Francisco Bay for Federal funding.

The study continues to be a high priority for me and very frustrating.

This portion of Santa Clara County shoreline is at great risk from floods due to storms and high tides. And sea level rise we know is going to occur in the future.

So, more than 10 years have passed. The study is not done. In excess of \$10 million has been spent. There was a 6-month delay in 2005, 2006. There was a dispute between the Corps and the local sponsors, who would be responsible for the mapping. Between 2006 and 2010, there was a 2-year delay. Local sponsors informed me that the Army Corps of Engineer's research and development center took twice as long, 4 years instead of 2 years, and at twice the original cost, \$4 million instead of \$2 million, to complete the flood-plain maps.

The project had to be re-scoped in January 2011 to focus on the Alviso area to avoid the project getting further delayed. There was

then another 10-month delay between August 2013 and June 2014, when the Corps raised concerns about how the project would address sea level rise, even though the Corps had been aware of the design assumptions since March 2011.

In mid-2014, I was told the chief's report would be done by July 2015. A few months later, the schedule again slipped to December 2015.

During this long process, the lack of a completed chief's report has meant authorization of a potential project was missed in 2007 and 2014. And last week, we suffered another blow. The Corps unveiled its fiscal year 2015 work plan and 2016 budget and no money, zero, was allotted to completion of this high-priority study.

So can you tell me how you plan to finish the chief's report by December 2015 as promised without Federal funding in the 2015 work plan and the 2016 budget?

General.

General BOSTICK. We currently have funds on hand to continue to move the study forward.

Senator FEINSTEIN. Could you tell me how much?

General BOSTICK. I would have to follow up with you on the exact amount.

Senator FEINSTEIN. Will you tell me how much?

General BOSTICK. We can. I don't have that number now, Senator.

Senator FEINSTEIN. So it is your intention to continue with the study?

General BOSTICK. We will continue the study. We will at some point need additional funds. As I talked about earlier, we would work with Secretary Darcy on recommendations on how work plan funds might be utilized.

Senator FEINSTEIN. So you will meet the December 2015 deadline?

General BOSTICK. We will. We will meet the December 2015 deadline.

Senator FEINSTEIN. Shall I ask you to raise your right hand, and swear to God?

General BOSTICK. If you want me to raise my right hand, I will do that, ma'am.

Senator FEINSTEIN. Got it.

General BOSTICK. We are doing everything we can to stay on top of this.

Senator FEINSTEIN. Okay. It is really a high priority for that area. As you know, there is a lot of high-tech right on the water there. There are cities. There is a sewage treatment plant that serves 1 million people. It could be catastrophic if that area floods.

General BOSTICK. I understand.

Senator FEINSTEIN. I am going to hold you to your word, General. Thank you.

#### SALT PONDS

Now, while I have you, it has come to my attention that the Corps is performing some type of wetlands evaluation pertaining to salt ponds in the north end of San Francisco Bay near the Port of Redwood City. I discussed it with one of the generals this morning.

Apparently, these salt ponds are being considered for some type of potential development, and the press has said that the Army Corps is about ready to say that certain parts of the bay behind a dike are not waters of the United States. It is my understanding that that differs with the EPA.

It is a highly sensitive matter, and I would appreciate knowing what the Corps' position is. I intend to go down there and take a look myself next week.

General BOSTICK. We haven't come to a conclusion, at this point. We are working with the EPA on this issue, and General Peabody has been out there. He is going out again next week, and will look at several sites and have an opportunity to talk about this.

We are working very closely with EPA and Justice, to make sure we come to the appropriate conclusion on the way ahead.

Senator FEINSTEIN. Well, I would hope you would work with me. I am kind of the mother of that whole salt ponds situation. I got the funding. I got the State money. I got the private money to buy the land from Cargill. I know exactly what has been planned, and I am very concerned about this. What makes our whole area is the bay, and we do not want it filled.

And I have the pleasure of speaking with General Peabody next week. It is my intention to come down there on Tuesday, General, at 11 o'clock, so I will take a look for myself.

General BOSTICK. We will absolutely work closely with you on this, Senator.

Senator FEINSTEIN. Thank you very much.

Senator ALEXANDER. Thank you, Senator Feinstein.

Senator Cochran.

#### MISSISSIPPI RIVER AND TRIBUTARIES

Senator COCHRAN. Mr. Chairman, thank you very much for presiding over this hearing and providing leadership for our subcommittee. And my thanks for our panel coming here today to talk about the President's budget submission for the Army Corps of Engineers and the Bureau of Reclamation.

I have put my statement in the record describing the steady, but sure decline of commitment from the Federal Government for its inland waterways system maintenance, projects such as the Mississippi River & Tributaries project, similar projects but smaller throughout the country that have come in for some of the lowest budget requests that I have seen since I have been in Washington. We started out poor, and we're getting poorer.

I wonder what the reaction of the administrators are as to what kind of frustration you might be enduring, and what you can suggest to the subcommittee for ways to ameliorate or help minimize the practical consequences of this budget.

I don't want to just fuss about it, but I would like to get into some of the specifics.

For example, on the Mississippi River & Tributaries project, only \$225 million is requested. That sounds like a big number, but guess what? That is more than \$100 million below the average amount of funding provided by Congress over the last 30 years.

What is your reaction, General, to the overview that this presents to our subcommittee?



General BOSTICK. Senator, I can speak to it from a leader standpoint and from one who has to execute the mission that the country has asked us to do. It is challenging. It is very challenging for us to execute our mission with the funding levels that the taxpayers are able to afford and what the country is able to afford.

We state what the priorities should be, and where the focus should be. But at the end of the day, when the President looks at the budget, when the Nation looks at the requirements across this country, priorities have to be set. And I am not privy to those. I respect all the decisions that are made.

What I would say in our area is we have to look at how we become more efficient. I think we can become more efficient in how we use taxpayer dollars. I think that we have to look at alternative means of financing.

You gave us the opportunity through WRRDA with public-private partnerships. I don't think the Federal Government, even if it could pay all of the needs of the inland waterways—and there are many needs that are there. I think we have to be part of the solution to be innovative and creative in how we move forward.

#### MISSISSIPPI DELTA REGION PROJECTS

Senator COCHRAN. One other example of the budget request that is out of line with what has been the suggestion is the Yazoo Backwater projects in the Mississippi Delta region are also going to be subjected to substantial cuts. The combined annual benefits of the projects, by comparison, are roughly \$77.7 million. But the budget submitted by the President, once again, doesn't request funding for the headwaters project or the Upper Yazoo project.

But given the importance to the lives of the people of that region, and their property and the sustainability of the economy in the region, it makes it clear that something has to give or that project is going to be dead in the water.

The Federal Government has invested more than \$700 million up to this point in these projects. This is the construction phase now that is over 30 years in the making. But because of inadequate funding, it is going to be, as I said, dead in the water.

I am going to ask you, if you can, to give the subcommittee the benefit of your suggestions, as to how we can compromise, if there is a way to come together with something less than had been requested in the budget by the Congress and the reality of how much you are likely to be permitted to spend by fiat of the Federal Government, after we are completed with this legislation.

Are there other comments that maybe the administration's representative can give us some thought on?

Ms. DARCY. One of the issues that General Bostick mentioned is one that we need to work on, collectively as a government, and that is finding public-private partnerships or other alternative financing mechanisms to try to meet some of the needs that remain unmet, both with Federal dollars and local dollars.

I think one point, Senator, is that in the 2015 work plan, we did fund the Delta Headwaters in Mississippi.

Senator COCHRAN. Mr. Chairman, my time is up.

Senator ALEXANDER. Thank you, Senator Cochran.

At about 3:40, I am going to go vote and come right back, so we will just let the hearing go straight through. I will ask Senator Feinstein if she will wield the gavel during that period of time, then I will take it back in time for her to vote.

Senator Merkley.

#### SMALL SUBSISTENCE AND EMERGING HARBORS

Senator MERKLEY. Thank you, Mr. Chairman. Thank you all for your testimony.

Assistant Secretary Darcy, on our coast in Oregon, we have a lot of very small ports that have a whole variety of their economy affected by crabbing, shrimp, groundfish, salmon, tourists, whale watching. Boats go out for every possible reason. But the dredging of these ports was in the President's proposed fiscal year 2015 budget, but they have all been zeroed out for fiscal year 2016.

I am assuming, just to kind of shorten the conversation, that the assumption is that here in Congress we will do a small port carve-out as we have for the last few years, and then some funds will be redistributed to the high dredging or high-need areas. Is that the plan?

Ms. DARCY. No, Senator. What we have provided in the Harbor Maintenance Trust Fund account is \$91 million for small subsistence and what are termed emerging harbors, which is 10 percent of the overall request for the Harbor Maintenance Trust Fund.

Senator MERKLEY. And then there will be a work plan that will come out as to where those funds will go?

Ms. DARCY. If the 2016 budget is enacted—

Senator MERKLEY. What I am trying to clarify is the fact that those ports are zeroed out in the President's budget does not mean that your intention is that the dredging stop on those small ports.

Ms. DARCY. The dredging needs vary from year to year—what we have determined for this fiscal year in the 2016 budget is that it is not necessary to be funded in this fiscal year. We have to go port by port to see which ones—

Senator MERKLEY. Right. So I will be in close communication with you all about that. There are some ports that you can get away with every other year dredging.

Ms. DARCY. And some every 5 years. It all depends on the turbidity and the—

#### CROOKED RIVER PRINEVILLE RESERVOIR

Senator MERKLEY. I just want to make sure that the economy of our Oregon coast doesn't shut down, as it has come close to a number of times when dredging was not funded. So I will keep an eye on that in conversation with you all.

Commissioner López, one of the things that passed at authorization at the end of last Congress was a resolution to end 40 years of water wars on the Crooked River Prineville Reservoir. There is a piece of that that requires developing a water management plan, an annual release schedule, if you will. I just want to draw that to your attention. I know that will take some resources from the Bureau of Reclamation, but it is going to be a critical part.

Crooked River is in the budget. But I just wanted draw it to your attention and say, in this first year of implementation of this

agreement, after decades of fighting over the water, how important it will be for us to make sure that it happens in a timely and competent basis.

Mr. LÓPEZ. Senator, I am aware of this legislation and I know in the last couple of weeks there have been a whole series of meetings between our area and regional staff with Oregon State officials and water users out there to begin to map out exactly how we go about the implementation of this, both moving the Wild and Scenic River boundary and also doing some water rights applications that need to be set in motion. We are engaged in that and will continue to work on it.

#### WATER FOR IRRIGATION, STREAMS AND ECONOMY

Senator MERKLEY. Thank you. And I will mention in my last few seconds here that the pilot project in Talent Irrigation District with Bear Creek, the funding is much appreciated. That was announced last week. Thank you.

It is basically a situation where piping is put into an irrigation system to save water, and then more water can stay in the streams, so diversion is eliminated, therefore, it's better for the irrigators, better for the salmon.

This is a pilot project for a program called WISE, Water for Irrigation, Streams and Economy. That larger project is one that Oregon has set aside matching grants for. It is something on which I would like to be a dialogue with you all about, because it, certainly, has a huge potential impact doing right by the irrigation districts and improving the streams and habitat in the process.

Thank you very much.

Senator ALEXANDER. Thank you, Senator Merkley.

Senator Feinstein has agreed to preside for the next few minutes while I go cast an early vote. So the next Senator will be Senator Lankford and then Senator Udall.

#### WATER RESOURCES REFORM DEVELOPMENT ACT

Senator LANKFORD. Thank you for allowing me to jump in the conversation. It is good to see several of you again. I need to ask some questions about the Water Resources Reform Development Act, the WRRDA Act that we passed last year, one of the rare things that did pass through Congress last year. And it has a requirement to conduct an assessment of all the properties from the Corps of Engineers to determine which are "not needed for the mission of the Corps of Engineers." So it is an inventory statement and then a basic ability to be able to say these are priority areas, these are possibly not priority areas. Has the Corps begun that assessment, at this point?

General BOSTICK. We have begun that assessment. I believe you are referring to the \$18 billion of projects that we believe we can recommend for deauthorization.

Senator LANKFORD. It is from WRRDA from last year. It is just a list of all projects, so it is not just the new but it is a current inventory of all projects nationwide.

General BOSTICK. Yes. We are working on that as well. We think we have a pretty good handle on the infrastructure assessment, and we feel like that is progressing well.

Senator LANKFORD. What is your best guess on when Congress will have that report?

Ms. DARCY. Can I offer that? We will have the \$18 billion deauthorization report to Congress by this September.

Senator LANKFORD. Okay, by September. And the obvious next question is then, there is a desire to say if there are certain projects that are not priority projects, then there is the opportunity to say these projects should be divested or find other entities, whether it be States, counties, cities, whatever it may be, that may want to take on the management of that, if there are nonpriority projects.

What is the best way to be able to handle that disposition, from the Corps' perspective?

General BOSTICK. We are required through WRRDA to provide a list of \$18 billion worth of projects that are authorized that we believe we can deauthorize, and we will provide that list as well.

Senator LANKFORD. It is not just a list of them. It is the actual process of divesting. The obvious thing for the Federal Government is we have a lot of extra real property laying around. We have had a very difficult time transitioning it out of Federal hands.

General BOSTICK. We had to divest of a project a couple of years ago that we had been working on, and it took quite a long time and quite a lot of money just to divest. I am not able to tell you now that the process, once we have that list of how we divest, what work we will need and support we will need from Congress. But we will be happy to provide that. It is a difficult process, as it is currently set up.

#### PROJECT PRIORITIZATION

Senator LANKFORD. Okay. That is an understatement, to say the least. We have had a tough time letting go of different facilities and things. So one of the goals that I would have in the days ahead is that, the Corps obviously will never have enough money, but to make sure that the low-priority things that we have, things that could be divested, the Corps doesn't have to spend money on. That can be transitioned so that money can then be spent on the things that are the high priorities or that are essential, to help protect some of those dollars.

One of the questions from your statement, General Bostick, you talked about one of the priorities was to modernize the planning process of this. One of the struggles in the past has been the Corps has so many projects going on at once. Is there a plan to say we are going to invest more dollars faster in a project in order to get this done, knowing that it is more expensive to stretch it out over 10 years than it is to do it in 5, but that means doing fewer projects, but the projects that you do are cheaper and faster. Is that in the conversation?

General BOSTICK. Absolutely. Secretary Darcy talked a bit about this in her opening remarks, about completions. One of the things we try to focus on, both with studies and construction, is if this increment of funding will complete the project. So one of the guiding principles is to look at completions.

The other thing that we are doing on the front end is to make sure on these chief's reports, and going back to what we talked

about on modernizing the process, is to say you can't take 10 years, 15 years to study this. And we forced ourselves to come inside that 3-year window, and we have done pretty well with that. We had to do some exceptions, but that process is allowing the whole process to go faster.

Senator LANKFORD. Anything that we can do to keep moving on that. That Three Rivers project, obviously, is an example of that, and all the conversations were so long. And now that is moving and going, but there will be so many other areas to look at and say, how can we get this done faster?

#### WATERS OF THE UNITED STATES RULE

One last question on it is the issue of the increase in the budget dealing with the regulatory activity. This a \$5 million increase. Obviously, there are other areas. Is that related to the Waters of the U.S. Rule and anticipating increased regulatory cost in that area?

Ms. DARCY. Yes.

General BOSTICK. Yes.

Senator LANKFORD. Do you know how much that is going to be eventually? Is that just an initial guess, an assumption the \$5 million is going to be the basic?

Ms. DARCY. It is an initial assumption, assuming that the start-up costs for doing the implementation once the rule is final. And that initial \$5 million is more than we had last year.

Senator LANKFORD. Will there be an anticipation that this subcommittee will be asked to have additional monies moved out of other project areas into regulatory areas because of that rule in the days ahead?

Ms. DARCY. No, sir.

General BOSTICK. We believe it is going to be initially more expensive, but then it will come down and settle. What we are doing now is hiring 125 regulators that we couldn't hire because of sequestration and another 25 in order to handle Waters of the United States, if it is passed.

Senator LANKFORD. Okay, thank you.

I yield back.

Senator FEINSTEIN [presiding]. Senator Udall.

#### RIO GRANDE ENVIRONMENTAL MANAGEMENT PROGRAM

Senator UDALL. Thank you, Senator Feinstein.

Secretary Darcy, last year, the Corps held stakeholder workshops in New Mexico and elsewhere to better understand the specific concerns of stakeholders and their water resources management priorities associated with the Rio Grande. I appreciate these efforts. It is important that the Corps continues to work with local interests and listen to local people.

One program, in particular, that was highlighted as very important is the Rio Grande Environmental Management Program. On January 28, I along with Senator Heinrich wrote you a letter urging you to include \$150,000 in fiscal year 2015 study funding for the Rio Grande Environmental Management Program. Unfortunately, we received a response stating that funds were not made available for this program due to other priorities.

This is an important program. I am hoping to work with you to ensure this program is funded.

Can you talk a little bit about why this project is not being funded in fiscal year 2015? Are there other accounts that provide funds for similar work?

Ms. DARCY. Senator, you are correct. It was not included in the 2016 budget. This is an environmental program. It is not a project-specific program. So the development of what the components of this program would be would need to be developed, as well as finding a local cost-share sponsor. Then it would still also have to compete with other new programs within our larger program.

Senator UDALL. Okay, thank you.

#### REIMBURSEMENTS

General Bostick, local communities in New Mexico and elsewhere, I believe, in the country have advanced funding to cover Federal costs in environmental infrastructure projects in this country. They did this to accomplish needed projects more efficiently and reduce overall costs to the Federal Government.

Two public entities in my State are owed money from the Corps for these projects. When funds are appropriated in these authorities, reimbursements are not being made to pay back these costs. Will you continue to work with me to ensure that these past owed reimbursements are paid back to these communities in the future?

General BOSTICK. Senator, I am not aware of this issue, but I am happy to look into it and work with you to close it out and find out what we actually owe, and if so, we will clear it up.

Senator UDALL. It is a big issue, and it is more than just the \$10 million to the City of Rio Rancho. It is a big issue, I think, across the country, is my understanding.

But thank you for your willingness to work with me on it.

#### NATIVE AMERICAN AFFAIRS PROGRAM

Commissioner López, in your testimony, you highlighted tribal priorities, and the one thing I struggle to comprehend is the fact that many native communities in New Mexico do not have adequate water infrastructure, and in some cases, no running water at all, as you well know.

Does the Native American Affairs Program under the Bureau of Reclamation aim to address some of these issues?

Mr. LÓPEZ. Senator Udall, the Native American Affairs Program is intended to certainly work on any technical issues that a Tribe might have regarding its water supply. Further, it gives us an opportunity to negotiate on the water right settlements, if a particular tribe has outstanding claims that have not yet been resolved.

So I think it does give us an avenue for beginning those conversations and figuring out how we might begin to address those issues.

Senator UDALL. Great. Could you talk a little bit about water leasing and why it is important? I know that that is part of what some of the stakeholders in the Middle Rio Grande Project want to do.

Mr. LÓPEZ. Certainly. Senator, the Rio Grande, as you know, is oversubscribed. In many years, essentially all of the water was spoken for. But if it were not for leasing water, the river would go dry, and there would be no water to sustain the endangered species in the river.

Historically, Reclamation has leased San Juan-Chama water from people who have not yet put that water to use. Increasingly, that water is being put to use by the cities to whom it is under contract. Therefore, it is increasingly important that we find other leasing mechanisms, including through willing buyer, willing seller methods, whereby a farmer or a group of farmers might get together and decide that, in a dry year, it is more advantageous for them to lease that water and sustain the river, and thereby keep the endangered species alive.

Senator UDALL. Great. Thank you very much. And welcome, again.

Thank you, Senator Feinstein.

Senator FEINSTEIN. Thank you, Senator Udall.

Senator Murkowski.

#### ARCTIC DEEP-DRAFT PORT STUDY

Senator MURKOWSKI. Thank you, Madam Chairman.

To the panelists, thank you for being here today and for your work.

Secretary Darcy, I want to talk with you about some of our civil works construction projects. I will start first by thanking you. We have four new feasibility studies included. I know that the communities of Kotzebue, St. George, Craig are going to be pleased moving forward with this. The conversation about the subsistence and small boat harbors, know how critically important that is to us, as we try to develop these small coastal economies, that the boat harbors and these subsistence harbors are just so critically important.

I am going to be starting off I think every appropriations hearing I'm participating in challenging agencies and members of the administration as to where we are with implementation of any aspect of an Arctic strategy.

So to my colleagues, you are just going to get used to these questions, because it is very pressing to me.

As you know, Secretary Darcy, we are an infrastructure-poor State. We face some challenging conditions when it comes to construction of some of our infrastructure along our coastline. We are, of course, trying to move forward with an Arctic deep water port, and the port study has been underway for some period of time. I am told that this report is going to be issued by the Corps soon. But around here, you are never quite sure what "soon" means.

Can you give me the status of the Arctic deep-draft port study?

Ms. DARCY. The draft will be released in February 2015, and we are tentatively expecting a civil works review board to be scheduled for August.

Senator MURKOWSKI. Okay, so as soon as this month, then?

Ms. DARCY. It says February 2015, so yes, ma'am.

## CONTINUING AUTHORITIES PROGRAM

Senator MURKOWSKI. Okay, we will be looking for that within the next week to 10 days or so. Again, a critically important initiative for us, and know that I will be asking you more about what we can be doing in the intercoastal communities to provide for that necessary arctic infrastructure when it comes to ports and our harbors.

I wanted to ask, also, about where we are with the continuing authorities program. As you know, we have many, many small navigation projects where our harbors are at risk from coastal erosion. We have different storm issues that we are dealing with.

Barrow, for instance, is in need of beach restoration in order to keep parts of town from basically being washed away here, and Barrow is just one community. The situation is that they can't wait for a period of years that it takes for the funds to be appropriated for a feasibility study, and then for the WRRDA Act to be passed and then more funds to be appropriated for construction.

So, in looking at the budget, we see that section 107, which is the navigation, and section 103, the beach restoration of the continuing authorities program, is not receiving any funding in fiscal year 2016. So I am trying to understand what is going on within this category.

We have a significant reduction in funds between fiscal year 2015 and fiscal year 2016. Are we phasing out the continuing authorities program in general? What is happening with this?

Ms. DARCY. Senator, we are not phasing out these programs, because, as you pointed out, they are very important, especially to some smaller communities. These programs and projects, have a lower funding level and they don't go through the feasibility and chief's report process. We have some unobligated balances in those accounts, so that is one of the reasons we did not fund some of them; we can carry those over to this year.

Senator MURKOWSKI. And you have sufficient balances, then, that will allow you to address the unmet need at this point in time?

Ms. DARCY. Within our budgetary constraints we do, yes, ma'am.

Senator MURKOWSKI. Okay. I am going to be coming back to you, because I think you know that we have identified again, many of these coastal communities where the dollar amount is not high, but for purposes of what they are trying to do in dealing with beach erosion and shoreline erosion issues and just with sea level issues, it has to be addressed sooner than later. And it is nice to know that you have unobligated balances, but I am going to want to know for sure that we are going to be able to address some of these needs.

Thank you, Madam Chairman.

Senator FEINSTEIN. I thought you were going to get a "yes" there for a minute.

Senator MURKOWSKI. I know, I know. We're working on it.

Senator FEINSTEIN. Senator Coons.

## HARBOR MAINTENANCE TRUST FUND

Senator COONS. Thank you, Senator Feinstein and thank you, Chairman Alexander. This is my first hearing as a member of the E&W Appropriations Subcommittee, and I want to thank Roger for



his 35 years of service and say that hopefully my arrival has nothing to do with your impending departure. Thank you for your decades of good and faithful service here.

To Assistant Secretary Darcy, I just wanted to open by thanking you for your continued support of a project that is near and dear to my constituents, the Delaware River deepening project. I very much appreciate the additional \$62.5 million in the fiscal year 2015 work plan that will fully fund the work needed to be done in fiscal year 2016. This is a critical year for this project that is of great impact to the whole region, and I am glad it is going to be moving forward and being completed.

One of my legislative priorities is to increase utilization of the Harbor Maintenance Trust Fund. I was somewhat disappointed that fiscal year 2016 request doesn't meet the target set out in WRRDA of \$1.3 billion. The request of \$915 million is the same level requested in 2015 and lower than provided in the omnibus.

How will this lower request effectively maintain our Nation's navigation channels and harbors, and maintain our global competitiveness? So please, thank you, and question.

Ms. DARCY. Senator, the \$915 million that is in the President's budget for the Harbor Maintenance Trust Fund, as I said in my testimony, is the second year in a row that it has been that high. Given our current budget constraints, this is the amount that we think we can use in this fiscal year in order to maintain, especially, the 59 busiest commercial harbors in the country, which transport about 90 percent of the traffic.

Also, this is in compliance with the set-aside. As Senator Murkowski and others noted, we have a 10 percent, \$91 million allocation for small, subsistence, emerging harbors, which was another requirement of the WRRDA bill.

#### NATURAL DISASTER PREPAREDNESS

Senator COONS. Thank you for the answer. I look forward to working with you to find ways to strengthen support for smaller harbors.

The North Atlantic Division just put out an impressive, somewhat comprehensive report about the lessons learned from Superstorm Sandy, which was a very expensive storm. The total Sandy relief I think is \$65 billion. And I was wondering if we know how well shore protection and other vital Corps projects helped to reduce the amount of damage from the superstorm, and if you did any quantification of the damages and costs avoided because of these vital Corps projects?

Ms. DARCY. I believe we did. I don't have the numbers at my fingertips, but we can provide them for you. I think they were in the Sandy report.

But I would just note that the day after the storm, General Bostick and I went up to New York and New Jersey and flew over, and you could see the difference between where there had been a storm damage reduction project and where there had not been a project. The damages were incredible.

The projects worked as designed in those places where they had built a beach nourishment project.

## CLIMATE CHANGE

Senator COONS. Well, I'm excited to see that the Silver Jackets programs are expanded again in fiscal year 2016 to help communities prepare for natural disasters. To me, one of the core components of the emergency preparedness, emergency management is preparing for climate change. It has been estimated every dollar we invest in natural disaster preparedness, we might be able to save up to \$4 in emergency response. Your citation of the Superstorm Sandy impacts suggests that.

Could you elaborate on how we are preparing for the impact of climate change and how that factors in to your investment and decisionmaking for the Army Corps at the programmatic level?

Ms. DARCY. Certainly, Senator.

Since 2009, the Corps of Engineers has been requiring climate change to be factored into the mainstream lifecycles of all of our projects, from the planning for future projects as well as for looking at our ongoing projects. All new projects and planning must comply, and apply these new policies and guidance, including the three different scenarios for sea level change over time. When we are looking at a project, we look at it through the lens through those three possibilities.

For existing projects, we conduct progressively detailed assessments to understand possible impacts. We have done a coastal assessment of all of our projects to determine what it is their vulnerabilities would be from not only different sea level changes, but climate change as well.

So those are some of the things we have started to do already.

Senator COONS. General Bostick.

General BOSTICK. The only other piece I would add, and I talked about this briefly in my opening remarks, is that we are looking at these watersheds as a system, more than individual projects. How does a system of projects demonstrate the kind of resilience that it needs in the face of disasters? We are working with the industry. We are working with a lot of think tanks and academia, to really understand how we do this. And then is there a way that would lead to watershed-informed budgeting.

There is a lot of work that I think can happen in this particular area.

Senator COONS. Thank you, General Bostick. Thank you, Secretary Darcy.

I am from the lowest mean elevation State, so I have an abiding interest in how we deal with and plan for climate change and its impact on our coasts and waterways.

Thank you very much.

Senator ALEXANDER [presiding]. Thank you, Senator Coons.

Senator Tester.

## RURAL WATER

Senator TESTER. Thank you, Mr. Chairman. I once again want to thank the panelists for being here today.

We are going to start with you, Commissioner López. There are a lot of rural water projects out there. Montana has a couple right now. I was first introduced to those water projects when I was run-

ning for the State Legislature. They were \$100 million projects. Now they are north of \$300 million. The same projects. Haven't added anything on. That is just the way it has gone.

The allocation in this budget is anemic for those water projects. I would make the claim it doesn't keep up with the cost of inflation. Now we may add additional dollars like we did last year, but it's not good.

Is there a plan for getting these projects fixed in a timely manner? I mean, we are talking about projects that connect up with Indian water settlements, where the water is fairly critical if we are going to have economic development to move those folks out of poverty.

Can you give me any insight on that, or do we just live with getting a percentage point a year? What are we going to do about it?

Mr. LÓPEZ. Senator, in these constrained budget times, it is extremely difficult to allocate additional funds to these projects when our core mission requires so much of our budget. We will continue to allocate as much of our budget as we possibly can to move these projects forward.

I want to thank this subcommittee for the additional funds that we received in 2015. But I think the best we can do is to try to prioritize the projects. I think you know about our criteria for prioritizing spending for the funds that we do receive including serving Indian communities, which the projects in your State do.

Montana projects are also some of the projects that are further along, receiving additional priority, as does the population these projects serve. So we will keep moving those forward with the funds we are able to receive.

#### WATER SETTLEMENTS

Senator TESTER. All right, which brings me to water settlements, because they are tied together and we have a number of them.

One of them is in the funding bill right now for Crow. It is one of the five that is in there. Let me ask you this, there are some, and I am one, who advocate taking money from the reclamation fund to pay for some of these water settlements and water projects, too. Give me your opinion on that. There is a pretty healthy balance in that reserve fund.

Mr. LÓPEZ. Senator, I know that the Administration had looked at some options for funding some of these settlements, including looking at taking some money from the Reclamation Fund.

Senator TESTER. Would the Administration support that, to get right down to it?

Mr. LÓPEZ. I can't speak for the Administration as a whole. I think that we, certainly, recognize that.

Senator TESTER. Okay, we will go a different route. Would you support that?

Mr. LÓPEZ. I would like to get these projects done, Senator.

#### INTAKE DAM

Senator TESTER. Okay. So would I. I mean, I just don't see there ever being an end to it.

Secretary Darcy, it is always good to have you here. It seems like we ask the same line of questions every year. I am going to talk

to you about Intake Dam and the fish passage for the pallid sturgeon and its viability. I know there is a lawsuit pending.

Does that lawsuit have merit, as far as the viability for the fish passage, or is it without merit?

Ms. DARCY. I can speak to the merit on the project, not to the merit of the lawsuit.

Senator TESTER. I think they are suing because they don't think the project will work.

Ms. DARCY. Yes, they don't think that the fish passage, as designed, will accomplish the goals under the biological opinion.

Senator TESTER. That is correct.

Ms. DARCY. We believe that, as designed, it will meet the needs of the endangered species that is part of the subject of the biological—

Senator TESTER. So you think you will win that suit?

Ms. DARCY. I don't know.

Senator TESTER. Okay. Are you an attorney?

Ms. DARCY. No, sir.

#### MISSOURI RIVER FISH AND WILDLIFE

Senator TESTER. Lucky you.

There is about \$47 million, I believe, in this year's budget for that, for the Missouri River Fish and Wildlife Recovery Program. Is that adequate? Is that what you asked for?

Ms. DARCY. In the 2015 work plan, we have \$20 million for the Intake and \$20 million in the 2016 budget request.

#### HYDROPOWER

Senator TESTER. Okay. One last question that deals with something you said in your statement. You said that your budget has 5 percent dedicated to hydropower. Do you have any projects in mind?

Ms. DARCY. That is dedicated to our ongoing hydropower projects. We don't have new start projects at that 5 percent. That is mostly to continue to maintain our ongoing hydro infrastructure.

Senator TESTER. Let me ask you this, in the private sector—and I will be quick.

I am sorry, Senator Hoeven.

In the private sector, they have redone, in Montana at least, some of the hydro generation on the Missouri up by Great Falls. It has created more electricity. I think it is easier on the fish.

Has there been any discussion of doing that with Fort Peck?

Ms. DARCY. I do not know specifically about Fort Peck. I know we are looking at trying to evaluate where we have existing hydropower generation and projects, how we can make them even more efficient, or possibly expand on them.

I don't know about Fort Peck. I thought we had a conversation about Libby, but I'm not sure.

Senator TESTER. I think it would be wise to look down that line. I think it is a great way to expand.

Thank you, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Tester.

Senator Hoeven.

## PUBLIC-PRIVATE PARTNERSHIPS

Senator HOEVEN. Thank you, Mr. Chairman.

I guess the first several questions are for either General Bostick or Secretary Darcy. I want to thank all of you for being here today and for the important work that you do.

General or Secretary, the first question I have is, in the water bill, we authorize what is referred to as P3 funding, meaning public-private partnerships where we would try to use alternative delivery models and alternative means of financing to actually make your dollars go further, to leverage the Federal and get some of these projects going. And then we authorize new starts and said you ought to use alternative financing and delivery methods where you can, P3, the public-private partnership model. And so what I want to know is, where are you in that process? Have you picked any projects for the P3 approach?

Ms. DARCY. In the current budget, we haven't picked one specifically for the P3. We are looking at some pilots within some projects, and we are also looking at other ways to leverage P3.

I think you are interested in some of the proposals on the Fargo-Moorhead.

Senator HOEVEN. Very.

Ms. DARCY. That is an innovative way to help to finance. That is like a P4.

Senator HOEVEN. That is better yet, right?

Ms. DARCY. It is public-public-private-private, back to the public, back to the Federal interests. But it is an innovative way to finance, and I think it is something that we need to take a very good look at, because if there is capital out there that can be leveraged against these necessary projects, I think it is something we have to do.

General BOSTICK. We have been looking at this very hard, and we believe it is something we have to do. Last April, I met with a group of investors and business leaders who are interested in this sort of opportunity. We have created a small office in the headquarters and have people who wake up every day thinking about how to do this.

But it is a long road. We are trying to work within our authorities, which makes it complex for investors. So we are looking at the authorities that we have.

We have a couple pilots, in fact, that we are working to try within our authorities execute a form of P3. There is more work to be done.

This is something we believe in, and we're working hard at it. We have a long road to go, but we are very much interested.

Senator HOEVEN. So if you could get a P3 or maybe even a P4 candidate that, in fact, reduces the Federal share in half, and increases the benefit-cost ratio by more than double, that would make it an attractive candidate for selection by the Corps to proceed to construction? I would ask both of you that question.

Ms. DARCY. Yes. I think your point about doubling the benefit-to-cost ratio is an important one to consider. That is one we have to consider when we agree to budgets for projects.

Senator HOEVEN. Have you looked at the P4 proposal put forward for the Red River Valley project, the Fargo-Morehead proposal for P4?

Ms. DARCY. We have. I know folks on both of our staffs have met with the local sponsor to discuss it, yes.

Senator HOEVEN. General.

General BOSTICK. I just had a high-level briefing on it, but we are willing to take a deeper dive and make sure we understand the mechanics of what is being discussed and whether, within our authorities or by seeking others, there is some way to do something. But within our authorities is where we are currently focused. I'm happy to take a look at this.

Senator HOEVEN. General, I would ask you would. I met with General Peabody and other members of your staff. We talked about the benefit-cost ratio and the importance of getting above a 2.5 benefit-cost ratio. Then we also included language in WRRDA that requires you to give consideration for alternative methods of financing and the Public-Private Partnership.

I think that the Fargo-Morehead project is an incredible candidate that meets the requirements that are laid out for us. So I would ask that you take a look at it.

You're willing to do that?

Ms. DARCY. Yes.

General BOSTICK. Yes, we are.

Senator HOEVEN. Thank you. The other question I would ask in that regard is, do you give consideration for local cost share where both the nonFederal share is already in hand on the part of the State and the local participants, and that it is higher than your typical 35 percent cost share for nonFederal? Do you give consideration for that, again, having the share available and a higher percentage from the local and State sponsors?

Ms. DARCY. It would be a consideration in our budgeting, but it is not necessarily the criteria that is ultimately used in making a budgeting decision. But it is an attractive criteria to be able to consider.

General BOSTICK. I would only say it doesn't fit into our current models of consideration. I think if we are going to go forward with P3, we have to look at innovative and creative methods. I'm not sure if this one fits into it, but I think we have to look at it and see if it is something that we want to consider.

Whatever we do, I think ultimately it will have to work for the Nation as policy or law. We're just not there yet, but we're going to look at it, Senator.

Senator HOEVEN. Would you agree that if the local and State sponsors come up with a higher share than the typical formula, and reduce the Federal cost share, and they have their money ready to go, would you say that that is a good thing, in terms of evaluating projects?

General BOSTICK. It sounds good on the surface, Senator. We just have to look at the details.

Senator HOEVEN. Thank you, General, and Secretary.

Mr. Chairman, I do have some other questions, so I would ask the chairman's wishes as to whether I should proceed, because I am over my time?

Senator ALEXANDER. Thanks for asking. Why don't you take 2 or 3 more minutes, and we will see who else comes back.

STANDING ROCK RESERVATION

Senator HOEVEN. Thank you, Mr. Chairman.  
Again, Secretary Darcy, I would like to switch gears.

On the Standing Rock Reservation, they are concerned that their application for a permit to draw water out of the Oahe Reservoir is being held up on the basis of water rights. So I'm wondering if you have any familiarity with that issue and if there is anything that you can either comment on now, or if in fact you can lend your assistance, because what is coming back from Chairman Archambault, the tribal chairman, and the tribal council is that they feel that the Corps is telling them no, they can't get a permit to draw water from the Missouri River and the Oahe Reservoir that they need when, of course, they feel, and they do, have water rights for the Standing Rock Reservation.

Ms. DARCY. Senator, having tribal water rights for withdrawals are tantamount to having the ability to draw. I don't know the details of this particular situation, but I would be happy to look into it because it sounds as though that is not our usual mode of operating. If there is a tribal water right to an existing water supply, then that would be granted.

Senator HOEVEN. But you would agree that the tribe has water rights?

Ms. DARCY. Yes, sir.

NEW STARTS

Senator HOEVEN. Thank you. I appreciate your willingness to look into it. We need to. We have been requested to by the tribal chairman.

General Bostick, in the case of Minot, North Dakota, they had a terrible flood in 2011. It overwhelmed the banks of the Souris River. To date, in recovery, we have spent I think more than \$630 million in terms of flood recovery, just on the Federal end and not counting the State and local share.

They are trying to do a permanent project, and they need to get a study going in order to have a Federal project. But that requires a new start. Only three new starts were authorized under the WRRDA bill.

I'm wondering what can you tell me in terms of getting to a new start, so we can do a study and evaluate a permanent project for Minot. They are moving forward on what they can do, but they also have to be careful there so that they don't preclude the ability to get a Federal project and fail to meet the benefit-cost ratio, if they take all the other actions on their own.

So how do we get to a study so they can plan long-term for their permanent flood protection?

General BOSTICK. Senator, I think we have to look at all of these projects as we move forward. We have very limited new starts that we are able to begin. From a performance-based budgeting, and life safety, try to make the best judgments that we can.

But in terms of the future, I would say we continue the process that we have and look to see if there is any other consideration

that can be made in that particular case to see if it would compete better than it has in the past.

Senator HOEVEN. General, my earlier questions related to actually having a project move forward to construction. This question relates specifically to how you get the study done to determine what the Federal project should be, particularly when the locality and the State are spending money to improve their flood protection but being told by the Corps that they could damage their chances to get a Federal project, because of all the actions they are taking to get flood protection in place now, because they would reduce their ultimate benefit-cost ratio.

You have a cutline, and OMB has a cutline, as to which projects get funded based on that benefit-cost ratio. How do we solve their dilemma, in terms of getting a study going so they can protect themselves, which they are doing, but also plan for a long-term permanent project?

General BOSTICK. I would have to follow up with you on that.

Senator HOEVEN. You understand the dilemma, sir?

General BOSTICK. I understand what you're saying.

Senator HOEVEN. Okay. So we need your help, just as we did in the case of the P3. We got good information from you. I think we met your requirements. We need to have an understanding of what we have to do in the Minot case.

General BOSTICK. Okay.

Senator HOEVEN. Thank you, Mr. Chairman.

#### TAXES AND USER FEES

Senator ALEXANDER. Thank you, Senator Hoeven.

First, all of us are urging you to do things you are not doing. Let me thank you for something you are doing. Over the last few years, different agencies of the Federal Government have worked to keep the mitigation fish hatcheries open, two of which are in Tennessee. And the Army Corps, the Board of Reclamation provides some money for that, which you should, for basically fish that are killed as a result of dams that you operate.

The Fish and Wildlife Service has been very cooperative. And now the Tennessee Valley Authority has gotten involved, and there is a 3-year study going on which would keep the two major fish hatcheries open at Dale Hollow and Irwin in Tennessee. The study is looking for permanent solutions.

So I want that to be on your mind as the various agencies come back with a permanent solution, the fact that the Tennessee Valley Authority became a new player in this compact and has provided additional funds and may make it possible for us to have a permanent solution on those.

So we have all the departments represented here today involved in that, and I thank you for it.

Let me go back to one other point that we started on at the beginning. It is a problem that I don't expect you to solve today, but it is one I am going to work with you to solve. That is this business of collecting taxes and user fees and not spending them on ports and inland waterways.



To start with inland waterways, every year since 2009, I believe it is true we have spent basically everything we had in the Inland Waterways Trust Fund.

Isn't that right, Secretary Darcy?

Ms. DARCY. I believe there has been a balance but not a large balance in years past.

Senator ALEXANDER. Very, very little, I believe. So the problem was we were told not enough money in the Inland Waterways Trust Fund, so we go out and get the users, the big commercial users, to agree to pay \$.29 per gallon, I guess, instead of \$.20. We raised what should be another \$30 million. So the regular tax would provide about 85 percent. The new user fee should get to be about 13 percent, in the first year, maybe 15 percent.

So what we have is this year you are carrying \$16 million to \$19 million from last year that you are not spending. Then there is 85 coming in from the \$.20 fee that existed. Then we have \$15 million or so coming in from the new \$.09, so you are collecting \$115 million, \$53 million you are spending, but \$57 million you are not spending.

So I have to go back to these users and say, I'm sorry, we told you that we would fix the Inland Waterways Trust Fund and keep the locks open if you would ante up and pay more, and now they are paying more and we're not spending it.

Then there is the Harbor Maintenance Trust Fund, which we collect taxes on cargo. We collect about \$1.5 billion, \$1.6 billion a year for the purpose of harbor work, like deepening the harbor so we can be competitive in the world marketplace. Yet, you're recommending spending \$915 million out of the \$1.5 billion or \$1.6 billion. And you have about \$8 billion in the fund that is unspent, that is collected for that purpose and unspent.

Now, part of that problem is the administration's, because they don't give you the allocation to spend it. Part of it is the Congress' fault, because we don't get the allocation to spend it. But it doesn't make common sense that we would want to be a great country with great ports and a great inland waterway system, that we would be collecting money from taxes on cargo and from users of inland waterway systems to reconstruct those inland waterways and deepen those ports, and we leave \$57 million in the Inland Waterways Trust Fund unspent, and we have an \$8 billion balance in the Harbor Maintenance Trust Fund unspent.

Do you have any comment on that? Any suggestions on how we can deal with that?

General BOSTICK. One thing first, as I said earlier, I think many of the adjustments that have been made will help us in the long term. If you look at the capital projects business model, they recommend expenditures of approximately \$380 million per year over 20 years to really get after the infrastructure needs of the inland waterways. So while the money is not spent this year, the Inland Waterways Trust Fund and having that build up to a certain level is a good thing, I think.

The other thing is that we are in a period of transition. I think that the decision to make the percentage breakdown 85 percent of the general treasury for Olmstead was helpful, but it allowed that fund to grow much higher than it would have been in previous

years. So I am not saying it is an anomaly, but I think it is a one-time issue that we will deal with and that will level off in the years ahead.

Senator ALEXANDER. General, if you had more appropriated dollars, could you spend more of the trust fund?

General BOSTICK. I think if the top line were higher, we could use additional money on increments of work that would add value. So yes, we could do that.

We clearly support the President's budget, because there are priorities well beyond civil works that the Nation has to deal with. And as I said earlier, with the budget we have, we are trying to work alternative financing methods that will bring in money that will allow us to address some of these needs.

But at the end of the day, I think the Inland Waterways Trust Fund growing is a good thing for us, and in the out-years, we will continue.

Senator ALEXANDER. Well, if you are looking for a public-private partnership, you have it on the Inland Waterways Trust Fund. I mean, you have the big users paying a higher user fee to help fix the locks. So we have it. We just need to figure out a way.

I know you would like to do everything that needs to be done. I know that you want to do that. But what I would like to do is to work with you both, in terms of our rules here in Congress and the administration, and make sure that if we have this money, we're collecting it and we have these important goals for our country, that we are able to reach them. It doesn't make much sense to the guy on the sideline to look at that and say, okay, you want deeper ports and you want to fix locks and you have the money in the bank but you won't spend it. That doesn't make a whole lot of sense.

So I know what you want to do, and I would like to work with you and see that we do more of it.

I don't know if other Senators are coming back. I see Senator Lankford here, and I will be glad to call on him for additional questions. And if Senators come back who haven't had a chance to ask questions, we will let them do that. And if Senator Feinstein comes back, of course, she can say she whatever she wants to say. Then we will conclude the hearing.

Senator Lankford.

Senator LANKFORD. Thank you, Mr. Chairman, which would mean that our witnesses have an extra eye toward the door, hoping that no one else walks it.

#### WATERS OF THE UNITED STATES RULE

Senator LANKFORD. Every time the door opens, it is longer for them.

Let me just ask a couple of quick questions, just a follow-up. We talked a little bit about the Waters of the U.S. Rule, and the \$5 million that has been moved over asking for additional money for the rulemaking authority on that. My question is, do you expect a higher volume of permits under a new definition of Waters of the U.S.? And what effect will that have, long term, on manpower and time for permits and such?

Ms. DARCY. I think, initially, we will see an increase in the number of permits. Our estimate in the economic analysis that was done was about a 3 percent increase.

Senator LANKFORD. Do you have the manpower already to be able to handle that increase?

Ms. DARCY. No, sir. That is why we have the additional \$5 million in the regulatory request for 2016.

But over time, we anticipate that the manpower needs will not be as great. We are trying to figure out how much money we are going to need and how many people we are going to need. We looked at what we did after the Rapanos guidance went out in 2008, and started using that as a benchmark as to what additional needs might there be. A lot of the initial needs are going to be for training our regulators for what impacts these new jurisdictional determinations will need to be made, and most of it is training, and, as General Bostick said, additional personnel as well.

Senator LANKFORD. So your thought is that it will require additional training for existing regulators, but once they get the training, there won't be a need for additional individuals to oversee this regulation?

Ms. DARCY. I think there will be an initial need for additional regulators and also the training for existing regulators, as well as new regulators. But I don't see that growing over time. I think that is sort of like the startup cost for getting us to where we need to be in order to implement.

Senator LANKFORD. You don't see an additional—I am trying to get a sense of it, because it seems like it broadens tremendously the number of locations that would require a permit or a new type of permit, or at least someone to go out and take a look at it and be able to evaluate it. It looks like it would increase the inventory by a pretty large margin.

So the assumption is that the people that you have on the ground now, you will need very little change on that long term to be able to handle that additional work?

Ms. DARCY. What we envision, Senator, is part of the rule is to get better certainty into what is jurisdictional and what is not, who was in and who is out. We do that by providing definitions, some definitions for the first time in the proposed rule, like a definition of tributary. That is the first time that has ever been defined.

So if we have a bright line test so that people know they are in or out, I think that it will, over time, reduce the number of case-by-case specific determinations we have to make. Right now, if a permit comes in and it's not currently a regulated water, we have to go out and make case-by-case specific determinations on whether there is a significant nexus, whether there is a tributary. By defining tributary and other things in the rule, we will know, because they are a tributary, whether they need a permit or not.

Senator LANKFORD. It's no big surprise to you that many people across the frigid plain are a little concerned that every low spot on their land that is a dry low spot that holds water when it rains suddenly gets defined as a tributary and that bright line that you talk about seems a little fuzzy at this point.

Ms. DARCY. Senator, we have received over 1 million comments on this rule, and many of the comments are dealing with being

more specific in the definitions and getting some more clarity, so we are taking those comments to heart before we issue the final rule.

#### FEDERAL FLOOD RISK MANAGEMENT

Senator LANKFORD. Okay. Let me ask about one another piece. The Federal Flood Risk Management Standard, which is another one of those things that as it comes through the process, there are a lot of questions about, if individuals can get access to data and the underpinnings of that and the scientific research and how that came about, if there will be a significant moment for not only receiving comment but knowing that their comment is heard and acted upon.

Tell me the status on that and how much transparency there will be in this process?

Ms. DARCY. The flood standard, as you know, is in the public comment period for implementation, to have the public comment on how this flood standard should be implemented. It is out for a 60-day comment period.

We, the Corps of Engineers, along with the other Federal agencies, are active in that process. That will be transparent. I believe the comments will all be publicly available before we finalize any implementation guidance.

Senator LANKFORD. Okay, all the data and the underpinnings and the research for it, background, where will that be, as far as availability?

Ms. DARCY. FEMA was one of the lead agencies on this effort, and I believe it will be on FEMA's Web site. But we can get back to you on that.

Senator LANKFORD. Yes. That has been an issue, that some of these decisions have been made and they said the research and data behind it is proprietary, so it cannot be released. So there is a pretty significant change, and no one can see the data. So I would like to have every opportunity that we can to have peer-reviewed data that is available to people, and they can actually interact with that data.

Ms. DARCY. I believe we are going to do that, but I will get back to you with the website. Hopefully, we can provide information.

Senator LANKFORD. I would like that very much, to be able to have that kind of availability of data and that kind of interaction.

Mr. Chairman, thank you.

#### INLAND WATERWAYS TRUST FUND

Senator ALEXANDER. Thank you, Senator Lankford.

I have an appointment with the President's nominee for Secretary of Defense. I am going to go keep it. Senator Feinstein is going to preside. She has a couple questions that she is going to ask, and I trust her with the gavel. She is experienced with it.

I have one question of clarification, General Bostick. Did you say that there are \$380 million of projects for the Inland Waterways Trust Fund? What was the \$380 million figure you said?

General BOSTICK. This was an estimate of capital projects business model. There is a capital projects business model, and that effort showed that we need about \$380 million per year over a 20-

year period to really address the infrastructure and the needs of the inland waterways.

Senator ALEXANDER. So that would do it? That is all it takes, combined appropriated and trust fund money?

General BOSTICK. I don't know what the all the assumptions are that went into that, but we can provide that to you.

Senator ALEXANDER. I would like to see that. I would like to see some estimate of what the backlog of projects is, what the estimated work plan is over the next several years, and how the funding that is expected to come in from the trust fund and the appropriated funds meets what we need to do. We can talk about that separately, but I would like to talk with you about that.

General BOSTICK. We will do that, sir.

Senator ALEXANDER. Thank you for coming. The hearing record will remain open for a week for additional questions. And Senator Feinstein will now preside and ask whatever questions she would like to ask.

#### CALIFORNIA DROUGHT

Senator FEINSTEIN [presiding]. Thank you very much, Mr. Chairman. Be assured that I will behave.

Commissioner López, I would like to thank the bureau for working very hard to maximize water supplies in California under the most difficult circumstances. The bureau has just been terrific, and I have had nothing but positive feedback about Reclamation, not only from many constituents but also from the State people and State departments who depend on various water project supplies.

I am also very pleased to see that Reclamation has developed a spending plan to make good use of the \$50 million provided to the bureau to address the West's drought. Not only California, but other States in the west will also benefit from increased funding for increases to fight drought.

As you know, the drought in California shows no sign of abating. Between December 21 and February 6, most of California saw no measurable precipitation. Even after this past weekend's storms, Shasta remains at 51 percent of capacity, Oroville at 45 percent, Folsom at 51 percent, and San Luis at 56 percent. Snowpack statewide is at 27 percent of normal.

I mentioned how people are suffering from it. I also want to mention that wildlife and refuges are suffering, too. The fall trawl surveys showed record low numbers for Delta smelt. Low water flows and higher than normal water temperatures have killed off many endangered winter run salmon eggs and fries. Habitat for migratory birds has shrunk dramatically. This weekend's storm flows are expected to decrease quickly.

Until we see the next storm, if we see one at all, the first question is, what do you think you can do to ensure the maximum amount of water is captured and stored for human as well as environmental use?

Mr. LÓPEZ. Thank you, Senator. I think the best thing that we can do is the continuing coordination with the regulatory agencies, that is, the fish agencies, Fish and Wildlife Service, National Marine Fisheries Service and EPA.

Oftentimes, those regulations, be they either biological opinions or water quality issues, are really what is going to constrain our ability to capture some of those flows when they are happening.

We are, as you know, in very, very close daily coordination with them. And I think that we have been trying to maximize flexibilities, in terms of how much we are able to take. We are monitoring the fish on a real-time basis to make sure we are not reaching critical take limits. And we are adjusting the pumping daily to keep all that going.

We continue to have challenges, as you know, with water hyacinth that are blocking the CVP pumping facility. We are working with a number of irrigation districts, the State and others. They are lending us resources and manpower to try to deal with those issues as well.

So we will continue to work in close coordination with all the interested entities. Additionally, I think another key element is that we continue to do all of what we are doing with complete transparency. That is, the people who depend on us for their water supply need to know why we are making the decisions we are making and need to have confidence that they are well-reasoned. We are also trying to make sure that we are coordinating with Congress and making sure that you know what is going on, as well.

These are all things that we will continue to do.

#### CALFED STORAGE PROJECTS

Senator FEINSTEIN. Right. As you know, I'm very disappointed. I know NMFS and Fish and Wildlife worked on a plan, along with your agency, and the plan was turned down by the director of the State board. I understand there is going to be an appeal to the full board. I am very disappointed at that action. So hopefully, we can reverse it. We'll see.

Last year, the State's voters voted overwhelmingly to approve a \$7.5 billion water bond, which includes \$2.7 billion for water storage. To determine whether that money can be applied to one or more of the CALFED storage projects, the State must know whether the projects are feasible or not by 2016.

This is a very high priority for me, and I would like to run through the scheduled completion dates for each of the projects, and you let me know whether the timeline has changed. And if yes, what is the completion date to which you can commit Reclamation? It is my understanding that we submitted this to you so that you won't be blindsided by it.

Shasta Dam raise? The final documents were originally scheduled to be released in either December 2014 or January 2015. What is the final completion date for the final feasibility study and final environmental impact statement?

Mr. LÓPEZ. Senator, these reports are undergoing the final executive review right now. From our perspective, the technical work has been completed. They are getting their final review, and we hope that they will be available to you soon. But I can't speak to the exact timeframe.

Senator FEINSTEIN. Well, will it be 1 month, 2 months, 6 months, or 6 years? It has been 10 years so far.

Mr. LÓPEZ. Senator, I think we are very, very close.

Senator FEINSTEIN. Okay. I guess I will now know what you mean by very, very close. You are new. We'll see.

Temperance Flat, I was told last year that the final study and EIS will be ready by July of this year. Are they still on target to be delivered in July of this year?

Mr. LÓPEZ. Senator, I think my response is going to be similar to my last one. I think that we are on track. Reclamation is on track to complete the technical work by July, and then it will require some time to complete Executive Review. The timeframe for that review to be completed, I am not certain how long that will take.

Senator FEINSTEIN. Okay. But you are saying that the technical work will be completed by July?

Mr. LÓPEZ. Senator, I think we are on track to meet that deadline.

Senator FEINSTEIN. Okay. Sites Reservoir, I understand the bureau is working with the local joint powers authority, with whom I just met a few days ago and was very impressed with what they are putting together, to complete a project management plan by the end of this month that would establish the remainder of the feasibility study schedule.

Is delivery of the project management plan on schedule?

Mr. LÓPEZ. Senator, as you speak, the Joint Powers Authority met with us, as well. They are very engaged in getting their piece of this puzzle put together, and we are working with them on a Project Management Plan. If we can bring that to fruition, I think we will remain on schedule for the technical work.

What we are trying to do with all these studies is do them sequentially, that is, Shasta first, then Temperance Flat, then Sites, such that we don't spread ourselves so thin that none of them move ahead.

We think we are on course to get to that endpoint and stay on schedule, so that the decision can be made about this reservoir as well.

Senator FEINSTEIN. Sites, although it is the most expensive, may just well turn out to be the best, because it produces the most, although it is expensive. But if I understood the joint powers agreement, they are going to actively participate in the financing and are trying now to raise money.

So I think if it has a reasonable cost-benefit, and if the feasibility is within a reasonable amount, I think that is a very important reservoir to take a look at.

Los Vaqueros Phase 2 expansion. The first phase of expansion was completed in 2012, and the locals are contemplating a second expansion phase. Does Reclamation have any information on the expected timeframe for a decision to be made about Phase 2 work and the anticipated completion timeline?

Mr. LÓPEZ. Senator, I do not have a timeline for that one. I would like to supplement my answer.

[The information follows:]

Regarding the San Luis Low Point Improvement Project, including a dam raise alternative, is scheduled for final reports in December 2017. Engineering analysis for the Safety of Dams (SOD) Corrective Action Study is in progress. Seismic and constructability analyses are scheduled for completion in 2015. This project relies

on information being developed via the SOD program to ensure a dam raise alternative also resolves the potential seismic risk.

We had considered accelerating the schedule, but that effectively eliminated the economies that could be achieved by addressing the seismic issue in conjunction with the low point problem and other water supply reliability issues. The point of the feasibility study is to identify the economies that could be achieved by combining the seismic, low point, and water supply reliability aspects, and we do not have any specific details. The primary economy is gained from allocating the cost of the dam raise among numerous purposes.

Senator FEINSTEIN. Yes, would you? I will mark that down.

And last, San Luis Reservoir. An initial appraisal study was completed in December 2013. Do you have an estimate for when the draft and final feasibility studies will be completed?

Mr. LÓPEZ. I was informed that we are on track to have a draft by the summer of next year, the summer of 2016, with the target of having a final in the fall of 2016.

Senator FEINSTEIN. Isn't San Luis the one that doesn't take very much? It has to undergo earthquake repair?

Mr. LÓPEZ. I believe that is correct, Senator.

Senator FEINSTEIN. So if I understand this, if the work could be done when the earthquake repair is done, the amount is not that great for a prudent raise. It is not a huge raise, but it is a raise that could be very helpful. And as I understood it, it costs in the millions, not the billions, low millions.

Mr. LÓPEZ. Senator, what you are describing I believe is correct, that if we could do both of these at the same time, we should gain some economies. I don't have at my fingertips all the details about it though.

Senator FEINSTEIN. Okay. Perhaps you would.

[The information follows:]

Reclamation and Contra Costa Water District are developing a Project Management Plan to identify the tasks, schedule, and budget necessary to complete a feasibility report and environmental documents for the next phase. Reclamation will need a nonfederal cost share partner to implement the Project Management Plan.

Senator FEINSTEIN. And I thank you for the water hyacinth. I have never seen anything quite like the photos that I have seen of that mass that has grown.

I gather this is all imported, the hyacinth is not native. Is that correct?

Mr. LÓPEZ. Senator, I understand that it is a species that has been introduced into the area. I don't know that from study of my own. But I have been told that it probably came over on the ballast of ships into the area. But it is, certainly, established now.

Senator FEINSTEIN. Alright.

Well, we had a very good meeting, and I look forward to working with you, and I think getting those feasibility studies done, as I said, it has been 10 years. It really has. And what is emerging I think is very interesting as to what looks like the most doable.

You and I both talked to that joint venture, and it was very impressive. And to date, I know of no real opposition to it. So if the Sites numbers could get done, that would be very much appreciated, quickly.

Mr. LÓPEZ. Senator, we understand the importance of moving all of these forward, particularly last year and this year are demonstrating the importance of storage. Obviously, the quicker we can get all of these answers done, the better for all of us.



## ADDITIONAL COMMITTEE QUESTIONS

Senator FEINSTEIN. Thanks, commissioners. Thank you very much, ladies and gentlemen.

As Senator Alexander stated, the hearing record will remain open for 10 days. Members can submit additional information for the record within that time, if they would like.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

## QUESTIONS SUBMITTED BY SENATOR THAD COCHRAN

## FEDERAL FLOOD RISK MANAGEMENT STANDARD

*Question.* Please identify any non-government organizations or individuals that had any role whatsoever in composing, editing, drafting, reviewing or developing any part of the FFRMS, the draft version of the Implementing Guidelines published in a Federal Register Notice on February 5, 2015, pursuant to EO 13690. Identify the individuals, their organizations, their roles in the process, including any individuals or organizations that worked through a contractual relationship with any office, agency or department of the Executive Branch.

*Answer.* All activities associated with the FFRMS and its Implementing Guidelines were facilitated through an interagency process as part of the Mitigation Framework Leadership Group (MitFLG). The membership of this group is listed on the Federal Emergency Management Agency's (FEMA) Web site.

*Question.* Please identify the Governors, mayors, and other stakeholders from whom input was solicited prior to the establishment of the new FFRMS. Include the dates input was solicited, the dates any response or input was provided, and a summary of any input and responses that were considered in the development of the FFRMS.

*Answer.* The Corps was not involved in the process of soliciting the views of Governors, mayors, or other stakeholders on the standard, and as a result, cannot offer any comments on how this process was designed and/or implemented.

*Question.* Please provide a detailed summary of the activities of the Mitigation Framework Leadership Group since its inception relating to the development of the FFRMS, including a list of Federal members. Also provide a list of non-Federal members, including State, local and tribal governments, private sector and non-government organizations, and include a summary of their involvement in the development of the FFRMS and the dates such involvement occurred.

*Answer.* FEMA, who serves as the chair of the MitFLG, will be in the best position to provide detailed information about its membership and associated activities supporting the development of the FFRMS. Also, the membership of this group is listed on FEMA's Web site.

*Question.* Consistent with Executive Orders 13563 and 12866, please detail the methods used in determining the costs, benefits or scientific rationale of the FFRMS prior to its issuance, and provide the results of any such analyses.

*Answer.* EO 13690 amends existing EO 11988 decisionmaking processes for agencies to follow when conducting Federal actions in a floodplain. Consideration of alternatives for determining the area where agencies need to apply the existing EO 11988 decisionmaking process was accomplished through an interagency process facilitated by the MitFLG. Recommended options for assessing alternatives for Federal actions in floodplains are consistent with projected scenarios for sea-level rise, and are consistent with findings and recommendations put forth in the recently released North Atlantic Coast Comprehensive Study, prepared by the Corps.

*Question.* Please provide a detailed accounting of any activities to engage the public and their representatives in Congress in the development of the FFRMS prior to January 30, 2015, not otherwise addressed herein.

*Answer.* As previously stated, the Corps was not involved in the process of soliciting the views of stakeholders on the standard, and as a result, cannot offer any comments on how this process was designed and/or implemented. Currently, the MitFLG is soliciting public comments on the interagency Implementing Guidelines that could inform future revisions to the FFRMS as part of its annual review as required in Section 4(b) of EO 13690. In the months ahead, the Corps will seek public dialogue as the agency develops its Implementing Guidance.

*Question.* Please provide a detailed accounting of any funds expended to support the activities of the Water Resources Council, including the source of all such funds. Identify any Executive Branch personnel, including offices, departments, and agencies, utilized to support the activities of the Water Resources Council. Also include the dates any meetings of the Water Resources Council were held, attendance at such meetings, and whether there was any public notice of any meetings.

*Answer.* Executive Order 13690 establishes a Federal flood risk management standard, a flexible framework to increase resilience against flooding and help preserve the natural values of floodplains. It also establishes a process for further soliciting and considering public input, including from Governors, mayors, and other stakeholders, prior to implementing this standard. Executive Order 13690 amends Executive Order 11988. It sets up a process under which the Mitigation Framework Leadership Group, after reviewing the public comments, will provide recommendations to the Water Resources Council. The Water Resources Council would then provide guidance to agencies on the implementation of Executive Order 11988, as amended, consistent with the Federal risk management standard.

The President issued Executive Order 13690 on January 30, 2015. The Army Corps of Engineers will be involved in this process through the Mitigation Framework Leadership Group, as a member of the Water Resources Council, and as an implementing agency. The Army Corps of Engineers will be available to participate in this process, as appropriate, within its existing resource levels.

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QUESTIONS SUBMITTED BY SENATOR MITCH MCCONNELL

KENTUCKY LOCK PROJECT ON THE TENNESSEE RIVER

*Question.* What is the estimated completion date for the Kentucky Lock project?

*Answer.* The completion date could depend on a range of factors, including the availability of funding. At this point, the earliest that the Corps estimates that it would be able to complete physical construction would be in calendar year 2022.

*Question.* What are the annual funding levels assumed for this estimated completion date?

*Answer.* The capability estimate for each study or project is the U.S. Army Corps of Engineers estimate for the most that it could obligate efficiently during the fiscal year for that study or project. However, each capability estimate is made without reference to the availability of manpower, equipment, and other resources across the Army Civil Works program, so the sum of the capability estimates exceeds the amount that the Corps actually could obligate in a single fiscal year. The Budget allocates funding among studies and projects on a performance basis in a manner that will enable the Corps to use that funding effectively. Consequently, while the Corps could obligate additional funds for some studies and projects, offsetting reductions within the Army Civil Works program would be required to maintain overall budgetary objectives.

The funding stream below includes inflation. However, it must be noted that funding for Kentucky Lock would be considered, along with all other funding requirements for projects throughout the Nation.

Fiscal Year 2015—\$15.0 million

Fiscal Year 2016—\$50.6 million

Fiscal Year 2017—\$51.7 million

Fiscal Year 2018—\$50.5 million

Fiscal Year 2019—\$69.0 million

Fiscal Year 2020—\$95.2 million

Fiscal Year 2021—\$85.1 million

Fiscal Year 2022—\$28.8 million

Fiscal year 2023—\$0.8 million

*Question.* What is the remaining benefit/remaining cost ratio for the Kentucky Lock project?

*Answer.* The benefits and the costs of the project need to be updated and therefore a current remaining benefit/remaining cost ratio is not available.

*Question.* Does the cost to complete the Kentucky Lock project increase annually as it remains in “caretaker” status?

*Answer.* In real terms, the cost to complete the project should not increase.

FISCAL YEAR 2015 WORKPLAN/IWTF

*Question.* The fiscal year 2015 USACE work plan includes \$6 M in unobligated funding. Does the USACE intend to use this funding, and if so, how?

*Answer.* Yes. These funds have not yet been allocated because a useful increment of work has not yet been identified for those funds. The remaining funds will be allocated coincident with identifying a useful increment or increments of work for those funds.

SECTION 1035 WRRDA, FLOATING CABINS

*Question.* It is my understanding the USACE is currently developing health and safety guidance regarding Sec. 1035 of the Water Resources Reform and Development Act of 2014 (Public Law 113–121). I am told that your agency has committed to considering input from interested parties on this health and safety guidance prior to its finalization.

Will there be an opportunity for interested parties to view a draft proposal of the guidance in an effort to provide comment prior to the finalization of this guidance? If so, is there a date when stakeholders may expect a draft proposal to be made available for review? If not, please explain why stakeholders will not have the opportunity to provide comment on this guidance.

*Answer.* In the fall of 2014, the Corps held a series of three listening sessions for government entities and the public to learn about and/or express their concerns or issues on any section of WRRDA 2014. Afterwards, the Corps extended the offer to accept, consider, and address any concerns of marina operators or other constituents, but no comments were provided to the Corps.

The Corps is in the final stages of preparing implementation guidance that is within the parameters of Section 1035 of WRRDA 2014. Once approved by the Assistant Secretary of the Army for Civil Works, the policy will be released to the public and to the Nashville District for implementation. In addition, the Nashville District will notify applicable marina operators of the policy and distribute it accordingly. Marina operators will also be extended the opportunity to meet with the Project Manager and any other District personnel concerning questions and direction on submitting requests to expand the marina outgrant to include floating cabins and/or concerning new marina proposals to include floating cabins.

QUESTIONS SUBMITTED BY SENATOR LISA MURKOWSKI

CONTINUING AUTHORITIES PROGRAM

*Question.* At the subcommittee hearing, I asked about funding for the Continuing Authorities Program, specifically Sections 103 and 107. These sections have not received much funding in recent years; in fact, the Corps has not included them in the budget since 2011, although the appropriations process has put money into those accounts.

What are the current unobligated balances of those accounts?

*Answer.* As of January 31, 2015, Section 103 had \$8.63 million in unobligated prior-year funds and \$1.25 million in fiscal year 2015 funds, for an unobligated total of \$9.88 million. Of this, \$4.61 million is on projects and planned for obligation in fiscal year 2015 and fiscal year 2016, and \$5.27 million is being held in Headquarters pending execution of cost sharing agreements.

Section 107 had \$7.08 million in unobligated prior-year funds and \$2.35 million in fiscal year 2015 funds, for an unobligated total of \$9.43 million. Of this, \$4.09 million is on projects and planned for obligation in fiscal year 2015 and fiscal year 2016, and \$5.34 million is being held in Headquarters pending execution of cost sharing agreements.

*Question.* How does the Corps plan to fund them going forward?

*Answer.* The available balances will be used to complete useful increments of work, including completion of ongoing projects and initiation of additional projects if affordable.

*Question.* Why are the funds not being used?

*Answer.* The funding in the sections either has been allocated to projects or is being held in Headquarters pending execution of cost sharing agreements.

*Question.* Can the small, rural communities of Alaska begin feasibility studies or general investigations using funds from 103 or 107?

*Answer.* Based on guidance from Congress, new starts are allowed in CAP where the Corps has completed a favorable affordability analysis. The CAP affordability analysis is looked at over a 3 year period and takes into account the anticipated funding, capability cost of active projects, less attrition, and potential cost of new starts, less attrition. Based on the cost of ongoing feasibility work, the cost of scheduled construction for fiscal year 2016, and the potential future costs of other ongoing projects (even after allowing for attrition as some projects are discontinued), new

starts in Section 103 and 107 do not appear affordable at this time. For instance, in Section 103 there are 3 projects with pending Project Partnership Agreements (PPAs) and a total need of \$7.2 million in Federal funds for construction. In Section 107 there are 4 projects with pending PPAs and a total need of \$10 million in Federal funds for construction. The Corps will re-evaluate affordability on a quarterly basis and, when possible, consider additional projects.

#### ARCTIC DEEP DRAFT PORT

*Question.* I am enthusiastic about the release of the Corps' Draft Report regarding the Deep Draft Arctic Port System Study. This is a plan to build much needed infrastructure in the Arctic that will help the people of Alaska lower their cost of living, drive the local and State economies, and allow for a faster response in the event of an oil spill in the region.

Can you please provide me with a detailed plan for how this project will proceed?

*Answer.* Upon completion of public, technical, legal, policy and independent external peer reviews, the next step would be for the Arctic Deep Draft study team to develop responses to comments submitted and modify the recommended plan as appropriate.

*Question.* What is the estimated timeline for the Review Board Hearing and Chief's Report?

*Answer.* The Civil Works Review Board is currently scheduled for the first quarter of fiscal year 2016. Upon completion of a successful Civil Works Review Board and State and Agency Review of the project, the final feasibility report will be forwarded to the Chief of Engineers for review and approval.

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#### QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

##### SOUTH SAN FRANCISCO BAY SHORELINE STUDY

*Question.* Can you tell me how you plan to finish the Chief's Report by December 2015, as promised, without Federal funding in the fiscal year 2015 Work Plan and in the fiscal year 2016 Budget?

*Answer.* We are considering all available options for completing this report.

*Question.* If there are unallocated funds in the fiscal year 2015 Work Plan that can be applied toward the study, can you commit to me that you will make the required sums available so that the study will stay on schedule?

*Answer.* It is premature to make this commitment at this time as we are still developing the fiscal year 2015 Work Plan. However, our goal is to keep this study on an efficient schedule.

*Question.* Can you commit to me that the Chief's Report will in fact be done by December 2015 with no further delays?

*Answer.* Our goal is to complete the Chief's Report by the end 2015 if there are not any unforeseen issues.

##### NAPA RIVER FLOOD CONTROL PROJECT

*Question.* The Napa River Flood Control Project was provided funding in fiscal year 2014 to complete the bypass through the downtown area thereby capturing a majority of the project benefits. However, it has recently been determined that this work that was committed to in fiscal year 2014 will cost more than was initially anticipated and additional funds will be required. It would appear that sufficient funds remain unallocated that could be used for this purpose.

Why were these funds not included in the fiscal year 2015 work plan?

*Answer.* I became aware of the cost increase to complete this final phase late in the process of developing the work plan and am still gathering information regarding the scope and extent of the additional funds needed to complete this project that was previously funded to completion in fiscal year 2014.

##### CALIFORNIA DROUGHT

*Question.* What is the Corps doing to help with drought conditions in California?

*Answer.* First, the Corps implemented temporary deviations to operations at Whittier and Prado Dams during the drought which has allowed the maximum capture of over 22,000 acre feet of water. Other deviation requests will likely be forthcoming.

Second, the California Department of Water Resources has been meeting with the Corps about permits for salinity barriers in the Delta. The Corps expects additional permit requests for other work, including pumps, siphons, wells and pipe extensions.

Third, the Corps is engaged with other Federal, State and local agencies to anticipate and assist in providing drought responses. Regionally, the Corps is participating in forums conducted by the California Office of Emergency Services, the lead State agency, regional water planning bodies and directly with project partners.

Fourth, the Corps is providing technical assistance to local communities. For example, the Corps provided technical assistance to Redwood Valley Water District to place a temporary floating pump platform in Lake Mendocino that will allow continued water withdrawal if the lake level falls below the permanent intake.

The Corps remains engaged with the California Drought Task Forces and is prepared to immediately act in processing deviations, regulatory permits and emergency water assistance requests within existing authorities. To improve longer-term drought resiliency, the Corps is working with the National Weather Service on improving forecast-based decision parameters for reservoir operations.

*Question.* Are there legislative or institutional barriers that hinder the Corps in assisting with drought mitigation?

*Answer.* The Army Civil Works program's actions reflect its authorities. In a drought, for example, the Corps may be able to take steps to change project operations at a multi-purpose dam that includes water supply as an ancillary project purpose. In some cases, the Corps may also be able to provide certain emergency assistance under Public Law 84-99.

#### HARBOR MAINTENANCE TRUST FUND

*Question.* It is my understanding that your fiscal year 2016 request for funding for activities that are reimbursed from the Harbor Maintenance Trust Fund is \$915 million, exactly the same as your fiscal year 2015 request.

As a percentage of the eligible work, what is the percentage that the Administration budgeted?

*Answer.* The level of Federal spending to support harbor maintenance and related work in the Budget reflects consideration for the economic and safety return of these investments, as well as a comparison with other potential uses of the available funds. The fiscal year 2016 Budget includes funding for about one-third of the potential eligible work.

*Question.* What costs to the economy are associated with the Administration's request?

*Answer.* Generally, the Corps considers costs and benefits in recommending which work to fund. However, the Corps does not track costs to the broader economy for the operation and maintenance work that it performs, or does not perform.

*Question.* What types of benefits are not realized?

*Answer.* Harbor maintenance and its benefits vary by project. Generally, the amount recommended in the Budget has a higher return than other potential work. The benefits are of the same type, but diminish with each added increment of funding. For example, more funding could, in some cases, enable some of the vessels that use a port to carry more cargo at high tide. At the current funding level, they may need to wait for a low tide, when fully loaded. On the other hand, regardless of the level of harbor maintenance, many ships may not be fully loaded, and many others—due to factors such as their size, and the density of their cargo—may be able to use it even when fully loaded. In deciding how much funding to recommend, the Corps would consider how many of the vessels that use that port are affected by the current channel condition, based on actual usage patterns. The choice may involve, for example, dredging one foot more in depth in certain places, or two more feet in depth there. The first foot of additional depth could have enough of an impact to solve the basic concern, but not address it fully for every ship. In that case, the Budget might fund the first increment of work but not the second. Finally, the port can always decide to provide its funds to enable the Corps to perform more work.

Most of the harbor maintenance work that the Corps performs involves maintenance dredging. The Corps also performs other work with these funds, such as operation and maintenance of coastal navigation locks, construction and maintenance of dredged material placement site, and repairs on jetties and breakwaters to maintain their effectiveness.

*Question.* How is it rational to be collecting a tax for the purpose of maintaining harbors, yet not using it for that purpose?

*Answer.* Federal funding for maintenance dredging and related work at our coastal ports should not be based on the level of the harbor maintenance tax receipts. It should reflect consideration for the economic and safety return of each investment, as well as a comparison with other potential uses of the available funds.

*Question.* What was the total of the most recent amount of collections from the HMT?

*Answer.* fiscal year 2014 collections included Harbor Maintenance Tax receipts of \$1.51 billion, plus \$107 million in interest, for a total income of \$1.62 billion.

*Question.* What is the fiscal year 2016 target funding level for the HMT according to the 2014 WRRDA?

*Answer.* Section 2101(a) of WRRDA 2014 identifies a level of resources that is the target total budget resources for each fiscal year. For fiscal year 2016, this level is \$1.254 billion.

*Question.* For fiscal year 2015, Congress provided \$1.1 billion to be utilized for HMT activities. What types of activities were the funds used for?

*Answer.* fiscal year 2015 Harbor Maintenance Trust Fund activities included maintenance dredging of harbors and channels; maintenance of breakwaters, jetties, bridges, and other coastal structures; operation and maintenance of coastal locks, dams, and other infrastructure; construction, operation and maintenance of dredged material placement sites; removal of floating debris and aquatic growth; project surveys; engineering and design and supervision and administration costs; conduct of studies and preparations of reports for dredged material management plans and major rehabilitations; environmental testing, monitoring, and mitigation; retention of the Corps hopper dredges WHEELER and McFARLAND in a Ready Reserve status; and collection of Harbor Maintenance Trust fund data.

*Question.* How did these activities differ from those that the Administration budgeted for in fiscal year 2016?

*Answer.* The fiscal year 2015 activities are very similar to those activities that were budgeted in fiscal year 2016.

*Question.* Did the additional funds included in the fiscal year 2015 work plan provide benefits to the national economy that might not have been realized if just the Administration request had been funded?

*Answer.* The fiscal year 2015 work plan funds provided for additional maintenance of budgeted projects and maintenance of projects that were not included in the fiscal year 2015 Budget.

*Question.* WRRDA 2014 provided a very elaborate and confusing distribution of funding for HMT related activities. Did you follow this distribution when allocating funds for the fiscal year 2015 work plan? What about for the fiscal year 2016 budget request?

*Answer.* The Corps followed Congressional direction provided in Section 105 of the Energy and Water Development and Related Agencies Appropriations Act, 2015, Division D of the Consolidated Appropriations and Continuing Appropriations Act, 2015, when allocating funds in the fiscal year 2015 Work Plan. The fiscal year 2016 Budget takes into account some of the provisions of Section 2102 such as allocating not less than 10 percent of HMTF funds to emerging harbors and Great Lakes harbors.

*Question.* In either case, were there sufficient funds to undertake all of the activities described in WRRDA 2014?

*Answer.* Yes. However, we allocated the funds in the fiscal year 2015 work plan and the fiscal year 2016 Budget based on a technical judgment by the Corps of the best use of those resources.

*Question.* In the fiscal year 2016 budget request, how did the Administration account for the WRRDA direction when allocating funds in the budget request?

*Answer.* The fiscal year 2016 Budget takes into account some of the provisions of Section 2102 such as allocating not less than 10 percent of HMTF funds to emerging harbors and Great Lakes harbors.

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QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

HARBOR MAINTENANCE TAX

*Question.* As we all recall, getting the long overdue Water Resources Reform and Development Act (WRRDA) over the finish line was an uphill battle. But ultimately the end result was an important step forward for the Army Corps, water and navigation infrastructure, and the Harbor Maintenance Tax (HMT). Specifically, Section 2102 of WRRDA allows eligible ports to use funds from the Harbor Maintenance Trust Fund (HMTF) for expanded uses beyond the traditional operations and maintenance uses. For many years some of the largest generators of HMT funds, like the Ports of Seattle and Tacoma in my home State of Washington, have received only minimal returns from the HMTF because they are deep-water ports that require little maintenance dredging. Additionally, Section 2106 of WRRDA allows the

biggest HMT donor and energy ports to receive funding for expanded uses or for rebates to shippers and importers transporting cargo through their ports to partially compensate for the inequities in the current HMT system resulting in cargo diversion to non-U.S. ports.

WRRDA was signed into law on June 10, 2014, about 8 months ago, and yet we still have not seen implementation guidance from the Army Corps on Sections 2102 or 2106. In fact, there is very little of WRRDA to be seen in the Army Corps' fiscal year 2015 Work Plan or the President's fiscal year 2016 budget request. Our ports need the new tools authorized in WRRDA to make infrastructure improvements and to remain competitive in the global maritime economy.

Assistant Secretary Darcy, when can we expect the Army Corps' implementation guidelines to be completed? I ask that you complete this work quickly to ensure that the real changes Congress enacted can be included in the Army Corps fiscal year 2016 Work Plan. Furthermore, I urge the Army Corps to take steps to incorporate Sections 2102 and 2106 in the fiscal year 2017 budget request.

*Answer.* The Corps expects to complete implementation guidance for Sections 2102 and 2106 this spring.

#### MUD MOUNTAIN

*Question.* Assistant Secretary Darcy, as we have previously discussed, the Mud Mountain Dam project is of great importance to me, my constituents, and Washington State. Appreciate the time and energy you have put into finding a path forward with NOAA to ensure the Army Corps meets both its Endangered Species Act and tribal trust responsibilities by replacing the diversion dam and building a new fish trap facility. But I must say I was deeply disappointed to learn that no funding was included in the Army Corps' fiscal year 2015 Work Plan or the President's fiscal year 2016 budget request to get design work underway. In a recent phone call with me, you stated that upon completion of the decision document the Army Corps would reprogram funding in fiscal year 2015 and fiscal year 2016 to begin the design phase.

When can I expect the decision document to be completed? Further, I ask that you keep me apprised of any reprogramming requests made by the Army Corps to support this project.

*Answer.* The decision document, in the form of a letter report, is scheduled to be submitted to my office for review this summer. I will keep you apprised of any related reprogramming actions.

*Question.* Assistant Secretary Darcy, I need your commitment to work with me to achieve the aggressive 2020 timeline for a new and operational fish trap facility that the Army Corps has agreed to with NOAA in order to meet its Federal obligations and the needs of the community and ecosystem. Can I count on your commitment to this project?

*Answer.* Yes, the Army remains committed to meeting the requirements described within the 2014 National Marine Fisheries Service (NMFS) Mud Mountain Dam (MMD) Biological Opinion (BiOp).

#### COLUMBIA RIVER TREATY

*Question.* The Army Corps, through the Northwest Division, plays an important role implementing the Columbia River Treaty as a member of the U.S. Entity. Together with the Bonneville Power Administration (BPA), the Northwest Division engaged in a multi-year process with domestic stakeholders throughout the Pacific Northwest to reach a regional consensus to modernize the Columbia River Treaty. The "Regional Recommendation for the Future of the Columbia River Treaty after 2024" was presented to the Administration and U.S. Department of State in December 2013. Since then the Army Corps, BPA, and several other Federal agencies have been participating in an Interagency Policy Committee (IPC) process to determine the parameters for negotiations with Canada based on the Regional Recommendation.

Assistant Secretary Darcy, as a participant in the IPC process, can you share the timeline for formulating a consensus among the Federal partners on these parameters? Furthermore, are there any specific issues preventing the Federal partners from reaching consensus, completing the IPC process, and beginning negotiations with Canada?

*Answer.* The IPC has been gathering more detailed information from affected Federal agencies. It is anticipated that the IPC will convene to formulate a recommendation to the Administration concerning the National Interest Determination, but we have not been provided a timeline for the IPC to formulate a rec-

ommendation. The U.S. entity is not aware of any specific issues preventing consensus.

QUESTIONS SUBMITTED BY SENATOR RICHARD J. DURBIN

FUNDING FOR PROJECTS

*Question.* The Metro East community has taken significant steps to ensure their share of funding for construction of the Metro East levees, showing strong commitment to the project.

How many times has the Corps worked with a local sponsor who raised more than half the cost of a Federal project? If the Corps has worked with local sponsors who have raised more than the required match, please list those projects.

*Answer.* With regard to construction of a Corps project, the authorized non-Federal share can sometimes exceed 50 percent of the cost. This is generally the case for hydropower infrastructure and for some coastal navigation projects. It may also occur where the authorized project is the locally preferred plan.

A non-Federal sponsor may also provide more than the authorized non-Federal share of the costs under the authorities that allow the Corps to accept advanced or contributed funds. On this basis, local sponsors have paid more than 50 percent of the construction cost at least four times in recent years: for construction of the Milwaukee Harbor, WI; Miami Harbor, FL; Keystone Bridge, OK; and Sandbridge Beach, VA projects. In addition, the Corps recently executed an agreement for the non-Federal sponsor to advance all funds for construction of the Mile Point, FL, project. Details for these projects are included in the following table.

Project name	Type of funds	Total project cost	Non-Federal cost share	Additional funds provided	Total non-Federal funds provided
Milwaukee Harbor, WI (Dredged Material Disposal Facility)	Contributed	\$3,108,145	\$1,709,480	\$1,398,665	\$3,108,145
Miami Harbor, FL .....	Advanced	181,553,000	71,553,000	110,000,000	181,553,000
Sandbridge Beach, VA .....	Contributed	15,819,000	5,537,000	10,282,000	15,819,000
Keystone Bridge, OK .....	Contributed	15,000,000	0	6,000,000	6,000,000
Mile Point, FL .....	Advanced	46,400,000	11,500,000	34,900,000	46,400,000

Advanced funds in excess of the required non-Federal cost share are eligible for repayment, subject to the availability of appropriations. Contributed funds are not eligible for credit or repayment.

WATER RESOURCES REFORM AND DEVELOPMENT ACT—CONSOLIDATION OF GEOGRAPHIC PROJECTS

*Question.* In Water Resources Reform and Development Act (WRRDA) 2014, Congress instructed the Corps to allow for the consolidation of geographically consecutive flood risk reduction projects at the request of the local sponsor. The local sponsor of the Metro East Levee projects made that request on June 19, 2014, and the spring construction season is almost upon us.

Has the Corps developed the guidance necessary to implement this section? If not, what are the specific challenges associated with developing the guidance?

*Answer.* The Corps Headquarters is currently developing implementation guidance for Section 3012 of WRRDA 2014. Section 3012 of WRRDA is potentially applicable to many projects nationwide. Consequently, we need to carefully evaluate the complexities of implementing this provision, to ensure the guidance can be applied through a fair and consistent process nationwide.

WATER RESOURCES REFORM AND DEVELOPMENT ACT—PUBLIC/PRIVATE PARTNERSHIPS

*Question.* River commerce in America’s heartland depends on the system of locks and dams on the Mississippi and Illinois Rivers. I was pleased to work with my colleagues in the 2007 reauthorization of the Water Resources Development Act to authorize modernization and expansion of the locks on these important Illinois waterways. These improvements make commerce more efficient and guard against catastrophic failures of current locks and dams as most of them reach 80 or so years old. At the same time, with current project delivery schedules and the tight Federal budget, these improvements are not expected to be realized until 2090 by some estimates. With that in mind I introduced the Water Infrastructure Now Public Private Partnership Act or WIN-P3, a version of which was included in the Water Resources Reform and Development Act (WRRDA) 2014 (Section 5014). The pilot pro-



gram would provide an opportunity for private financing to come to the table, accelerating project delivery of nationally significant water infrastructure projects like the locks and dams on the Mississippi and Illinois Rivers.

Please provide a detailed timetable for the development of the Corps' Public Private Partnership Pilot Program, as authorized in Section 5014 of the Water Resources Reform and Development Act (WRRDA) 2014.

*Answer.* The Corps has been evaluating how it might participate in public private partnerships in order to support the development and implementation of water resources infrastructure. With the passage of Section 5014 of WRRDA, the Corps has reviewed the law to determine how it can be applied in the best interest of the Nation. The first step includes identifying any policy and legal issues and then finding resolutions so that the Corps can enter into such partnerships.

#### MEL PRICE LOCK AND DAM

*Question.* The Mel Price Dam is a 100 percent Federal project that has a major design flaw, which Army Corps studies have found this situation puts the levee at an "unacceptable level of risk." Despite repeated calls to fix this problem the Corps has yet to finalize a design to shore up this critical stretch of levee. This delay is causing the Corps to spend millions each year in emergency measures to keep the levee from failing. The fiscal year 2014 Omnibus included both bill and report language directing the Army Corps to address the Mel Price issue, and yet there is little progress toward that goal.

What is the status of selection of a third party to oversee the Corps on its work on the Mel Price Lock and Dam repair project in Southwestern Illinois, pursuant to the 2014 Omnibus?

*Answer.* The language in the Bill is in regards to conducting an Independent External Peer Review (IEPR), which is a specific review activity performed by professionals who are external to the Corps, at a key point or points during the development of study reports and designs. The IEPR team provides comments on study and construction designs.

The IEPR for the recommended design in the study report is currently planned to begin November 30, 2015 and complete January 15, 2016. The Corps is currently discussing procedural options that could result in an earlier schedule for the IEPR. The study team continues to move forward with its efforts while options are being discussed.

#### GREAT LAKES AND MISSISSIPPI RIVER INTERBASIN STUDY

*Question.* The Corps released its Great Lakes and Mississippi River Interbasin Study (GLMRIS) report in January 2014, which was intended to identify options to prevent the transfer of aquatic nuisance species between the Great Lakes and the Mississippi River Basins. It is my understanding that stakeholders have agreed on a series of short-term steps the Corps could take to decrease the risk of Asian carp moving into the Great Lakes.

How have your conversations with Federal, State, and local agencies informed your next steps to prevent Asian carp from entering the Great Lakes?

*Answer.* The Great Lakes Commission publicly identified implementation of measures to reduce the risk of Asian carp, which included modifications to the Brandon Road Lock and Dam. Additionally the Chicago Area Waterway System Advisory Committee, a group of governmental and non-governmental stakeholders representing commercial, navigation, and environmental interests, identified actions such as evaluating aquatic nuisance species controls at Brandon Road that can reduce the risk of Asian carp reaching the Great Lakes Basin.

*Question.* Based on the evaluations presented in the GLMRIS Report and in response to stakeholder input, the Assistant Secretary of the Army for Civil Works directed the Corps to proceed with a formal evaluation of potential control technologies to be applied in the vicinity of the Brandon Road Lock and Dam, located near Joliet, Illinois.

How do the proposed actions at Brandon Road fit into these efforts?

*Answer.* See above response.

*Question.* How will the Corps use the \$500,000 requested in the fiscal year 2016 budget to implement these next steps?

*Answer.* Fiscal year 2016 funds will be used with anticipated fiscal year 2015 carryover funds to continue the feasibility-level decision document for the Brandon Road project.

## WATER OF THE U.S.—RULEMAKING

*Question.* There has been a lot of confusion surrounding how the proposed “Waters of the U.S.” rule would affect agricultural communities, industry, and counties in my State.

Would the new rule expand Clean Water Act jurisdiction in the State of Illinois? If so where?

*Answer.* In the economic analysis that was done for the proposed rule, the Environmental Protection Agency (EPA) estimated a slight increase in jurisdictional waters nationally, of approximately 3 percent compared to current practice. The EPA is preparing an updated economic analysis that will be published with any issued final rule which will also include an updated estimate of any change in jurisdiction under the Clean Water Act.

*Question.* How would the Corps’ determination of ‘jurisdictional waters’ differ under the proposed rule from its practices under the 2007 guidance?

*Answer.* The agencies are proposing this rule to provide much needed clarity regarding which waters are and which waters are not jurisdictional under all sections and programs of the CWA. Our proposal is consistent with the best available science and the agencies’ interpretation of the Supreme Court decisions; this proposed rule is aimed at improving efficiency in making jurisdictional determinations.

The proposed rule retains much of the structure of the agencies’ longstanding definition of “waters of the United States,” including many of the existing provisions that do not require revision in light of the SWANCC and Rapanos Supreme Court decisions or other bases for revision. Under the 2007 Rapanos guidance, updated in 2008, the agencies are required to make case-specific significant nexus determinations for certain categories of waters, including certain adjacent wetlands and tributaries. The proposed rule will improve clarity for regulators, stakeholders, and the regulated public. The proposal accomplishes this by defining certain categories of waters that under current policies require case-specific analyses, as jurisdictional by rule “waters of the United States.” A case-specific significant nexus determination would be required for waters that would not be jurisdictional by rule as long as those waters do not meet one of the exclusions included in the proposed rule. The proposed rule also adds clarity by providing definitions of “tributary,” “neighboring,” and “significant nexus.” Certain types of waters or features are proposed to be excluded for the first time in rule language, including certain ditches, stock ponds created by excavating and/or diking dry land, and gullies, rills and non-wetland swales.

*Question.* While the intent of the proposed rule is to provide clarity on the definition of “waters of the U.S.” (WoUS) subject to jurisdiction under the CWA, many of the actual methods used in a jurisdictional determination by the Corps are not expected to change. For example, the Corps would continue to use desktop and field-based tools, including remote sensing tools, existing methodology under the wetland delineation manual and accompanying regional supplements, and existing methodology for identifying the ordinary high water mark including the manuals developed for certain regions of the country. In addition, the options for requesting either an approved or preliminary jurisdictional determination would remain available to landowners.

Would the proposed rule cause additional permitting requirements? If so, how?

*Answer.* The proposed rule provides a definition of WoUS under the CWA and does not modify any statutory provisions or regulatory requirements associated with obtaining authorizations under section 404 of the CWA. The increase in jurisdictional tributaries, adjacent waters, and other/isolated waters over current guidance would correspond to an increase in the number of permits required. However, there may be efficiencies gained as additional categories of waters will be determined to be jurisdictional or non-jurisdictional by rule, which previously required case-specific significant nexus determinations.

The proposed rule does not modify or revoke any of the efficient permit mechanisms currently available, including general permits. In addition, the agencies’ proposed rule would retain all existing Clean Water Act exemptions and exclusions, including those associated with certain activities such as normal farming, ranching and silviculture, and maintenance of irrigation and drainage ditches.

## SUBCOMMITTEE RECESS

Senator FEINSTEIN. I would really like to thank everybody for being here today. I very much appreciate your interest in this subject. So thank you for being here, and the subcommittee will stand adjourned.

[Whereupon, at 4:43 p.m., Wednesday, February 11, the subcommittee was recessed, to reconvene subject to the call of the Chair.]



# **ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2016**

**WEDNESDAY, MARCH 4, 2015**

U.S. SENATE,  
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,  
*Washington, DC.*

The subcommittee met at 2:40 p.m., in room SD-192, Dirksen Senate Office Building, Hon. Lamar Alexander (chairman) presiding.

Present: Senators Alexander, Murkowski, and Feinstein.

## **U.S. NUCLEAR REGULATORY COMMISSION**

### **STATEMENT OF STEPHEN G. BURNS, CHAIRMAN**

#### **OPENING STATEMENT OF SENATOR LAMAR ALEXANDER**

Senator ALEXANDER. The Subcommittee on Energy and Water Development will please come to order. This afternoon we are having a hearing to review the President's fiscal year 2016 funding request and budget justification for the Nuclear Regulatory Commission. Senator Feinstein and I will each have an opening statement, and then each Senator may have up to 5 minutes for an opening statement, alternating between the majority and minority. Some Senators are fleeing before the snow comes, so I do not know how many will be here, but we are here. We will then turn to the witnesses for their testimony. We are glad to have so many of you here, and this is really an opportunity for us have to have a good discussion about nuclear power, the Nuclear Regulatory Commission.

I would like to thank our witnesses and introduce them in this way. Mr. Stephen Burns is chairman of the U.S. Nuclear Regulatory Commission. Mr. Chairman, welcome. Kristine Svinicki, good to see you again. Thank you for being here. Mr. William Ostendorff, good to see you again, Commissioner. Thank you for coming, Commissioner. Mr. Jeff Baran, welcome to the hearing, also a member of the Commission, the Nuclear Regulatory Commission.

We are here today to review the 2016 budget request for the Nuclear Regulatory Commission, which is an independent agency responsible for regulating the safety of our Nation's commercial nuclear power plants and other nuclear materials. It is the first time in a few years the subcommittee has had a hearing to examine the Commission's budget. It is also the first of several hearings that the subcommittee will hold this year on nuclear power. These hear-

ings are important because nuclear power provides about 20 percent of our Nation's electricity and more than 60 percent of our carbon-free electricity, and I will have more to say about all that as we go along.

I plan to focus my questions on four main areas: licensing nuclear waste repositories, which is a passion of Senator Feinstein as well as mine; number two, avoiding excessive regulation; number three, licensing for new and existing reactors; number four, making sure the Agency is running effectively.

First on waste, we have to solve the 25-year stalemate about what to do with used fuels from our 99 nuclear reactors, as well as fuel from some that have already stopped operating. We have to have a place to put the used fuel in order to ensure that nuclear power has a strong future in this country. Later this year, I look forward to reintroducing with Senator Feinstein, and Senator Murkowski, and perhaps others, legislation that would create temporary and permanent storage sites for nuclear waste. Also, Senator Feinstein and I plan to again include a pilot program for nuclear waste storage in the water and appropriations bill as we have for the past 3 years. Her idea, I strongly support it.

The new sites we would seek to establish through the legislation that we are reintroducing would not take the place of Yucca Mountain—we have more than enough waste to fill Yucca Mountain to its legal capacity—but would rather complement it. The legislation is consistent with the President's Blue Ribbon Commission on America's Nuclear Future, but my own view is that Yucca Mountain can and should be part of the solution. Federal law designates Yucca Mountain as the Nation's repository for used nuclear fuel. The Nuclear Waste Fund, which is money that utilities have paid the government to dispose of their used nuclear fuel, has a balance of about \$36 billion, and there are still several steps to go in the licensing process for Yucca Mountain.

The Nuclear Regulatory Commission has a balance of unspent funding that should be used to continue the licensing process. More resources will be required, so I think it is fair to ask why are those funds not requested in your budget. The Nuclear Regulatory Commission recently completed the safety evaluation report that said Yucca Mountain met all of the safety requirements through the "period of geologic stability." The Commission and the Environmental Protection Agency define the "period of geologic stability" as 1 million years. To continue to oppose Yucca Mountain because of radiation concerns is to ignore science as well as the law.

The next steps on Yucca Mountain include completing a supplemental environmental impact statement and restarting the hearings before the Atomic Safety and Licensing Board, which were suspended in September 2011. Money is available for these activities, and I would like to hear about your plans to use it.

The second area of questioning is avoiding excessive regulation. A couple of years ago, Senator Mikulski and I, and Senator Burr, and Senator Bennett asked a group of distinguished higher education officials to look at the Federal rules and regulations governing higher education. They made their report a couple of weeks ago, and it was a startling report. And there are some—I would

like for Senator Feinstein to hear this part because California has a terrific system of universities.

The commission that Senator Mikulski and I, and Bennett, and Burr commissioned on regulation of higher education reported about what they called a jungle of red tape that is interfering with their ability to govern properly. Vanderbilt University hired the Boston Consulting Group to assess how much it cost Vanderbilt itself to comply with all the Federal rules and regulations on higher education in 2014. And the answer was \$150 million, which is 11 percent of the university's operating revenue or expenditures, and adds \$11,000 to each student's tuition.

Now, you may wonder what does that have to do with nuclear power. It is the same kind of thing all throughout the government. None of these rules and regulations, or almost none, are put in by evil people, or intentioned. They just add up over time. And to the extent excessive regulation makes it more difficult for nuclear power plants to be extended and to be operated economically, that is something I would like to discuss. I wonder whether, for example, we know the answer to the question how much does it cost a utility. How much does regulation cost a utility for its operation?

Then there is the question of the licensing of new and existing reactors. I proposed one time that we should build a hundred new reactors. People thought that was kind of over the top. But when you stop and think about it, we have the Center for Strategic and International Studies saying that by 2020, not long away, that as many as 25 of our 99 reactors may not be operating. We have the various factors that are making it less economic to operate nuclear reactors, such as the low price of natural gas, the subsidies for wind power, which permit wind producers in unregulated markets to basically pay the merchant utility to take the wind power, and then the producer can still make a profit. That means the nuclear power is less economic. Excessive regulation may be a factor. Carbon rules from the EPA that treat nuclear differently than other renewable sources may be a factor.

And then we think about the fact that if about 20 percent of our current capacity from coal goes offline by 2020 as projected by the Energy Information Administration or is entirely replaced by nuclear power, it would require building another 48 new large reactors. So add to that, the third point, which are the number of aging reactors, those that are getting too old and which may not have their licenses extended. We might need a hundred new reactors just to replace the ones we already have, and I want to make sure that we do not end up surprised by that.

Then we want to make sure that agencies run effectively. Congress appropriated in the year 2000 about \$470 million for the Agency. The budget this year is \$1 billion. Much of the increase was due to the significant number of new reactor licenses that were anticipated. However, most were never actually submitted, so it is fair to ask whether this additional funding is being used for unnecessary regulation.

Finally, let me just make this observation, and I will ask Senator Feinstein then to take whatever time she would like. I do not want the United States of America 10, 20, 30 years from now to suddenly wake up and discover that we are a country without nuclear

power, and I think it is possible that could happen. If CSIS says we may lose 25 reactors within the next 5 or 6 years, and big utility operators tell me they are not even thinking about asking for extensions of the time their reactors might stay online, say, from 60 to 80 years, because it is not economic to operate them, if we suddenly find ourselves without most of the 99 reactors we have, we know what will happen. We have seen what happened in Japan. We have seen what happened in Germany. And at a time when the President and many in America feel that climate change is an urgent challenge for the world and our country, the idea of deliberately allowing the 99 reactors which produce 60 percent of our carbon free emissions, to allow that number to decline I think would be serious malpractice by all of us involved, whether it is the Congress, whether it is the Commission, whether it is the Department of Energy.

So it is with that spirit that I am going to be approaching this hearing and other hearings this year. I know that the Regulatory Commission is not the Department of Energy. Its job is safety, and it has a terrific record in that. I do not think and I am sure it is true—any other form of energy production in our country has a record of safety that exceeds nuclear power. But I am going to be asking questions about what can you also do to create an environment so that over the next 30 or 40 years at least, while we are doing research to find other sorts of clean energy, that we do not find ourselves without large amounts of renewable emissions and free electricity, which is what Japan suddenly found, and which Germany has found. And it does not work in a big manufacturing country given the current mix of power generation.

So I welcome the commissioners. I thank you for your service, and I look forward to Senator Feinstein's comments.

[The statement follows:]

#### PREPARED STATEMENT OF SENATOR LAMAR ALEXANDER

We're here today to review the President's fiscal year 2016 budget request for the Nuclear Regulatory Commission, the independent Federal agency responsible for regulating the safety of our Nation's commercial nuclear power plants and other nuclear materials.

This is the first time in many years that the subcommittee has held a hearing to examine the Nuclear Regulatory Commission's budget.

It is also the first of several hearings that the subcommittee will hold this year on nuclear power. These hearings are important because nuclear power provides about 20 percent of our Nation's electricity and more than 60 percent of our carbon-free electricity.

I plan to focus my questions today on four main areas:

1. Licensing nuclear waste repositories;
2. Avoiding excessive regulations;
3. Licensing for new and existing reactors; and
4. Making sure the agency is running effectively.

#### LICENSING NUCLEAR WASTE REPOSITORIES, INCLUDING YUCCA MOUNTAIN

First, we must solve the 25-year-old stalemate about what to do with used fuel from our nuclear reactors to ensure that nuclear power has a strong future in this country.

Later this year, I will reintroduce bipartisan legislation with Senators Feinstein, Murkowski and perhaps others, to create both temporary and permanent storage sites for nuclear waste. Also, Senator Feinstein and I plan to include a pilot program for nuclear waste storage in the Energy and Water appropriations bill, as we have for the past 3 years.



The new sites we'd seek to establish through the legislation Senator Feinstein and I are reintroducing this year would not take the place of Yucca Mountain—we have more than enough waste to fill Yucca Mountain to its legal capacity—but rather would complement it.

This legislation is consistent with the president's Blue Ribbon Commission on America's Nuclear Future.

But let me be clear: Yucca Mountain can and should be part of the solution. Federal law designates Yucca Mountain as the Nation's repository for used nuclear fuel.

The Nuclear Waste Fund, which is money that utilities have paid the government to dispose of their used nuclear fuel, has a balance of about \$36 billion and there are still several steps to go in the licensing process for Yucca Mountain.

The Nuclear Regulatory Commission has a balance of unspent funding that you are supposed to use to continue the licensing process. But more resources will be required, so I think it's fair to ask the question:

Knowing that there are additional steps and they will cost money, why would you not request additional funds in your budget?

The Nuclear Regulatory Commission recently completed the Safety Evaluation Report that said Yucca Mountain met all of the safety requirements through "the period of geologic stability."

The commission and the Environmental Protection Agency define the "period of geologic stability" as one million years. To continue to oppose Yucca Mountain because of radiation concerns is to ignore science—as well as the law.

The next steps on Yucca Mountain include completing a supplemental environmental impact statement and restarting the hearings before the Atomic Safety and Licensing Board, which were suspended in September 2011.

Money is available for these activities, and I want to hear why there is no request to use it.

#### AVOIDING EXCESSIVE REGULATIONS

Federal law requires that nuclear power plants be built safely, but the law doesn't say it should be so hard and expensive to build and operate reactors that you can't do it.

A 2013 report by the Center for Strategic and International Studies found that up to 25 of our 99 nuclear reactors could close by 2020.

The decision to close a reactor could be due to a number of factors, including the low price of natural gas, and the wasteful wind production tax credit, which is so generous that in some markets wind producers can literally give their electricity away and still make a profit.

But the decision to close a reactor can also have to do with excessive and unnecessary regulations. I want to work with the commission to address this.

#### LICENSING FOR NEW AND EXISTING REACTORS

Over the next several decades, most of our 99 nuclear reactors will go through the commission's license renewal process to extend their licenses, which is critical to the future of nuclear power. I want to make sure that the commission is prepared for this additional work.

I also want to make sure the commission has devoted the appropriate resources to the licensing process to keep new reactors—like Watts Bar 2 in Tennessee—on time and on budget.

I have proposed that we build 100 new reactors, which may seem excessive, but not if about 20 percent of our current capacity from coal goes offline by 2020 as projected by the Energy Information Administration. If this capacity were replaced entirely by nuclear power it would require building another 48 new, 1,250-megawatt reactors—which, by the way, would reduce our carbon emissions from electricity by another 14 percent. Add the reactors we may need to replace in the coming decades due to aging and other factors, and my proposal for 100 may not seem so high.

Additionally, the commission needs to move forward with new small modular reactors.

This subcommittee has provided funding to help small modular reactors get through the Nuclear Regulatory Commission's licensing process. I'd like to get your views on what you need to continue your efforts.

#### MAKING SURE THE AGENCY IS RUNNING EFFECTIVELY

One of the challenges for the Nuclear Regulatory Commission is to ensure that the agency is running effectively and focusing staff on the right goals.

In fiscal year 2000, Congress appropriated about \$470 million for the Nuclear Regulatory Commission. The budget request this year is more than \$1 billion.

Much of the increase was due to the significant number of new reactor licenses that were anticipated—however most were never actually submitted. So, it is fair to ask whether this additional funding is being used for unnecessary regulation.

#### CONCLUSION

The best way to understand the importance of nuclear power is to look at the stories of three countries: Japan, Germany and the United Arab Emirates.

Japan and Germany have recently experienced what happens when a major manufacturing country loses its nuclear capacity. In Japan, the cost of generating electricity has increased 56 percent and Germany has among the highest household electricity rates in the European Union—both because they moved away from nuclear power.

The United Arab Emirates has shown what a country can do when a country decides to take advantage of nuclear power. By 2020, the Emirates will have completed four reactors that will provide nearly 25 percent of its annual electricity.

It will take building more nuclear reactors to avoid the path of Japan and Germany, and today's hearing is an important step to making sure the United States does what it must to unleash nuclear power.

I look forward to working with the commission and our Ranking Member, Senator Feinstein, who I will now recognize for an opening statement.

#### STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Thank you. Mr. Chairman, thank you very much. I think that was an excellent opening statement. But I also want to thank you for the great privilege of working with you. We have worked as chairman and vice chairman. Both of us have been alternating. And I just want you to know I do not think I ever had a better person to work with in the Senate than you.

Senator ALEXANDER. Thank you.

Senator FEINSTEIN. We figure out when we disagree what we can do about that, and I give some of the time, and you give some of the time, and I really think that is in the best interest of our democracy and our country. So it is a great treat for me to be here. You set up this hearing. I think it is a real tribute to you that we have the chairman and three members of the Nuclear Regulatory Commission here today.

My remarks are going to be a little different because I wanted to be on this committee because I am really concerned about the nuclear waste that is scattered all over this country, and I am going to talk a little bit about it. And I view the NRC as a critical agency to regulate the nuclear power plants and the use of radiologic and nuclear materials critical not only to industry, but to the safety of our people.

So I want to make one other point. There is on the Pacific Coast such a thing as a ring of fire, of big earthquakes, that over the last several decades have been happening in Southeast Asia, southern South America. The latest of these is Fukushima, and Fukushima really caused me to open my eyes. And today's witnesses are appearing 4 years after that earthquake triggered a tsunami that flooded three Fukushima nuclear reactors, causing them to melt down. More than 300,000 people were evacuated from the surrounding area, and the disaster cost well over \$100 billion.

Some post-Fukushima analysis has argued that the Japanese regulatory structure was too close to nuclear industry, to the industry it was regulating, and that the dysfunction of that regulatory system contributed to the disaster. And I want to say we cannot allow that to happen in this country. To date, the NRC has issued

three orders and one request for information and initiated a single rulemaking to codify those orders.

Industry has undertaken some upgrades to back up safety equipment, spending around \$4 billion on upgrades as required by the NRC. This is a substantial amount, but not that much when you consider the replacement value of the plants themselves, and just a fraction of how much a disaster on the scale of Fukushima would cost the United States. So I hope you will tell this subcommittee how your actions have made a Fukushima-like disaster substantially less likely in the United States, and provide us with some reassurance that the NRC is executing its role as the tough-nosed regulator it needs to be.

A second issue of great concern to me, as I mentioned, is storage of nuclear fuel. Today, that fuel is piling up at reactor sites around the country. To date, we have 78 sites in the United States storing approximately 70,000 metric tons of spent fuel. Of this total, roughly 20,000 metric tons is in dry storage, and the rest in storage pools called spent fuels—spent fuel pools. The United States nuclear plants continue to discharge about 2,100 metric tons of spent fuel per year.

The United States taxpayers have paid \$4.5 billion to utilities to store waste at reactor sites, in part because we lack a nuclear waste policy. And this is going to lead to an additional \$23 billion in penalties in the coming years, which will be borne by taxpayers. This has driven the two of us to call together the chair and ranking member of the energy authorizing committee, and try to come up over—was it 3 or 4 years we have been working on it?

Senator ALEXANDER. Three years.

Senator FEINSTEIN. Three years to develop a spent—a nuclear waste policy for our country. We have none. Believe it or not, we came to agreement. We had in two Secretaries of Energy. We had in the Blue Ribbon Commission. We discussed a lot among ourselves. At the time, Senator Bingaman was chairman of the committee, and so he was replaced by Senator Wyden, and we had both of their support. And we had Senator Murkowski who has been with us from the beginning, and so we have a Nuclear Waste Policy Act now at the energy and water authorizing committee.

The difficult part for me is that it has taken so long to generate activity. And candidly, I do not believe the nuclear industry itself has been as supportive of it as it should be. And for me, this is a real test of that industry because if nuclear power is, in fact, as the chairman indicated, to continue to be part of our Nation's energy mix, for me this situation is unsustainable.

In August of 2014, the NRC issued a final rule on the continued storage of waste at nuclear power plants around the country. That rule stated that spent nuclear fuel could be stored indefinitely at nuclear sites. So just look at what continues to happen at Fukushima. The reactor containment vessels were breached during the accident, leaking the radioactive water into the ocean. Those vessels continue to leak to this day, even as the Japanese pump water into the vessels to try to keep the highly radioactive fuel cool.

Efforts to contain the leaking water, such as building an underground ice wall, have proved insufficient. The spent fuel pools at

Fukushima did not leak, but the temperature inside the pools increased, and water quickly evaporated, so that only 20 feet of water covered the fuel instead of the standard 40 feet. Fuel rods were damaged, and radiation was released to the environment. Water had to be sprayed from above to keep the fuel cool.

By the NRC's own estimates, nearly all of the spent fuel pools in the United States are densely packed with spent fuel and will be at capacity in 2015. The Union of Concerned Scientists and others believe the risk of an accident and its impacts can be significantly reduced by expediting the movement of spent fuel from pools to dry casks, and I am inclined to agree.

While the rule does not license storage of spent fuel at any specific reactor site, it appears to give a carte blanche to nuclear power plant operators to continue generating waste without a permanent solution. This is unacceptable to me. Previous waste confidence determinations were predicated on reasonable progress by the Federal Government in implementing a waste management program. However, the NRC has now stated that a permanent home for spent nuclear fuel is not necessary for the sustainment of growth of nuclear power. In my view, nowhere does this new rule provide the basis for such a startling reversal of a long-established regulatory framework. Instead, it seems to be a rule designed solely to keep the nuclear industry operating.

I deeply believe we desperately need a new policy on nuclear waste, and this subcommittee has been committed to making progress toward that goal. And that is why I am so happy to be working with Senator Alexander on multiple fronts, including within this subcommittee, the re-introduction of the Nuclear Waste Administration Act.

Mr. Chairman and members, I think you sit at an important juncture. The continued safe operation of nuclear power plants is an important source of carbon free electricity. We all understand that. But nuclear energy must be safe, and there must be a sound policy that addresses the waste stream it creates. And let me be candid with you. To me, storing this stuff at waste sites, candidly, is not acceptable. I mean, I look at San Onofre, two big reactors being de-conditioned, 2,800 rods in spent fuel pools in an area where six million people live and, of course, very close to the Pacific Ocean. Is that going to stay there forever?

If I understand your policy, and please correct me if I am wrong, Commissioner Burns, but it could happen. And, you know, I look back at Fukushima. The spent fuel pools did not collapse, but what happened, as far as I related, and I believe is true. California is a very earthquake prone State, and the probabilities of a big earthquake in Southern California over the next 30 years are way up. I think it is over 60 percent probability now, so I feel I have reason to worry.

And candidly, if it is true that your Commission is saying that it is perfectly fine to keep all this stuff at 78 different sites with all kinds of different geologic compositions and all kinds of propensities for geologic movement, I really cannot agree with that. So I wanted to just put my cards on the table and tell you precisely how I feel, and let you know that this is a very big issue for me. So I thank you, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Feinstein, and I thank you for your comments. I mean, there is nobody I would rather work with than you. I think as you can tell, we sometimes come at a problem from different directions, but we often end up pulling the wagon in the same direction, and nuclear waste is certainly one of them that we feel that way. So it is a great privilege for me to work with Senator Feinstein.

Now, Mr. Chairman, why don't we start with you and ask you to summarize your testimony, if you will, in about five minutes. Then whatever the Commission protocol is, why do you not just go down the line, and we will look forward to hearing from the other commissioners after you.

#### SUMMARY STATEMENT OF STEPHEN G. BURNS

Mr. BURNS. Thank you, Mr. Chairman, and thank you, Ranking Member Feinstein. My colleagues and I appreciate the opportunity to appear before you today to discuss our fiscal year 2016 budget request.

As you said, the NRC is an independent Federal agency established to license and regulate the Nation's civilian use of radioactive materials at nuclear installations to ensure adequate protection of the public health and safety, to promote the common defense and security, and protect the environment. The resources that we are requesting in fiscal year 2016 will allow us to continue to ensure the safe and secure use of radioactive material in the United States.

I want to emphasize this progress that the NRC and the industry have made in making safety enhancements at nuclear facilities across the United States in response to the Fukushima Daiichi Nuclear Power Plant accident in Japan. After the event, the NRC took immediate action to evaluate the lessons of the event, and to identify required enhancements at U.S. nuclear power plants. Our primary focus throughout this effort has been on the highest priority, safety significant enhancements to maximize the safety value for nuclear power plants.

A key element of the strategy has been the NRC's 2012 mitigating strategies order, which required licensees to ensure that sites are prepared to respond to beyond design basis accidents. Last year, the first plants completed implementation of the mitigation strategy requirements, and more than half the plants are scheduled to achieve full implementation by the end of this year, and the remaining plants, with limited exceptions, will complete the necessary actions by 2016.

New reactor licensing and oversight activities will continue in 2016. We expect in this year to continue reviewing a number of new reactor combined license applications, and to complete three of these reviews. Additionally, the NRC will continue to conduct inspections for new reactors under construction at the Vogtle site in Georgia and the VC Summer Plant in South Carolina. And we also will receive before us a recommendation with respect to the licensing of Watts Bar Unit 2, to be operated by the Tennessee Valley Authority. We also expect to review and begin the review of an application for a small modular reactor in fiscal year 2016.

We acknowledge that we are in a changing environment. Since 2001, the Agency grew significantly to enhance security and incident response, and to prepare for the projected growth in the use of nuclear power in the United States. The forecast in the growth has been adjusted downward in responses to changes in the industry, and as is appropriate, the NRC is being scrutinized by stakeholders for its reasonable use of resources. The Congress has charged the NRC with a critical mission, and the NRC can never lose sight of that. Still, we can and should maintain focus on our mission while being responsible and taking a hard look at whether we are using our resources.

Our budget reflects the efforts to demonstrate our responsiveness to this environment. Continuing with trends that began in fiscal year 2014, the fiscal year 2016 request reflects a reduction in both dollars and full-time equivalents in recent years, but still will provide the necessary resources to carry out our safety and security mission. As required by law, our budget request also provides for a 90 percent fee recovery less the amounts appropriated for certain specific activities.

As a key step in our preparation to address our anticipated environment, the NRC initiated a project called Project AIM 2020 last June to enhance our ability to plan and execute our mission while adapting in a timely and effective manner to our dynamic environment. Through a staff initiative that was approved, the charter of which was approved by the Commission, internal and external stakeholders were engaged to forecast our future workload and operating environment.

The staff's recommendations were recently provided to the Commission with a number of measures to transform the Agency over the next 5 years to improve our effectiveness, our efficiency, and agility. The report was provided to the Commission on January 30, and a couple of weeks ago we released it to the public and made copies available to our oversight and authorization committees. While my colleagues and I want to be timely in responding to the report, we want to do so deliberately and smartly.

One other initiative I would like to mention before I close is that the NRC has undertaken over the last several years revisions to our rulemaking process to understand and, if possible, reduce the cumulative effects of regulation. We are continuing to engage our stakeholders on this subject, and we will receive further recommendations from our staff for additional improvements this spring.

In sum, we are cognizant of our changing environment. We are committed to the safety and security mission of the Agency. And we are committed to taking a hard look at ourselves to ensure we are prepared for the future.

This concludes my formal testimony on the budget. On behalf of the Commission, I thank you again for the opportunity to appear before you, and we look forward to your questions. And with that, I will turn it over to Commissioner Svinicki.

[The statement follows:]

## PREPARED STATEMENT OF STEPHEN G. BURNS

Good morning, Chairman Alexander, Ranking Member Feinstein and distinguished members of the subcommittee. My colleagues and I appreciate the opportunity to appear before you today to discuss the U.S. Nuclear Regulatory Commission's (NRC) fiscal year 2016 budget request.

As you know, the NRC is an independent Federal agency established to license and regulate the Nation's civilian use of radioactive materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.

The resources that we are requesting for fiscal year 2016 will allow the NRC to continue to ensure the safe and secure use of radioactive materials in the United States. The NRC's principal regulatory functions are to: establish regulatory requirements; issue licenses consistent with those requirements to facility operators and those who own, possesses, and use, radioactive materials; oversee these licensees to ensure they operate safely and securely, and are in compliance with NRC requirements; conduct research to support the NRC's safety and security mission; and respond to emergencies involving regulated activities. The NRC also participates in international work that is integral to the agency's mandate.

The NRC regulates every aspect of the civilian use of radioactive materials. This includes all of the steps and the facilities involved in the nuclear fuel cycle, including extraction of uranium from ore, conversion of the uranium into a form suitable for enrichment, enrichment of uranium to a level and type suitable for nuclear fuel, and fabrication of uranium into fuel assemblies for use in reactors. When the fuel assemblies can no longer sustain efficient reactor operations, they are removed from the reactors and stored as waste.

In fiscal year 2016, the NRC will continue licensing and oversight activities for 100 operating commercial nuclear power reactors, including the anticipated operation of the Watts Bar Unit 2 nuclear power station. The resources that we have requested for fiscal year 2016 also support completion of the highest-priority actions on the lessons learned from the Fukushima Daiichi Nuclear Power Plant accident, including seismic and flooding hazard reevaluations.

I would like to take a moment to emphasize the significant progress the NRC and the industry continue to make in implementing post-Fukushima safety enhancements at nuclear facilities across the United States. The NRC's primary focus throughout this effort has been on the highest-priority, most safety-significant enhancements to maximize the safety impact for nuclear power plants. The NRC's expectation is that most licensees will complete implementation of the most safety-significant enhancements by, or before, 2016.

A key element of the post-Fukushima safety enhancements is the NRC's 2012 Mitigating Strategies Order, which required licensees to ensure that sites are prepared to respond to beyond-design-basis events. These requirements include procuring additional equipment to maintain or restore core cooling, containment integrity, and spent fuel pool cooling for all units at a site. Last year, the first plants completed implementation of all mitigating strategies requirements. More than half of nuclear power plants are scheduled to achieve full implementation by the end of 2015, with the remaining plants to be completed by 2016. The one exception to this schedule is that some boiling water reactors are requesting schedule extensions for those parts of the mitigating strategies affected by the NRC's revision to the order on containment venting. During and after implementation of the mitigating strategies requirements, the NRC will conduct inspections to verify that nuclear power plants have put appropriate strategies in place to mitigate beyond-design-basis events.

In the past year, both of the industry's National Response Centers (in Phoenix, Arizona and in Memphis, Tennessee) have become operational. Both centers contain multiple sets of emergency diesel generators, hoses, and other backup equipment that can be delivered to any nuclear power plant in the United States within 24 hours. These response centers address a key element of the 2012 Mitigation Strategies Orders, which was to provide sufficient offsite resources to sustain plant safety functions indefinitely.

New reactor licensing and oversight activities are expected to continue during fiscal year 2016. In fiscal year 2016, the NRC planned to review nine new reactor combined license applications and to complete three of these reviews. Additionally, the NRC will continue to conduct inspections for new reactors under construction, namely, the Vogtle Electric Generating Plants, Units 3 and 4; and Virgil C. Summer, Units 2 and 3. The NRC also expects to receive and will begin to review a small modular reactor application. In fiscal year 2016, the NRC expects to complete the review of one construction permit application for a medical isotope production

facility and conduct environmental and safety reviews of construction permits for two additional medical isotope production facilities.

The NRC takes regulatory actions to ensure the safety and security of radioactive materials by licensing and overseeing medical, academic, and industrial and research users; nuclear waste and spent fuel storage facilities; certifying storage and transportation containers; responding to events; and overseeing decontamination and decommissioning activities. In addition, under authority provided in the Atomic Energy Act of 1954, as amended, the agency has agreements with 37 States under which those States assume regulatory responsibility for the use of certain radioactive materials. Combined, the NRC and the Agreement States oversee over 21,000 material licensees. The NRC further enhances its regulatory program through coordination and cooperation with other Federal agencies, States, Tribes, and international organizations and foreign governments.

#### THE CHANGING REGULATORY ENVIRONMENT

Before I get into the specifics of the NRC's fiscal year 2016 budget request, I would like to take a moment to address the NRC's efforts to address the changing environment in which we now find ourselves. Since 2001, the agency has grown significantly to enhance security and incident response and to prepare for the projected growth in the use of nuclear power in the United States. That forecast in growth has been adjusted downward in response to changes in the nuclear industry. As is appropriate, the NRC is being scrutinized by its stakeholders for its responsible use of resources. The Congress has charged the NRC with a critical mission to ensure adequate protection of public health and safety and the common defense and security, and the NRC can never lose sight of this mission. Still, the agency can and should maintain focus on our mission while also taking a responsible and hard look at whether it is effectively using resources.

The NRC has proactively taken steps to address these issues in its regulatory processes, budget, and fee collections.

I start with the NRC's budget. The NRC's fiscal year 2016 proposed budget reflects the NRC's efforts to demonstrate its responsiveness to the new environment in which we find ourselves. Continuing with trends that began in fiscal year 2014, the fiscal year 2016 budget request reflects a reduction in both dollars and full time equivalents from budget proposals in recent years.

In addition, the NRC's proposed fiscal year 2015 fee rule, which will be published for public comment in the coming weeks, will include estimates for reductions in licensee annual and hourly fees that we expect in our final fee rule. For power reactors, the estimated annual fees will be \$4.75 million per reactor which is down 5 percent from fiscal year 2014. The NRC hourly rate is estimated at \$268 in fiscal year 2015, a drop from \$279 in fiscal year 2014. These decreases are primarily due to a reduced fiscal year 2015 Enacted Budget which allows the NRC to utilize prior year carryover funds providing available resources to meet the NRC's mission requirements. The fiscal year 2015 Enacted Budget also decreases 26.5 FTE from fiscal year 2014. These savings were realized from projected workload reductions and overhead efficiency measures. The fiscal year 2015 proposed fee rule will also reflect a positive increase in the agency's staff productivity assumption of 1,375 hours in fiscal year 2014 to 1,420 hours in fiscal year 2015.

The NRC continues to focus on the transparency of the NRC Fee Rule and has recently received a benchmarking report to assist us in looking at the fee practices of other regulatory agencies. The NRC will hold a public meeting on the fiscal year 2015 proposed fee rule during the comment period to engage with stakeholders on our methodology and presentation of license fees. This is a priority for our Chief Financial Officer.

Perhaps the most significant NRC undertaking with respect to the changing regulatory environment is Project Aim 2020. The NRC launched Project Aim 2020 in June 2014 to enhance the agency's ability to plan and execute its mission while adapting in a timely and effective manner to a dynamic environment.

The Project Aim 2020 team gathered perspectives from internal and external stakeholders to forecast the future workload and operating environment in 2020. Based on analysis of these perspectives, and an evaluation of the NRC's current State compared to the anticipated future State, the staff identified key strategies and recommendations to transform the agency over the next 5 years to improve the effectiveness, efficiency, and agility of the NRC. The staff's efforts are reflected in its report that was provided to the Commission on January 30, 2015.

The Commission considers this report to be the beginning of a dialogue about the future of the NRC. In that spirit, and in an effort to emphasize the NRC's seriousness, the Commission made the report available to the public on February 18. In



addition, the Commission was also briefed by the NRC staff on the report in a public meeting that occurred on the same day. Advance copies of the report were also provided directly to our Congressional appropriations and oversight committees.

I will not go into great detail on the Project Aim 2020 report except to note that it concludes that the NRC needs to function more efficiently by: right-sizing the agency while retaining appropriate skill sets needed to accomplish its mission; streamlining agency processes to use resources more wisely; improving timeliness in regulatory decisionmaking and responding quickly to changing conditions; and promoting unity of purpose with clearer agency-wide priorities.

I speak for my colleagues when I tell you that each member of the Commission wants to be timely in acting on this report, but it also wants to do so deliberately and smartly. Although the NRC recognizes the need for change, it also is keenly aware that major organizational change, if not done wisely, can have a detrimental effect on the agency's mission and on the morale of its employees. The NRC has a critical mission and some of the most dedicated, knowledgeable, and highly-respected employees in the Federal Government. I can tell you from my own recent international experience, the NRC is respected as a world-class organization.

I cannot emphasize enough that the NRC's ability to protect public health and safety and the common defense and security will always be our main concern. Nevertheless, we can and should take a hard look at how to ensure the agency carries out its mission effectively while also being more efficient and fiscally responsible.

Project Aim 2020 is but one part of the self-assessment the NRC has undertaken in recognition of the changing environment. For instance, over the last several years, the Commission has revised its rulemaking processes to understand, and if possible reduce, the cumulative effects of regulations. These new processes include increased opportunities for stakeholder interactions and feedback, publishing draft supporting guidance concurrent with proposed rules, requesting specific comment on the cumulative effects of regulations in proposed rules, and developing better-informed implementation timeframes.

In addition, the NRC has sought industry volunteers to perform case studies on the accuracy of cost and schedule estimates used in NRC's regulatory analyses. Based on those results, additional regulatory analysis process enhancements are planned to improve cost estimating. We believe that applying these process enhancements will result in a better understanding of the implementation costs associated with new regulations for operating reactors.

With respect to cost benefit analysis, I note that the Government Accountability Office (GAO) recently completed a report that concluded the NRC needs to improve its cost estimating practices. Although the NRC did not agree with all of GAO's specific recommendations, it did agree generally that the NRC's regulatory analyses practices could be improved, and has started to take steps, as described above, to do so.

In sum, as these examples have shown, the Commission is very cognizant of our changing environment and is committed to taking a hard look at itself to ensure that it is prepared for the future as it now appears to exist.

#### FISCAL YEAR 2016 BUDGET REQUEST

The NRC's fiscal year 2016 budget request provides the necessary resources for to carry out the agency's mission for the American public. The NRC's proposed fiscal year 2016 budget is \$1,032.2 million, including 3,754 full-time equivalents (FTE).

To fully understand the fiscal year 2016 proposed budget in relation to the fiscal year 2015 Enacted Budget one must consider the unique funding scenario for the NRC in the Consolidated and Further Continuing Appropriations Act of 2015. The fiscal year 2015 Appropriation Act reduced the fiscal year 2015 budget request for salaries and expenses by \$44.2 million to account for fee-based unobligated carryover and a recognition of reduced workload and agency productivity and efficiency gains. It also authorized the Commission to reallocate the agency's unobligated prior-year carryover to supplement its fiscal year 2015 appropriations. As a result, while the fiscal year 2016 Budget represents a \$16.9 million increase over the fiscal year 2015 Enacted Budget, the NRC's total available resources in fiscal year 2015 are \$1,049.5 million. For essentially the same workload with the exception of the University Grants program, the NRC's fiscal year 2016 budget request is \$17.3 million less (including a reduction of 37.5 FTE) compared to the total available fiscal year 2015 resources.

The NRC Office of Inspector General (OIG) component of the fiscal year 2016 proposed budget is \$12.1 million, including 63 FTE. The OIG budget includes approximately \$11.2 million for auditing and investigation activities for NRC programs, and \$1.0 million for the auditing and investigations activities of the Defense Nuclear Fa-

ilities Safety Board (DNFSB). These resources will allow the OIG to carry out the Inspector General's mission to independently and objectively conduct audits and investigations to ensure the efficiency and integrity of NRC and DNFSB programs and operations, to promote cost-effective management and to prevent and detect fraud, waste, and abuse.

Under the provisions of the Omnibus Budget Reconciliation Act of 1990, as amended, the NRC's fiscal year 2016 budget request provides for 90 percent fee recovery, less the amounts appropriated for, (1) waste incidental to reprocessing activities under Section 3116 of the Ronald W. Reagan National Defense Authorization Act for fiscal year 2005, (2) generic homeland security activities, and (3) DNFSB activities. Accordingly, approximately \$910 million of the fiscal year 2016 budget request will be recovered from fees assessed to NRC licensees. This will result in a net appropriation of \$122 million.

The NRC continues to look for cost savings at the agency and has taken cuts in overhead for the last 5 years. While the available resources are comparable for fiscal year 2015 and fiscal year 2016, the NRC's fiscal year 2016 workload changes and efficiency savings allows the agency to fund fact-of-life increases without an increase to the overall budget. The NRC's fiscal year 2016 budget request reflects the Office of Management and Budget guideline of a 1.3 percent increase in salaries and benefits for a cost of living increase and accommodates routine contract cost escalations.. The budget also adheres to commitments to the House Committee on Transportation and Infrastructure for NRC space usage. In fiscal year 2016, all NRC Headquarters employees will be located in the three buildings of the White Flint Campus and the Food and Drug Administration will occupy eight floors of the newest building. NRC will continue to occupy five floors including the Operations Center, Professional Development Center for staff training courses, and the Data Center as well as office space to support those programs.

I would now like to highlight the following portions of the fiscal year 2016 Budget Request.

#### NUCLEAR REACTOR SAFETY

##### *Operating Reactors*

The Operating Reactors Business Line encompasses the regulation of 100 operating civilian nuclear power reactors and 31 research and test reactors. The fiscal year 2016 budget request for Operating Reactors is \$601.7 million, which represents an overall funding decrease of \$10.4 million when compared with the fiscal year 2015 Available Resources.. This funding level supports completing work related to implementation of the lessons learned from the nuclear accident at the Fukushima nuclear power plant in Japan, work on topical reports, and reducing the number of pending licensing actions.

##### *New Reactors*

The New Reactors Business Line is responsible for the regulatory activities associated with locating, licensing, and overseeing construction of new nuclear power reactors. The fiscal year 2016 budget request for New Reactors is \$191.7 million, which represents an overall funding decrease of \$5 million when compared with the fiscal year 2015 Available Resources. The decrease is a result of delays in application submittals, and project slowdowns or suspensions.

#### NUCLEAR MATERIALS AND WASTE SAFETY

##### *Fuel Facilities*

The Fuel Facilities Business Line supports licensing, oversight, rulemaking, international activities, research, generic homeland security, and event response associated with the safe and secure operation of various operating and new fuel facilities such as conversion, enrichment, and fuel fabrication facilities, and nuclear fuel research and pilot facilities.

The fiscal year 2016 budget request for Fuel Facilities is \$51.5 million, which represents an overall funding increase of \$0.8 million when compared with the fiscal year 2015 Available Resources.

##### *Nuclear Materials Users*

The Nuclear Materials Users Business Line supports the safe and secure possession, processing, handling, and the many diverse uses of nuclear materials, along with associated licensing, oversight, rulemaking, international activities, research, generic homeland security, event response, and State, Tribal, and Federal Program activities.

The fiscal year 2016 budget request for Nuclear Material Users is \$87.4 million, which represents an overall funding decrease of \$1.7 million when compared with the fiscal year 2015 Available Resources.

*Spent Fuel Storage and Transportation*

The Spent Fuel Storage and Transportation Business Line supports licensing, oversight, rulemaking, international activities, research, and generic homeland security associated with the safe and secure storage and transportation of spent nuclear fuel and other radioactive materials.

The fiscal year 2016 budget request for Spent Fuel Storage and Transportation is \$43.8 million, which represents an overall funding decrease of \$2.4 million when compared with the fiscal year 2015 Available Resources. The decrease is in the oversight, research, and rulemaking areas and does not represent a significant change in work scope.

*Decommissioning and Low-Level Waste*

The Decommissioning and Low-Level Waste Business Line supports licensing, oversight, rulemaking, international activities, and research associated with the safe and secure operation of uranium recovery facilities, removal of nuclear facilities from service and reduction of residual radioactivity to a level that permits release of the property and termination of the NRC license, and disposition of low-level radioactive waste from all civilian sources.

The fiscal year 2016 budget request for Decommissioning and Low-Level Waste is \$44.1 million, which represents an overall funding increase of \$1.5 million when compared with the fiscal year 2015 Available Resources. The increase reflects greater resource needs to support oversight of decommissioning of power reactors and uranium recovery facilities licensing activities.

CLOSING

Chairman Alexander, Ranking Member Feinstein, and distinguished Members of the Subcommittee, this concludes my formal testimony on the NRC's fiscal year 2016 budget request. On behalf of the Commission, I thank you for the opportunity to appear before you. I look forward to continuing to work with you to advance the NRC's important safety and security missions. I would be pleased to respond to any questions that you may have. Thank you.

Senator ALEXANDER. Thank you, Chairman Burns. Commissioner Svinicki.

**STATEMENT OF KRISTINE L. SVINICKI, COMMISSIONER, U.S. NUCLEAR REGULATORY COMMISSION**

Ms. SVINICKI. Thank you, Chairman Alexander and Ranking Member Feinstein, for the opportunity to appear before you this afternoon. Our Commission's chairman, Stephen Burns, in his statement on behalf of our Commission has provided a description of the Agency's budget request as well as key Agency accomplishments and challenges in carrying out NRC's important mission, that of protecting public health and safety and promoting the common defense and security. In light of his summary, I will simply look forward to your questions. Thank you.

[The statement follows:]

PREPARED STATEMENT OF KRISTINE L. SVINICKI

Thank you, Chairman Alexander, Ranking Member Feinstein, and members of the subcommittee, for the opportunity to appear before you. The Commission's Chairman, Stephen Burns, in his statement on behalf of the Commission, has provided a description of the agency's budget request, as well as key agency accomplishments and challenges in carrying out the Nuclear Regulatory Commission (NRC's) important mission of protecting public health and safety and promoting the common defense and security of our Nation.

I look forward to your questions on these topics. Thank you.

**STATEMENT OF WILLIAM C. OSTENDORFF, COMMISSIONER, U.S. NUCLEAR REGULATORY COMMISSION**

Mr. OSTENDORFF. Good afternoon, Chairman Alexander and—  
Senator ALEXANDER. Commissioner Ostendorff.

Mr. OSTENDORFF [continuing]. Ranking Member Feinstein. This is my first chance to testify before this committee, and I am grateful for the opportunity. I would like to acknowledge that this is Chairman Burns' first appearance before Congress in his new role as chairman, and we are very pleased to have him leading this Commission.

The chairman has already provided an overview of the NRC's changing—the changing environment and steps we are taking to improve operations through Project AIM. I am in complete alignment with his testimony. I will, however, make three very brief points in the next few minutes.

The first concerns the status of post-Fukushima safety enhancements. Along with Commissioner Svinicki, I have been involved in all of the Commission's decisionmaking related to what safety changes we should require as a result of the operating experience from Fukushima. I clearly recall visiting Watts Bar with Senator Alexander just a few weeks after the Fukushima event. Looking back over the actions NRC has taken over the past 4 years as a result of Fukushima lessons learned, I firmly believe the Agency has acted on a foundational basis of solid science and engineering.

We have appropriately given highest priority to those tier one items associated with the greatest safety significance. I will not go in any details here, but will make two very brief comments. First, as a former Rickover era nuclear submarine officer, and I spent 16 out of 26 years on sea duty operating nuclear power plants on submarines, based on experience and my experience as a Commissioner, I am very confident in the NRC's safety actions we require post-Fukushima. And, second, as I compare our actions and approach to that of the broader international community, I am convinced we continue to be a world leader in nuclear safety.

My second point relates to licensing of new reactors. When I was sworn in as a commissioner on April 1st of 2010, NRC was reviewing license applications for 26 reactors. As a member of the Commission these past 5 years, I have voted to approve the design certifications for the Westinghouse Safety 1000, the combined construction operating licenses for Summer and Vogtle. More recently, I voted to approve the GE-Hitachi Economic Simplified Boiling Reactor Design certification.

But today we are in a different place, as Chairman Burns noted. Rather than reviewing 26 reactor applications as we were 5 years ago, today we are reviewing seven applications for a total of 11 reactors. I need not inform this committee of the significant fact of life changes the nuclear industry has faced since the heady days of a projected nuclear renaissance circa 2005–2008. The unexpected leap in shale gas reserves, concurrent plummet in natural gas prices, flat or declining electricity demand in certain areas, and other economic factors have dramatically changed the landscape for projected nuclear generation capacity.

While fully supporting achieving greater Agency efficiencies in the Project AIM arena, both this Commission as well as this com-

mittee and the broader Congress need to work together to ensure that we do not lose those critical skill sets used by our highly technical staff to review and license new reactor technologies in the future. To do otherwise would negatively impact our Nation's ability to pursue nuclear technology options in the future. We should not let that happen.

My third and final point concerns Yucca Mountain. As evidenced in your statement, Senator Alexander, Senator Feinstein, I know that you are very interested in our Nation's spent fuel and disposal challenge, and we appreciate your leadership in that area. I am very proud of our NRC's staff work to complete and publish the final safety and evaluation report for Yucca Mountain in January of this year. The Yucca Mountain Safety Evaluation Report involved highly technical and complex issues. Our staff successfully met the challenge and did its job. We now look forward to progress towards a long-term spent nuclear fuel disposal solution as mandated by the Nuclear Waste Policy Act or that act as it may be amended going forward.

In closing, I appreciate the opportunity to be here today and look forward to your questions. Thank you.

[The statement follows:]

PREPARED STATEMENT OF WILLIAM C. OSTENDORFF

Good afternoon Chairman Alexander, Ranking Member Feinstein and distinguished members of the subcommittee.

This is my first time to testify before this Committee—I am grateful for the opportunity. I would also like to acknowledge that this is Chairman Burns first appearance before Congress in his new role as Chairman. We are very pleased to have him leading the Commission.

The Chairman has already provided an overview of the Nuclear Regulatory Commission's (NRC's) budget, the changing environment, and steps we're taking to improve the operations of the NRC through project AIM. I am in complete alignment with his testimony

I will make three brief points in the next few minutes that I believe are relevant to this Committee.

The first concerns the status of post-Fukushima safety enhancements. Along with Commissioner Svinicki, I have been involved in all of the Commission's decision-making related to what safety changes we should require as a result of the operating experience from the tragic earthquake and tsunami in Japan 4 years ago. I clearly recall visiting Watts Bar with Senator Alexander just a few weeks after the Fukushima event.

Looking back over the actions the NRC has taken over the past 4 years as a result of Fukushima lessons learned, I firmly believe the agency has acted on a foundational basis of solid science and engineering. We have appropriately given highest priority to the Tier One items associated with greatest safety significance. I will not go into any details here—the Chairman's testimony does that. I will make two comments. First, as a former Rickover era nuclear submarine officer who spent 16 out of my 26 years in the Navy operating submarine reactor plants, I am confident in the NRC's safety actions post-Fukushima. And second, as I compare our actions and approach to that of the broader international community, I am convinced we continue to be a world leader in nuclear safety.

My second point relates to licensing of new reactors. When I was sworn in as a Commissioner April 1, 2010, the NRC was reviewing license applications for 26 reactors. As a member of the Commission these past 5 years, I have voted to approve design certifications for the Westinghouse AP 1000 design certification, Summer and Vogtle combined construction/operating licenses (or COL's) and more recently, I voted to approve the design certification for the GE-Hitachi Economic Simplified Boiling Water Reactor. The math is simple. Rather than currently reviewing 26 minus 4 or 22 COLs, we are reviewing 9 applications. I need not inform this Committee the significant fact of life changes the nuclear industry has faced since the heady days of a rumored nuclear renaissance circa 2005-2008. The unexpected leap in shale gas reserves and concurrent plummet in natural gas prices, flat or declining

electricity demand in certain areas and other economic factors have dramatically changed the landscape for projected nuclear generation capacity. While fully supporting achieving greater agency efficiencies in the Project AIM arena, we—both the Commission and Congress—need to work together to ensure that we do not lose those critical skills sets used by our highly technical staff to review and license new reactor technologies, including Small Modular Reactors, as we proceed in the months and years ahead. To do otherwise would negatively impact our Nation's ability to pursue nuclear technology options in the future. We should not let that happen.

My third and final point concerns Yucca Mountain. I know that this Committee is keenly interested in solving our Nation's spent fuel disposal challenge. I have spoken over the past few years to both Senator Alexander and Senator Feinstein and your staffs on the topic of spent fuel. I am proud of our staff's work to complete and publish the final safety evaluation report for Yucca Mountain in January of this year. The Yucca Mountain Safety Evaluation Report involved highly technical and complex issues—our staff successfully met the technical challenge and did its job. We now look forward to progress towards a long-term spent nuclear fuel disposal solution as mandated by the Nuclear Waste Policy Act.

In closing, I appreciate the opportunity to share these thoughts with you today and look forward to your questions.

Senator ALEXANDER. Thank you. Commissioner Baran.

**STATEMENT OF JEFF BARAN, COMMISSIONER, U.S. NUCLEAR REGULATORY COMMISSION**

Mr. BARAN. Thank you. Chairman Alexander, Ranking Member Feinstein, and members of the subcommittee, thank you for the opportunity to appear today before the subcommittee. It is a pleasure to be here with my colleagues to discuss NRC's fiscal year 2016 budget request and the work of the Commission.

First and foremost, NRC is focused on our mission of protecting public health and safety, yet the Agency faces a different environment than what was expected just a few years ago when substantial new reactor construction was anticipated and no licensees had yet announced plans to shut down any reactors. To meet our responsibilities now and in the future, we need to enhance the efficiency, effectiveness, and agility of the Agency.

In order to avoid disrupting the Agency's work, it is important to set a thoughtful trajectory to the appropriate resource and staffing levels over the next few years. We need to make sure that we do a good job matching resources to expected workload. Before I joined the Commission, my colleagues had the foresight to initiate Project AIM, the internal working group tasked with looking at the challenges—or changes rather—NRC should make to prepare for the future. This is a valuable and timely effort. The results of the team's work were recently submitted to the Commission, and we are actively deliberating on the recommendations.

While we work to increase the Agency's efficiency and agility, we need to ensure that NRC also maintains its focus on its ongoing safety work. Currently, five new reactors are being built in the United States, and five reactors recently ceased operations and are entering decommissioning. At the construction sites, NRC is conducting oversight to ensure that the new plants are built safely and in accordance with regulatory requirements. For the decommissioning plants, the Agency reviews requests for exemptions from some of the requirements that apply to operating plants. Meanwhile, the NRC staff is beginning a rulemaking to take a fresh look at a number of decommissioning issues.

NRC is continuing to address post-Fukushima safety enhancements and lessons learned. Progress has been made in several areas, as my colleagues recognized, but we also recognize that more work remains to be done. NRC also is responsible for having an efficient and effective licensing process for new designs and facilities. While NRC continues its work on pending applications for new reactors, we need to be ready to accept and review applications submitted for new technologies. We are expecting to receive the first application for a small modular reactor in 2016. NRC is already reviewing an application for a new production facility for medical isotopes, and anticipates additional applications of this type in the future.

Thank you, and I look forward to your questions.  
[The statement follows:]

PREPARED STATEMENT OF JEFF BARAN

Chairman Alexander, Ranking Member Feinstein, and members of the subcommittee, thank you for the opportunity to appear today before the Energy and Water Appropriations Subcommittee. It is a pleasure to be here with my colleagues to discuss Nuclear Regulatory Commission's (NRC's) fiscal year 2016 budget request and the work of the Commission.

First and foremost, NRC is focused on our mission of protecting public health and safety. Yet the agency faces a different environment than what was expected just a few years ago when substantial new reactor construction was anticipated and no licensees had yet announced plans to shut down any reactors. To meet our responsibilities now and in the future, we need to enhance the efficiency, effectiveness, and agility of the agency. In order to avoid disrupting the agency's work, it is important to set a thoughtful trajectory to the appropriate resource and staffing levels over the next few years. We need to make sure that we do a good job matching resources to expected workload.

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Thank you, and I look forward to your questions.

Senator ALEXANDER. Thank you, Commissioner Baran. We have been joined by Senator Murkowski, who is chairman of the Energy Committee. And, Senator Murkowski, Senator Feinstein and I have already commented on how we have worked with you on nuclear waste. And I wonder if you have a statement that you would like to make before we begin our questions.

## STATEMENT OF SENATOR LISA MURKOWSKI

Senator MURKOWSKI. Thank you, Mr. Chairman. I appreciate the opportunity to just say briefly a couple of words here. First, thank you for this hearing, as well as a series of others that relate to our nuclear oversight and what your subcommittee certainly has jurisdiction over. I am hopeful that I can attend more of these because I do feel that it is imperative that as we look to our energy portfolio as a Nation that we be working actively to advance the nuclear portfolio when it comes to our energy needs and our energy security.

And, Commissioner Ostendorff, you mentioned kind of where we are currently in a post-Fukushima world with the low cost of natural gas and the direction that is moving things. This is something that I have long felt that the United States has started to take a back seat when it comes to our leadership role in advancing nuclear energy and the manufacturing end of it, the workforce development, and I do not think that we should be going backwards in this regard. I think we need to assert that leadership and do so in a way that is smart and safe, but again, really recognizing our full potential there.

And that is one of the reasons why I have enthusiastically joined the Senator from California and the chairman of this appropriations subcommittee in trying to figure out how we do deal with the waste end of our nuclear situation and solution in this country. And I am hopeful that along with Senator Cantwell, we will be able to advance some of the constructive ideas that have come from the Blue Ribbon Commission that we have attempted to put into our legislation, build that out, and ensure that we continue to have a leadership role with regards how we address nuclear energy in this country.

So I look forward to more of these conversations and look forward to the opportunity to ask a few questions this afternoon. Thank you.

Senator ALEXANDER. Thank you, Senator Murkowski. I know you have other commitments this afternoon, and thank you for making time to come. We know the difference between an authorizing committee and an appropriations committee, and we are the appropriations and you are the authorizing, and I am proud to also be a member of your committee. I would like for the Commission to know we are working hand-in-hand in this effort. While we have a nuclear waste proposal that will go through Senator Murkowski's committee, for the last two Congresses we have also had through our Appropriations Committee, of which she is also a member, a pilot project with her support and agreement to try to advance our nuclear waste efforts on two different fronts. So I appreciate her attitude, and we will look forward to working with her.

Of course, Senator Feinstein's passion and urgency for getting the nuclear waste out of the sites in California where reactors are not operating in the 78 sites, getting it out of spent fuel and dry cask to a single—the easiest way to do that would be to take it all to Yucca Mountain. I mean, it is there, the law says that is where the waste is supposed to go, and the science now says it is safe. And the U.S. Court of Appeals for the District of Columbia in



2013—directed the Commission to resume its licensing activities for Yucca Mountain.

YUCCA MOUNTAIN LICENSING

So, Mr. Chairman, is the Commission complying with that ruling?

Mr. BURNS. Yes, Senator, I believe we are. As a result of the court ruling, the court directed the NRC to expend the—what was in effect—carryover funds that it had remaining and had not expended at that respect, and to continue with Yucca Mountain activities. What the Agency did do is it completed the SER, I think as you noted during your statement. Recently, the Commission approved going forward to complete a supplemental environmental impact statement on certain issues. This was in part because the Department of Energy declined to do so. But with the funding we have left, and it was otherwise appropriate for us to do that EIS, and there are some other activities.

I think that is on the order of something like about \$4 million that is left from that funding, but at that point, we have no other funding. And as the court indicates, the funding, notwithstanding the authorizations in the Waste Policy Act, it does also depend on further appropriation of money to the various agencies.

Senator ALEXANDER. Is the next step after the environmental impact statement restarting the hearings before the Atomic Safety and Licensing Board?

Mr. BURNS. Yes, that is essentially correct.

Senator ALEXANDER. And what will that cost, and do you have the money to do that?

Mr. BURNS. I think the Agency, and I would ask my two colleagues who are here before I return to the Agency to correct me if I am wrong. I think the Agency has provided an estimate of something like \$330 million for the completion of—an estimate of completion of Yucca Mountain related activities.

Mr. OSTENDORFF. I would just like to add to the chairman's statement, there are approximately 280 legal contentions that would need to be dispositioned by the Atomic Safety and Licensing Board. That dollar estimate is an estimate. It is not a precise number because the adjudication litigation process sometimes is difficult to predict.

Senator ALEXANDER. So to understand, you are saying roughly to complete all of the activities between now and opening of Yucca Mountain, it would be \$330 million?

Mr. BURNS. For the decision, yes. For the decision on the licensing decision that the Agency is—which is part of our regulatory—

Senator ALEXANDER. So the last step before the opening of Yucca Mountain is the issuing of a license. Is that right?

Mr. BURNS. Well, the license is a construction authorization. There is another—under the Waste Policy Act, there is another—basically an operating license. But to take it to a point toward construction—

Senator ALEXANDER. Oh, okay. Is the \$330 million just for the construction license?

Mr. BURNS. It is for, yes, this phase.

Ms. SVINICKI. I should note, Mr. Chairman, as well that I believe those are NRC's costs of \$330 million. The applicant, which is the Department of Energy in this case, would have their own costs for supporting that adjudicatory proceeding.

Senator ALEXANDER. The President's budget estimates the Nuclear Waste Fund has a balance of \$36 billion at the beginning of fiscal year 2016. How much of that Waste Fund paid in by utilities collected from electric bills could you use for these costs associated with completing Yucca Mountain?

Mr. BURNS. Well, the amounts that are collected in the Waste Fund have to be appropriated to the Agency. We do not have an authorization to just to tap the Waste Fund.

Senator ALEXANDER. So you need for us to act to be able to use those funds.

Mr. BURNS. You would need—yes, correct.

#### PILOT PROGRAM FOR CONSENT-BASED STORAGE

Senator ALEXANDER. Let me shift gears just a little bit. If we were—if Senator Feinstein, and I, and Senator Murkowski were to include in the energy and water appropriation bill again this year a pilot program for consent-based storage of nuclear waste, are you prepared to act quickly if this becomes law? And give me a little idea about what has to happen if we—assuming we pass—assuming that becomes law, then what happens? I think you have an application, for example.

Mr. BURNS. Well, for example, we have an application or are about to get an application from a private corporation that is interested in building a storage—above-ground storage facility in the western part of Texas. We have the capability—

Senator ALEXANDER. So that could be—that could be a consolidated site, not a temporary? That could be a repository of the kind envisioned by the pilot program that Senator Feinstein talked about.

Mr. BURNS. As I understand it, it could be there. There are probably changes in the law in order to authorize it, but that is something you could address in your—in your legislation.

Senator ALEXANDER. Well, is the first step for it to then—if that application were to come in, is the step then for you to give a rule on whether or not it gets licensed or not? Is that the—

Mr. BURNS. Well, I think we would have a responsibility regardless of, I think, the change to review the application and make a decision on it. If there are other aspects because of other changes in statute that would affect how it could be used, we would certainly take those into consideration.

Senator ALEXANDER. Well, my time is up, but is there anything more that you could say to the three of us about, are you prepared if we pass the pilot program to do the Commission's part to implement it as rapidly as you could in a safe and reliable way?

Mr. BURNS. I do not think it is in the budget. We do not have funding in the budget or in our request, so that would—you know, obviously that would have to be addressed. And I have to say, just if you would also give us the opportunity to look at it, and we could advise you in terms of what it means in terms of our processes.

What I want to leave you with is, again, the basic idea we have the capability to do this kind of technical review.

Senator ALEXANDER. Thank you, Mr. Chairman. Let me go to Senator Feinstein. But I will ask staff to work with you and your staff to make sure that as we write language for the appropriations bill that we write it in a way that takes advantage of your technical advice so that we—so that we speed things up rather than slow things down.

Senator Feinstein.

Senator FEINSTEIN. Well, thanks very much, Mr. Chairman. And, Mr. Burns, essentially what you are saying, if I understand it, is that there is now a voluntary proposal to provide a pilot nuclear waste facility in Texas. And so, there could be a place that is voluntary that people wanted if such a pilot facility were authorized by law. Is that correct?

Mr. BURNS. That is correct. We expect to get the—an application in the near future.

Senator FEINSTEIN. Good. Good. I am happy to hear that. So other than us authorizing it, there is nothing else that is necessary from the Federal Government. Is that correct?

Mr. BURNS. As I say, I think in terms of your authorization, I think you would need to look—part of that would be looking at the Nuclear Waste Policy Act, which I presume you would do, in terms of conforming changes. But off the top of my head, I cannot think of anything else.

Senator FEINSTEIN. Here is the thing. Pardon me?

Senator ALEXANDER. Mr. Baran—

Senator FEINSTEIN. Oh, sorry, I did not see that. Please.

Mr. BARAN. No problem at all. I would just add, if what is contemplated in Texas is consolidated internal storage whereby the Department of Energy would contract with that eventual applicant to take the spent fuel from various locations around the country, then presumably the Department of Energy would also need appropriations from Congress to enter into that contract with the potential applicant we would have. That is not the NRC part of this, but it is a piece of it.

Senator FEINSTEIN. Right, and I think we understand that, so I appreciate your making it clear. That is good.

Let me—for the past 30 years, it is my understanding that you have allowed the licensing of nuclear power plants based on the assumption that a permanent disposal site for waste would be available within a reasonable timeframe. And as I understand it, the Court of Appeals in 2012 required you to consider the health and safety impacts of the possibility that a disposal site might never be available. Is that correct?

Mr. BURNS. Yes, I think that is correct.

Senator FEINSTEIN. Okay. And so, the fact remains that the NRC in its final rule digressed from 30 years of regulatory precedent by allowing licensing actions to proceed without concrete plans for a disposal site in the foreseeable future. I gather that is correct.

Mr. BURNS. Well, the decision—the decision that was made after the court decision—what the court decision said is that in the context it faced then, that the earlier so-called waste confidence findings that the Agency had made since the late 1970s or the early

1980s, it would not satisfy. Recall, too, that the basic finding with respect to waste confidence or continued storage really deals with the Commission's environmental review. It is a piece of environmental review for individual licensing actions.

What the Agency did is in the absence of a firm date, if you will, for a repository, it looked at the environmental impacts of continued storage at sites. And, again, it is not a decision that the Agency is making that that is the preferred way of going, but looking at it, that the impacts are small and did not prevent the continued licensing of facilities. That is essentially what it is. And in that decision, we recently acted on some petitions related to that position, and I believe we are probably going to be taken to court again on that.

Senator FEINSTEIN. Okay. And the rods now in spent fuels that you say are safe essentially forever, I guess, are you saying that they are safe for a millennium in spent fuels, and that you can predict that there will be no catastrophic earth movement, which has characterized planet earth over the millenniums? Is that essentially what you are saying?

Mr. BURNS. No. I think what I am saying is that with respect to storage, and storage at sites takes into consideration site characteristics, various phenomenon, part of our looking at, you know, seismic flooding, things like that, will take those issues into account. Eventually, spent fuel, it does decay. For example, part of the reason to move it is that some sites choose and choose fairly early on to move it to dry—what we call dry storage is that it no longer needs to be in a pool.

But because of the decay, because of the characteristics of it, the staff and the Agency has made the determination it can be safely stored. Whether that, again, from a national policy perspective is the preferred long-term solution, I am not saying that. What, again, I am saying is we have made the technical judgment that it is safe as it is.

Senator FEINSTEIN. Okay, I understand that. My time is up. If there is a second round, I will—

Senator ALEXANDER. There will be as many rounds as you would like to have. Senator Murkowski, if I may ask a clarifying question. I think I confused an issue. Mr. Chairman, is it correct that if this application from West Texas materializes, and the Nuclear Regulatory Commission approves the application, that that applicant can then begin to receive spent fuel from any of the 78 sites around the country without any further action by us?

Mr. BURNS. I believe that is correct, and, again, in accordance with the terms of the license that would be issued.

Senator ALEXANDER. So, Senator Feinstein, did you—I was confusing—if the Texas application is approved—

Senator FEINSTEIN. Right.

Senator ALEXANDER [continuing]. They can go into business—

Senator FEINSTEIN. Good.

Senator ALEXANDER [continuing]. Without any further action—

Senator FEINSTEIN. Oh, that is good.

Senator ALEXANDER [continuing]. By us is the way I—is the way I understand it.

Senator FEINSTEIN. Even now without passing the bill?

Senator ALEXANDER. Even now without passing our bill, correct?

Mr. BURNS. That would be my understanding.

Senator FEINSTEIN. Good.

Mr. BURNS. I would note, for example, that the Agency had an application several years ago for a private—it did not—it was called private fuel storage. It was in Utah. Ultimately a decision was made not to build it. But the Agency licensed—approved the licensing of that several years ago. It may have been a decade ago.

Senator ALEXANDER. That is important for us to know and understand, so if as we go along this afternoon there is a different answer to that, let us know. And we will go to Senator Murkowski.

#### DOD TESTING AT YUCCA MOUNTAIN

Senator MURKOWSKI. I wanted to ask about something that has come up in the news recently about possible Department of Defense interest in conducting some tests at Yucca Mountain. I for one have concerns with the possibility that Yucca would be used for anything other than the statutory use as a repository for the spent nuclear fuel and our high level defense waste. Has anyone from DOD been in contact with you at the NRC regarding using Yucca Mountain for purposes other than as a repository?

Mr. BURNS. I am not aware of that. My executive director for operations, the chief officer is shaking his head no. I am not aware.

Senator MURKOWSKI. I am sure you have seen the same story.

Mr. BURNS. My information is what I read, probably the same thing you read in the newspaper.

#### SMALL MODULAR REACTORS

Senator MURKOWSKI. Yes, okay. Well, I am trying to chase rumors, so if anybody has more detailed information, I think it would be helpful to know.

I wanted to ask quickly about where we are with SMRs, small modular reactors. You have indicated that the Commission is preparing to review the license applications. Kind of give me some updates. What are the barriers right now, whether legislative or regulatory, that could delay approval of the SMRs?

Mr. BURNS. Well, we expect—as I said in my opening testimony, we expect to receive an application in 2016 from one of those who indicated an interest. Some of it has been, frankly, changing interest in terms of the market. I think a lot of these things are probably outside the NRC's ken in terms of what the interest is and potentially buying or procuring it.

I mean, our staff—what I would say, Senator, is that our staff has engaged with those who have indicated interest in the technology. We had a paper that came up several years ago, actually before I left the NRC in 2012, to address some of the issues. I think there are some issues we need to work through, but I think we have been responsive in terms of assuring that we—both through the licensing process and also regulatory criteria.

And particularly for what we are seeing, which are basically light water reactor based, the technology. What I have said in some of the public speeches and all, is looking down the path, to the extent you get smaller reactors or technologies in the non-light water reactor, what we call—sometimes call generation four reactors, there

is some work that needs to be done there. DoE has worked cooperatively with the industry. We are looking at a report related to that. And I think we are open to do that over the next few—

Senator MURKOWSKI. Does that review also include then the export possibility and ensuring that the licensing process will make it easier to export our SMRs to other countries? Do you consider that?

Mr. BURNS. I might have to come back to you on the record for that.

Senator MURKOWSKI. Okay.

Mr. BURNS. What I would say is generally, and looking at the experience we have had with the larger reactor technology, for example, the Westinghouse AP1000, General Electric ABWR. We have certified those under our rules, and a lot of—the countries who have been interested, for example, Japan and China, who have built—have been building that technology, they often look to our certification to do that.

So I think the basic subject or perhaps—I was thinking about some discussion with our staff. I think the basics there for export, the basic construct is there. And what often you find is that the NRC's design review is considered a seal of approval that is often recognized around the world.

#### COMPLIANCE COSTS

Senator MURKOWSKI. With my remaining time, I wanted to touch on just the cost of compliance with the NRC regulations. As we speak to how we are going to move to this nuclear renaissance that we once talked about so freely, it is seemingly the cost of regulations that is the big barrier to market for new nuclear projects. So what aspects of the regulatory process can we modernize, can we streamline, can we just be more efficient? How can we do a better job with this?

Mr. BURNS. Well, one of the things the Commission started a few years ago, again, was an effort nominally called cumulative effects of regulation. And it was a way of trying to look at the impact as regulations are proposed or developed, and in terms of either staging, you know, the significance or the value added, if you will. And some of that effort has continued in communication with industry, and I think the Commission is going to receive a paper or some information from the staff later this month or next month that, again, includes comments from stakeholders, industry and others.

One other thing I would do is that—we are trying to do as well as we had a GAO report that critiqued the Agency in terms of its cost benefit analysis. We might have some disagreements, particular areas of disagreement with it. But we are looking at that and doing things to improve our cost benefit analysis where that is appropriate in the regulatory sphere.

Ms. SVINICKI. Well, Chairman Burns did mention cost benefit analysis. Just to put a finer point on that, it had been pointed out to NRC that looking retrospectively at things that we had put in place and the Agency's own cost estimates for what it would cost the regulated community to put them in place. We were confronted with data from the industry that showed in some cases we were 10 orders of magnitude low. And, of course, this gets into an impact's

cumulative effect of regulation so much because if our analyses of cost benefit are not accurate, then we will impose things where, if we had better cost estimates, we would find that the benefits do not exceed the costs. And so, I think one of the most basic things that regulatory agencies can do is to continue to refine and improve cost benefit analyses techniques.

Senator MURKOWSKI. Thank you, Mr. Chairman.

Senator ALEXANDER. I wanted to continue along Senator Murkowski's questions. I think your—I love the concept of cumulative—what did you call it?

Mr. BURNS. Cumulative effects.

Senator ALEXANDER. Well, that is true. I mean, we know that is true. It is just human nature. I mentioned the higher education report, Senator Murkowski, that we commissioned. I mean, eight reauthorizations to the Higher Education Act since 1965, eight groups of well-meaning Senators, eight groups of well-meaning legislators. Let us try this, let us try that, let us try this.

And Vanderbilt does a study that shows it costs \$150 million in 1 year for that one university to comply with all these rules and regulations. They just build up over time, and there is no countervailing discipline to remove them, and it adds a lot of costs. I mean, in the university case, it is \$11,000 per student at that university on the tuition costs. So that could make a little difference in the ability of an operator—of a utility to say, will I extend a nuclear power plant license? Will I open one? What will I do?

Let us take an example of that with the extension of nuclear power. We have 99 reactors, is that right, today operating?

Mr. BARAN. That is correct, 99 operating.

Senator ALEXANDER. And about how many of those are licensed to operate for 60 years?

Mr. BARAN. About 75.

Senator ALEXANDER. About 75.

Mr. BARAN. Yes.

Senator ALEXANDER. And some of the others are newer, so they would not yet be licensed. But a large number of those will be thinking about going—applying for permission to go for 80 years. Is that correct?

Mr. BARAN. There is interest in that, yes.

Senator ALEXANDER. And scientifically or based on what your Commission knows, is it true that a reactor can operate safely for 80 years?

Mr. BURNS. Again, if the technical criteria are met, I think the answer is yes. I think the Commission last year, and I might ask my colleagues who were engaged in this issue before I returned to the NRC.

Senator ALEXANDER. But if I am a utility operator, is the Commission generally of the disposition that a properly maintained reactor who meets the technical requirements should be able to operate for 80 years instead of 60 years?

Mr. OSTENDORFF. I would just answer very briefly, Senator, and maybe Commissioner Svinicki would like to supplement my comments, because last year we were the two folks that were here that voted on the subsequent license renewable policy issue that came to the Commission last summer. And we determined that our cur-

rent regulatory framework without modification is structured to allow an applicant to come in to ask to operate from 60 to 80 years. We require basically utilities to have an aging management program to look at such things as buried piping, electrical cables, the impact of neutron to radiation, reactor vessels, those types of material issues.

But there can be a showing made, and so far industry has done that up to 60 years that they can monitor material degradation in a way that ensures safety.

Senator ALEXANDER. Commissioner.

Ms. SVINICKI. Just at bottom, Mr. Chairman, last year our Commission affirmed that our regulatory framework is adequate as it exists to evaluate 60 to 80 years. The demonstration will have to be made site by site of each applicant that comes in. They will have to provide the safety case.

Senator ALEXANDER. Has anyone yet applied for an 80-year license?

Ms. SVINICKI. No, they have not, but industry has indicated we might receive the first 60- to 80-year extension in the year 2018.

Senator ALEXANDER. Well, here is what I am getting to. If it is a legitimate concern of our country that we want lots of low cost, reliable carbon free electricity, and if the 99 reactors provide 60 percent of that today, and if we open five and close five in the same year, and if there are a number of forces that make it difficult to start big new reactors right now, a strategy for the President and the Congress, which might be the easiest way to make sure over the next 30 or 40 years that we have an adequate supply of reliable, clean, low cost electricity free of carbon emissions, would be to make sure that we do not have any unnecessary obstacles to a license application to go from 60 to 80 years, if that is a safe thing to do.

And that might also be a good time. You just did your review about whether your regulatory structure allows that. It might be a good time to do a review about whether they are unnecessary obstacles in your regulations that would discourage utilities from doing that. Without naming names, I was a little surprised to learn from one utility executive that they were only planning on asking for a 60- to 80-year extension for 30 percent roughly of their reactors, when, in fact, the other 70 percent are good solid reactors. Now, there are a whole combination of reasons which make that uneconomic. But one of the reasons sometimes is the cost of regulations, so that might be an area where you could take a look and say it is in the public interest to make sure that we create a welcoming environment for those applications rather than an adversarial environment, and still meet all of your safety objectives.

My time is up. Senator Feinstein, why don't you take the time you would like for your questions, and then I will ask some more. Do not feel constrained by any five-minute rule.

#### WASTE STORAGE

Senator FEINSTEIN. Thank you. I appreciate that. If I understand what I have been told, the NRC has made the judgment that nuclear waste storage at the site of a reactor is forever safe, and that waste need not be moved. How do you expect communities to sup-



port further license extensions given that you are now allowing plant owners to keep waste on site indefinitely?

Mr. BURNS. Senator, the issue—I mean, from the regulatory standpoint, our job and our responsibility is to call the technical shots as we see them. The question I think on local support and those are issues that I fully recognize may have some concern. Our job is to assure that we have oversight of licensees to ensure that they are carrying out requirements that apply to spent fuel storage or to safe operation, and communicate to the public how we are doing that. That is, I think, what we can—that is what we can do, I think.

Senator FEINSTEIN. See, the problem is you have no way of knowing what might happen 200, 300 years from now, no way. I can think of a whole host of things that could happen that are not predictable. Now, if you only use the predictable, maybe you are right. But if you concede that there are things that happen that are not predictable, that is another subject. So it would seem to me that a public agency would want to protect the public above all, and not just the public today or 50 years from now, but the public that is forever going to be on adjacent land. Anybody want to take that on?

Mr. OSTENDORFF. I would like to make a couple of—

Senator FEINSTEIN. Okay.

Mr. OSTENDORFF. Thank you for the opportunity. I want to make a couple of comments. One, NRC has not said let that waste sit there indefinitely without ever taking a look at it.

Senator FEINSTEIN. You said—

Mr. OSTENDORFF. We have not said leave it there and never take a look at it.

Senator FEINSTEIN. You have said it is safe.

Mr. OSTENDORFF. We have said that it is safe and secure, but it also subject to ongoing monitoring programs. As one example, Senator Feinstein, one of the steps, again, and we are not as a Commission an advocate for indefinite storage onsite. There are certain responsibilities that the Department of Energy has in repository development under the Nuclear Waste Policy Act that are their responsibilities, not ours.

But we have determined that this is fuel that is currently stored onsite in dry casks that are on concrete pads. That fuel is being stored safely and securely. If repositories were delayed in being developed for whatever reason, then there are steps that our staff has looked at to look at maybe after 100 years, there would be a replacement cask brought on board to move that fuel that, as the chairman had noted, would have undergone significant decay, move that fuel to a new cask. And there would be ongoing monitoring steps.

As far as the other piece, I would tell you that in the Fukushima regulatory actions we have required, we have required seismic and flooding walk downs and hazard reevaluations. Those seismic reevaluations apply to those locations where we are storing spent fuel on sites today.

Senator FEINSTEIN. Well, I can only speak for myself representing a big State, highly earthquake prone with big reactors. We have not gone to Diablo yet. This really changes my support

of the nuclear industry because if things are going to be built that they are going to be there forever and never moved, and subject to—I do not know what the monitoring regime would have to be. I do not know what provisions would have to be made for a real emergency, how you would move it out, you know.

I do know that the CEO of PG&E has told me that they are prepared to move dry casks to a repository. And now you are saying, well, you do not need to do that particularly—

Mr. OSTENDORFF. Senator, I am not saying we should not do that—

Senator FEINSTEIN. Let me just finish, sir. I would say particularly because of earth instability in that area, you would want to get the stuff out of there. So this is—I mean, it is hard for me to accept that you are saying one size fits all, and we believe this is safe. Well, let me go into this SMR that your Commissioner said was going to be licensed this year. How many SMRs are they, of what size, the new scale application?

Mr. BURNS. Well, we have not received the application as yet, and they would have to—what they are basically looking for, as I recall, is a design certification or design approval that you could—this is a design that could be applied. Right now, we do not have a particular site that we have been asked to license it at.

Senator FEINSTEIN. We hear that it is four at 40 watts. Did you say Idaho? To Idaho. Do you know anything about that?

Mr. BURNS. As I say, at this point, where the particular application might be, we do not have an application for the particular thing.

Senator FEINSTEIN. Okay, fair enough. Fair enough.

Mr. BURNS. And we would license it under—in terms of if we had a particular application to cite that design at a particular site, we take into consideration the natural phenomenon, the geology, soil structure, et cetera, that is at that site.

Senator FEINSTEIN. Okay. It is my understanding that these are only really cost effective if you can site a number in one place. In this case we could be wrong, but the information I have received, it would be four—no, it would be six 40-watt reactors sited at one place. I think it is on Federal land. What would be the requirements for storage, and where would they store the waste?

Mr. BURNS. Well, again, like other licensed plants, they would, absent a consolidated storage site or absent a repository where after the decay of fuel after it is done within the reactor, you would be talking about storage at the site.

Senator FEINSTEIN. Would this be underground? What would the requirements be? My understanding is it is underground.

Mr. BURNS. I think I have seen some—and I do not know all the details of the design. I understand some of the designs for the reactors themselves would be underground. I could not tell you in terms of I do not know enough, and would be happy to try to supplement for the record, what the expectation is with respect to, in effect, the spent fuel storage, at least in terms of temporary before potentially moving to like a dry storage situation. But I just do not know.

## STEAM GENERATORS AT SOUTHERN CALIFORNIA EDISON

Senator FEINSTEIN. Well, let me just—let me just ask you another thing because I am just a lay person, sort of a simple soul. At Southern California Edison, what I understand happened was not a like-for-like steam generator of one reactor, which began to have holes in it, and then the second reactor had the same problem. It was a Japanese designed reactor—Japanese designed steam generator. The thought was that the alloys in it were much more advanced and better to use.

Do you consider that kind of thing when you approve an application as you will, for example, with the SMRs so that situations do not happen like what happened to Southern California Edison?

Mr. BURNS. Yes. We look at the technical aspects of equipment—the major equipment as well as the systems that are used to operate the facility. As you indicated, the replacement steam generators at San Onofre 2 and 3 had problems. Those were things that our inspectors also noticed with it. And from the standpoint both of the company making decisions with respect to conformance to their license about operability as well as the NRC in its oversight with respect to operability. So it is something we look at. The design and quality is something we do look at.

Senator FEINSTEIN. Did you approve those steam generators? Not you, but did the Commission? Did the Commission—

Mr. BURNS. Well, I think my understanding is that the company, Southern California Edison, replaced the steam generators under provisions that allow for the exchange of equipment. And after that happened, and as you indicate, during some operation, they started finding anomalies consistent. And consistent with their license and licensing basis, they began to address that, identified that the quality was not there. Anomaly, as I say, we approve basically systems, and we approve the license and the conditions that they operate under.

Senator FEINSTEIN. Well, in one case I think there was a small—very small radioactive leak. This is why I am concerned about the underground SMRs. You put everything underground, it is pretty hard to get to it if you need to. And you can have equipment problems just as much as in a big reactor, it seems to me. Am I wrong?

Mr. BURNS. Well, again, what we license to is not that facilities will be perfect, that they are—will be perfect in every way, that we have to have—the notion of defense in depth, that thinking about if certain things go wrong how does the machine respond? How do the people who run it respond? How do we interact, interdict those potential problems?

That is part of both the design philosophy and the approach both to the regulation and to oversight, because we do not license assuming, in effect, a perfect world. We assume that there may be things that go wrong, and if there are things that go wrong, how do you prevent and basically minimize the consequences of that in terms of designs. And that is—that carries through not only, I think, really from day one.

Senator FEINSTEIN. Okay. Nobody—

Mr. BARAN. I have a slightly more succinct version of that. I think we do not know yet because we do not have the application

of what the specific design will be. But if we get an application next for a small modular reactor design, if it is going to be underground or if it is going to have characteristics that are different from any other reactor design, or even if it did not have characteristics different from other reactor designs, they are going to have to demonstrate to the NRC that that design is safe before we certify it.

SAN ONOFRE DECOMMISSIONING

Senator FEINSTEIN. Okay. The problem for me, and, again, just a simple problem, is that it is all out of sight. Now, I know there are technical ways of, I guess, bells ringing and that kind of thing, but it is all out of sight. And now, I mean, we have 2,200 megawatts going down. It is a huge amount of power. And as long as we are on it, Mr. Chairman, can you give us your take on where San Onofre is in the decommissioning process?

Mr. BURNS. Yes. The company has indicated what its plan is for decommissioning. It is going to a plan that over, I think, about a 20-year period, I think a little less than a 20-year period, they would—basically other than, as we discussed, the spent fuel pending removal to a continued or a consolidated storage site or repository. What would happen is they plan to take apart all the structures over that period.

Senator FEINSTEIN. They are going to remove the reactors.

Mr. BURNS. They are going to deconstruct the reactor buildings. And also, you may recall unit one, which was an early plant, is also on that site where they have done some of that work. Actually I think they have done a fair amount of that work, and then they would complete work that did not make sense to do until Units 2 and 3 were decommissioned. So they have communicated to the NRC its plans, and they have also made some plans in terms of the spent fuel storage on site. I think they have opted to use, in effect, instead of the stack that is above ground sort of an in-ground storage option, which they think has some advantages for them.

Senator FEINSTEIN. Well, so the only thing that will eventually be left for millenniums is the spent fuel.

Mr. BURNS. Well, again, that is assuming that there is never a repository built. I do not think that that is going to be the case, and you and Senator Alexander—

Senator FEINSTEIN. That is where we are going. That is where we are going. And to me, I mean, this is almost diabolical that you leave, you know, six million people in the area without the benefit of power, but the spent fuel is there. And, you know, I say this respectfully, but I think the industry should think about this. I just do not think it is right, and that is one of the reasons why I think we have to press on and get repositories and get spent fuel. And you have questions of what is happening at Hanford. You have got waste up in Northern California, and that is just sort of my neighborhood, let alone other places.

And, you know, it reminds me of old mines. I mean, we have like 50,000 mine wells that are not covered in the State. People can mine and walk off and leave the mess. And I really feel that that spent fuel has to have a place to go, so maybe it can be early in the line, I do not know. I think this is the dilemma for the indus-

try. I do not know how many rods there will be, but there are 4,000 of them in spent fuel pools now—256,000 rods in spent fuel pools, as I understand it nationally. And I am told the prudent practice is to leave it in for five to seven years, and then move it to dry casks.

And are you saying—I do not know, but are you saying in your rule that you can leave it forever in a spent fuel pool, or are you saying you should observe that five to seven years and move it to dry cask storage?

Mr. BURNS. Well, again, my understanding of the physical and the attributes of it is that you want it in a spent fuel pool for a certain number of years because the environment there assures against criticality and et cetera. Part of the reason utilities have moved to dry storage is you do not need the wet—in effect, the wet storage after that period of time. That is why you hear this term “five to seven years.”

Senator FEINSTEIN. Five to seven years.

Mr. BURNS. Five to seven years. And my guess it is also, from their standpoint, and I think you understand that as well. If you are having to deal with a longer-term storage, it may be more economical for them to dry storage as well. But essentially what you want is for this first years after it comes out of the reactor, in effect, until it cools in terms of its radioactivity. You keep it in the wet pool, and then you can move it to dry storage.

#### DRY CASK STORAGE SAFETY

Senator FEINSTEIN. Well, let me ask you this. Is dry cask storage safer than spent fuel pool storage?

Mr. BURNS. I am not sure whether it is particularly safer. I think it has advantages over it. I think we have determined particularly—you know, particularly if you are looking at this window of time, you need to keep it in wet storage. I think there are advantages moving it to dry storage. It is, you know, fairly, I think, easily monitored. You know, you are concerned obviously with natural phenomena, but we have evaluated the equipment. We have evaluated the equipment against earthquake, you know, what happens in terms of the seismicity in a particular site against tornado missiles. In other words, you get a tornado moving through, things running out.

So we evaluate the storage options against that. And as you say, it is an option many utilities have chosen to do because it is a safe option, and my guess is, from their standpoint, an economic option.

#### POTENTIAL TERRORIST THREAT

Senator FEINSTEIN. Well, let me ask you. Do you evaluate a potential terrorist attack on the facility?

Mr. BURNS. I believe we—I believe we have, and at least from the standpoint of what can you—what can you do. So my understanding is that we have done that, yes.

Mr. OSTENDORFF. Yes. If I may, Senator, that is a very good question on terrorist attack. Certainly there are a couple of things. After 9/11, our predecessors on the Commission required an aircraft impact rule for new reactors, and it was called B.5.b fire-

fighting explosion type mitigation strategies for existing reactors. That was new after 9/11.

With respect to—on an ongoing basis, we have exercises to evaluate the ability of a nuclear power plant to withstand a terrorist attack. I participated as a commissioner just last May in a hostile action based scenario at Diablo Canyon to look at a terrorist activity. How could the onsite security forces counter this terrorist attack? So we have a fairly sophisticated program in that area. We are glad to provide other briefings to you.

If I could very quickly, you had asked a question earlier. I do not think we fully answered your question about the Idaho situation for small modular reactors. The new-scale concept, which Chairman Burns talked about, which we may receive a license application in 2016, would be for a number—the concept would be 45 megawatt reactors, perhaps four of those clustered as one group of four reactors. These would be underground designed theoretically to replace coal plants that would be retired.

The underground concept has advantages from a security standpoint from the avoidance of missile hazards. So I just wanted to make sure that we provide that information to you, and we can provide more.

Senator FEINSTEIN. Thank you. I appreciate that. Thank you very much. Thank you, Mr. Chairman.

#### YUCCA MOUNTAIN

Senator ALEXANDER. No, thank you, Senator Feinstein. Very interesting questions. Mr. Chairman, I think you have testified that you are doing everything the courts ordered you to do in terms of proceeding towards completing Yucca Mountain, correct?

Mr. BURNS. Correct.

Senator ALEXANDER. And is it true that if Yucca Mountain were open, we could take all of the casks, all of the used fuel out of California and Tennessee and everywhere else? We have the 78 sites, and it could all be contained in Yucca Mountain?

Mr. BURNS. As you alluded in your opening statement, Mr. Chairman, I am not sure if you took all the spent fuel currently—that currently exists that would be ready to be put in a repository, that it would all fit in the Yucca site. Frankly, I do not know the answer.

Senator ALEXANDER. A lot of it would.

Mr. BURNS. Well, yes.

#### NUCLEAR REACTOR SAFETY

Senator ALEXANDER. I have been told all of it would, but maybe a lot of it would or most of it would, but that is the obvious way to me to get rid of it. I mean, for 25 years that has been the law. We are told often, “pay attention to science.” Science has now told us it is safe. You are doing an environmental review. There are several other steps you need to take, but if we want to get this fuel off these sites, that is one way to do it.

Now, let me ask Mr. Ostendorff a couple of questions. The Commission has held that used fuel can be safely stored on the sites where it is produced, correct?

Mr. OSTENDORFF. Yes, sir.

Senator ALEXANDER. And they have said it is safe whether it is in pools or in dry storage.

Mr. OSTENDORFF. That is correct. And if I could, Senator, last year—actually in 2013 our staff did a study on the spent fuel pool looking at resilience against earthquakes, looking at the experience in Japan, looking at what we understand about spent fuel pool structures in this country. And we determined that there is not a need from a safety standpoint to more quickly move fuel from spent fuel pools to the dry casks.

Senator ALEXANDER. But you are not saying that utilities should not move it.

Mr. OSTENDORFF. No, sir.

Senator ALEXANDER. You are just saying you have asked the question whether it is safe or not, that based on scientific standards it is safe.

Mr. OSTENDORFF. Yes, sir.

Senator ALEXANDER. Now, you have a lot of experience with reactors having served in the Navy. We have had Navy reactors for, what 60 years?

Mr. OSTENDORFF. Since 1954.

Senator ALEXANDER. Yes. How many deaths have we ever had a result of the operation of a Navy reactor?

Mr. OSTENDORFF. None.

Senator ALEXANDER. How many deaths have we ever had in the United States as a result of the operation of a commercial reactor?

Mr. OSTENDORFF. None.

Senator ALEXANDER. How many people were hurt at Three Mile Island, which is the most celebrated nuclear accident we have had?

Mr. OSTENDORFF. None.

Senator ALEXANDER. Does any other form of energy production in the United States have that sort of safety record?

Mr. OSTENDORFF. I cannot speak to solar or wind, but I would say that with respect to oil, gas, coal, it is my understanding that nuclear has a better safety record.

Senator ALEXANDER. Yes. Golden eagles do not like the safety record of windmills. I know that.

But the fact is that no form of energy production in the world really has a safety record that exceeds the production of nuclear power in the United States, and I think it is important that we emphasize that. And as far as finding a place to put the waste, I mean, the problem with that is not you. It is us.

It is the politicians who are keeping Yucca Mountain shut, and it is the politicians who are not opening new consolidated repositories, as Senator Feinstein and I have proposed for the last 3 years. If Congress would act on that and the President would sign it, why I am sure that the first priority would be sites where plants are closed, such as those in California, and to move the stuff off there.

So I think, we ought to look in the mirror when the time comes about—it is not the industry saying to us they would like to keep it there. They would like to get rid of it. The industry is collecting money—\$35 billion from rate payers—and it is not being used for the purposes being collected. We've got electric bills all over the country that are too high. We've got concerns from Senators like

Senator Feinstein about unused fuel in her State. But the obstacles here are the United States Congress and the President of the United States. That is us.

So I think it is very important for us to——

Senator FEINSTEIN. It is not you, and it is not me.

#### FUKUSHIMA

Senator ALEXANDER. No, but it is some people we know, but we are working on that. Now, I have just a few more—I want to underscore that. And let me go to Fukushima. Fukushima was a terrible problem from a very simple cause. Mr. Ostendorff, the problem at Fukushima was a very simple problem, was it not? I mean, power failed, and there was no water to cool the reactor.

Mr. OSTENDORFF. Yes, sir.

Senator ALEXANDER. That was it, right?

Mr. OSTENDORFF. Caused by a very significant tsunami resulting from the earthquake.

Senator ALEXANDER. But the only problem——

Senator FEINSTEIN. Caused by siting them so close together, you know, where they were sited.

Senator ALEXANDER. But the bottom line is the only problem you need to solve is you need water to cool the reactor, and you need the power to pump the water. And I was at Watts Bar 2, which is being opened in Tennessee, and they are taking action based upon the rules that you have provided. They have got a variety of ways to have power to pump the water in the event of almost anything, and I do not think there is a terrorist anywhere that could get into that building that they have got that houses those redundant steps.

So based on what I have seen so far, at least at that site, and what I have reviewed, you are taking steps to learn even from the Fukushima incident. You are focused on trying to make sure that all of our sites, you have got power to pump the water to cool the reactors. Is that correct?

Mr. OSTENDORFF. Yes, sir, and 3 years ago, and Commissioner Svinicki joined me in this when we were working together because other commissioners had departed. But basically in early 2012, we approved orders to require mitigating strategies to deal exactly with the issues you are talking about: additional cables to run power, additional pumps, portable diesel generators, portable pumps, other ways of providing makeup water.

#### WATTS BAR II

Senator ALEXANDER. Now that I have wandered back to Tennessee a little bit, what is left to do before the Nuclear Regulatory Commission can approve the operating license in Watts Bar 2?

Mr. BURNS. Senator, we expect a report from our staff that would come this spring, April-May timeframe. I think the Tennessee Valley Authority has projected a June fuel load date. We would need to make a decision on the staff's final recommendation with respect to the licensing.

Senator ALEXANDER. But if the staff's final recommendation were positive, could the reactor start and power be generated during 2015?



Mr. BURNS. That is possible. That depends on their testing program, you know, their fuel loading and their testing program. And forgive me, Senator, I do not recall exactly what TVA's, you know, planning schedule is at, but I think it is towards the end of 2015.

Senator ALEXANDER. Do you have sufficient resources at the Commission to complete the licensing activities for Watts Bar II this year?

Mr. BURNS. Yes, we do.

#### COLLEGIALITY AT THE NUCLEAR REGULATORY COMMISSION

Senator ALEXANDER. I have one last question. I used to be on another committee, which was the Energy and Public Works Committee. That was the last time I saw the whole Commission at once. Two of you were there, Commissioner Ostendorff, Commissioner Svinicki. It was a very unusual hearing because at the time, collegiality was not a word that was being used at the Nuclear Regulatory Commission. There was an enormous lack of it.

Let me ask the two of you since you have been there for a while. What about collegiality at the Nuclear Regulatory Commission? We were concerned in the Senate a few years ago that the absence of that was causing operational problems. What is it like today?

Mr. OSTENDORFF. I would add, Senator, that we had a very challenging hearing before unit colleagues in December of 2011. I would say that once we had a collegiality issue that was related to, from my personal view, to one individual who is no longer on the Commission. When that individual—when Allison Macfarlane came in as chairman in July of 2012, those issues went away. And I would say since that time period we have had an extraordinarily positive collegial relationship amongst us, and there is not any issues at all.

Senator ALEXANDER. Commissioner Svinicki, what do you think?

Ms. SVINICKI. Well, I would note much as we have seen a demonstration from the dais today that there is collegiality of a body, and then there is collegiality between individual members, I would say that even in some of the difficult periods on this Commission, there has been tremendous one-on-one collegiality. And I think the proof of that is in the fact that the Commission's work and the Agency's work, I think, did not suffer, and our important mission was always paramount amongst the Commission.

And I think I credit also the Agency staff for not being distracted by issues that were occurring at the Agency level. At no time did I feel that our mission of protecting public health and safety was in any way compromised, but it is wonderful to have the colleagues that I have around me today. Thank you.

Senator ALEXANDER. Well, thank you. And, Mr. Chairman, I would say that when the Senate functions, which it occasionally does, it does so because of collegiality such as that exists between the Senator from California and me. It makes life a lot easier for everybody. And your functioning is essentially important to this country.

I welcome you as chairman. Your background in France really should provide you with a good perspective of how that country operates nuclear power and lessons we might learn from there. And just as one Senator, I want to help create an environment in which

you can succeed. I would like to encourage you to proceed with your review of the cumulatively piling up of regulations without any embarrassment because it happens to every single agency, and there should be a disciplined approach toward doing that.

I hope that you will take a look at the importance to this country of the license extensions for reactors that want to go from 60 to 80 years. That is the easiest, least expensive, most important way to get carbon-free electricity from carbon-free emissions, at least during this bridge period of time while we decide what else we need to do. And I think it is appropriate that you think about reducing your budget since the large number of applications that might have been expected a few years ago is less than expected.

I hope you will continue to be open to the small reactor application when it comes. And I think Senator Feinstein, I can speak for her on this I know. I am especially interested in the application from West Texas or from anywhere else like that because since—if you approve the application, that repository can go into operation and begin to receive used fuel from sites around the country. And if there were one or two of those, that could happen even before our pilot project passes and becomes law. If it does become law, which we hope it does, we hope you will help us implement it as rapidly as we can because we both want nuclear waste property stored in this country as we know you do.

#### ADDITIONAL COMMITTEE QUESTIONS

Senator Feinstein, do you have anything else you would like to add?

Senator FEINSTEIN. I do not, except thank you, lady and gentlemen, for being so game and answering these questions, and I hope you accept it as a positive challenge. So thank you very much for being here.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

#### QUESTIONS SUBMITTED TO STEPHEN G. BURNS

##### QUESTIONS SUBMITTED BY SENATOR JAMES LANKFORD

*Question.* The rules governing the Commission allowed for a former Chairman to keep his fellow commissioners poorly informed and pursue a personal agenda without ever, technically, breaking laws or procedures. What has the NRC done, if anything, to prevent such an abuse in the future?

*Answer.* The existing laws governing the Commission provide a framework for effective agency governance by a collegial Commission. Section 201 of the Energy Reorganization Act of 1974 provides that each member of the Commission shall have full access to all information related to the performance of his or her duties and responsibilities. Further, Section 2(c) of the Reorganization Plan No. 1 of 1980 provides that the Chairman is responsible “for insuring that the Commission is fully and currently informed about matters within its functions.”

The Commission’s internal procedures have been updated in recent years and set forth the procedures governing the conduct of business by the Commission consistent with these legal requirements. The specific procedures may be changed or waived by a majority of the Commission, and questions regarding implementation and interpretation are decided by the Commission as a collegial body, consistent with existing law. The internal procedures are periodically reviewed by the Commission and approved by majority vote.

*Question.* Senator Vitter and Representative Terry have proposed codifying organizational operation procedures for the Commission, which include explicitly making

the Chairman responsible for keeping the other Commissioners fully informed “about matters within the functions of the Commission”. If a majority of the other Commissioners determine the Chairman has not been acting appropriately, this legislation would provide a way to report that and allow Congress to evaluate whether a change in leadership is needed. Would such a policy safeguard against future abuses? If this type of policy is not needed, how can the American public and the regulated community be assured that one member of the Commission is not legally able to drive the agenda without informed consent of the other Commissioners?

*Answer.* As discussed above, the law currently requires the Chairman and the Executive Director for Operations, through the Chairman, to keep the Commissioners fully and currently informed about matters within their functions. Further, each Commissioner is required to have full access to all information relating to the performance of his or her duties. In this context, the Chairman is also “governed by the general policies of the Commission, and by such regulatory decisions, findings, and determinations . . . as the Commission may by law, including this Plan, be authorized to make.” The internal Commission procedures reflect these provisions. In addition, the Consolidated and Further Continuing Appropriations Act, 2015 (Public Law 113–235) established a requirement that the NRC Chairman inform the Commission and the Congress should he or she begin performing functions under the emergency authority provided for in section 3 of Reorganization Plan No. 1 of 1980.

*Question.* With regard to the power reactor fees, the NRC takes the amount of fees to be recovered and simply divides by the number of reactors. In light of the reductions to the number of reactors—four have gone offline in the past 2 years, with another one slated to go offline soon—has the Commission revisited how they collect fees?

*Answer.* The agency has considered how fees are assessed to reactor licensees. The NRC calculates the 10 CFR Part 171 annual fee based upon the requirement of the Omnibus Budget Reconciliation Act of 1990 (OBRA–90), to fairly and equitably collect fees in order to recover approximately 90 percent of the agency’s budget authority. The budgeted resources for power reactors constitute approximately 86 percent of the NRC’s overall recoverable fee budget. The current methodology is used, in part, to provide industry with a predictable annual fee cost while also implementing the agency’s responsibility to equitably assess fees. Additionally, the NRC publishes its proposed fee rule annually, taking public comment before issuing its final rule.

*Question.* Is the Commission concerned that with the competition of other relatively cheap power sources, such as natural gas, this rather arbitrary increase in fees is encouraging nuclear plants to close sooner than they otherwise would?

*Answer.* While the Commission is aware of the economic pressures resulting from competition in the energy sector generally, the Commission’s role as a regulator is to ensure that the Nation’s nuclear plants operate safely, consistent with the agency’s health and safety mission. The NRC formulates its budget based on estimates of the activities that will be required to license and regulate safe and secure use of nuclear materials during the year of execution. The agency is concerned with carrying out its mission in the most efficient way possible and is continually engaged in identifying how to fulfill that mission with the appropriate level of resources.

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#### QUESTIONS SUBMITTED BY SENATOR JEANNE SHAHEEN

*Question.* As you know, the nuclear plant operator, NextEra, has applied to renew its operating license for the Seabrook Station in Seabrook, New Hampshire for an additional 20 years. Their current license expires in 2030, which means if approved, Seabrook will have a license to operate until 2050.

Seabrook Station has, however, encountered concrete degradation issues due to alkali–silica reaction (ASR). Throughout the re-application process NextEra has taken actions to understand and monitor the extent of the plant’s concrete degradation; however, I have heard concerns from constituents about the testing being conducted to test the long-term impacts of ASR, and I want to make certain it is being conducted in a way that ensures precise results about the plant’s structural integrity.

For example, it is my understanding that NextEra is using a combined crack indexing (CCI) measurement as the primary criterion for assessing the progression of ASR. However, I have also heard that steel reinforcement bars embedded in the building structure may reduce the growth in the width of the cracks in the concrete. Moreover, in the August 9, 2013 inspection report, NRC noted inconsistencies found in tests at Seabrook between NextEra’s CCI results and other measures of concrete expansion due to ASR.

Given these variances in measurement, can you please explain NRC's determination process to allow CCI testing as opposed to any other, generally accepted methods of assessment to quantify the progression of ASR?

*Answer.* In its license renewal application for Seabrook Station, NextEra has proposed combined crack indexing as a method for assessing the progression of alkali-silica reaction. However, the NRC is still reviewing this proposal.

As part of the ongoing review, the staff issued requests for additional information noting that it is not clear how combined crack indexing accurately correlates cracking due to alkali-silica reaction to structural degradation of affected structures. The requests for additional information ask the licensee to "(1) demonstrate the adequacy of the parameters [cracking] proposed to be monitored or inspected by the program to manage the effects of aging due to alkali-silica reaction; and (2) clearly establish the link between the parameters that will be monitored and how monitoring these parameters will ensure adequate aging management such that the intended function will be maintained during the period of extended operation." The licensee is currently expected to respond to these requests in June 2015. The staff will evaluate the responses against guidance and industry standards to ensure that the proposed monitoring program is adequate to detect alkali-silica reaction and to properly correlate alkali-silica reaction progression with structural degradation.

*Question.* I also understand that NextEra has commissioned replica studies at the University of Texas in order to determine the long-term effects of ASR on the power plant walls. However, I have heard concerns that the concrete materials used in the study do not precisely mimic the environmental conditions of the Seacoast region or the materials used to build the Seabrook plant. Can you describe the Commission's involvement in the replica studies and what the NRC is doing to ensure the efficacy of the testing?

*Answer.* The NRC staff continues to monitor NextEra's testing activities at the University of Texas as part of our oversight of Seabrook Station, including conducting multiple inspections of these activities. The inspections focused on how information gathered from NextEra's test program is considered for applicability to the current conclusions regarding alkali-silica reaction-affected structures at Seabrook Station. While NextEra chose to conduct a large-scale testing program at the University of Texas as a possible basis for developing future actions to address the alkali-silica reaction issue, the NRC has neither directed nor approved this test program. If the licensee determines that future test results provide a technical basis to resolve this non-conforming condition, the NRC would expect NextEra to provide the results to the agency for our review and approval. Any submittal by NextEra would need to demonstrate that the test program and results accurately reflect conditions at the Seabrook Station.

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QUESTION SUBMITTED TO WILLIAM C. OSTENDORFF

QUESTION SUBMITTED BY SENATOR JAMES LANKFORD

*Question.* Has anything materially changed regarding the volume and quality of communication between the Chairman's office and your own since 2010?

*Answer.* Yes. Since Chairman Macfarlane's arrival in July 2012, the challenges we had as a Commission with the previous Chairman have gone away. We are operating in an independent, impartial, collegial, and professional manner and in accordance with the Commission's legal obligations. This environment has continued with the arrival of Commissioner Baran and Chairman Burns.

SUBCOMMITTEE RECESS

Senator ALEXANDER. Thank you. The hearing is adjourned.

Mr. BURNS. Thank you.

[Whereupon, at 4:24 p.m., Wednesday, March 4, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

# **ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2016**

**WEDNESDAY, MARCH 11, 2015**

U.S. SENATE,  
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,  
*Washington, DC.*

The subcommittee met at 9:04 a.m., in room SD-138, Dirksen Senate Office Building, Hon. Lamar Alexander (chairman) presiding.

Present: Senators Alexander, Lankford, and Feinstein.

## **DEPARTMENT OF ENERGY**

### **NATIONAL NUCLEAR SECURITY ADMINISTRATION**

**STATEMENT LIEUTENANT GENERAL FRANK G. KLOTZ, U.S. AIR FORCE  
(Retired), UNDER SECRETARY FOR NUCLEAR SECURITY AND AD-  
MINISTRATOR**

#### **ACCOMPANIED BY:**

**DR. DONALD COOK, DEPUTY ADMINISTRATOR FOR DEFENSE PRO-  
GRAMS**

**ANNE HARRINGTON, DEPUTY ADMINISTRATOR FOR DEFENSE NU-  
CLEAR NONPROLIFERATION**

**ADMIRAL JOHN RICHARDSON, UNITED STATES NAVY, DIRECTOR,  
NAVAL NUCLEAR PROPULSION, DEPUTY ADMINISTRATOR FOR  
OFFICE OF NAVAL REACTORS**

#### **OPENING STATEMENT OF SENATOR LAMAR ALEXANDER**

Senator ALEXANDER. The Subcommittee on Energy and Water will please come to order. This morning, we're having a hearing to review the President's fiscal 2016 budget request for the National Nuclear Security Administration.

Senator Feinstein and I will each have an opening statement. I will then recognize each Senator who comes for up to five minutes for an opening statement, alternating between the majority and the minority in the order that they arrive. We will then turn to witnesses for their testimony. General Klotz will present testimony on behalf of the entire NNSA and we'll include the full written statements of all the witnesses in the record. Senators will then be recognized for five minutes each, alternating between the minority and majority in the order that they arrive.

First, I would like to thank our witnesses for being here, and also Senator Feinstein, who I will be working with to draft the appropriations bill for funds for the NNSA. Our witnesses today include Lieutenant General Frank Klotz, Administrator of the NNSA,

Dr. Donald Cook, Deputy Administrator for Defense Programs, Ms. Anne Harrington, Deputy Administrator for Defense Nuclear Non-proliferation, and Admiral John Richardson, Deputy Administrator for Naval Reactors.

We're here today to review the President's fiscal year 2016 budget request for NNSA, which is a semiautonomous agency within the Department of Energy that's responsible for managing our nuclear weapons stockpile, reducing global dangers posed by weapons of mass destruction, and providing the Navy with safe and effective nuclear propulsion. This is the subcommittee's third hearing this year on the President's budget request, and I look forward to hearing our witness testimony.

The NNSA has an important national security mission, but it faces many challenges. That's why we need to do what we can to—what we were sent here to do, and that is to govern. Governing is about setting priorities, and we are going to have to make some hard decisions this year to make sure the highest priorities are funded. The President's 2016 budget request for defense spending is nearly \$38 billion higher than what is allowed under the spending caps in the Budget Control Act. In fact, spending this year is consistent with the Budget Control Act fully funding, and NNSA's budget request alone would require almost the entire increase in defense spending for all defense programs, including the Department of Defense.

We will work with Senator Cochran and Senator Mikulski to increase the subcommittee's defense spending allocation, but we're going to need your help to understand the NNSA's most urgent priorities, and that's why we're holding this hearing. I would like to focus my questions on three main areas, all with an eye toward setting priorities. First, keeping large construction projects on time and on budget. Senator Feinstein and I have worked pretty hard on that. Two, effectively maintaining our nuclear weapons stockpile. And three, properly supporting our nuclear Navy.

The first one: keeping the large construction projects on time and budget. NNSA is responsible for three of the largest construction projects in the Federal Government: the uranium processing facility in Tennessee, the MO<sub>x</sub> fuel fabricating facility in South Carolina, and the plutonium facility in New Mexico. Combined, these projects could cost as much as \$20 billion to build. Over the past 4 years, Senator Feinstein and I have worked hard with the NNSA to keep costs from skyrocketing and to make sure hard earned taxpayer dollars are spent wisely. We need to make sure these projects are on time and on budget.

Senator Feinstein and I have focused much of our oversight on the uranium processing facility, because costs had increased every time we would get a status update. Three years ago, we began holding regular meetings with the NNSA administrator and his team. We said we wanted 90 percent design completed before we begin construction. We urge the NNSA to take aggressive steps to get costs under control.

The administrator asked Thom Mason, the laboratory director for the Oak Ridge National Lab in Tennessee to have a Red Team to review the project. The result is that review may be a model for how to keep these kinds of projects on time and on budget. The Red

Team's report included 17 recommendations, nearly all of which the NNSA has now adopted to keep the uranium facility within a \$6.5 billion budget with completion by 2025.

Based on these recommendations, the uranium facility will now consist of at least two buildings, one with high security, one with less security, with construction of these buildings to begin once their design is at 90 percent. As I understand it, NNSA recently completed a portion of the site preparation for this project under budget by \$10 million. That is a good start, and I'm sure I will hear more about that in a few minutes, but there's a lot more work to do.

I'm going to ask you more today about the uranium facility, particularly about your schedule for completing the design and when you anticipate construction can begin. I also want to ask you about how you are applying the lessons we learned from the Red Team review there to other big construction projects, and look forward to any updates that you may be able to provide.

General Klotz, I know you're planning to go to Tennessee tomorrow to see the progress. I appreciate your hands on approach to making sure this project is delivered on time and on budget.

Now on our nuclear weapons, another large portion of the budget request is the work NNSA is doing to maintain our nuclear weapons stockpile. I want to make sure we're spending those dollars effectively. The budget request includes \$1.3 billion to continue the four ongoing life extension programs which fix or replace components in our weapons system to make sure they are safe and reliable. These life extension programs are needed, but they are very expensive, and I'll ask you today whether you will be able to meet your production deadlines on time and on budget.

And our Navy, Naval Reactors is responsible for all aspects of the nuclear reactors that power submarines and aircraft carriers. Naval Reactors is currently designing a new reactor core that will not need to be refueled during the life of the ship. This work will save taxpayers billions of dollars, because it won't have to build two extra submarines to make up for those that are not in service when they are not being refueled. The small nuclear reactors that Naval Reactors designs have had an impeccable safety record. For more than 60 years, there has never been a reactor accident resulting in a death. Also, want to hear more about your plans for storing the Navy's used nuclear fuel.

We talked a lot in our hearing last week with the Nuclear Regulatory Commission about Yucca Mountain storing used nuclear fuel from commercial reactors, and I would like to hear from you how this issue impacts your operations.

With that, I would recognize Senator Feinstein for her statement.

#### STATEMENT OF SENATOR DIANE FEINSTEIN

Senator FEINSTEIN. Thanks very much, Mr. Chairman. And I don't need to say what a pleasure it is to work with you. I was listening to your opening statement and thinking about how parallel our concerns are, and the meetings that we have had in the last 3 years to try to see that the management of these projects is more efficient and effective. And I think now, with this new secretary,

we are beginning to make some progress. And so I so appreciate your leadership and our partnership. It's very special.

This is a big increase. It is \$1.2 billion over enacted 2015 levels. I just reached back and asked the staff, and asked the question, have they ever gotten an increase this big? And the answer was, well certainly not in the last 4 or 5 years. So I think this increase really portends some danger for the nuclear program.

I was looking at the CBO report, which points that out. Now, this is the projected costs of the United States nuclear forces 2015 to 2024. But as you know, the increase just there is \$348 billion, according to CBO, and that is an average of \$35 billion a year. I think we have very bright people at this table, and in terms of what you say, I would really like to know, what are we going to do to handle this? And I know there are programs going on to handle it, so if you could put some of those out on the table that we could take a look at them, that would be very appreciated.

NNSA is currently undertaking three multibillion-dollar projects to modernize nuclear weapons infrastructure and recycle nuclear weapons material for peaceful use. The chairman talked about them, UPF in Tennessee, CMRR in New Mexico, and MO<sub>x</sub> in South Carolina. These projects have all seen large increases in their estimated costs as well as schedule delays. In response, the NNSA has taken a step back to re-examine capability needs and alternative approaches.

For example, Los Alamos has developed an incremental smaller scale approach to modernizing plutonium production infrastructure, and the Secretary of Energy has rightly made improving project management, as the chairman stated, more broadly a focus of his tenure in the Department. I view these all as very positive steps, but a lot of uncertainty remains.

Two of these projects, CMRR and UPF, are still in their initial phases. Even though CMRR will expand use of one building and reuse another, NNSA may also require the addition of several modules for plutonium production with an as yet unspecified cost and schedule. The cost and schedule for UPF are still being developed and are expected later next year.

So I hope, Mr. Chairman, that we can have some meetings when these costs are known, so that we can take a look at them and see how we are going to handle them in the future years.

In fiscal year 2015, \$715 million was provided to these three projects. In fiscal year 2016, budget request increases by \$215 million, for a total of \$931 million. So if you add up the fact that smaller projects, or recapitalization efforts, totals \$117 million and \$362 million respectively, we get that \$1.3 billion figure, and it's huge. The request for life extension programs is that \$1.3 billion, a \$226 million increase over 2015. Now, that is going to grow.

Last week, the chairman of the Nuclear Weapons Council, Frank Kendall, testified before the Senate Armed Services Committee, and he said this. In 2021, we are going to start having a problem finding ways to afford these systems. And I think that is probably correct, and I think we have to come to grips with that, and as a team, hopefully, be able to make some decisions which can understand that we don't know where we are going to be financially at that time.



Let me call attention to two specific issues. Despite a \$1.2 billion increase for NNSA, the science function within the weapons activities account sees virtually no increase in the President's budget request. With the end of explosive testing of nuclear weapons, a science-based approach is the foundation of our stockpile stewardship activities. Even with the science function in this budget request, science and engineering are cut in favor of computing and advanced manufacturing, and I think we must maintain a robust science and engineering capability.

Second, the defense nuclear nonproliferation account sees a modest increase over last year. This is positive. But at a comparable level, at \$1.7 billion in 2016, nonproliferation funding is still down, from \$1.9 billion in 2014 and its high of \$2.3 billion in 2012. So I have always thought the nonproliferation program was very vital, and I see it's on a downward slope. The Megatons to Megawatts Program is just one example. Ten percent of all U.S. electricity until 2019 will be from former nuclear weapons. Also, NNSA has so far removed or confirmed the disposition of 5,207 kilograms of highly enriched uranium and plutonium around the world.

Some in Congress and elsewhere want to use the current tension with Russia to walk away from the leadership role our country has taken with regard to reducing proliferation requests. I disagree with that decision. NNSA's nonproliferation program will play a critical role in securing materials around the world, helping with peaceful use of nuclear power in developing countries, and fostering and monitoring United States nuclear technology exports. In an increasingly complex world, efforts to reduce nuclear risks deserve funding and support.

So Mr. Chairman, thank you for holding this hearing. I look forward to hearing General Klotz's statement and our conversation that we will have this morning. So thank you very much.

Senator ALEXANDER. Thank you, Senator Feinstein. And let me say, as I have said many times before, how much of a privilege it is just to work with you. It makes life a lot easier, when we are approaching big, difficult problems, to have a level of trust and an interest in good management.

General Klotz, at this time, we will turn to you for your testimony on behalf of NNSA, and after that, we will have questions for you and the other witnesses. Welcome.

#### SUMMARY OF LIEUTENANT GENERAL FRANK G. KLOTZ

General KLOTZ. Chairman Alexander, Ranking Member Feinstein, thank you for the opportunity to present the President's fiscal year 2016 budget request for the Department of Energy's National Nuclear Security Administration.

I'm pleased to be joined by, as you recognized, Dr. Don Cook, Ms. Anne Harrington, and Admiral John Richardson. We had provided a written statement, and I appreciate your direction that it be placed into the record.

We certainly value this Committee's strong leadership in national security as well as its robust and abiding support for the mission and the people of the NNSA. Our budget request, which comprises more than 40 percent of DOE's budget, is \$12.6 billion.

This is, as has been pointed out, an increase of \$1.2 billion, or about 10.2 percent over the fiscal 2015 and active level.

This funding is extraordinarily important to NNSA's important and enduring missions, to maintain a safe, secure, and effective nuclear weapons stockpile without testing, to prevent, counter, and respond to the threat of nuclear proliferation and terrorism, and to support the capability of our nuclear powered Navy to project power and to protect American interests around the world.

By supporting growth in all four of our appropriations accounts, this budget request represents a commitment by the Administration to NNSA's vital and enduring mission and NNSA's role in ensuring a strong national defense. This mission is accomplished through the hard work and innovative spirit of a very highly talented workforce, all of whom are committed to public service. To provide them the tools that they need to carry out their complex and challenging tasks, both now and in the future, we must continue to modernize our scientific, technical, and engineering capabilities and infrastructure. In doing so, we are mindful of our obligation to continually improve our business practices and to be responsible stewards of the resources that Congress and the American people have entrusted to us.

To this end, NNSA continues to make progress on key surveillance and life extension programs, which directly support the President's direction to maintain a safe, secure, and effective nuclear arsenal, and funding at the 2016 budget request level will ensure that these key life extension program stay on track.

For NNSA's important mission to reduce nuclear dangers across the world, the fiscal year 2016 budget request shifts funding for our counterterrorism and emergency response missions into the defense nuclear nonproliferation account in order to better align our funds across the spectrum of activities, which run from preventing, to countering, to responding to global nuclear dangers. Additionally, the nonproliferation programs have also been realigned into for business lines that better reflect the core competencies resident across that program in our labs and in our production facilities.

And finally, the request for our Naval Reactors mission provides funding for three major initiatives, the Ohio-Class Reactor Plant System Development, the Land Based S8G Prototype Refueling Overhaul, and the Spent Fuel Handling Recapitalization Project in Idaho.

For all these missions, NNSA will continue to drive improvements in the acquisition and project management practices and policies as well as ensuring Federal oversight across the enterprise. These highlights are just a hand full of the critical national security work that this budget funds. However, as you pointed out, the looming possibility of sequestration is a major threat to carrying out all of these missions. In developing the budget, NNSA was directed to request the funds that we need to accomplish the missions that we have been tasked to do, and this fiscal year 2016 budget request reflects this direction.

Another round of sequester cuts would most certainly have a devastating impact on important programs and projects, including pushing them further out into the future or perhaps having to cancel some altogether. It would also have grave implications for the

science, technology, and engineering work that is taking place at our laboratories and plans, work that underpins our nuclear security but also the broader national security.

Again, Mr. Chairman, Ranking Member Feinstein, thank you for the opportunity to appear before you today. And we are looking forward to answering any questions that you may have.

[The statement follows:]

PREPARED STATEMENT OF LIEUTENANT GENERAL FRANK G. KLOTZ

Chairman Alexander, Ranking Member Feinstein, and Members of the Subcommittee, thank you for the opportunity to present the President's fiscal year 2016 Budget Request for the Department of Energy's (DOE) National Nuclear Security Administration (NNSA). We value this Committee's leadership in national security, as well as its strong and abiding support for the mission and people of the NNSA.

The President's fiscal year 2016 Budget Request for NNSA, which comprises more than 40 percent of the DOE's budget, is \$12.6 billion, up \$1.2 billion or 10.2 percent over the fiscal year 2015 enacted level. The NNSA has a unique and special responsibility for maintaining a safe, secure, and effective nuclear weapons stockpile for as long as nuclear weapons exist; preventing, countering and responding to evolving and emerging threats of nuclear proliferation and terrorism; and, supporting the capability of our nuclear-powered Navy to project power and protect American and Allied interests around the world. By supporting growth in each of our four appropriations accounts, this budget request represents a strong endorsement of NNSA's vital and enduring mission, and is indicative of the Administration's unwavering commitment to a strong national defense.

The NNSA's mission is accomplished through the hard work and innovative spirit of a highly talented workforce committed to public service. To provide them the tools they need to carry out their complex and challenging task, both now and in the future, we must continue to modernize our scientific, technical and engineering capabilities and infrastructure. In doing so, we are mindful of our obligation to continually improve our business practices and to be responsible stewards of the resources that Congress and the American people have entrusted to us. The NNSA took several significant steps toward this objective during the past year.

NNSA's fiscal year 2016 Budget Request reflects the close working partnership between NNSA and the Department of Defense (DOD) in providing for our Nation's nuclear deterrence capabilities and modernizing the nuclear security enterprise. As in last year's Budget, DOD is carrying a separate account in its fiscal year 2016 Budget Request for the out years, fiscal year 2017 and beyond, which identifies funds for NNSA's Weapons Activities and Naval Reactors. We urge this Subcommittee's support for alignment of its appropriations process and national defense or "050" allocations, including the subcommittee 302(b) allocations, with the President's Budget. The requested allocation supports NNSA and DOD priorities.

Tough decisions and trades in fiscal year 2016 have been made to meet military commitments and nuclear security priorities. If the request is not fully supported, modernization of our nuclear enterprise and implementation of our long-term stockpile sustainment strategy could be put at risk. The program we have proposed is highly integrated and interdependent across the stockpile management, science and infrastructure accounts.

Apart from the need for national defense allocation alignment, the looming possibility of sequestration is a major threat to all NNSA missions. The NNSA fiscal year 2016 Budget Request exceeds the caps set on national security spending in the Budget Control Act (BCA); but is necessary to meet our national security commitments. Reduced funding levels will place these commitments at risk. We have made some tough resource decisions across the NNSA, but the Secretary of Energy and I believe that our enduring missions are too vital to the Nation's security to be further constrained by the current BCA spending caps.

Details of the fiscal year 2016 President's Budget Request for the NNSA follow: Weapons Activities Appropriation

The fiscal year 2016 Budget Request for the Weapons Activities account is \$8.8 billion, an increase of \$666.6 million or 8.1 percent over fiscal year 2015 enacted levels. It is comprised not only of the Defense Programs portfolio, which is responsible for all aspects of stockpile stewardship and management; but also the enterprise-wide infrastructure sustainment activities managed by our Office of Safety, Infrastructure and Operations, as well as our physical and cybersecurity activities. It should be noted that in this budget request we have moved NNSA's on-going emer-

agency response and counterterrorism and counterproliferation capabilities out of the Weapons Activities account and into the Defense Nuclear Nonproliferation account. This action aligns activities for preventing, countering and responding to global nuclear threats into a single account.

#### MAINTAINING THE STOCKPILE

Last year, we again successfully used science-based stockpile stewardship to certify to the President that the American nuclear weapons stockpile remains safe, secure, and effective—without the need for underground nuclear testing. It is important to periodically remind ourselves that we have been able to do this every year largely due to the investments we have made and continue to make in state-of-the-art diagnostic tools, high performance computing platforms, and modern facilities staffed by extraordinarily talented scientists, engineers and technicians.

For Directed Stockpile Work (DSW), the fiscal year 2016 request is \$3.2 billion, a \$494.7 million increase over fiscal year 2015 enacted levels, or about 18.4 percent. Approximately \$133 million of this increase reflects a restructuring of the accounts when compared to the fiscal year 2015 budget request. These changes are discussed below.

With respect to the major life extension programs (LEP), we have now passed the halfway mark in the production phase of the W76-1 LEP. This LEP, which directly supports the Navy, is now on track and on budget. Our fiscal year 2016 Request of \$244.0 million will keep us on track to complete production in fiscal year 2019.

We are also making significant progress in the engineering development phase of the B61-12 LEP. The B61 is a gravity bomb associated with Air Force long-range nuclear-capable bombers, as well as dual-capable fighter aircraft. Working with the Air Force, we successfully completed environmental flight tests on the F-15, F-16, and B-2 aircraft on or ahead of schedule. The B6112 LEP will enter Phase 6.4 Production Engineering in 2016; and, with the \$643.3 million requested, we will remain on track to deliver the First Production Unit (FPU) in fiscal year 2020.

Based on results from the ongoing surveillance of the nuclear weapons stockpile performed by NNSA's laboratories and plants, the Nuclear Weapons Council decided that it was prudent to expand the planned W88 Alteration (ALT) 370 to now include replacement of the conventional high explosive in the warhead. The budget request reflects this decision and includes \$220.2 million to support the FPU in fiscal year 2020.

The budget request also includes \$195.0 million to support the Nuclear Weapons Council decision to accelerate by 2 years an LEP of the W80 to serve as the warhead for the Air Force's Long Range Stand-Off system (LRSO). FPU is now slated for 2025.

This budget request also supports our goal of dismantling all weapons retired prior to fiscal year 2009 by fiscal year 2022. In fact, we have already dismantled more than 42 percent of these weapons in 38 percent of the time allotted. This funding will ensure that we stay on track to meet our dismantlement commitment.

Within DSW, the budget request also includes \$415.0 million for a new "Nuclear Materials Commodities" subprogram to support the investment needed in nuclear materials to maintain the viability of the enduring stockpile. Included in this subprogram are Uranium Sustainment, Plutonium Sustainment, and Tritium Sustainment which are all crucial to sustain our stockpile, even as we move to lower levels in our nuclear stockpile. Since last year, we have created and empowered new program manager positions to oversee each of these nuclear materials programs. Also included within DSW, is a subprogram for Domestic Uranium Enrichment. Ensuring we have a domestic uranium enrichment capability for national security needs is particularly important in maintaining a domestic source of LEU to produce tritium and for research reactor conversion program and eventually to produce HEU for Naval Reactors fuel.

Consistent with the Consolidated and Further Continuing Appropriations Act for fiscal year 2015, activities formerly carried out under Campaigns are now included under Research, Development, Test, and Evaluation (RDT&E). The funding request for RDT&E is about \$1.8 billion, essentially the same as the fiscal year 2015 enacted level. This includes \$623.0 million for the Advanced Simulation and Computing (ASC) Program, an increase of \$25.0 million for the Advanced Technology Development and Mitigation (ATDM) subprogram that supports high performance computing; \$130.1 million for Advanced Manufacturing Development, an increase of \$22.9 million. This funding will support work related to electronics-based arming, fusing, and firing, as well as other technologies that require significant technical effort to ensure production readiness for manufacturing technologies needed to replace sunset technologies. We continue to develop and mature additive manufacturing

technologies that can provide significant cost avoidance by reducing costs to prototype and manufacture tooling and certain weapons components. These increases are largely offset by relatively small decreases in the Science (–\$22.5 million for a total request of \$389.6 million), Inertial Confinement Fusion Ignition and High Yield Program (–\$10.4 million for a total request of \$502.5 million), and Engineering (–\$4.6 million for a total request of \$131.4 million) Programs.

The Inertial Confinement Fusion Ignition and High Yield program has spearheaded ongoing improvements in both management and operational efficiencies at NNSA's major high energy density (HED) facilities, including the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory (LLNL). As a result of these improvements, LLNL has been able to increase the shot rate at NIF. NNSA recently completed a 10-year HED Science Strategic Plan to guide work in this important field.

Partnering with the DOE Office of Science, NNSA continues to make much needed investments in exascale computing. NNSA's ASC Program provides leading edge, high-end modeling and simulation capabilities to sustain and modernize the stockpile today and into the future. The fiscal year 2016 Request includes \$64 million for the ASC's Advanced Technology Development and Mitigation subprogram to pursue long-term simulation and computing goals relevant to the exascale computing needed to support the broad national security missions of the NNSA. Both the NNSA and DOE's Office of Science continue to collaborate with the Office of Science providing \$209 million towards the development of capable exascale systems.

Defense Programs also supports the vitality of the broader National Security Enterprise. An important aspect of this is investing in Laboratory-, Site- and Plant-Directed Research and Development (LDRD). Independent reviews have consistently affirmed the importance of the program to the long-term vitality of the labs. LDRD provides basic research funding to foster innovation and to attract and retain young scientific and technical talent. Congressional support is essential to sustaining this essential national capability.

Finally, another important accomplishment within Weapons Activities in 2014 was the renewal of the Mutual Defense Agreement with the United Kingdom. Since 1958, this enduring agreement has enabled mutually beneficial exchange of nuclear expertise between the United States and UK, contributing to a long and proud history of defense cooperation between our two Nations. In this case, the Administration and the Congress worked closely together to achieve a shared goal. We are truly grateful for your support.

#### IMPROVING SAFETY, OPERATIONS AND INFRASTRUCTURE

In order to support all of these critical programmatic activities, we are making important strides in recapitalizing our aging infrastructure throughout the enterprise. In August 2014, DOE and NNSA formally dedicated the new National Security Campus (NSC) in Kansas City, Missouri. The former Kansas City Plant was relocated from the Bannister Federal Complex, a 70-year-old facility, to the NSC with half the footprint and a modern operating environment. The move was safely and securely completed 1 month ahead of schedule and \$10 million under budget. The NSC manufactures or purchases 85 percent of the non-nuclear components that make up our nuclear weapons, and thus plays a major role in keeping the Nation's nuclear stockpile safe, secure and effective.

The fiscal year 2016 request restructures many of the activities formerly conducted under the Readiness in Technical Base and Facilities (RTBF) into the Infrastructure and Safety program. This new program will maintain, operate and modernize the NNSA general purpose infrastructure in a safe, secure, and cost-effective manner. Infrastructure and Safety efforts are organized around five elements—Operations of Facilities; Safety Operations; Maintenance; Recapitalization; and, Line Item Construction. Together, these elements provide a comprehensive approach to arresting the declining state of NNSA infrastructure. The fiscal year 2016 request for Infrastructure and Safety is \$1.5 billion and reflects an increase of \$79.4 million for comparable activities from the fiscal year 2015 enacted level. This funding will allow NNSA to modernize and upgrade aging infrastructure and address safety and programmatic risks.

We are developing a 10-year strategic plan that identifies the activities NNSA is undertaking to arrest the declining state of NNSA infrastructure, reduce Deferred Maintenance (DM), and dispose of excess facilities. The major elements of the plan include improving infrastructure decisionmaking with implementation of new, risk-informed analytical methods to better evaluate the ability of an asset to support program core capabilities; improving program management tools through implementation of standardized and automated processes and systems for scope, cost, and

schedule management; accelerating recapitalization and construction efforts to revitalize infrastructure and make better use of the resources by strategically procuring common systems and components used across the enterprise; and shrinking the NNSA footprint by deactivating and disposing of excess facilities, with increased focus on timely deactivation and on repurposing and reuse as a strategy to avoid new construction. Within this 10-year plan, the transferring of the old Kansas City Bannister Road facility to a private developer to repurpose the site for local community use will eliminate \$250 million in DM. We recognize that these goals will not be met quickly, and that arresting the declining state of NNSA infrastructure will require steady commitment at all levels of the organization over many years. We believe that the tools and processes we are developing and implementing, along with sustained investment in our infrastructure, will set NNSA on the right path to ensuring a viable, safe, and effective nuclear security enterprise well into the future.

The Infrastructure and Safety program addresses the needs of program specific infrastructure, primarily the Uranium Processing Facility (UPF) and the Chemistry and Metallurgy Research Replacement (CMRR) project. RTBF provides a defined level of readiness and capability through infrastructure investments and strategy development that are dedicated to special nuclear material processing and inventory management. The RTBF program accomplishes this mission by modernizing stockpile stewardship and management infrastructure through capability investments, strategic development, and line-item construction projects for the sustainment or enhancement of capabilities. The fiscal year 2016 request is \$1.1 billion, with a reduction of \$1.4 billion, due to the transfer of select activities to Infrastructure and Safety. For comparability purposes, the fiscal year 2016 request for RTBF is increased more than 50 percent to support a new source of high-purity depleted uranium, to realign recapitalization of Defense Programs capabilities through the Capabilities Based Investments (CBI), and to increase funding for the UPF at Y-12 to \$430.0 million and the CMRR Project at the Los Alamos National Laboratory (LANL) to \$156.0 million.

Last year, NNSA successfully executed one of the largest and most complex contract transitions in the history of the Department with the award of a contract to Consolidated Nuclear Security to operate and manage both the Pantex Plant and the Y-12 National Security Complex. The consolidated contract was written to require efficiencies and improved operations as a requirement for continued performance beyond the initial 5-year base period. This is a departure from other management and operating contracts where efficiencies and effectiveness are considered but are not mandatory.

Our Office of Secure Transportation (OST) provides safe, secure movement of nuclear weapons, special nuclear material, and weapon components to meet projected DOE, DOD, and other customer requirements. It continues to modernize assets by extending the life of the Safeguards Transporter and is currently looking at options for the next generation transporter, the Mobile Guardian Transporter. To meet an increasing workload, OST is planning a small increase in the number of Federal agents.

The primary mission of NNSA's Office of Defense Nuclear Security (DNS) and the Chief Security Officer is to develop and implement sound security programs to protect Special Nuclear Material (SNM), people, information, and facilities throughout the nuclear security enterprise. The NNSA's Defense Nuclear Security fiscal year 2016 request is \$632.9 million. The request manages risk among important competing needs even as NNSA continues to face the challenges associated with an aging physical security infrastructure that must be effectively addressed in the coming years. The request includes \$13 million to initiate installation of Argus at the Device Assembly Facility at the Nevada National Security Site. Argus is the enterprise security system for Category 1 SNM facilities that integrates access control, intrusion detection, and video assessment of alarms to protect and control high-consequence assets. DNS also has a prioritized list of smaller infrastructure upgrade projects it will execute as General Plant Projects within available O&M funding, for example, lighting systems supporting perimeter camera assessment, replacement and upgrades to Argus Field Processors, replacement of ported coax cables and buried cable electronics that will extend lifecycles and delay total system replacements. DNS initiated an Enterprise Vulnerability Assessment process across the enterprise with a focus on standardizing how vulnerability assessments are conducted and site protection strategies are formulated.

The Information Technology and Cybersecurity fiscal year 2016 request is \$157.6 million, a decrease of \$22.1 million or about 12.3 percent from fiscal year 2015 enacted levels. The difference is attributed to a one-time investment in fiscal year 2015 in the Infrastructure Program to implement a more secure classified computing environment. All activities related to the one-time increase were completed.

Information Technology and Cybersecurity supports the nuclear security enterprise. This work includes continuous monitoring and enterprise wireless and security technologies (i.e., identity, credential, and access management) to help meet security challenges. In fiscal year 2016, NNSA plans to complete the recapitalization of the Enterprise Secure Network, modernize the Cybersecurity infrastructure, implement the Identity Control and Access Management project at NNSA Headquarters and site elements, and implement and coordinate all Committee on National Security Systems and Public Key Infrastructure capabilities. In addition, we will leverage the NNSA Network Vision framework to increase the efficiency and cost-effectiveness of NNSA Information Technology (IT) services.

#### DEFENSE NUCLEAR NONPROLIFERATION APPROPRIATION

In fiscal year 2016, we have realigned the NNSA programs that continue to support the President's Prague Agenda to address the threat of nuclear proliferation and terrorism into the Defense Nuclear Nonproliferation (DNN) appropriation. NNSA's activities work across the spectrum to prevent, counter and respond to the threat of nuclear and radiological proliferation and terrorism. We work to prevent the acquisition of nuclear or radiological materials, technology, and expertise; we actively counter efforts to develop the materials and scientific knowledge needed to construct a nuclear threat device; and we are poised to respond to terrorist acts by searching for and rendering safe any such devices.

The Defense Nuclear Nonproliferation (DNN) account request is \$1.9 billion, an increase of \$325 million or about 20.1 percent from fiscal year 2015 enacted levels. At first glance, this figure looks like a very big increase but the number actually reflects a reorganization of our budget to include the Nuclear Counterterrorism Incident Response (NCTIR) and the Counterterrorism and Counterproliferation (CTCP) Programs from the Weapons Activities account. For comparability purposes, the DNN account increase is \$101.0 million or over 5 percent above fiscal year 2015 enacted levels. Additionally, we have combined the NCTIR and CTCP programs into a single budget program line to eliminate confusion about NNSA nuclear counterterrorism programs and activities. We also changed the NCTIR name to Nuclear Counterterrorism and Incident Response Program, reflecting this realignment. The DNN Appropriation will now support two enduring mission areas: (1) The Defense Nuclear Nonproliferation Program and (2) The Nuclear Counterterrorism and Incident Response Program. The Nuclear Nonproliferation Program is also restructuring to place more emphasis on capabilities as opposed to specific programs. This organizational restructuring is reflected in the DNN budget restructuring.

To achieve all of these mission objectives, NNSA has restructured the budget request under the Defense Nuclear Nonproliferation account as follows:

- Material Management and Minimization
- Global Material Security
- Nonproliferation and Arms Control
- Defense Nuclear Nonproliferation R&D
- Nonproliferation Construction
- Nuclear Counterterrorism and Incident Response Program.

Together, this restructuring aligns funding for preventing, countering, and responding to global nuclear dangers in one appropriation.

#### NONPROLIFERATION EFFORTS

The fiscal year 2016 request for the DNN Program, excluding NCTIR and Legacy Contractor Pensions, is \$1.6 billion, an increase of \$67.9 million or about 4.4 percent above fiscal year 2015 enacted levels. This past year was a big year for our nonproliferation efforts. Our Defense Nuclear Nonproliferation organization was responsible for many of the significant deliverables at the third Nuclear Security Summit held in The Hague last spring. Of particular note, Japan announced at the Summit that it would work with us to remove and dispose of all highly-enriched uranium (HEU) and separated plutonium from its Fast Critical Assembly. NNSA is currently working with its counterparts in Japan to resolve technical and logistical issues to complete this effort in a timely manner.

Also during the Summit, the United States joined 22 countries in signing up to a "Gift Basket" to secure all Category 1 radioactive sealed sources by 2016. In the United States, there are approximately 465 buildings with Category 1 devices. Of these, NNSA has completed security enhancements at 300 and is currently involved in a targeted outreach campaign to engage the remaining 165 buildings by the end of spring 2015.

And finally, NNSA partnered with five countries to remove 190 kg of HEU and plutonium from civilian facilities; which brings our cumulative total at the end of

fiscal year 2014 to an impressive 5,207 kg; this is more than enough material for 200 nuclear weapons. While relations with Russia are severely strained, we anticipate that we will continue to cooperate in efforts to repatriate Russian-origin weapons-usable HEU material to Russia.

The Material Management and Minimization (M3) program presents an integrated approach to addressing the persistent threat posed by nuclear materials through a full cycle of materials management and minimization efforts. Consistent with the priorities articulated in the National Security Strategy of the United States and the Nuclear Posture Review, the primary objective of the program is to achieve permanent threat reduction by minimizing and, when possible, eliminating weapons-usable nuclear material around the world. This program includes elements of the former Global Threat Reduction Initiative (GTRI) and Fissile Materials Disposition Programs. The fiscal year 2016 request for this program is \$311.6 million. For comparability purposes, the request reflects an increase of \$38.7 million or about a 14.2 percent increase above the fiscal year 2015 enacted levels. The funding increases are primarily for the removal of HEU from miniature neutron source reactors in Africa as well as preparatory activities for future shipments from Europe and Japan, which will proceed with appropriate cost-sharing.

The Global Material Security (GMS) program supports the President's nuclear and radiological security agenda and the Secretary's goal of enhancing nuclear security through nonproliferation. We work with partner countries to increase the security of vulnerable stockpiles of nuclear weapons, weapons-usable nuclear materials, and radiological materials, and to improve partner countries' abilities to deter, detect, and interdict illicit trafficking. Elements of the former GTRI program, International Material Protection and Cooperation (IMPC) program, and Nonproliferation and International Security (NIS) program are being combined in GMS, in order to better integrate capabilities required to support DNN's enduring mission. The fiscal year 2016 request for this program is \$426.8 million. For comparability purposes the request reflects a slight increase of \$2.5 million above the fiscal year 2015 enacted levels. This increase will accelerate the protection of International Atomic Energy Agency Category 1 radiological sources in order to meet the 2014 Nuclear Security Summit commitment to secure these sources by 2016.

The Nonproliferation and Arms Control (NPAC) program supports the President's nonproliferation agenda and NNSA efforts to prevent the proliferation or use of weapons of mass destruction by State and non-State actors. To carry out the goals of this program, we work with the International Atomic Energy Agency (IAEA) and foreign partners to build global capacity to safeguard nuclear materials and prevent illicit transfers of dual-use materials, equipment, technology and expertise. We also work with our partners and the IAEA to develop technologies and approaches to verify and monitor current and future arms control treaties and agreements. This funding also supports statutorily mandated activities such as technical reviews of export licenses and interdiction cases, and technical support for the negotiation and implementation of civil nuclear cooperation agreements (123 Agreements), as well as international export control outreach activities, and activities to support and improve the execution of the NPAC 10 CFR Part 810 application process. The fiscal year 2016 request for this program is \$126.7 million, and reflects a slight increase of \$0.8 million above the fiscal year 2015 enacted level.

The Defense Nuclear Nonproliferation Research and Development (DNN R&D) program supports innovative, unilateral and multi-lateral technical capabilities to detect, identify, and characterize: (1) foreign nuclear weapons programs, (2) illicit diversion of special nuclear materials, and (3) nuclear detonations. To meet national and Departmental nuclear security requirements, DNN R&D leverages the unique facilities and scientific skills of the Department of Energy, academia, and industry to perform research, including counterterrorism-related R&D. DNN R&D conducts technology demonstrations, and develops prototypes for integration into operational systems. The fiscal year 2016 request for this program is \$419.3 million, a \$25.9 million increase or about 6.6 percent above fiscal year 2015 levels. Increased funding is requested for nuclear and energetic materials characterization experiments and development of advanced diagnostic equipment capabilities, for long-range nuclear detonation detection, and technical forensics research. This increase over fiscal year 2015 levels is partially offset by a return to baseline funding for the Proliferation Detection subprogram after a one-time Congressional increase in fiscal year 2015 for test bed development and field experiments.

Nonproliferation Construction consolidates construction costs for DNN projects previously contained within each program budget. Currently, the MOX Fuel Fabrication Facility (MFFF) is the only project in this program. The fiscal year 2016 request for MFFF is \$345 million which is the same as the fiscal year 2015 enacted level. The National Defense Authorization Act for fiscal year 2015 and the Consoli-



dated and Further Continuing Appropriations Act for fiscal year 2015 directed the Department to conduct additional analyses of the MFFF construction project. These analyses will include independent cost and schedule estimates, and examination of alternative approaches for disposition of the 34 metric tons of weapon-grade plutonium and their relationship to the Plutonium Management Disposition Agreement (PMDA). The Department has requested Aerospace Corporation, a federally funded research and development center, to perform these analyses. They will be completed during fiscal year 2015, and will inform a final decision on the path forward. The fiscal year 2016 request emphasizes that while the Department continues to evaluate disposition paths (including the MFFF) to determine the most responsible path forward, any viable alternative will require a significant amount of funds to implement.

#### NUCLEAR COUNTERTERRORISM AND EMERGENCY RESPONSE

The fiscal year 2016 Request consolidates counterterrorism and emergency response funding into a single Nuclear Counterterrorism and Incident Response line in the amount of \$234.4 million.

Within NCTIR, the Nuclear Counterterrorism Assessment program represents the primary scientific program to assess the threat of nuclear terrorism and develop technical countermeasures against it. The knowledge generated under this program ensures that NNSA's technical expertise on nuclear threat devices informs DOD and FBI emergency response capabilities. We have taken steps to address funding reductions to the nuclear counterterrorism activities. Over the last 2 years these activities, formerly known as Counterterrorism and Counterproliferation within the Weapons Activities appropriation, have been funded at a level significantly below the requested amount—70 percent of the Request in fiscal year 2014 and 60 percent in fiscal year 2015. The fiscal year 2016 request would dedicate \$57.8M to Nuclear Counterterrorism Assessment in support of improvised nuclear device analysis. Additionally, the request includes funds within Defense Nuclear Nonproliferation R&D for materials characterization experiments and other research, which supports nuclear counterterrorism and incident response missions. Full funding of both lines will make it possible to continue NNSA's vital counterterrorism work at the national laboratories.

NCTIR continues to work domestically and around the world to improve preparedness and emergency response capabilities. Its expert scientific teams and equipment provide a technically trained, rapid response to nuclear or radiological incidents worldwide. NCTIR assesses nuclear or radiological threats and leverages that knowledge to provide contingency planning and training to support national and international counterterrorism and incident response capabilities. In 2014, NNSA's emergency response teams deployed more than 100 times in support of law enforcement and for major public events, such as the Super Bowl, and conducted five large-scale field exercises with partners from the FBI, DOD, and FEMA. In addition, they deployed over 70 times in support of DHS Domestic Nuclear Detection Office support to State and local first responders. Internationally, NNSA conducted 16 training courses to improve its foreign partners' emergency management capabilities and continued to work bilaterally with Israel, Vietnam, Cambodia, Thailand, Chile, China, Mexico, Argentina, Brazil, Taiwan, Canada, France, Jordan, the Nordic countries, Armenia and Kazakhstan. New programs were also started with Romania, Belarus and the Philippines. These initiatives represent our effort to create a truly global defense against the threat of nuclear terrorism.

NCTIR will also continue the initiative to equip cities with stabilization equipment and training, to ensure a prompt and effective response to nuclear terror threats.

NCTIR also executes the DOE's Emergency Management and Operations Support program that manages the Emergency Operations Centers, Emergency Communications Network, and Continuity Programs for all of DOE, including NNSA.

#### NAVAL REACTORS APPROPRIATION

##### *Advancing Naval Nuclear Propulsion*

During the past year, NNSA helped celebrate the 60th Anniversary of the USS NAUTILUS first getting underway on nuclear propulsion. The Naval Nuclear Propulsion program pioneered advances in nuclear reactor and warship design—such as improving reactor lifetimes, increasing submarine stealth, and reducing propulsion plant crewing. An example is the technology being developed by Naval Reactors that will enable the Ohio-Class Replacement submarine to be designed for a 40-plus year operational life without refueling, resulting in significant savings.

During 2014, Naval Reactors continued its record of operational excellence by providing the technical expertise required to resolve emergent issues in the Nation's nuclear-powered Fleet, enabling the Fleet to steam more 2 million miles. Through the work of its laboratory and highly skilled personnel, Naval Reactors also advanced the Ohio-Class Replacement and the S8G Prototype Refueling projects as well as initiating integrated testing of the lead A1B reactor plant for the next generation FORD-class aircraft carrier.

It is generally not well-known that if anything goes wrong with a reactor on one of the Navy's nuclear carriers or submarines while they are at sea, Naval Reactors' cadre of experts provide around-the-clock technical support, and can often resolve the problem and prevent the ship from having to return to port to be checked out and repaired— which would be quite costly and disruptive to the Navy's deployment schedules.

The budget request for Naval Reactors is \$1.4 billion, an increase of \$141.6 million, about 11.5 percent from the fiscal year 2015 enacted level. The request includes the base funding required to safely maintain, operate and oversee the Navy's 83 nuclear-powered warships, constituting over 45 percent of the Navy's major combatants. The increase supports three high priority activities: \$186.8 million to continue development of the advanced Ohio-Class Replacement reactor; \$133 million to continue preparations for the refueling and overhaul of the Land-Based Prototype reactor plant; and \$86 million to continue the design work of the Spent Fuel Handling Recapitalization Project started in fiscal year 2015. To this end, we would like to thank the Subcommittee's support for appropriating \$70 million for Spent Fuel Handling Recapitalization Project in the fiscal year 2015 enacted budget. These activities are essential to maintaining a credible sea-based strategic deterrent, to maintain the research and training capabilities of the Land-based Prototype, and to maintain the capability to safely inspect, store and package naval spent nuclear fuel.

#### NNSA FEDERAL SALARIES AND EXPENSES APPROPRIATION

NNSA Federal Salaries and Expenses (FSE) Request is \$402.7 million, essentially equal to the rate of operations in fiscal year 2015, but 8.9 percent above the fiscal year 2015 enacted level. The Request provides funding for 1,690 full-time equivalents (FTEs) and support expenses needed to meet mission requirements. We are actively engaged in hiring to that number in a thoughtful and strategic manner. I would note that the Request represents an increase of only \$1.5 million from the fiscal year 2015 planned execution level of \$401.2 million. This is due to the fact that the fiscal year 2015 enacted level was significantly below the request and we will need to use over \$30 million of planned carryover to sustain the currently projected operations of the NNSA Federal workforce. We built up that reserve through prudent planning and execution to enable us to pay for large one-time costs, such as the movement of much of our Federal workforce in Albuquerque into newer leased space. The increase includes a 1.3 percent cost of living adjustment and benefits escalation, additional support to stand up the Office of Cost Estimation and Program Evaluation (CEPE) office in accordance with Section 3112 of the fiscal year 2014 National Defense Authorization Act (NDAA), and funding to improve financial systems integration within the nuclear security enterprise in accordance with Section 3128 of the fiscal year 2014 NDAA.

In fiscal year 2016, NNSA will continue its on-going efforts to plan strategically to meet current and future workforce needs by analyzing how evolving missions are affecting job requirements. Reshaping of the workforce over the next several years will be essential, including obtaining both the right staffing size and skill sets. NNSA will also continue to identify efficiencies, particularly in travel and support services, to provide a lean and efficient organization and to support the President's Executive Order "Promoting Efficient Spending".

#### MANAGEMENT & PERFORMANCE

To enhance our ability to carry out our mission and execute this budget request, we will continue to focus on improving our project management and cost estimating capabilities. In keeping with the Secretary of Energy's increased focus on Management and Performance, the NNSA is committed to manage its operations, contracts and costs in an effective and efficient manner. The NNSA's Office of Acquisition and Project Management (APM) is driving continued improvement in contract and project management practices. APM is leading the NNSA's effort to deliver results by instituting rigorous analyses of alternatives, providing clear lines of authority and accountability for Federal and contractor program and project management, and improving cost and schedule performance. NNSA participates in the Secretary's

Project Management Risk Committee as a means to institutionalize and share best practices across the Department.

We have used strategic partnerships with the National Laboratories to rethink some of our most challenging projects. As a result of the Red Team review of the UPF at the Y-12 National Security Complex, led by the director of the Oak Ridge National Laboratory, and a similar approach to the Chemistry and Metallurgy Research Replacement (CMRR) Facility capability at Los Alamos National Laboratory, we are developing a disciplined, modular approach for both sites that will remove risks early in the process, and establish a well-defined cost and schedule, both of which were lacking in earlier efforts. This process will be an important and recurring project management theme at the NNSA and across the Department of Energy.

The CEPE was established in September 2014 pursuant to the fiscal year 2014 National Defense Authorization Act. This legislation recognized the effort to improve cost estimating that the NNSA had already started. The CEPE office is a prime example of actions taken to improve our cost estimation efforts. Forging a strong partnership with the Department of Defense (DOD) Office of Cost Assessment and Program Evaluation (CAPE), including joint training activities with CAPE, we have made good progress in establishing CEPE as an independent office. CEPE will provide independent cost estimating leadership, rigorous program analysis, and prudent fiscal guidance. Getting CEPE fully functional is a high priority for NNSA, and we will closely monitor its progress as it grows into its full potential over the next few years.

#### CONCLUSION

The NNSA executes vital missions to ensure nuclear security at home and abroad. We do this by delivering the technology, capabilities and infrastructure essential to a 21st century national security organization. Our workforce continues to rise to the challenge and deliver mission effective and cost efficient nuclear security solutions critical for the NNSA to succeed in today's fiscal climate.

In closing, I would also like to mention that the President's Budget Request is just the first in a series of documents slated for release this spring. The most important of those yet to be released is the NNSA Strategic Plan, last updated in May 2011. The goal of this document is to provide a single integrated guidepost for NNSA's leaders, our partners at the labs and plants, and Congress and our external stakeholders. The new strategic plan will articulate a clear direction and mission to everyone—no matter their rank or position. Also to be released is the Congressionally-mandated Stockpile Stewardship Management Plan (SSMP) which details NNSA's multi-year plan for delivering a safe, secure and effective nuclear stockpile. And for the first time, we plan to release a companion plan to the SSMP, tentatively titled, "Prevent, Counter and Respond" to address our plans for nonproliferation, counterterrorism and emergency response programs. Finally, a report is being prepared for Congress in response to the Final Report from the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, co-chaired by Norm Augustine and Admiral Rich Mies.

Again, thank you for the opportunity to appear before you today.

#### URANIUM PROCESSING FACILITY

Senator ALEXANDER. Thank you, General Klotz. We will begin five-minute rounds of questions, and I'll begin.

General, I would like to start with questions in this round devoted to the uranium facility, where you're going tomorrow. Am I correct that you're able to carry appropriated funds over from 1 year to the next?

General KLOTZ. Yes, we are.

Senator ALEXANDER. On that facility. And one of the complaints we've sometimes had about inefficiency is that the jerky quality of the appropriations process sometimes cause wasted money, right?

General KLOTZ. It does.

Senator ALEXANDER. So having a sustainable flow of dollars based upon a plan can help save money as well by speeding things up and avoiding the jerkiness of the process.

General KLOTZ. You're absolutely right, Senator.

Senator ALEXANDER. The budget request for this year is \$430 million. What do you need that much money for this year?

General KLOTZ. Well, in the coming year, we will use this funding to develop the detailed design and safety analysis for the three principal facilities which we will ultimately construct. That's a mechanical and electrical building, it's a salvage and accountability building, and it's the main process building. It will also allow us to initiate the last phase of some site preparation activities, including large-scale excavation and backfill, in order to make the site ready to start facility constructing activities in fiscal year 2017.

Senator ALEXANDER. So it's all design and site preparation, is that correct?

General KLOTZ. Yes, sir.

Senator ALEXANDER. How—

General KLOTZ. Excuse me, Senator. There will also be some long lead procurement things for specialty equipment, like the specialized glove boxes that are necessary to work with net radioactive materials. Those are very highly complex pieces of equipment that require long lead times, so we need to begin the process of procuring those.

Senator ALEXANDER. When will the design of these buildings be 90 percent complete?

General KLOTZ. We expect, on the current schedule, for that to be during fiscal year 2017.

Senator ALEXANDER. And can you confirm that the designs of the uranium buildings will be 90 percent complete before the construction begins?

General KLOTZ. Yes. For those three facilities, which are the nuclear facilities associated—for the uranium processing facility, we will be 90 percent complete before we begin construction in accordance with our own Department of Energy orders, 413.3B to be precise, that we follow very carefully.

Senator ALEXANDER. So 2017 would be the date, the estimated date, for 90 percent design completion.

General KLOTZ. Yes, sir.

Senator ALEXANDER. And based on that date, will the buildings be completed on time to meet your commitment to be operational by 2025?

General KLOTZ. Yes, sir. It's still our intent to be on track to have this work done, be out of building 9212, which, as you know, is the oldest facility that we have there, by 2025, at a cap of \$6.5 billion.

Senator ALEXANDER. Well, that was going to be my last question. Are you still on track to finish the facility under the \$6.5 billion cost cap?

General KLOTZ. Yes, sir, we are.

Senator ALEXANDER. Well, I thank you for that. And Senator Feinstein and I have been pretty aggressive the last 2 or 3 years on that. And I appreciate the response of NNSA, its work, and that of the Red Team, because we basically have an agreement, as I understand it, that construction won't begin until we're 90 percent complete with design, and you said that is expected to be in 2017, that the buildings will be completed by 2025, and the budget cap is \$6.5 billion or less.

General KLOTZ. Yes, sir. But it's important that we continue to do some of the site preparation work that is already underway. In fact, one of the reasons for going to Oak Ridge tomorrow is to celebrate the completion of the first subproject that we had in terms of preparing the site for the construction of these three facilities. And in fact, we had budgeted \$65 million to do some road work associated with the vehicles that will have to come in and out of the construction site. We have done some grading. We've done potable water lines. And as I said, we budgeted \$65 million for that, and it came in significantly below that.

Our next step in this process, which we are ready to begin immediately, is to do what we call site infrastructure and services subproject. Again, these are the things that any large construction project would have to do. For instance, we will need to put a concrete batch plant on the facility, and a very unique concrete batch plant, because this has to pour nuclear qualified concrete. As any construction project, we'll need to build construction support buildings to house the people who are doing work there, which will ultimately be 1,700 construction people doing that. And we estimate that that will be a total of \$78 million for a total project cost for this particular aspect of the work. And as I said, we're ready to start immediately, and we expect to have that completed in the spring of 2018.

#### SAFETY

Senator ALEXANDER. Well, my time is up, but I'm going to ask this question, because it involves both Senator Feinstein and me. I celebrate any example of your coming in under budget. In multi-billion-dollar projects, even \$10 million is an encouraging sign to me. And I like the idea that there seems to be now clear accountability, someone's on the flagpole, for meeting the goals that we have. We use the example of the nuclear Navy. My staff reminded me that not only has the nuclear Navy not had a reactor accident resulting in a death, it hasn't had a reactor accident. Am I correct about that?

Admiral RICHARDSON. Yes, sir, that's true.

Senator ALEXANDER. Over 60 years. And a lot of that comes because Admiral Rickover, who I believe interviewed you as well, Mr. Richardson, is that—

Admiral RICHARDSON. Several times, Senator, yes, before I got it right.

Senator ALEXANDER. And he probably told you that, if you had a problem with a reactor, your career was over. Did he say something like that?

Admiral RICHARDSON. So that's a tenet of our program at every level. Yes, sir.

Senator ALEXANDER. So this accountability is important. So one question would be, we've had meetings, Senator Feinstein, with the accountability team at the uranium processing plant. I wanted to suggest that maybe a good schedule for that might be twice a year. We could do it more often, if you would like. And you might suggest to us when it would be useful, most useful to us and to you, to have just an informal meeting where we get an assurance that we're on time and on budget.

Senator FEINSTEIN. With the head of the project.

Senator ALEXANDER. With the head of the project. So will you think about that and suggest to us whether twice a year with the head of the project sounds about right? And if so, what times of the year would make the most sense?

General KLOTZ. Yes, sir. And thank you so much for that offer, because we have really benefited from your strong leadership, your insight, and your counsel, as we've moved forward through this over the last couple of years. So we will work with your staff and find the time.

I know you've got a very busy hearing schedule to finish. And we would like to get in sooner rather than later to do that. We're anxious to let you know the issues associated with this particular project, the successes as well as the challenges that lie before us. I think it's a good news story. As I said, we benefit from your counsel.

Senator ALEXANDER. Thank you. Senator Feinstein.

Senator FEINSTEIN. Thanks very much. I hope to cover two subjects in my 5 minutes. One is the hedge, and the second is a new nuclear cruise missile.

#### NUCLEAR WEAPONS STOCKPILE

I wrote an op-ed which was in the Washington Post on December 3 of last year on the hedge, and I just want to read a small part from it.

Of our stockpile of 4,804 weapons, only 1,600 are currently deployed, which means there are 3,204 backup weapons. We maintain this hedge in case of problems with the deployed weapons or if world events require additional deployments. Having reserve weapons may be smart policy, but maintaining two spares for each deployed weapon is excessive.

I would like your reaction to that, anyone on the panel, and I would like your assessment of what could be saved if the hedge were cut in half.

General KLOTZ. Let me, if I could Senator—thank you for the question—make a general statement, and then I'd like to pass it over to Dr. Cook, who has responsibility for all the weapons activities within NNSA, for a more refined answer than I'll be able to provide.

The whole objective of the campaign of life extension programs we have for the existing weapons is not only to sustain their life, but in the process, we will reduce the number of weapons which we feel is prudent to have in terms of hedge capabilities. That's the case with both the weapons that will go on the sea launch, ballistic missiles, as well as the gravity weapons we have. So that's part of our overall strategy, that as we prepare these weapons to be extended another couple of decades beyond which their original design life is, we are looking to reduce the overall size of the stockpile, the hedge requirements, but also the amount of special nuclear material that makes up the entire stockpile. Don.

Mr. COOK. Thank you very much for the question, Senator. It's important to realize that NNSA executes and NWC approved program, so they are partners in this. With regard to the hedge, it is, in fact, a technical hedge, as you described, and we are on a path

to get reductions through appropriate modernization via life extensions. That will give us increased confidence that we can reduce the hedge. These decisions are made within the entity that we work with on the DOD side.

To support what the administrator said, as a result of doing the W76 life extension, for example, by the time we conclude that, just a few years from now at the end of 2019, we will have reduced the number of W76s by a full factor of two. The 3 plus 2 strategy heads toward three ballistic systems, that's a reduction from four, and just two elements in the air carried leg, a modern gravity bomb, the B61 Mod 12, and the modern cruise missile, the W80-4.

Again, as the administrator said on a few more details, when we complete the B61 Mod 12, and we'll complete that in fiscal 2020, the time right now is March 2020, we will again have reduced the number of bombs by a factor of two. We will have reduced the special nuclear material by a larger amount than that, because we set the stage for the retirement of the B83-1, the last megaton gravity bomb in the American arsenal. As a result then, we've reduced the amount of special nuclear material in the bomb leg, by more than 80 percent.

So those are also key to having greater confidence in the ability of those systems to work. And as that is achieved, then the technical hedge will be reduced. As an example, we are ahead of by our dismantlement goals. We are able to take, as time goes on, more dismantlement work load beyond 2022, which is where we have it planned today.

Senator FEINSTEIN. I very much appreciate the fact, Dr. Cook, that you're looking at it.

Mr. Chairman, I'd like to have a classified briefing on that subject, because I have some questions about it, and maybe you'd like to join me.

Senator ALEXANDER. Well, I would join you. I read your op-ed, and those are very appropriate questions, important to our national security, and they cost a lot of money. And so I'd like to fully understand it, too, so why don't we schedule that?

Senator FEINSTEIN. That would be excellent. And include in it the B61 and the number of B61s we have.

#### NUCLEAR CRUISE MISSILE

The next question is, why do we need a new nuclear cruise missile? It's a \$186 million increase, I think, over the 2015 level of \$9 million, and the total cost runs \$7 billion to \$10 billion, and I know of no compelling case. So if there is one, maybe you could relate it to us.

General KLOTZ. Well, thank you, Senator. In the same Senate Armed Services Committee hearing that you referenced earlier, the one that The Nuclear Weapons Council Chairman, Frank Kendall, headed up, Admiral Cecil Haney, who is also the Commander of U.S. Strategic Command, made the case this way. The Air Force has had a cruise missile, the air-launched cruise missile, for some decades. That missile, the missile itself, not the warhead which we have responsibility for, but the missile itself, is starting to show the signs of age, and that is raising concerns about the long-term

reliability of the missile. There are also some aging concerns associated with the support equipment that's associated—

Senator FEINSTEIN. Could I stop you just for a minute?

General KLOTZ. Yes, ma'am.

Senator FEINSTEIN. How old is the missile when it begins to show age?

General KLOTZ. I'd have to get back to you on the specific life.

Senator FEINSTEIN. If you would, I'd appreciate it.

General KLOTZ. Yes, we'll get back.

Senator FEINSTEIN. Thank you.

General KLOTZ. Yes, we will talk to our friends in the Air Force about that. The other issue that Admiral Haney expressed concern about was increasing sophistication of air defenses across the world and making sure that we have an air-launched cruise missile capability that can deal with the types of threats—and again, we can include that in our classified discussion later.

We, at the NNSA, have a responsibility, obviously, for the warhead that would go on a new Air Force cruise missile, which they refer to as the Long-Range Standoff Capability System. So we have, this past year, made a selection that we would use a warhead from the family of warheads that the current air-launched cruise missile uses. We are on a path to have that first production unit of that particular warhead ready in 2027.

A decision was taken in the Nuclear Weapons Council, and subsequently at higher levels within the Executive Branch, that we ought to move the date for the first production unit of that warhead 2 years to the left, to 2025, based on what the military saw as a requirement for—

Senator FEINSTEIN. Is to the left, is that—

General KLOTZ. I'm sorry, 2 years earlier.

Senator FEINSTEIN. Thank you.

General KLOTZ. I apologize. And so that explains a significant portion of the increase in the money that we have requested for the warhead work, the life extension program that would support the Air Force's Long-Range Stand-off System.

Mr. COOK. If I could follow up. Because of 2014 has elapsed and the first production unit is moved up 2 years, in fact, today, we are 3 years shorter within the first production unit. What we learned on the W76 and the B61 programs was that we had funded tech maturation later in the life extension, and it should have been done earlier. In fact, GAO (Government Accounting Office) did a report on the life extension programs, and they especially—

Senator FEINSTEIN. Can I stop you?

Mr. COOK. Surely.

Senator FEINSTEIN. Tech maturation?

Mr. COOK. I'm sorry. Technology maturation for the componentry and all the elements of the system really means that they are mature enough to put into a committed life extension program. In other words, we've resolved all the difficulties, and we can confidently, on both the cost estimates—

Senator FEINSTEIN. Are you saying that came earlier than you thought?

Mr. COOK. No. We did it later in W76 and in the B61, and we paid for that through having to scramble later in the life extension



program. When the General Accountability Office reviewed those two LEP's and the three plus two strategy and where we're going, they suggested that we fund technology maturation efforts as early as we could. And so, in fact, just as you've said, while we had \$9 million in 2015 and we're in the first phase of a study to get the requirements right at 6/1, in July of this year, we moved to the analysis of alternatives and conceptual development.

Our earlier plan had been \$28 million for 2027 first production unit, but because that was moved up 2 years, we requested an additional \$167 million for a total of \$195 million.

Senator FEINSTEIN. Well, my number is wrong. I said \$186 million. It's \$195 million?

Mr. COOK. One hundred ninety-five million dollars, an increase from last year's FY NSP for year 2016 of \$167 million.

Senator FEINSTEIN. Big jump. Thank you.

Mr. COOK. Yes. Yes.

Senator FEINSTEIN. Thank you, Mr. Chairman.

Senator ALEXANDER. Sure. Thank you, Senator Feinstein. Very helpful. And we'll schedule that hearing. That would be helpful for both of us, I think.

#### NAVAL REACTORS—SPENT FUEL STORAGE

Let me shift gears, Admiral Richardson. Let's talk a little bit about Naval reactors. We talked two weeks ago, the big thing for you in this budget is a new facility to inspect and package that used nuclear fuel that comes to Idaho from the reactors. That's a subject that Senator Feinstein and I have a lot of interest in, is basically, you bring the fuel to Idaho, and you need a facility to put it into dry cask storage, and then the dry casks are stored temporarily in Idaho until a repository is open to which they can be transferred, is that correct?

Admiral RICHARDSON. Yes, sir, Senator. That's a very important facility for our program, as you said, because we take all of our spent fuel from all of the submarines and carriers and send it to Idaho in containers. And at that facility, we have sort of a shipping and receiving element, where we take the fuel from the ships, we bring it into a pool for radiological reasons, and we do processing of those cores in the pool, and then eventually transition the spent reactor cores into dry storage, where we store them there—

Senator ALEXANDER. How long are the rods typically in the pool?

Admiral RICHARDSON. It's an interesting question, because we're really sort of making up for time now as we move material through the pool and into dry storage. But we've got an agreement with the State of Idaho to make that process and do that transition in less than 6 years, and that's an executable program for us.

Senator ALEXANDER. You mean the material arrives, and within 6 years, it's in a dry cask, is that what you're saying?

Admiral RICHARDSON. Exactly. Yes, sir. We're processing a lot of legacy fuel, but that's a good number in terms of the capability of the system.

Senator ALEXANDER. You also have an agreement with the State of Idaho to remove all those dry casks by 2035, is that right?

Admiral RICHARDSON. Yes, sir. Our agreement with the State of Idaho really has sort of two fundamental elements to it. One in-

volves exactly what we just talked about, the throughput of the material through the pool and into dry storage, and we are committed to take that inventory that we have right now, the current inventory, and move all of that into dry storage by 2023. And then for the course that we receive after that, we have that 6 year commitment to move them through the pool and into dry storage in 6 years. So we will have eliminated our backlog by 2023, and be on that 6-year thing.

Senator ALEXANDER. So step one is to get everything into dry storage within 6 years.

Admiral RICHARDSON. Yes, sir.

Senator ALEXANDER. But then step two is to get it all out of Idaho, right?

Admiral RICHARDSON. Yes, sir.

Senator ALEXANDER. When is that supposed to be?

Admiral RICHARDSON. The second element of our commitment involves shipment to an eventual repository.

Senator ALEXANDER. Yes, well, where are you going to take it?

Admiral RICHARDSON. Sir, that remains to be seen.

Senator ALEXANDER. Yes. I had not understood, the relative amount of material is smaller than I thought. I mean, compared to the amount of the number—Senator Feinstein, I think you might be interested in this, too. The material we have from our commercial reactors is quite a bit of material. Sometimes, it's described as nearly enough to fill up Yucca Mountain. But the amount of material that goes into dry casks from our reactors is relatively small space, is that—how would you describe that?

Admiral RICHARDSON. Yes, sir. We have about 30 tons of heavy metal in Idaho right now of that type of material. That represents about—well, you have 60 percent of that right now in dry storage. The rest of it is moving through, as I said. That's about 180 naval cores in dry storage, and those are loaded into 110 casks. Those casks are ready for shipping when a repository or interim storage facility is ready. But in total, we estimate that that total inventory is really less than 1/10 of 1 percent of the Nation spent fuel.

Senator ALEXANDER. Yes, so 110 casks right now.

Admiral RICHARDSON. Yes, sir.

Senator ALEXANDER. You still need a permanent repository to store your fuel.

Admiral RICHARDSON. Senator, in order to meet our current commitments with the State of Idaho, we have to be ready to be among the earliest shipments to go when that repository is ready, and then all of our spent fuel that arrives by 2026 has got to be out of the State by the year 2035.

Senator ALEXANDER. And your dry casks can go to the same kind of repository that a dry cask could from a commercial reactors used fuel, is that right?

Admiral RICHARDSON. Yes, sir.

Senator ALEXANDER. It could go to Yucca Mountain or to one of the repositories that we're envisioning through the legislation Senator Feinstein and I are working on.

Admiral RICHARDSON. Yes, sir. We stay very engaged in those conversations with the aim of making our casks ready to be received by that facility.

Senator ALEXANDER. If there were a private repository, not operated by the Department of Energy but licensed by the Nuclear Regulatory Commission, that was willing to take your used fuel, would it be appropriate to use such a repository for that?

Admiral RICHARDSON. Sir, if it had the appropriate certifications and licensing, that would be potentially an option.

Senator ALEXANDER. Yes, there's one license today, but it's not usable. That's in Utah. But in our hearing with the Nuclear Regulatory commissioners last week, we heard about a proposed application from West Texas which would be a privately operated repository. First, it would have to be licensed by Nuclear Regulatory Commission. But theoretically, if it's licensed by the NRC, you don't think of a reason why you could not ship your dry casks there.

Admiral RICHARDSON. Yes, sir. As long as it's appropriately certified, nothing comes to mind that would prevent us from using a facility like that. Again, we would be engaged in the details of that decision.

Senator ALEXANDER. Senator Feinstein, I don't know if you've heard him say, the Navy's dry casks in Idaho are about 1/10 of 1 percent the size of the used fuel mass from the commercial reactors in the country. So it's not very much by space.

Admiral RICHARDSON. Yes, sir.

Senator ALEXANDER. Senator Feinstein and I see we're joined by the Senator from Oklahoma, and we'd be glad to put you in the rotation after Senator Feinstein if you'd like.

Senator FEINSTEIN. Thanks very much, Mr. Chairman. I wanted to spend a few minutes on the National Ignition Facility at Livermore.

#### NATIONAL IGNITION FACILITY

On February 6, I sent the Secretary a letter on the use of plutonium at the National Ignition Facility, seeking assurance regarding the necessity for such experiments and the safety precautions for workers and the public. I received the response yesterday, and I would like to put that letter, dated March 9, from Secretary Moniz into the record, Mr. Chairman.

[The information follows:]



**The Secretary of Energy**  
Washington, DC 20585

March 9, 2015

The Honorable Dianne Feinstein  
Ranking Member  
Subcommittee on Energy and Water Development  
Committee on Appropriations  
United States Senate  
Washington, DC 20510

Dear Senator Feinstein:

Thank you for your February 6 letter requesting information on the process leading to approval of the plutonium experiments at the National Ignition Facility (NIF), the necessity of these experiments, and the safety measures taken.

In his December 10, 2014 letter (enclosed) to the Subcommittee on Energy and Water Development, Dr. Donald Cook, Deputy Administrator for Defense Programs at the National Nuclear Security Administration (NNSA), outlined the scientific basis for these experiments and the details of the processes followed with regard to the safe execution of the experiments. Among the capabilities that the NIF brings to the Stockpile Stewardship Program is the ability to study materials compressed to extremely high pressures. No other platform can reach the pressures that the NIF can attain, and plutonium experiments in this regime are providing invaluable insights required to underpin the codes and models used to assess the performance and safety of our Nation's nuclear weapons stockpile.

Regarding the approval of these experiments, Dr. Donald Cook approved conducting plutonium experiments at the NIF after assessing myriad factors, including the technical benefits and technical risks, the risk assessment and risk management approach used by Lawrence Livermore National Laboratory (LLNL), and the incremental costs associated with these experiments. The Director of LLNL and his staff briefed the NNSA Administrator, Lt Gen (ret.) Klotz, and me on these matters, and we concurred with Dr. Cook's decision.

Safety is the highest concern at the Department of Energy. The NIF has many safety features to prevent impacts to the workers, public, and environment. All experiments are conducted consistent with all federal, state, and regional regulations. LLNL workers have been trained and extensive reviews were conducted to verify that the staff, procedures, and the safety systems were ready to proceed prior to the planned experiments. The amount of plutonium used in these experiments is very small. In the highly unlikely event of an accidental release, the exposure to an individual standing at the LLNL site boundary would be a small fraction (less than 0.005 percent) of the dose



that individual would receive on a flight from San Francisco to Washington, DC, and less than 0.03 percent of the dose that an individual would receive from a dental X-ray.

The first experiment was successful and provided data of previously unmatched quality. Plutonium experiments at the NIF have no impact on ignition-related experiments because plutonium experiments compete for facility-use time within a specifically partitioned set of dynamic materials experiments while ignition-related experiments have their own separate partition and separate set of requirements for facility configuration.

DOE recognizes that the public and elected officials have an interest in the progress of the scientific programs at the NIF. For this reason, briefings were conducted with congressional leaders and email notifications offering special briefings went out to many state and local interest groups.

I appreciate your ongoing support of our vital national security programs. If you have any questions or need additional information, please contact me or Mr. Joseph Levin, Associate Director of External Coordination, Office of the Chief Financial Officer, at (202) 586-3098.

Sincerely,



Ernest J. Moniz

Enclosure

Senator FEINSTEIN. Thank you very much. Let me quote from the letter. Among the capabilities that the NIF brings to stockpile stewardship, which is its primary mission, is the ability to study materials compressed to extremely high pressures. No other platform can reach the pressures that the NIF can attain, and plutonium experiments in this regime are providing invaluable insights required to underpin the codes and models used to assess the performance and safety of our Nation's nuclear weapons stockpile.

And then regarding the approval of these experiments, Dr. Donald Cook approved conducting plutonium experiments at the NIF after assessing myriad factors, including the technical benefits and technical risks, the risk assessment and risk management approach used by LLNL and the incremental costs associated with these experiments.

Now, I asked a question about safety, and that is the use of plutonium in that specific facility. And what the next paragraph states is that workers have been trained and extensive reviews were conducted to verify that the staff procedures and safety systems were ready to proceed prior to the planned experiments. And then it goes on to say, the amount of plutonium used in these experiments is very small. In the highly unlikely event of an accidental release, exposure to an individual standing at the site boundary would be a small fraction, less than .005 percent of the dose that individuals would receive on a flight from San Francisco to Washington, and

less than .03 percent of the dose that an individual would receive from a dental x-ray.

So I take you at your statement with respect to the safety aspects of this. I have been concerned about Livermore being able to reach its purpose. It's a very expensive facility. And I wanted to spend a moment to see what you could tell me and the chairman and the Senator about the likelihood of these experiments being successful.

Mr. COOK. Well, thank you for the question. It's very well stated. I appreciate your laying out the background that was in the exchange of letters on safety.

On the front of how well NIF is being used, there was, 2 years ago, an effort to broaden the base of the use of NIF comprehensively to the stockpile stewardship programs, that it was not solely devoted to an attempt at achieving ignition, and ignition and a drive toward it remains a core part of the program.

But we had years of experiments built up with regard to materials and the physics of nuclear weapons at the highest pressure regimes, as you said, because that understanding is the core research development, understanding that we need to avoid ever having to return to underground testing. So for example, today, more than half of the experiments are devoted to a broad class of stockpile stewardship and less than half to ignition, but progress has been made on all fronts. If you have a second question, I'd be happy to entertain it.

Senator FEINSTEIN. Yes, a second question would be, you sort of moved over ignition pretty carefully and quickly, but my understanding is that the strategies in place, and I understand this is all pioneering work, that the strategies in place to achieve ignition simply didn't work. And when I talked to the people out there, what they said is they were going back to basics, and they were going to come up with another strategy. I gather that has not been possible, is that correct?

Mr. COOK. I believe that you got correct information from the lab. And so what was done in the early years was testing and basically an empirical change of parameters to see whether ignition could be achieved in the very earliest years. That could not be achieved. So, in fact, the lab did what it's good at. It went back to basics, fundamental science, and found, as they knew and had learned, that the model predictions, the computations, were not reflective of reality. It isn't that they were wrong codes. It's that an insufficient amount of physics had been put in.

When that was in, then there was a drive toward improvement of the conditions for an ignition. And in fact, Livermore did achieve the point where, in the fusion fuel in the center of a capsule, more fusion energy was produced than the thermal energy that actually went into the compression of the very spot. This is still short of ignition by quite a bit, almost a factor of 100 in the number of neutrons produced. But there is, in parallel with the other stewardship experiments, a solid commitment to ignition. Step-by-step progress is being made, and we get regular reports on that.

Senator FEINSTEIN. Just one thing. So you're telling me that there still is going to be an effort to achieve ignition.

Mr. COOK. There is absolutely an effort to achieve ignition ongoing right now.

Senator FEINSTEIN. And that has not been dropped?

Mr. COOK. No, it has not.

Senator FEINSTEIN. Okay. Thank you.

Senator ALEXANDER. Senator Lankford.

#### GOVERNMENT ACCOUNTING OFFICE HIGH RISK LIST

Senator LANKFORD. Thank you, Mr. Chairman. I appreciate you all being here. And I want to say what I know has already been said as well, thank you for the work that you do. You do quiet work that defends our Nation every day, and hardly anyone pays attention to you, because you're doing your work well. And so I appreciate what you're doing every day to be able to protect the Nation and for what you have done for a long time in that.

Let me ask a couple of general questions on some things. I know you're very aware of the GAO high risk list. The issue on the high risk list has been cost estimates. You deal with very difficult processes here. But the challenge is, GAO has determined some of the projects that go all the way back to 1997, like the Savannah River project, that have far exceeded the original estimates and the time here.

The concern is initially two things. One is, we have to live and breathe based on cost estimates and what we think something is going to cost, and we have to know we have a reliable estimate coming to us. Second is, the GAO statement is a little disconcerting.

They made this comment in their report. Since the project began in 1997, the estimated cost of the project has increased by more than \$6.3 billion. The schedule has been delayed by about 15 years. They stated, we found that, among other things, NNSA had not analyzed the root causes of the construction cost increases to help identify lessons learned and to help address the agency's difficulty in completing projects within cost and on schedule. They also mentioned in another spot that there was a question that they had about the sense of urgency in setting timelines to get some things completed to even determine how this gets resolved.

So my question is, for the future, we've got to get good estimates. I know you want to get good estimates. What is in process right now, and when will that be done to make sure that the lessons learned can be implemented?

General KLOTZ. Now, thank you, Senator, for that question. And of course, one of the key objectives of Secretary Moniz and of the current leadership of NNSA is to increase our skills and our success in terms of doing the basics of large capital construction projects that begin with good cost estimates, a very rigorous process by which we identify the requirements that we actually need, and assessment of alternatives for satisfying those requirements.

We started to have some success in a couple of areas. For the last 2 to 3 years, we have been off the GAO's list, high risk list, for projects under \$750 million. And earlier we were discussing how a couple of those smaller projects have been delivered actually early and under cost, which tells us that the investment that we're

making in terms of talent, expertise, and experience in the area of large project management is beginning to yield some results.

We still have three projects that are on the high risk list, the GAO's high risk list, the uranium processing facility at Oak Ridge, the replacement for the chemical and metallurgical building in Los Alamos, and the MO<sub>x</sub> Fuel Fabrication Facility in Savannah River. On the first two, we have adopted a fundamentally different approach about how we are going to construct these projects that is a mix of repurposing existing facilities, changing the processes within those facilities, and whether we do it more efficiently, more effectively, and instead of building one big box building, segregating work by the security requirements as well as the safety or hazard requirements associated with that building.

We're a little more constrained by what we can do, and were pursuing that in both of those, and I think with very promising potential. We're little more constrained on the MO<sub>x</sub> Fuel Fabrication Facility in Savannah River, because the outside of the building has essentially been constructed, so the freedom or design space that we have to affect that is constrained.

Senator LANKFORD. So give me the top lesson learned here and the thing that's going to be fixed in the timeframe on that. So you mentioned several things there, as far as, it sounds like, changing the way you do your contracting on the smaller projects. Is that being implemented in the larger programs for the future? And then I have one other follow up question, if the Chairman will allow me another minute, as well.

General KLOTZ. It is. Making sure that you have people who actually know about the art and science of large project construction, which were doing, hiring—

Senator LANKFORD. Most of the issues due to changes as you went through it, or most of the issues were the initial contract didn't understand completely what they were about to do?

General KLOTZ. I think most of it had to do with locking in a cost estimate before we had gotten to the 90 percent design level. There's a lot of pressure as soon as we conceive of our project to come up with a number. People want to know how much it's going to cost. I think we have to be very, very disciplined and make sure we have gone through that rigorous cost estimating, analysis of alternatives, early design to ensure that the cost estimate that we are planning on and that we are communicating with Congress is, in fact, a realistic one.

Senator LANKFORD. Right. The request for funding for this next year's a little over 10 percent increase in funding, obviously exceeds the budget caps and all that conversation that's already happened somewhat here. The question that I have is, how much of that money is related to some of these cost overruns that we're now going to get on top of for some of these big projects and call them done, so were not going to have those same costs added, let's say, 5 years from now, so were still catching up to some of the bad estimates from before, and how much of them are just operational expenses?

General KLOTZ. I would like to get back with you on the detail. I don't know that I've quite parsed it out that way. The request that we have this year is based on what our current estimates are,



which we feel fairly confident about, more confident that we could have said we were 2 or 3 years ago in terms of the cost estimate.

Senator LANKFORD. Right.

General KLOTZ. And a lot of that depends, of course, on level and consistent funding, because as you move the costs out further, it will cost more.

Senator LANKFORD. It costs more. I understand that.

General KLOTZ. Yes, sir.

Senator LANKFORD. But I'm just trying to figure out the breakdown here, how much of that is still catching up to bad estimates from before, and how much of that is we're ahead of it now, and our estimating better in new projects and new tasks?

General KLOTZ. I'd like to ponder that question and get back to you on that.

Senator LANKFORD. Thank you.

General KLOTZ. Thanks.

Senator LANKFORD. Mr. Chairman, I yield back. Thank you.

Senator ALEXANDER. Thank you, Senator Lankford. Senator Feinstein.

#### MO<sub>x</sub>

Senator FEINSTEIN. Thanks very much. I wanted to ask about the mixed oxide fuel fabrication facility. And I think both the chairman and I remain very concerned about the costs and the schedule of the MO<sub>x</sub> facility. Now, this started out costing \$4 billion and being complete in 2016. It's now expected to cost as much as \$13 billion and not be ready until the late 2020s. Now, we've been into this to a great extent I think. We know that this is a treaty obligation, that the Russians are building a fast reactor to deal with it and that they are further behind than we are, at least that's the information that I have. The goal of disposing of weapons grade plutonium is certainly worthy, but the cost is enormous.

Last year when we did this, we saw there were no alternatives, and that's one of the reasons why we continue to fund it. So my question is this. And I guess Ms. Harrington, it's for you. Where is the Department in evaluating alternatives to MO<sub>x</sub>, or have you given up? General, whatever, you're the boss man.

General KLOTZ. Let me go ahead and start, but I'd love to give Ms. Harrington an opportunity, because she lives with this every day. You're right. We are still, as an Administration, committed to the plutonium management and disposition agreement. This is an agreement, as you indicated, between us and Russia, each of us to dispose of 34 metric tons of weapons grade plutonium. This is a key objective that we have. And the approach that we have adopted was to pursue a production facility in Savannah River that would use this excess weapons grade plutonium, mix it with uranium to produce a fuel, mixed oxide, that could be burned in simple nuclear reactors. So we've started on that project.

I recall my first hearing with this Congress was before this Committee the day we had released a report from the Department of Energy posted on the NNSA Web site that laid out five different potential options for what we could potentially pursue that needed to have greater fidelity and greater costing. At the time, the Administration had proposed the notion of putting the MO<sub>x</sub> Fuel Fab-

rication project into cold standby. The Congress had different views. We were instructed to continue construction for 2014. And in the fiscal year 2015 Appropriations Act, our request for \$221 million was up to \$345 million, and we were told to continue to construct through fiscal year 2015, which we are doing.

So at the same time, the Congress asked us to do two reports by an external federally funded research and development corporation to give us and you independent cost estimates of various options. The first of those reports, which will identify two options, continuing with MO<sub>x</sub> Fuel Fabrication Facility construction, and the other one, which we call dilution and disposal, is due in mid-April. And I believe the federally funded research and development corporation that we have asked to do that is on track to do that. The second one, which will identify a broader range of options, is due in mid-September.

So as we build the budget request for fiscal year 2017, we will continue the process of dialoguing with Congress on the way forward, and we will have greater fidelity in terms of the out year funding as it relates to MO<sub>x</sub>. Now, have I left anything out?

Senator FEINSTEIN. Before you leave, so is the commitment to stay with MO<sub>x</sub>?

General KLOTZ. The commitment through this year, as required, is to continue construction with the MO<sub>x</sub> Fuel Fabrication Facility with the funds that were enacted in 2015, and we're doing that. Construction continues to go on. The Secretary has been down there, along with members of the South Carolina congressional delegation. I've been down there twice. Our principal deputy assistant was down there yesterday. Our deputy secretary has been there. This is a project which is very, very high in our radar scope in terms of watching how it proceeds.

Senator FEINSTEIN. Can the \$345 million be spent? What if you decide to do something else?

General KLOTZ. Well, we can execute the \$345 million. I will tell you what Secretary Moniz has said publicly. This is not optimal funding rate for construction of a large project like this, but there is meaningful work that is being done in terms of constructing this facility as we speak.

Senator FEINSTEIN. Thank you.

Ms. HARRINGTON. The only thing I would go back to, Senator, is the point you made that the up-and-down cycles of funding are very disruptive to these kinds of projects. They make them very difficult to manage. They make them almost impossible to plan in a rational way, which is why we chose the \$345 million number. It would provide consistency across several years and predictability in terms of the scope of construction that could be achieved during that period. So I think there is a strong rationale for why we put that particular number in the budget.

Senator FEINSTEIN. It's just from my perspective. I don't want to see us look back on this as we have looked back on one other project and say, well \$600 million has been wasted. So I think it's really a hard problem for you all.

General KLOTZ. It is. And again, we're hoping that the external look, as required by and requested by Congress, will give us a more

solid grounding in terms of the specific cost estimates associated with the various alternatives.

Senator FEINSTEIN. I hope so. Thank you. Thank you, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Feinstein. General, in the report, which is due April 16, do you plan to recommend the lowest cost solution?

General KLOTZ. Again, Senator. I think we want to wait and see what the report says and then engage, as we have, in dialogue with members of Congress in terms of how best to proceed.

Senator ALEXANDER. Have you learned anything from the Red Team review of the uranium project that you can apply to the MO<sub>x</sub> and the plutonium project in Los Alamos? I know they are different sorts of projects, but any lessons there? Because the Red Team review seemed to be helpful and coming to the current much better management situation it seems that you have with the uranium project.

General KLOTZ. Yes, sir. On one level, yes. One of the things that we did in response to the Red Team recommendations was to strengthen our oversight of both programs and projects within the NNSA and within the Department of Energy at large and establishing a program manager for not only uranium and plutonium and tritium, but also for the construction of—or for how we dispose of weapons grade plutonium.

So we have stronger management oversight. But as I've suggested to the Senator from Oklahoma, there, the facility, the superstructure for the building, is essentially up. So some of the things that we have adopted from the Red Team report in terms of segregating work, dividing up hazard and the security criteria into different facilities with varying cost per square footage, are just not possible as far as the MO<sub>x</sub> Fuel Fabrication Facility at this stage in the project.

Senator ALEXANDER. One of the recommendations, I believe, in the Red Team review was that it be a continuous sort of review, that the Red Team not just go home, but every 6 months or every year, it would do the same kind of thing, because it's a big project, and there are bound to be surprises and changes and alterations. Am I right about that? Is that planned?

General KLOTZ. That's right. In fact, we've already had our first review late last year in that, and we will run them at roughly 6-month intervals to do that. And indeed, we're doing that across NNSA on other projects, but also across the Department of Energy.

One of the things that came out towards the end of last year was a directive from Secretary of Energy Moniz for large projects that there be a continuous process internally and that there be a periodic process independent of what goes on inside the Department of Energy or NNSA with experts to review and question, probe how we are proceeding on these large projects.

Senator ALEXANDER. Well, I have no other questions. I'm encouraged by that. I think the combination of the kind of accountability that Naval Reactors have for their reactors and this sort of continuous review, and an agreement with the Congress about a time schedule, a budget, and that we don't build until we have 90 percent of the design complete, I think the combination of all those

things has made some good progress in terms of these big construction projects. And so, we'll continue with that.

I don't have any other questions. Senator Lankford, do you have any other questions?

#### NUCLEAR NONPROLIFERATION

Senator LANKFORD. I have one other quick question. It deals with the defense nuclear nonproliferation appropriation. The request obviously goes up significantly. That's the combining of several different programs behind the scenes on that. The question is, talk me through the several million dollars in the process of combining those two and why you think this will be more effective. So why does the cost justify it, basically?

Ms. HARRINGTON. Thank you for that question, Senator. We took a long time to look at this restructuring. When we look at the mission that we have to meet going forward and we project over the horizon, and we've been doing studies along this line for the past 2 plus years, trying to look at how the evolving threat environment affects our implementation of mission. The counterterrorism counter proliferation and the counterterrorism incident response programs formerly were in the weapons account, but they worked with the nuclear nonproliferation programs. That is the sweet spot for these programs to work together, because much of the drive behind the nonproliferation programs is, in fact, counterterrorism.

So by pulling those programs out of the weapons account, it leaves Dr. Cook with a clear pathway toward managing the stockpile and focusing on that particular very important mission, and it leaves the defense nuclear nonproliferation appropriation covering the whole spectrum of prevent, counter, and respond, as the administrator mentioned earlier. You will hear this a lot from us, because this is a very important continuum for addressing the threats that we currently encounter in the world.

So for us, we currently, already, co-plan, co-train, co-execute with those offices. Pulling them together into one appropriation simply increases the opportunity for synergy, increases the opportunity for efficiencies, for joint planning, which is something that we have been encouraged to do.

Senator LANKFORD. No. I understand that, and that's great. And the structure of it, you're right, make sense, and I'm sure it's one of those things for several years everyone has looked at and said, why are they over there, why are they doing that. Part of my question is, why is it \$100 million to make that transition and that restructuring?

Ms. HARRINGTON. It simply moves the funding that used to be in the weapons account into the nonproliferation appropriation.

Senator LANKFORD. And so it has \$100 million decrease in the weapons account as well to be able to offset that? It looks like it's going up but going up in both areas. We are not seeing a decrease in one area and an increase in another.

General KLOTZ. Well, it's largely a transfer out of one budget category into another budget category. But there is increase in the defense nuclear nonproliferation account. If you subtract out the money that was the transfer from counterterrorism and incident response, we still show about a 4.4 percent increase in what one

might call sort of core nuclear nonproliferation activities which span the range of trying to lock down special nuclear materials across the globe, reduce dependence of commercial activities and universities on highly enriched uranium, enhancing border crossings to prevent smuggling of special nuclear materials, that whole range of work continues. As Senator Feinstein noted in her opening match for marks, it's showing an increase.

Senator LANKFORD. Incredibly valuable. I guess what I am trying to figure out is, what part would have had a request for increase before, regardless of where they're stationed, and what part is the relocation cost? That's what I'm trying to find out.

General KLOTZ. It's just an accounting. It's an accounting shift from one part of the ledger to another part of the ledger. There may be some increases, and will get back to you with specific things that we're doing. In counterterrorism we have to work very closely with State and local responders on emergency communications, on training. There, quite frankly, is a high demand for NNSA, Department of Energy services, by other domestic agencies that might have to respond, God forbid, to a terrorist threat or incident in the United States. We do a lot of training with them. We do a lot of back-and-forth on particular types of equipment and capability that are necessary to do that.

And we also do that, quite frankly, with foreign partners as well. As the interest in civil nuclear power goes up across the world, there are going to be more and more countries that have to deal with the safety and security issues associated with nuclear materials, and we have deep expertise and experience in this area that fits into this prevent, counter, and respond spectrum that Ms. Harrington mentioned.

Senator LANKFORD. Right.

Ms. HARRINGTON. Senator, I do have all the precise numbers, the comparisons between 2015 and 2016. In the counterterrorism and incident response areas, very, very modest. It's about a \$10 million increase over last year to account for a significant drop in the counterterrorism, counter proliferation budget that resulted from the Congressional action. We felt strongly about restoring part of that. Some of that is for work on standoff disablement. If, God forbid, we were ever to have to encounter a trafficked nuclear weapon or an improvised nuclear weapon, how could we safely manage it? That is the kind of research that this will restore.

Senator LANKFORD. Thank you.

Senator ALEXANDER. Senator Feinstein.

Senator FEINSTEIN. Thank you very much, Mr. Chairman. Mr. Chairman, you began the hearing by asking Admiral Richardson about the 60 year safety record of the nuclear program of the Navy, of which we are all very proud, and he escaped any questions. So I don't want him to feel lonely or unappreciated or leave here.

Senator ALEXANDER. Ask him a few. Ask him a few.

#### NAVAL REACTORS

Senator FEINSTEIN. Okay. I will ask him a few. You mention in your statement, which I have read, about highlights of operations, that they include the nuclear powered aircraft carrier, the George Bush CVN 77, the only coalition strike option in the fight against

ISIL militants, for 54 days executing 20 to 30 sorties each day. Can you talk a little bit about that, because this, to me, it's kind of present action, and I would be very interested in knowing how it went, what broke down, what was imprecise, what was very precise? Can you summarize it in an unclassified setting for us?

Admiral RICHARDSON. I'm sorry, ma'am, the details of the strikes themselves?

Senator FEINSTEIN. No, what you can say. If you did 20 to 30 sorties a day, I assume those were strikes?

Admiral RICHARDSON. They were, ma'am. I would have to get back to but the details on that. Our contribution to that was really providing the technical support to keep the carrier on station. And so that's one of the primary functions of my technical support base is to support today's fleet operations, and so the response of that team to respond to really a continuous stream of technical requests and that sort of thing.

Senator FEINSTEIN. Talk about the continuous stream of technical requests with an ongoing mission of 20 to 30 sorties a day.

Admiral RICHARDSON. Right. And so, as you know, we are primarily focused on continuity of power. It's our desire to provide safe and effective reliable propulsion and power to the aircraft carrier. And so as they work through their day to day operations, technical issues come up. We respond to fleet requests for help. We get about 12 of those per day from the entire nuclear powered fleet. And so that is a major part of our business and a significant portion of our budget request.

Some of the more significant accomplishments of that technical base just this year alone could be directly attributable to recovering literally 30 to 40 submarine and aircraft carrier years of operation, as they resolve technical issues, allowing those nuclear powered warships to continue to execute their operations in support of the Nation's interests around the world.

And if that capability did not exist, very, very talented people supported by the appropriate facilities and equipment, we would have to potentially pull those submarines and aircraft carriers in and shut them down pending resolution. It's the responsiveness of our team that allows them to remain on station, to continue and to strike, or do whatever job they do.

General KLOTZ. Could I add something to that, Senator.

Senator FEINSTEIN. Certainly.

General KLOTZ. And I say this—

Senator FEINSTEIN. And if you would touch on the funding request, which is \$1.375 billion, and that's an 11 percent increase of \$136 million.

General KLOTZ. Sure. And I say this as a retired career Air Force officer, that our Naval Reactors does extraordinarily important work in the day-to-day operation of the U.S. Navy. And one of the challenges that has happened over the last couple of years since I've been in this seat, is a significant reduction in the request of the Naval Reactors portion of the budget, largely what we might call infrastructure or the base.

There's a lot of focus on the new reactor for the Ohio replacement submarine or the new reactor for an aircraft carrier, the research and development that they're doing. But often what gets overlooked

is that day to day operation that allows the fleet to stay at sea rather than having to go back to a port and fix it. So the allocation is extraordinarily important so that we can continue to provide that kind of support to the U.S. Navy as it carries out its global mission.

Admiral RICHARDSON. Thank you, General. And so just to describe our budget request, a majority of that request goes to fund that technical support base at our labs and other operating sites, to support not only today's nuclear fleet as we have described, but also to operate the prototype reactors which have a dual function, a research and development function, that is the technical work that goes to de-risk the new reactor core that we are going to put in the replacement for the Ohio class, as well, the other purpose for those reactors is a training function, where we train about 3,000 sailors, about 1,000 of those coming through our Department of Energy facility in New York each year, and so there is this continuous stream of operators to the fleet.

So the majority of that base funding goes to support those people, really world-class technical base to get through the technical issues, as well as there is operating and maintenance of those prototype reactors, the spent fuel facility, Mr. Chairman, that we talked about earlier, just to maintain those facilities operating, dually required periodic and corrective maintenance to keep those facilities operating.

And as the general said, in the past 5 years, those facilities have been appropriated to about \$550 million less than the request, and we're trying to get back up on our plan to stop backlogging maintenance on those facilities. So those are the fundamental elements of our request in the base. And then, ma'am, I know you're very conversant on the three projects, the Ohio class replacement reactor, the refueling that the general mentioned, and then the spent fuel facility Idaho that we talked about earlier.

Senator FEINSTEIN. Thank you very much, Admiral. Appreciate it.

Admiral RICHARDSON. Yes, ma'am.

Senator ALEXANDER. Thanks, Senator Feinstein. I have no other questions. Senator Lankford, do you have other questions?

Senator LANKFORD. No.

Senator ALEXANDER. Well, thank you very much for this. In summary, I'm encouraged based upon where we were 2 to 3 years ago in terms of the big projects. And I would like to continue to have our regular review of those things, so General Klotz, if you could suggest to us. I'd like to ask you to pick the times that make the most sense. I mean, if you're going to have a Red Team review every 6 months, or if there is a budget event coming, let's have the review—we don't want to make work. We like to have a review at a logical time where you have something to tell us and where we can ask questions. I'm guessing spring and fall are a couple of good times. But think about that, working with our staff, and then Senator Feinstein and I will be available to you.

The hearing record will remain open for 10 days. Members may submit additional information or questions for the record if they would like.

SUBCOMMITTEE RECESS

Senator ALEXANDER. This subcommittee requests all responses to questions for the record be provided within 30 days of receipt. Thank you for being here today. This subcommittee is adjourned.

[Whereupon, at 10:30 a.m., Wednesday, March 11, the subcommittee was recessed, to reconvene subject to the call of the Chair.]



# **ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2016**

**WEDNESDAY, MARCH 25, 2015**

U.S. SENATE,  
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,  
*Washington, DC.*

The subcommittee met at 2:30 p.m., in room SD-124, Dirksen Senate Office Building, Hon. Lamar Alexander (chairman) presiding.

Present: Senators Alexander, Cochran, Murkowski, Graham, Lankford, Feinstein, Murray, Udall, and Shaheen.

**DEPARTMENT OF ENERGY**

**OFFICE OF THE SECRETARY**

**STATEMENT OF HON. ERNEST J. MONIZ, PH.D., SECRETARY  
ACCOMPANIED BY FRANKLIN ORR, PH.D., UNDER SECRETARY FOR  
SCIENCE AND ENERGY**

**OPENING STATEMENT OF SENATOR LAMAR ALEXANDER**

Senator ALEXANDER. The Subcommittee on Energy and Water Development will please come to order. This afternoon we are having a hearing to review the President's fiscal year 2016 budget request for the Department of Energy. Senator Feinstein and I will each have an opening statement. I will then recognize each senator for up to five minutes for an opening statement, alternating between the majority and the minority. And then we will turn to Secretary Moniz. Secretary Orr is here to answer questions relating to fusion science, not because Secretary Moniz does not know anything about it, but because he does. So under our brilliant rules, we do not get to ask him.

I am going to make one adjustment if it is necessary. Senator Feinstein has an unavoidable conflict at about 3:15, and I want to make sure that, she as well as I get to hear Secretary Moniz's testimony, and that she gets to make her opening statement and to ask her questions. So I may have gotten out of order a little bit with the Senators, and I am sure Senator Murray will be fine with—well, Senator Feinstein has to leave at 3:15, and I wanted to give her a little—I want to make sure she gets the chance to ask her questions before she leaves.

Our witnesses today include Dr. Moniz and Dr. Orr. We are here today to review the President's fiscal year 2016 budget request for the Department of Energy, an Agency with three critical missions:

nuclear security, science and energy, and environmental management. This is the subcommittee's fourth and final hearing this year on the President's budget request, and I look forward to hearing what the Secretary has to say.

The Department's budget request for 2016 is about \$30.5 billion. This is an increase of about \$2.5 billion over the amount Congress appropriated last year. Governing is about setting priorities, and given our fiscal constraints, especially on non-defense spending, we are going to have to make some tough decisions this year to make sure the highest priorities are funded.

The President's entire discretionary budget request this year exceeds the Budget Control Act's spending caps by about \$74 billion. This is not realistic. In fact, if we were to fully fund just the Department of Energy's budget request of \$30.5 billion, our subcommittee would need almost the entire increase available, about \$3 billion, in both defense and non-defense for fiscal year 2016 under the Budget Control Act spending caps.

The real driver of our Federal debt is out of control mandatory spending on entitlement programs. I plan to work with our Republican majority, and I hope the President and Senate Democrats who share the same concerns, to make the tough choices so we can pass a real plan to fix the long-term debt, while supporting other important priorities like national defense, national labs, and medical research.

That is why we are holding this hearing, to give the Secretary an opportunity to talk about the Department of Energy's most urgent priorities so Senator Feinstein and I and the other committee members can begin to put together our appropriations bill over the next several weeks.

I am going to focus my attention on four areas: number one, doubling basic energy research; two, reducing Federal spending on mature technologies; three, leading the world in advanced scientific computing; and four, solving the stalemate over what to do with our country's nuclear waste. Just a few comments about each of those areas.

I believe doubling basic energy research is one of the most important things we can do. It is hard to think of any important technological advance in the sciences—physics, and biology in any event—since World War II that has not involved at least some form of government-sponsored research, whether it is the development of unconventional gas or the work being done to develop small modular reactors. That is why it is so important to double the more than \$5 billion the U.S. Department of Energy spends on basic energy research. That was the goal set out in the America COMPETES legislation which passed under President Bush with bipartisan support. That grew out of the Rising Above-the-Gathering Storm report. The goal was to double the Federal Government's investment in basic research.

Two of the ways we have increased investment in basic research are, one, our national lab system and, two, ARPA-E, which Congress created as part of America COMPETES. The Office of Sciences manages 10 of the 17 Department of Energy national laboratories that are critical to our national competitiveness and our way of life. They are home to the world's largest collection of sci-

entific user facilities operated by a single organization, used by more than 31,000 researchers each year.

Since 2009, Congress has provided about \$1 billion in appropriations for ARPA-E, which has resulted in more than 400 projects. ARPA-E is successful because it stops funding projects that do not meet their research milestones, and funding is limited to 5 years.

The next priority is Federal spending on mature technology. Washington has a bad habit of picking winners and losers and an addiction to wasteful subsidies, and we need to end those policies. The most conspicuous example of this is the wasteful wind subsidy, which costs taxpayers about \$6 billion every year we extend it, enough to double basic energy research at the Department of Energy.

President Obama's former Energy Secretary, Steven Chu, said in 2011 that wind energy is a mature technology. There is a place for limited, short-term subsidies to jump start technologies, and I have supported some of those. But it is long past time for wind to stand on its own in the market. The subsidy for big wind has been renewed nine times since 1992. It is so generous that wind producers can literally give their electricity away in some markets and still make a profit. That is called negative pricing, and it is distorting the market and undercutting other forms of clean, reliable energy, such as nuclear power.

The third area is leading the world in advanced scientific computing. I got involved with super computing with Senator Bingaman when I first became a Senator. At his direction, I flew to Japan to see why they were first in the world and we were not. I am glad to say that we have been with the Obama Administration over the last several years. We see eye-to-eye on the importance of these fast super computers, and I am glad that because of a recent announcement, the Secretary was able to make in the budget request that he includes that we will be able to say that the world's fastest super computer would be, again, in the United States by 2017.

Finally, I would like to discuss, and I will save most of my comments for questions. The 25-year-old stalemate about what we do about used fuel from nuclear reactors. I want to make sure we have a strong future in this country for nuclear power. It is essential, therefore, we have a permanent place to put used nuclear fuel. The Federal Government is responsible for disposing of that. It has failed in its responsibility even though the rate payers have deposited billions to pay for it. The government's failure to follow the law not only imperils the future of nuclear power, it also results in wasting billions of hard-earned taxpayer dollars.

To help solve this stalemate, Senator Feinstein and I will again include a pilot program for nuclear waste storage in the Energy and Water Appropriations Bill as we have for the past 3 years when she was the chairman. We have also introduced legislation yesterday with Senator Murkowski and Cantwell to create both temporary and permanent storage sites for nuclear waste. The new sites we are seeking to establish would not take the place of Yucca Mountain. We have more than enough used fuel to fill Yucca Mountain, but rather would complement it. Our legislation is con-

sistent with the President's Blue Ribbon Commission on America's Nuclear Future. The Secretary served on that commission.

I should note that Federal law designates one repository for our country's used nuclear fuel, Yucca Mountain. After years of delay, Yucca Mountain can and should be part of the solution to our nuclear waste stalemate. The regulatory commission, Nuclear Regulatory Commission, recently completed the safety evaluation report that said that Yucca "met all of the safety requirements through the period of geologic stability." The Commission and the Environmental Protection Agency defined that period as one million years. So to continue to oppose Yucca Mountain because radiation concerns ignores science as well as the law.

Secretary Moniz had an important announcement to make yesterday on used nuclear fuel. I appreciate, and I know Senator Feinstein appreciates, his putting a priority on the subject. We are going to need your help, Mr. Secretary, to set priorities and make tough funding decisions for the Department this year.

With that, I would recognize Senator Feinstein for an opening statement.

[The statement follows:]

#### PREPARED STATEMENT OF SENATOR LAMAR ALEXANDER

We're here today to review the President's fiscal year 2016 budget request for the Department of Energy, a Federal agency with three critical missions: nuclear security, science and energy, and environmental management.

This is the subcommittee's fourth and final hearing this year on the President's budget request, and I look forward to hearing what Secretary Moniz has to say about the department's priorities.

The Department of Energy's budget request for fiscal year 2016 is about \$30.5 billion. This is an increase of about \$2.5 billion over the amount Congress appropriated last year.

Governing is about setting priorities, and given our current fiscal constraints—especially on non-defense spending—we are going to have to make some tough decisions this year to make sure the highest priorities are funded.

The President's entire discretionary budget request this year exceeds the Budget Control Act spending caps by about \$74 billion. This is not realistic.

In fact, if we were to fully fund just the Department of Energy's budget request of \$30.5 billion, our subcommittee would need almost the entire increase available—about \$3 billion—in both defense and non-defense for fiscal year 2016 under the Budget Control Act's spending caps.

The real driver of our Federal debt is out-of-control mandatory spending on entitlement programs.

I plan to work with our Republican majority—and, I hope, the President and Senate Democrats who share the same concerns—to make tough choices so we can pass a real plan to fix the debt while supporting other priorities like national defense and national labs and medical research.

And that is why we are holding this hearing: to give Secretary Moniz an opportunity to talk about the Department of Energy's most urgent priorities, so Senator Feinstein and I can make informed decisions as we begin to put together the Energy and Water Appropriations bill over the next several weeks.

Today, I'd like to focus my questions on four main areas, all with an eye toward setting priorities:

1. Doubling basic energy research;
2. Reducing Federal spending on mature technologies;
3. Leading the world in advanced scientific computing; and
4. Solving the stalemate over what to do with our country's nuclear waste

#### DOUBLING BASIC ENERGY RESEARCH

Doubling basic energy research is one of the most important things we can do to unleash our free enterprise system to help provide the clean, cheap, reliable energy we need to power our 21st-century economy.

It's hard to think of an important technological advance since World War II that has not involved at least some form of government-sponsored research. Take, for example, our latest energy boom: natural gas.

The development of unconventional gas was enabled in part by 3D mapping at Sandia National Lab in New Mexico and the Department of Energy's large-scale demonstration project. Then our free enterprise system, and our tradition of private ownership of mineral rights, capitalized on the basic energy research.

Another example is the work being done to develop small modular reactors, which would allow nuclear power to be produced with less capital investment and to be accessible in more places.

That's why it's so important that we work to double the more than \$5 billion the U.S. Department of Energy spends on basic energy research. We set out on this goal with America COMPETES, legislation that was first passed under President Bush with overwhelming bipartisan support.

America COMPETES grew out of the "Rising Above the Gathering Storm" report on American competitiveness, written by Norm Augustine. The goal was to double the Federal Government's investment in basic research, including math, the physical sciences and engineering.

Two of the ways we have increased investment in basic energy research is through our national laboratory system and the Advanced Research Projects Agency-Energy (ARPA-E), which Congress created as part of America COMPETES to fund transformational energy technology projects.

The Office of Science manages 10 of the 17 Department of Energy national laboratories, including Oak Ridge National Laboratory in Tennessee. These national laboratories are critical to our Nation's competitiveness and our way of life.

The laboratories are also home to the world's largest collection of scientific user facilities operated by a single organization, used by more than 31,000 researchers each year.

Since 2009 Congress has provided about \$1 billion in appropriations for ARPA-E, which has resulted in more than 400 projects. ARPA-E is successful because it stops funding projects that don't meet their research milestones and funding is limited to 5 years.

#### REDUCING FEDERAL SPENDING ON MATURE TECHNOLOGIES

That brings me to the next priority I'd like to discuss, which is to reduce Federal spending on mature technologies. Washington has a bad habit of picking winners and losers, and an addiction to wasteful subsidies of all kinds—we need to end these policies.

The most conspicuous example of this addiction is the wasteful wind subsidy—which costs taxpayers about \$6 billion every year we extend it, enough to double basic energy research at the Department of Energy.

President Obama's former Energy Secretary, Stephen Chu, said in 2011 that wind energy is a "mature technology."

There is a place for limited, short-term subsidies to jumpstart new technologies, but it is long past time for wind to stand on its own in the marketplace.

The subsidy for Big Wind has been renewed 9 times since 1992 and is so generous that in some markets, wind producers can literally give their electricity away and still make a profit.

This is called "negative pricing" and it shows that the wind subsidy isn't just wasting money that could go toward other priorities—it's distorting the market and undercutting other forms of clean, reliable energy like nuclear power.

#### LEADING THE WORLD IN ADVANCED SCIENTIFIC COMPUTING

Supercomputing is critical to our economic competitiveness and a secure energy future.

The United States faces a choice between falling further behind competitors like China, or advancing technology that can make the United States safer and more competitive in a global, 21st-century economy.

In November of last year, I was glad to announce with you, Secretary Moniz, that by 2017 the world's fastest supercomputer would again be in the United States, and that it would again be at Oak Ridge National Laboratory.

That computer will be called Summit, and it will help researchers better understand materials, nuclear power, and new energy breakthroughs. I am glad to have your support for this initiative, and I appreciate that the President's budget request includes funding to make Summit ready for users by 2018 and also for the next generation of supercomputers.

Funding this next generation, known as exascale, is essential to U.S. national security, competitiveness in science and technology and to enable our free enterprise system to create the good-paying jobs of the future.

Supercomputing has helped maintain our nuclear stockpile, allowed manufacturers to make better products and save money and even allowed scientists to map the human heart at one beat per second.

#### SOLVING THE NUCLEAR WASTE STALEMATE

I'd also like to discuss solving the 25-year-old stalemate about what to do with used fuel from our nuclear reactors, to ensure that nuclear power has a strong future in this country.

Federal law makes the government responsible for disposing of used nuclear fuel. Yet the government has failed in this responsibility, even though ratepayers have deposited billions into the Nuclear Waste Fund to pay for it.

The government's failure to follow the law not only imperils the future of nuclear power in our country, but it also results in wasting billions of hard-earned taxpayer dollars to settle lawsuits by utilities, who are stuck with the used fuel until the government takes it.

To help solve this stalemate, Senator Feinstein and I will again include a pilot program for nuclear waste storage in the Energy and Water Appropriations bill, as we have for the past 3 years.

We also introduced bipartisan legislation yesterday with Senator Lisa Murkowski and Senator Maria Cantwell to create both temporary and permanent storage sites for nuclear waste.

The new sites we are seeking to establish would not take the place of Yucca Mountain—we have more than enough used fuel to fill Yucca Mountain to its legal capacity—but rather would complement it.

Our legislation is consistent with the President's Blue Ribbon Commission on America's Nuclear Future, and is the result of many meetings with experts like Secretary Moniz, who served on the Blue Ribbon Commission.

I should note that Federal law designates one repository for our country's used nuclear fuel, Yucca Mountain. After years of delay, I want to be clear: Yucca Mountain can and should be part of the solution to our nuclear waste stalemate.

The Nuclear Regulatory Commission recently completed the Safety Evaluation Report that said Yucca Mountain met all of the safety requirements through "the period of geologic stability." The commission and the Environmental Protection Agency define the "period of geologic stability" as 1 million years.

To continue to oppose Yucca Mountain because of radiation concerns is to ignore science—as well as the law.

Secretary Moniz, we are going to need your help to set priorities and make tough funding decisions for the department this year, and I look forward to your testimony.

With that, I would recognize Senator Feinstein to make her opening statement.

#### STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Thank you very much, Mr. Chairman, and I agree with virtually all of your statement. And it is really a pleasure for me to work with you over these many years, and I think we have gotten some things done. I will put my written remarks in the record if I may. And I just want to say that I am delighted that we have finally introduced a waste policy act bill for our country, which has no waste policy that we know of, and which at the price of about \$20 billion a year registers debt because we are unable to carry out our mission. And I understand we will owe about \$20 billion by 2020. So this is a step along the way.

And I want to point out that it is voluntary. If we have learned anything it is that these facilities have to have the approval of their community and their State. And so, the bill we have submitted essentially achieves that, and also has the Congress approving it as well. So it has been a long work in progress.

We have had the pleasure of meeting with two Secretaries, Secretary Chu and Secretary Moniz, with the Blue Ribbon Commis-

sion, with virtually a number of other people. We have discussed among ourselves different mechanisms. And, the four of us have always come to agreement, and one more time we have come to agreement in a bill that has now been introduced. And hopefully Senator Murkowski will schedule it and have a hearing, and it can move ahead. I view that as a very important legislative endeavor.

The rest of my—I would rather save my time for the questions if I may, and thank you very much.

Senator ALEXANDER. Thank you, Senator Feinstein. Here is how we will proceed. I will ask Senator Murray to her opening statement, and then we will go Secretary Moniz for his testimony. Then we will go to Senator Feinstein for her questions so that she has a chance to offer them before she needs to leave.

Senator FEINSTEIN. Thank you.

Senator ALEXANDER. Senator Murray.

Senator MURRAY. Mr. Chairman, thank you. I will just save my time for questions.

Senator ALEXANDER. Thank you, Senator Murray. I might just say that I am a fortunate chairman because the ranking members that I work with are both here today, and I really appreciate my ability to work with both of these senators. They are direct. They are easy to work with. They state their positions, and they look for results. So it makes my work here much more useful.

Secretary Moniz, welcome. We look forward to your testimony.

#### SUMMARY STATEMENT OF DR. ERNEST J. MONIZ

Secretary MONIZ. Thank you, Mr. Chairman, and I might say that I enjoy working with all three of you as well. Ranking Member Feinstein, Senator Murray, I am pleased to be here to discuss our fiscal year 2016 budget request of \$29.9 billion.

As you know, the Department is entrusted with a diverse portfolio. It includes advancing the all-of-the-above energy strategy, providing a good part of the backbone of basic research in the physical sciences in this country, ensuring nuclear security, and cleaning up the Cold War environmental contamination. The request represents an increase, as you said, of \$2 and a half billion, or nine percent, above the fiscal year 2015 appropriations level, and we feel supports a balanced portfolio within those mission areas.

In funding for nuclear security activities, including NNSA and defense-related environmental cleanup, that totals almost \$19 billion. Nearly 2/3 of our budget is in the defense line. The non-defense line—science, energy, and other activities—about \$10.9 billion.

Let me just summarize a few highlights so that we can move on to our discussion. First, in science and energy, that fiscal year 2016 request is \$5.3 billion for science, a 5 percent increase. Among other things, we are very committed to continue building and upgrading and operating our national research infrastructure to really stay at the cutting edge of light sources, super computer, neutron sources, and other large-scale facilities that we make available to the national community.

As one highlight, just last month we completed—celebrated the completion ahead of schedule and within budget of the brightest light source in the world, the National Synchrotron Light Source

II at Brookhaven, and we have a number of other upgrades at other places coming along. We have also commissioned major facilities at Jefferson Lab and at Princeton. We are now building a second generation light source at SLAC, and the rare isotope beam facility at Michigan State. So I just want to emphasize that it is a pattern of advancing these important facilities for our user community.

The energy portfolio is about \$5.38 billion in the proposal. Over the past year we have seen accomplishments across our all-of-the-above energy technology portfolio. We have actually—we have sequestered now over nine million metric tons of CO<sub>2</sub> in DOE-sponsored projects. Two cellulosic ethanol facilities that were partially supported by DOE grants and loan guarantees have begun operating. We issued last year 10 final appliance efficiency standards, which all together will reduce CO<sub>2</sub> emissions by over 435 million metric tons and save consumers about \$80 billion through 2030.

Advanced manufacturing is a key priority, and the budget provides about \$400 million to fully fund, and it is 5 years of funding, of two new clean energy manufacturing institutes while continuing funding for four institutes. Just last month we announced the Manufacturing Innovation Institute for Advanced Composites, which I think you are familiar with, Mr. Chairman. This technology has the potential to revolutionize advanced manufacturing with implications reaching from better wind turbines to more efficient vehicles.

The budget increases our investments in sustainable transportation, including \$40 billion for technologies to double freight truck efficiency by 2020. Also \$253 million for advancing the Electric Vehicle Everywhere Initiative to promote that technology. In fossil energy, we will continue development of carbon capture utilization and storage for coal plants, and note this was done in concert with the new tax credits that are proposed in the Administration's Power Plus Initiative for carbon sequestration.

I would like to highlight our proposed increase in ARPA-E, an increase of \$45 million. We are now at the fifth anniversary of the first ARPA-E grants, and now we can start talking about the impressive successes in outcomes from that program, including moving technologies to the marketplace.

And finally, the budget includes \$63 million to initiate two new programs of grants to States, one on reliability planning and one on energy assurance planning. The forthcoming, and it is forthcoming, quadrennial energy review will provide supporting analyses for these initiatives.

Let me then turn briefly to national nuclear security. The fiscal year 2016 budget allocates \$11.6 billion to NNSA. The budget supports a key objective to sustain the successful two-decade now Scientific Stockpile Stewardship Program to maintain a safe, secure, and effective nuclear weapon stockpile without testing. The budget also includes funding increases to modernize the stockpile through life extension programs and new investments in the supporting infrastructure.

Last year in our nonproliferation programs, we removed or disposed of almost 200 kilograms of vulnerable nuclear materials out of six countries and expanded radiation detection systems world-



wide to prevent illicit trafficking of nuclear and radiological materials. The budget includes \$1.9 billion for the Nonproliferation Office. The budget also includes construction of the Mixed Oxide Project of Savannah River at the same funding level as Congress appropriated in fiscal year 2015, while completing congressionally directed studies on plutonium disposition costs and alternatives.

The budget also provides \$1.4 billion for the Naval Reactors Program to continue development of the Advanced Ohio Class replacement reactor, support refueling of the land-based prototype reactor, and expand design work for the Spent Fuel Handling Recapitalization project.

Finally, within our management and performance portfolio, the largest element by far is the Environmental Management Program. The fiscal year 2016 budget request is \$5.8 billion, essentially equal to the fiscal year 2015 appropriation. We know significant challenges remain, but for perspective, DOE has cleaned up over 85 percent of sites and 90 percent of the land area.

The fiscal year 2015 appropriation provided a large one-time funding increase to implement the recovery plan for the Waste Isolation Pilot Plant. Bringing this facility back on line is a very high priority, and we believe we are on schedule to resume operations in about a year. The fiscal year 2015 funding also enabled us to complete demolition of the K25 Facility at Oakridge.

The fiscal year 2016 budget allocates increased funding for a phased approach for the Hanford Waste Treatment Plant to begin vitrifying low activity waste early next decade. We will also operate the Integrated Waste Treatment Unit at Idaho, and complete construction of the Salt Waste Processing Facility at Savannah River. Finally, elsewhere within management and performance, we continue to strengthen cross-program coordination and to improve efficiency and effectiveness of mission support functions.

That concludes my statement, and I look forward to our discussion. Excuse my voice.

[The statement follows:]

PREPARED STATEMENT OF HON. ERNEST J. MONIZ

Chairmen Cochran and Alexander, Ranking Members Mikulski and Feinstein, and members of the subcommittee, thank you for the opportunity to appear before you today to discuss the Department of Energy's (DOE) budget request for fiscal year 2016. I appreciate the opportunity to discuss how the budget request advances the Department of Energy's missions.

ADVANCING NUCLEAR SECURITY, SCIENCE & ENERGY, AND ENVIRONMENTAL CLEANUP

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

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

For science and energy, the budget includes \$10.7 billion, an increase of \$1.3 billion over the fiscal year 2015 enacted, to support DOE's missions of enabling the transition to a clean energy future with low-cost, all-of-the-above energy tech-

nologies; supporting a secure, modern, and resilient energy infrastructure; and providing the backbone for discovery and innovation, especially in the physical sciences, for America's research community.

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

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

#### SCIENCE: LEADING EDGE RESEARCH AND WORLD CLASS RESEARCH INFRASTRUCTURE

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

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

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

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

For example, using the current Linac Coherent Light Source at SLAC, scientists last year mapped for the first time the structure of a protein within a living cell. This single example highlights the tremendous benefits of our national laboratories in a broad range of scientific and applied areas. In addition, the Office of Science supports research at hundreds of universities in all 50 States through competitive grants to advance our mission. For example, a university group recently developed a new class of polymer-based flexible electronics for solar cells and medical applications through DOE-funded research.

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

These investments will ensure continued U.S. leadership of this critical capability in a very competitive global environment.

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

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

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

#### ENERGY

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

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

In the last year, we have seen important accomplishments across the Department's technology portfolio that highlight our all-of-the-above approach. We have geologically sequestered over 9 million metric tons of CO<sub>2</sub> through DOE-supported projects. Two commercial-scale cellulosic ethanol facilities supported by DOE grants or loan guarantees have commenced operations. We have commissioned one of the world's largest battery storage systems at the Tehachapi Wind Energy Storage Project. We have issued ten final appliance energy efficiency standards in calendar year 2014, which altogether will help reduce carbon dioxide emissions by over 435 million metric tons through 2030. Standards enacted since 2009 are projected to avoid a cumulative total of 2.2 billion metric tons of carbon emissions through 2030. The Office of Energy Efficiency and Renewable Energy (EERE) has achieved 70 percent of the SunShot goal of cost parity for utility scale solar energy.

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

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

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

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

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

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

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

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

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

The Request increases our investments in sustainable transportation, including \$40 million for the SuperTruck II initiative to develop and demonstrate technologies to double class 8 freight truck efficiency by 2020 from a 2009 baseline. The Request also continues our focus on electric vehicles by investing \$253 million in the EV Everywhere initiative, which aims to enable domestic production of plug-in vehicles that are as affordable and convenient as gasoline vehicles by 2022. By continuing to make progress in core component technologies such as the dramatic reductions we are seeing in battery and fuel cell costs, we are looking to achieve transformative performance improvements for electric vehicles in the marketplace.

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

The budget continues to support accelerated advances in renewable energy. The SunShot Initiative has helped accelerate the reduction in solar costs, and our request of \$337 million, an increase of \$104 million, aims to continue progress to achieve cost parity without subsidies by 2020. For wind energy, the Request of \$146 million, an increase of \$39 million, includes funding for year 5 of a 6 fiscal-year Offshore Wind Advanced Technology Demonstration program supporting three offshore wind projects on track to begin operation in 2017. Our request of \$96 million for geothermal energy, \$41 million above fiscal year 2015, implements the FORGE, an experimental facility aimed to advance enhanced geothermal systems, and pursues new approaches to hydrothermal development with a special focus on collaborative efforts with the Office of Fossil Energy on subsurface science, technology and engineering.

As we witness the transformation of our Nation's electric grid, the Department continues to drive electric grid modernization and resilience. In May 2014, with cost-share funding provided by the Office of Electricity Delivery and Energy Reliability (OE), Southern California Edison constructed and installed equipment for a prototype 8 megawatt/32 megawatt-hour battery storage plant for wind integration at Tehachapi, CA. The Tehachapi Wind Energy Storage Project is positioned to demonstrate the effectiveness of lithium-ion battery and smart inverter technologies to improve grid performance and assist in the integration of variable energy resources. In addition, we continue improving the security of the Nation's energy infrastructure. Oak Ridge National Laboratory announced in January 2015 the licensing of its Hyperion software, which helps detect software that has been maliciously altered. Today, more than 20 new technologies that OE investments helped support are now being used to further advance the resilience of the Nation's energy delivery systems.

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

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

In the area of nuclear energy, the Request includes \$62.5 million to continue technical support for moving a small modular reactor to the Nuclear Regulatory Commission licensing stage by the end of 2016, as a step towards industry's demonstration of this important technology early in the next decade. The Request includes \$326 million to support research and development on reactor aging issues, advanced reactor concepts, and the fuel cycle. This request continues to support R&D on nuclear fuel issues at the Idaho National Laboratory. It also supports research on accident tolerant fuels and includes funding to continue laying the groundwork for implementing the Administration's Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste, including a consent-based approach to the siting of storage and disposal facilities for nuclear waste. The Request also focuses resources on maintaining operational readiness at the Idaho National Laboratory, including \$23.2 million for major power distribution infrastructure refurbishments and \$11.7 million for critical security infrastructure investments.

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

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

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

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

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

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

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

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

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

The QER is a 4-year interagency process, with the first year focusing on energy infrastructure—the transmission, storage, and delivery of energy. We expect the first QER installment to be released soon, and many of you may be interested in that document for its systematic analysis of the breadth of challenges with our current energy infrastructure. The QER will also include recommendations to drive future program directions.

The electricity grid underpins many other infrastructures, and the fiscal year 2016 budget Request includes \$356 million, an increase of \$160 million, for a major crosscutting initiative led by the Office of Electricity Delivery and Energy Reliability to focus on the modernization of the electricity grid. This initiative invests in technology development, enhanced security, and modeling to enable the electricity grid of the future. This initiative includes \$10 million for R&D to improve resilience of large-scale electricity transformers and \$14.5 million to transition to an integrated system at the distribution level and develop a platform for market-based control signals. In addition, the Request establishes a virtual collaborative environment for conducting real-time advanced digital forensics cybersecurity analysis, which can be used to analyze untested and untrusted code, programs, and websites without allowing the software to harm the host device.

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

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

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

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

#### *Enhancing Collective Energy Security*

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

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

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

Similarly, the budget increases investment in the EIA to \$131 million, in order to fill gaps in current energy data, including transportation of oil by rail and integrating energy data with Canada and Mexico. The EIA recently initiated a data re-

porting program on oil and natural gas production trends by region, and the requested increase is needed to continue with this and other improvements in our data collection, analysis, and reporting.

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

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

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

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

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

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

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

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

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

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

The fiscal year 2016 budget continues to build on the five crosscutting initiatives established in fiscal year 2015. The Exascale Computing initiative invests to make progress toward a thousand-fold improvement over current high performance computers. Grid Modernization supports technology development, enhanced security, and stakeholder support to enable evolution to the grid of the future. The Subsurface Engineering initiative invests in new wellbore systems, seismic research, and other areas supporting a wide variety of energy sources. The Supercritical Carbon Dioxide initiative establishes a 10 MWe-scale pilot Supercritical Trans-

formational Electric Power facility aiming to increase the efficiency of power generation, and the Cybersecurity crosscutting initiative strengthens cybersecurity across DOE's Federal and laboratory sites, and improves cybersecurity for the Nation's electric, oil, and gas sectors.

The fiscal year 2016 budget also proposes one new crosscutting initiative, the Energy-Water Nexus. This initiative recognizes that the Nation's energy system uses large quantities of water, and the Nation's water system uses large quantities of energy, and that DOE's coordinated science and technology efforts can contribute to the Nation's transition to more resilient energy-water systems.

#### NUCLEAR SECURITY

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

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

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

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

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

This budget supports the Nuclear Weapons Council decision to accelerate a new cruise missile capability, and the selection of the W80 as the warhead for the Air Force's Long Range Stand-Off system (LRSO). The fiscal year 2016 budget request includes \$195 million to accelerate the program by 2 years, to be completed in 2025, in order to meet military requirements.

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

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

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

The fiscal year 2016 budget request includes \$1.9 billion for Defense Nuclear Nonproliferation, \$325 million above fiscal year 2015, to continue the critical missions of securing or eliminating nuclear and radiological materials worldwide, countering illicit trafficking of these materials, preventing the proliferation of nuclear weapon technologies and expertise, and ensuring that the U.S. remains ready to respond to high consequence nuclear and radiological incidents at home or abroad, and applying technical and policy solutions to solve nonproliferation and arms control challenges around the world. The Request is a \$101 million, or 5 percent, increase from the comparable fiscal year 2015 enacted level after adjusting for a budget structure



change moving counterterrorism efforts from the Weapons Activities appropriation to the Defense Nuclear Nonproliferation appropriation.

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

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

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

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

#### *Advancing Navy Nuclear Propulsion*

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

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

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

#### CLEANING UP THE COLD WAR NUCLEAR WEAPONS LEGACY

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

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

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

We have put forward and are beginning to implement an alternative phased approach to completing the Hanford Waste Treatment Plant (WTP). We have cleaned

up 479 square miles of the 586 square mile area at Hanford, including 90 percent of the River Corridor.

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

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

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

#### MANAGEMENT AND PERFORMANCE: IMPROVING EFFICIENCY AND EFFECTIVENESS

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

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

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

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

#### ADVANCING THE PRESIDENT'S VISION: IMPLEMENTING DOE'S STRATEGIC PLAN

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

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

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

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

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

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

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

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

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

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

Senator ALEXANDER. Thank you, Mr. Secretary. While you recover there, I will say to Senators Lankford and Cochran, we are going to call on Senator Feinstein first and give her an opportunity to ask her questions since she has an Intelligence Committee-related commitment and will leave early. Senator Feinstein.

Senator FEINSTEIN. Thank you very much, Mr. Chairman. I very much appreciate this privilege. I wanted to—oh, good. Just a word to the distinguished chairman of the Energy Committee, both Senator Alexander and I mentioned that we had completed our joint effort at a nuclear waste policy act, and have worked with you and two former Democratic members, or ranking members, or chairs—Senator Bingaman and Senator Wyden, Senator Landrieu, and now Senator Cantwell. Senator Cantwell has gone on the bill, and my understanding is that our chairman has introduced it this morning on behalf of the four of us, and we are hopeful that you will see fit to have an early hearing so that we can possibly develop a nuclear waste policy for our country.

#### INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR

Senator FEINSTEIN. Well, thank you. Thank you very much, Madam Senator.

I wanted to ask a question about—here we go—ITER. It is behind schedule and over budget. In 2005, DOE's preliminary cost estimate for United States contributions to ITER was \$1.122 billion, with completion in 2013. The current estimate is \$4.1 billion with completion in 2034 and '35. As we all know, an independent cost review found that the costs could be as high as \$6.5 billion, and the date could slip further.

We discussed this at our last—during our last bill, and I think both the chairman and I, we are seeing little benefit from our participation in ITER. I do not believe that fusion will be developed during my lifetime, and perhaps not the lifetime of the younger members of this body. And it is building a facility in another country that we may never see benefits from. So I have some question about continuing this, and particularly continuing it at the amount that it is budgeted to be.

Dr. Orr or Secretary Moniz, I would love to have your reaction and comment to those statements.

Secretary MONIZ. I will have to defer to Secretary Orr, I am afraid.

Mr. ORR. So, yes, it is my job to try to answer a complicated question. The numbers you saw, of course, are correct as we know them. The project has encountered some serious delays, and there have been some management issues raised as well. The current state of play is that there is a new director-general who has been

named, Bernard Bigot. He was confirmed in early March. He has put together a plan that would, if accepted fully by all the members, correct the management issues that have been raised in the external reviews. We think that the plan includes the right elements, but obviously there is work to be done to implement that. The next steps include building a realistic timeline for completion of the project and a realistic budget. And we will, of course, be watching very carefully as all of that develops.

As you know, we are committed to 9 percent of the project costs, and the spending proposed for next year is consistent with what we think the rate that the project can absorb that funding. And I would also note that about 80 percent of that funding that we commit actually goes to make the parts, the equipment that we are committed to supply to the project, and so, therefore, it is actually spent in this country.

Senator FEINSTEIN. Well, it sounds to me like we have spent a billion—\$1.22 billion just now in getting ready to get a project put together.

Mr. ORR. Yes, it is fair to say, I think, that the design of the project in the early stages was not far along as it needed to be to provide realistic cost estimates, and that is being corrected now. That work has actually—the design work has gone on, but now, of course, they have to implement it.

#### DEPARTMENT STAFF PARTICIPATION

Senator FEINSTEIN. Yes, I guess this is a problem that I certainly have is that you spend a billion, \$1.22, and you do not really have a project yet. My conclusion is, Mr. Chairman, we ought to take another look at it, but I will move along.

The GAO has been working with DOE staff to review current practices and share advice and best practices based on their experience. GAO reports that in several instances, DOE staff have been unresponsive or unhelpful. The GAO noted that regarding reports on cost estimating and analysis of project alternatives—here is a quote—“DOE’s unspecified open-ended date for responding to many of these recommendations may have indicated a lack of urgency or concern about the need to implement these recommendations.”

Mr. Secretary, can you instill a sense of urgency in your staff to change the management culture and move it to participating in this in an active way?

Secretary MONIZ. I will certainly look into this. We have made a point, in fact, of trying to speed up our responses. I hope those of you here in Congress have noticed that the responses have been—the time lag for response has been decreased dramatically. We have done that with the DNFSB. I will now look into the GAO as well.

#### AMERICAN CENTRIFUGE PROJECT

Senator FEINSTEIN. Okay. And the last question is about the American Centrifuge Project, and I do not like to ask this, but I am going to. It was recently announced that Dan Poneman will become the new CEO of Centrus, the company formerly known as USEC. He served as Deputy Secretary of Energy from 2009 to 2014, serving under both Secretary Chu and yourself. He was heav-

ily involved in decisions to keep USEC afloat, particularly when that is just what was being done. It was not meeting its goals or timetables as I understand it.

I understand that there are restrictions on Mr. Poneman relative to his contact with DOE for the balance of this Administration, but this seems to ignore his potential influence with career bureaucrats. And I am really less concerned about the optics for Mr. Poneman than I am the Department's. And given Mr. Poneman's direct role at DOE in advancing USEC, how can anyone fully trust a DOE or contractor decision which benefits Centrus?

Secretary MONIZ. Well, I can assure you, first of all, that we did make sure that Mr. Poneman had a refresher course on the restrictions. We have also made sure to distribute those guidelines to those in the Department. We will certainly try to adhere absolutely to that wall as called for in those restrictions. We will be having to make—as you infer, we will be having to make some difficult decisions going forward. You mentioned the ACP, for example. That is an area combining our enrichment and tritium studies. We will be coming back to the Congress soon, and that will cause implications for what is the future of that project. But I can assure you that we will be having no content—

Senator FEINSTEIN. Is USEC able to perform adequately at this point?

Secretary MONIZ. Well, I cannot get into the company's because I do not know the company's overall posture. But I would say on the ACP, as you know, we took that away from them and actually through Oak Ridge we are managing this project. But in the meantime, the former USEC employees who ran those machines are the ones that we need to hire to keep the machines running until we make a decision.

Senator FEINSTEIN. Thank you. Thank you, Mr. Chairman.

#### SPENT NUCLEAR FUEL STORAGE

Senator ALEXANDER. Thank you, Senator Feinstein. I will now continue a round of questioning, and I will take five minutes, and then go to Senator Murray, and then we will continue.

Mr. Secretary, I want to focus during this time on used nuclear fuel. We have got Senator Murkowski here, who is the chairman of the Energy Committee. Senator Feinstein is still here. Senator Murray I know is interested in used nuclear fuel because of the Hanford situation. Federal law says Yucca is—I am going to ask you a large question and then just ask you to—and then I am going to listen.

Yucca is the current repository. I fully support the current licensing process, but Yucca's legal capacity is 70,000 metric tons of used fuel. We have already more than that, so we have more than enough used fuel sitting safely at sites around the country, more than enough to fill up Yucca Mountain. So the conclusion we have come to is that whether you are for or against Yucca Mountain—I am for it—we need new repositories.

We also have a small amount of used nuclear fuel from the Navy reactors and submarines, and we have canisters of high-level waste from the Manhattan Project. And you made an announcement yesterday about defense and commercial fuel, which is relevant to this.

So it is clear we need new and temporary and permanent storage sites.

So in addition to Yucca Mountain, we have the idea of the pilot program, which comes from the Commission on which you serve. Senator Feinstein and I will include that in the Energy and Water bill. There is the legislation that we introduced yesterday together for a long-term solution, also based in large part upon the President Commission's recommendations. That is two.

Another option that may be available is a private consolidated storage site like the one recently proposed by a group from West Texas, who have indicated their interest in filing with the Nuclear Regulatory Commission for an application. What they have said is that they might build a private site in units of 10,000, maybe 5,000 tons, but up to 40,000. So the site would be able to hold about half as much as Yucca Mountain could if it were open. There is \$36 billion of money we have collected from electric bills of Americans to pay for all of this. The Department of Education is supposed to be taking titles.

So I am trying to get in my mind of these various proposals which one is likely to come on first. I know Senator Feinstein, for example, would like to get used fuel out of California from closed plants to somewhere else. There are seven other sites like that around the country.

So here are my questions. How realistic is the possibility of an additional private repository? Do you think the Nuclear Regulatory Commission needs any authority to license private sites like the one proposed in Texas? Would you need any new authority for the Department of Energy to be able to store used fuel at a private facility assuming you are taking title and storing it there? And will you work with the subcommittee to give us technical advice on whatever we might do in the appropriations bill that would keep this option on track if it is a real option?

Secretary MONIZ. Thank you, Mr. Chairman. First of all, I completely agree with the inference that you made that we need a comprehensive approach to both spent fuel and to defense fuel, and we need to look at storage facilities, repositories, and in the context of yesterday's announcement on defense waste, potentially even other geological disposal pathways.

In terms of the timing, I think it is pretty clear, and the Administration policy document of January 2013 reinforces the Blue Ribbon Commission report. And I think your legislation that moves towards a pilot scale storage facility is probably the thing that we could bring on the fastest, 6 to 8 years perhaps. Now, we had always been envisioning that in the context of a Federal facility that the Blue Ribbon Commission did and Administration policy did. I think this new dynamic by the announcement out of Texas that you referred to is extremely interesting, and we want—first of all, we want to learn about that.

With regard to authorities, I think I am not in the best position to talk about NRC, although NRC has worked in some similar areas before. But with regard to our own authorities, I would say that I do not quite know yet what those authorities would be, but I can certainly imagine that, especially for a private sector facility, that a certain clarification that might come out of the legislative

process could be quite desirable. And we are certainly happy to work as often as you would like in terms of discussing the technical aspects of this.

Senator ALEXANDER. Well, thank you for that. My time is up, but we would, I think speaking for Senator Feinstein and myself—and I will let Senator Murkowski speak for herself—we would be interested in working on that in the next 3 or 4 weeks to see, (A) what might appropriately be included in the appropriations bill, if anything; and (B) what might need to come before Senator Murkowski's committee with the whole objective, if it is—it sounds to me like you believe the private facility could be a realistic option. Then given our desire to find a place to put used nuclear fuel, we need to know what else do we need to do to put you in a position to move that option along.

Secretary MONIZ. Yes.

Senator ALEXANDER. Senator Murray.

#### HANFORD RICHLAND

Senator MURRAY. Well, thank you very much, Mr. Chairman. Secretary Moniz, in your testimony you said that it will be decades before DOE finishes cleanup at most of our difficult nuclear waste sites. The prospect of another 20, or 30, or 40 years passing before the Federal Government completes this critical work at the Hanford site in Central Washington and other sites throughout the Nation is pretty unacceptable.

And it strikes me that year after year Congress receives budget requests that fail to meet the necessary investments to fulfill the Federal Government's legal and moral obligations here. And I am really concerned that the Administration has once again cut Hanford Richland Operations by nearly \$100 million just like last year. Tell us how the Administration is going to meet its legal commitments under the Tri-Party Agreement at this significantly reduced funding level.

Secretary MONIZ. Thank you, Senator. First, of course, I would like to talk about the entire Hanford site where we have a net \$100 million increase in the budget, but admittedly Richland is down \$100 million, and essentially the WTP is up for us to move that forward.

On the Richland side, I would note that we have made considerable progress opening up a good portion of the river corridor and with the budget as proposed. And the EM budget proposal is \$200 million above last year's proposal to the Congress, but about equal in appropriation. But going back to Richland, we will still—I believe we are going to finish the plutonium finishing plant down at this lab. But we will continue to clean up the groundwater in the central plateau. We will continue to make progress along the corridor. So I think it is a strong program. Obviously the best, you know, optimizing within our overall program.

Senator MURRAY. Well, I appreciate that, but there are several high-risk projects close to the city of Richland, close to the Columbia River, and Energy Northwest that remain. I am really concerned the fiscal year 2016 budget request would hamper this cleanup. And in the case of the 324 building and the 61810 burial grounds, they would be stopped, or mothballed, or kicked down the

road. Those are projects that are well underway, and we have spent \$209 million on them combined. And it seems to me that DOE is now trying to pull the plug on them, which creates a safety risk, a cleanup delay, cost increases, and missing those Tri-Party Agreement milestones.

The budget request that you gave cites technical challenges when rationalizing the cuts to those projects, but no one has been able to pinpoint for me what these technical challenges are. So what is holding you back from continuing to make progress on those projects?

Secretary MONIZ. What I would suggest is maybe the best thing is if we come in and talk with you or your staff as you prefer and try to work through the whole program.

Senator MURRAY. Well, I mean, our subcommittee fought to provide \$45 million in additional funding for those projects last year. And why has DOE not used that money to forward these really critical projects.

Secretary MONIZ. Again, let me look into in more detail, Senator, and get back to you, and see what we can do to advance those.

Senator MURRAY. Well, I would like that part of the public record as well, so I think it is really important for this committee to understand it. And I would hope that we can answer in writing as well so that we can have that as part of the record.

Secretary MONIZ. We would be happy to. Thank you.

#### YUCCA MOUNTAIN

Senator MURRAY. Okay. And let me just mention one final issue. The Nuclear Regulatory Commission completed its Safety Evaluation Report earlier this year and found that it would be safe to operate Yucca Mountain as its nuclear waste repository, confirming what more than 30 years of independent studies have found. While the fiscal year 2016 requests no funding to restart the adjudication process with the Atomic Safety and Licensing Board Panel, should Congress provide such funding, I really urge you, Mr. Secretary, to follow the congressional intent as directed in the Nuclear Waste Policy Act and defend DOE's Yucca Mountain license application as an active, engaged participant in those proceedings.

Secretary MONIZ. Do you want a response or not?

Senator MURRAY. I am hoping you just nodded.

Secretary MONIZ. Sorry.

Senator MURRAY. I hope you just nodded. Thank you, Mr. Chairman.

Secretary MONIZ. May I just note, Senator, that we do have about \$17 million of unobligated carryover funds and additional obligated carryover funds. So right now, we have no request from the NRC, and we think that in a contingency we have the funds to cover any work that would be needed.

Senator MURRAY. Okay. Thank you very much, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Murray. Senator Lankford.

#### LIQUEFIED NATURAL GAS EXPORTS

Senator LANKFORD. Thank you, Mr. Chairman. Good afternoon, gentlemen. Questions about the LNG (liquefied natural gas) ex-



ports. I know that DOE has a new process on that working with FERC (Federal Energy Regulatory Commission), now putting FERC first in line and all that. I want to know how that is going at this point, and if any additional legislation is needed to help expedite the process and to make sure that is a consistent process?

Secretary MONIZ. Thank you, Senator. Let me first say that I would not phrase as it having put FERC first in line in the sense that FERC was always in the line in terms of needing to do the EIS. What we did is to say that when projects are ready, which is being interpreted as having gone through the EIS process, that we will then have enough information for our public interest determination, and then we will act.

Senator LANKFORD. Right. So how is that going?

Secretary MONIZ. On our side it is going quite well. In the last turnaround from the EIS at FERC, we responded literally within a day actually. So I think once that information is available on environmental impact, I think we are being pretty expeditious.

Senator LANKFORD. Is there a need for additional legislation to put timelines on some of the permitting at this point, or where do you stand on that?

Secretary MONIZ. Well, as we have said consistently, I think we are executing very expeditiously. I understand that Congress has some desire to provide some certainty over some years, and with reasonable timing we could work with that. But I think we are already responding quite well.

#### AGENCY DUPLICATIONS

Senator LANKFORD. Just the geopolitical issues that we face right now with the export of LNG, you are extremely aware of as well, and some sort of certainty to our allies and other individuals that are interested in picking up that fuel is extremely important right now based on a lot of our negotiations.

Let me ask a couple of things on some agency duplications and just how you manage these and how they work together. I want to note the lanes of this. DOE has an Office of International Affairs. The State Department has a Bureau of Energy Resources. The DOE has the Indian Energy Policy and Program Division. The Bureau of Indian Affairs has a Division of Energy and Mineral Development. How is that going as far as making sure that we have clear lanes of responsibility so we do not have overlap and duplication? Obviously we have—both those things we are interested in as a committee, but we do not want to fund them twice basically. There are other examples I can bring to bear as well. How do you manage that overlap of programmatic definitions and cooperation where you need it?

Secretary MONIZ. Yes. First of all, obviously number one is we do have strong coordination. For example, the head of our International Office and the head of the State DNR typically meet once a—

Senator LANKFORD. Are those unique lanes of responsibility or do you feel like they are overlap?

Secretary MONIZ [continuing]. And then clearly having different lanes of responsibility. Much of our responsibility ends up being driven by our underlying technical energy technology expertise. So,

for example, if one takes China, there we have the clean energy research center we put in some funds, China matches, industry matches all of that. Our funds are spent on American scientists and engineers. It is a very technology driven program. That would be a DOE activity as opposed to some of the more, let us call it, geopolitical responsibilities at State.

#### CELLULOSIC ETHANOL

Senator LANKFORD. Okay. Let me ask you about a couple of other grants that are sitting out there. You had mentioned cellulosic and some of the advances in cellulosic ethanol. Did you mention that there are a couple of companies that are coming on board that are producing at this point that you are doing grants for, or is it some of the research and development?

Secretary MONIZ. It is certainly R&D as well, but, no, we also provided some grants to do some cost sharing to get commercial scale activities going. In fact, in the last year one in Iowa and one in Kansas will be producing about 25 million gallons of cellulosic.

Senator LANKFORD. Did we have grant money involved in the QER facility in Mississippi that went bankrupt last year? The largest cellulosic producer in the country closed in November of 2014 after multiple years of trying to make the technology work. What I am trying to figure out is if we are doing new grants to new cellulosic companies, have we learned the lesson of the cellulosic companies that already started, could not make it go, and closed?

Secretary MONIZ. Well, in general, I think we are having very, very rigorous processes in our portfolio management, strong risk management approaches. And I think our portfolios are performing well overall.

Senator LANKFORD. Sure, I understand that. Do you know if we had Federal dollars involved in the QER facility?

Secretary MONIZ. I do not know that. We could respond for the record.

Senator LANKFORD. It was the largest producer of cellulosic ethanol in the country when it closed. Obviously we are producing under a million gallons total in the entire country, and it was the largest of those.

Secretary MONIZ. Okay. We will look at that. Thank you.

Senator LANKFORD. Okay, thank you. I will yield back.

Senator ALEXANDER. Senator Udall is next. While Senator Feinstein is still here, I am going to ask Senator Murkowski as chairman of the authorizing committee if she has anything she wants to say before Senator Feinstein leaves, or if you have to leave early. I want to make sure you have a chance to ask your questions.

Senator MURKOWSKI. Well, I do not want to preempt my colleague on the other side, but I do want to make the commitment to you, Mr. Chairman, and to your ranking member on this subcommittee that as we move forward with this legislation that we have worked so cooperatively on, that I really do hope that we have full cooperation and participation from the Secretary and from his team in identifying how we can truly move this forward. So if it is something where we need to understand a little bit more about what this private entity may offer and what needs to be done to facilitate that, if that is the best way to go. Know that I, too, am

interested in advancing legislation that will begin to make a difference as we deal with our nuclear waste.

So I do not have a specific question to the Secretary because quite honestly, Mr. Chairman, mine would have just mirrored yours exactly in terms of now that we have this legislation out there, what is the best way to proceed from the Secretary's perspective. So I got that answer from him.

Senator ALEXANDER. Well, thank you, and we will come back to you then.

Senator FEINSTEIN. May I add one thing?

Senator ALEXANDER. Sure, of course.

Senator FEINSTEIN. Is it necessary for anything for him to proceed? Could he unilaterally approve a Texas facility I think is a question worth asking.

Senator MURKOWSKI. Yes.

Senator ALEXANDER. Well, the application will be before the Nuclear Regulatory Commission—

Secretary MONIZ. NRC.

Senator FEINSTEIN. But who would make the application?

Senator ALEXANDER. They would make the application, but there are some—but, Senator Feinstein, there are some questions that probably need to be understood and resolved about—I think the NRC is ready to act on an application should it receive it. I think there are some questions that need to be resolved about whether the Department of Education is prepared and whether there are some things that we need to do make sure that they might be able to do it in a more rapid way. Is that a fair way to say it?

Secretary MONIZ. Yes, I think it is, Mr. Chairman, and I would add to that that part of it will depend upon things that I just do not know.

Senator ALEXANDER. Right.

Secretary MONIZ. For example, what would be the business model, and that might influence what kind of authorizations are required.

Senator ALEXANDER. Okay. Well, we will go to Senator Udall, and then we will come back to you, Senator Murkowski. If you have to leave, let us know, and we will work you in.

Senator MURKOWSKI. If I can go after Senator Udall, that is perfect. Thank you.

Senator ALEXANDER. Okay. Is that all right, Senator Cochran? Thank you, Senator. I feel like a ringmaster here. Thank you, Tom, for your patience, and we will go to Senator Udall, then Senator Murkowski, and then Senator Cochran if that is all right with Senator Cochran. Senator Udall.

#### WASTE ISOLATION PILOT PLANT

Senator UDALL. Thank you, Chairman Alexander. You are the ringmaster, and you are doing a very good job of it, and that is great. Secretary Moniz, wonderful to have you here and Dr. Orr, and appreciate very much your staff and how they have been working to ensure positive discussions with the State of New Mexico on the State's fines for the accident that occurred at the Waste Isolation Pilot Project (WIPP), and that Los Alamos was involved in. And I am hopeful that those discussions are going well.

But I just want to reiterate my view that the State of New Mexico has a regulatory role, and I think you understand this very well. This was something I fought hard for as New Mexico's attorney general. We actually won a lawsuit against the Department of Energy at the time. So I just want to take this opportunity to remind you as discussions continue, that this is a unique situation. You are dealing with the only State in the Union that has ever accepted a nuclear waste facility, and I am hopeful that a constructive dialogue over the State of New Mexico's fines for the Department can continue along that line.

Now, can you talk to us a little bit about working constructively to make sure this happens rather than heading into a litigation track, which could take many, many years I think, and are you committed to working with us to try to get that situation resolved?

Secretary MONIZ. Thank you, Senator, and I appreciate your interest and support in this area to the extent possible. Let me say that, yes, we very much would like to be able to resolve this with the governor, with the New Mexico Environmental Department, the discussions. Obviously I cannot go into the details here since they are part of a resolution pathway we hope, but we are very committed, and we are very encouraged that the discussions are going on at a very professional level. And I am hopeful we will be able to resolve this to the benefit of all the citizens of New Mexico and the Department.

Senator UDALL. Yes. No, that would be great. And as you know, the Accident Investigation Board report is expected to be released soon. Do you have any idea when that would be released on the accident?

Secretary MONIZ. I believe we are in the weeks time scale, I believe. I can go check on that. The technical evaluation was already presented to me.

Senator UDALL. Okay, good. And as you know, that contamination with the facility has been shut down. And so, I think it is very important that we see it be reopened safely, and I underline the "safely." And so, I am hoping that we take that cautious approach to make sure that workers are not at risk. And will you commit to ensuring DOE does not repeat these mistakes again and expose workers to unsafe situations as well as radioactivity?

Secretary MONIZ. Well, I can assure you that we are doing all that we can in that dimension. First of all, at the very beginning, frankly I insisted that we not set schedules before we understood what the issues were for safety because otherwise safety could be compromised. Now we feel comfortable in terms of how the actions are going. We have a plan in terms of sealing off the two panels, and we have a plan for looking at all the other barrels that have some of the elements that have been identified as the cause of the thermal reaction. So we need to keep going as fast as we can to make sure that all of those other barrels are safe. Every indication is they are. We have done a lot of work on them already in terms of putting into safe conditions.

B-61

Senator UDALL. Yes, and thank you for that work. And just a final question here on the B-61. I know you have made that a pri-

ority in the budget, but do you worry that the threat of sequestration might hurt our modernization in terms of the stockpile in the nuclear enterprise?

Secretary MONIZ. Absolutely, and, in fact, DOD and DOE, for our different but complementary responsibilities for nuclear security, have both said that sequestration caps will make it very, very difficult. Frankly, if the budget that we have requested in concert with the DOD and the Nuclear Weapons Council is reduced substantially, I think there is no doubt that we will have to work with DOD to push out military capabilities that they very much want.

In fact, in this budget, the B-61, we would try to probably hold that, but then the cruise missile, for example, would almost certainly have to get pushed out substantially, as we have already pushed out other parts of the stockpile refurbishment.

Senator UDALL. Thank you very much. Thank you, Chairman Alexander. Thank you, Secretary.

Secretary MONIZ. Thank you.

Senator ALEXANDER. Thank you, Senator Udall. Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman. And, Secretary, welcome before the committee.

Secretary MONIZ. Thank you.

Senator MURKOWSKI. I feel like I have got a second bite at the apple because you were before the Energy Committee not too many weeks ago, and I did have an opportunity to ask questions. I would ask you, I did submit a series of questions for the record. We still have not received responses on that, so if you could have someone to check on the status.

Secretary MONIZ. I will check.

Senator MURKOWSKI. And we had also hoped to have a hearing actually tomorrow, Thursday, on the QER and the release of that. And we had hoped—we figured that we were going to be setting this well enough in advance, so we have rescheduled that for the 28th of April. Are we going to be good with our timing so that you think we can proceed with that? We will have had a chance to look at that QER that is going to be before the Congress.

Secretary MONIZ. I think we will be good with that.

Senator MURKOWSKI. Okay, good.

Secretary MONIZ. You will have time to review it in advance as well.

Senator MURKOWSKI. Well, we are looking for it with great anticipation—

Secretary MONIZ. Thank you.

#### ARCTIC ENERGY SUMMIT

Senator MURKOWSKI [continued]. As you and I have discussed. We are hopeful that there will be a useful framework as we work on our energy legislation, so we will look forward to that. At the Energy Committee hearing, I did ask you about the Arctic priorities contained within the Energy Department's budget, and I am continuing to advocate on these issues that you know I believe have great significance and priority.

We have an Arctic Energy Summit that is to be scheduled. It is scheduled already. It is going to be in Fairbanks from September

28th through the 30th. I do not know if you or your staff have been notified of this, but as I have invited you to Alaska to review our renewable energy resources, I would also invite you to attend that summit or perhaps a designee if that would be appropriate. I think it will be timely, and, again, an issue that you have and I have discussion on.

Secretary MONIZ. I will certainly look into my schedule, but certainly I can assure you we will have senior representation.

#### NATIONAL LABS

Senator MURKOWSKI. Great, I appreciate that. Let me move to our national labs. In recent weeks we have seen both this congressionally directed commission to review the effectiveness of our national energy labs as well as the Task Force on National Labs highlight the level of bureaucracy that exists between the Department and the labs. That is something that I think most of us realize we did not need a report or a Commission to determine that. We know that it is an issue.

Where do we go from here with that? What do we do with these latest recommendations to ensure that we do have just a greater connect or synchronization here?

Secretary MONIZ. Well, I think we are making progress, and I think that was acknowledged in the reports, but there is more to do. I think the major overarching critique is that the system has become too transactional as opposed to kind of outcome oriented. And we have—frankly from day one I created the Laboratory Policy Council and the Laboratory Operations Board to address these issues, the bringing of—I would say kind of restoring a more strategic relationship between the Department and the labs. And I think we are getting some traction, but we have to keep at it and sustain it. That is on the strategic plane.

But then one comes to the operational level, we have two task forces, one working and one just about to be charged, which address these transactional issues. So one is a task force headed by the head of the Office of Science looking at what are the streamlining actions we can take on the M&O contracting approach, and they will be reporting reasonably soon. And our management and procurement people are all involved in that, and so I am hoping for some interesting steps that we can take quickly.

But then we are about to form another group, which is more the “revolutionary group,” which is going to take one particular site, which has some simplicities in its management structures, governance structure, with regard to some of the other laboratories. And at least in that case look to do a pilot program for perhaps tweaking the very structure of the M&O contract to help get around some of those transactional issues.

Senator MURKOWSKI. Well, it has long been a problem, so I hope that this revolutionary approach pans out.

Secretary MONIZ. That was in quotes.

#### ADVANCED TECHNOLOGY VEHICLES MANUFACTURING DIRECT LOAN PROGRAM

Senator MURKOWSKI. I understood it, and I put it in quotes as well. I want you to notice. Very briefly on this last question. This

is the 48th consecutive month that the ATVM Direct Loan Program has been unable or unwilling to finalize a new direct loan for an auto maker or a component supplier. So it really begs the question in terms of why we would continue to have this program on the books, why we would continue to have taxpayer support there.

I have been critical of this program I think you know, and have questioned the need and the justification for a direct loan program for auto makers and these component suppliers. So know that this is something that I am looking at. I do not know how many applications you actually have that have been submitted to DOE, and whether or not you are even considering making a yes/no decision coming up. But you look at that program in 48 months, and there has not been a loan made. It does cause you to question why we are engaged in this.

Secretary MONIZ. I certainly understand the question. Let me just say that I think we have restructured not only the ATVM, but the loan programs as a whole. And on the ATVM Program, I think it was about a year ago when I and Peter Davidson went out to make it clear that for one thing, component suppliers were certainly eligible as they face retooling challenges for the highly efficient vehicles that we need by 2025. And secondly, that the program—that ATVM Program had some problems in terms of its dealing with the applicants. I believe we have cleaned that up, and we are getting a lot of interest. We have an interesting proposal stream, and I think you will see some outputs pretty soon.

Senator MURKOWSKI. Well, Mr. Chairman, thank you for allowing me a little extra time. I want to note we have a group of young Alaskans that are part of the Close Up Program that have been watching this. I told them that while nuclear waste is not necessarily something that we are worried about in Alaska right now, these are national problems, these are national issues, and these kids are getting a firsthand look at it.

Senator ALEXANDER. Well, and they are getting a chance to see the chairman of the Senate's Energy Committee, which is very important to Alaska, who is also a member of this committee. So we welcome them. We are glad they are here. Thank you, Senator Murkowski.

Senator MURKOWSKI. Thank you, sir.

Senator ALEXANDER. And thanks to Senator Cochran, who is chairman of our whole committee, for deferring to other Senators. And we will call on him now, then we will go to Senator Shaheen.

#### SPENT FUEL STORAGE

Senator COCHRAN. Thank you, Mr. Chairman. Mr. Secretary, I was looking through the notes that I have been given by my staff before the hearing, and we had been advised that there was serious consideration given to placing in some Mississippi reservoirs a repository for nuclear waste. Those who are worried about that from a public safety point of view are opposed to even, you know, talking about it, much less seeing it happen because of fears, the fears of the unknown in large part, but there may be reasons why they are justified. Could you give us a status report here or submitted for the record, whatever your choice is? I would like to know some-

thing about the status now, and maybe something a little more elaborate to put in the record.

Secretary MONIZ. Okay. Thank you, Mr. Chairman. First of all, I was aware—I think it was about a year ago when some Mississippi community expressed in a storage facility and others expressed lack of interest. But more generally, in our fiscal year 2016 budget request we have about \$30 million requested to start a consent-based process to reach out to communities, and States, and regions to see about potential interest or interest in potentially hosting a storage facility, above ground storage if you like, or potentially a repository.

So we will be—let me be very clear. We do not have the authority to actually implement, to build a storage facility without congressional action, but we can move on these early stages and deal with communities, provide information, and see if they would like to then be a part of a process going forward.

Senator COCHRAN. Have you developed any sort of schedule in terms of when you expect to make a decision as to what you would recommend?

Secretary MONIZ. No, I am afraid that is probably too unclear at the moment, but we would like to move out in this calendar year for sure with this outreach to communities. It is not only about storage and repositories. It is also about transportation issues, et cetera. So we would really like to start laying the groundwork for what will be a set of consent-based facilities for managing nuclear waste.

Senator COCHRAN. Is there contained in the budget request that has been submitted by the Department any request for funding for anything, any activities?

Secretary MONIZ. Well, the \$30 million that I just mentioned just for this kind of initial planning and reaching out to communities. So that is the near term thing, and we envision having some town hall meetings, et cetera.

Senator COCHRAN. Thank you.

Secretary MONIZ. Yes.

Senator ALEXANDER. Thank you, Senator Cochran. Senator Shaheen.

#### THERMAL BIOMASS

Senator SHAHEEN. Thank you, Mr. Chairman, and thank you, Secretary Moniz and Dr. Orr for being here this afternoon, and for your service to the country. Secretary Moniz, I read with great interest the President's recent executive order planning for Federal sustainability in the next decade. I was pleased to see that it recognizes thermal power as one of the ways in which the Federal Government can address its energy needs. And as I know you know, because you are from the northeast, we use a great deal of home heating oil in the northeast. New Hampshire has the second highest percentage of homes using home heating oil. And one of the exciting things about thermal biomass is that it offers an alternative for homes and businesses in New Hampshire, and also contributes to our timber economy in the State.

And I have had a chance to visit the White Mountain National Forest supervisor's office in Campton, New Hampshire where they



have installed a 90 percent efficient gasification pellet boiler system. That has been very beneficial to them. And so, I wonder if you could talk a little bit about the potential that you see in thermal biomass and what the role of DOE can be in promoting that or encouraging its use, not just across the Federal Government, but in other ways that are beneficial to homeowners like in New Hampshire.

Secretary MONIZ. Thank you. Well, thermal biomass, of course, it tends to be regional in terms of its attractiveness.

Senator SHAHEEN. Right.

Secretary MONIZ. And certainly in New England there is a long history of doing it in industry—the paper industry, et cetera, forestry. Then there is a second dimension comes in to co-firing, for example, in parts of the country with, for example, coal plants. One way of addressing CO<sub>2</sub> emissions is by co-firing. In fact, some even would say that with enough biomass co-firing and capture, one could even have negative CO<sub>2</sub> emissions. So that is a very interesting development.

And then as you refer to the developments in terms of pellets in pellet stoves is also something that actually has a non-trivial potential if it were fully exploited. But these are all interesting areas with—

Senator SHAHEEN. What do you mean by a non-trivial potential?

Secretary MONIZ. Well, I think in the sense of participating—I mean, producing essentially heat, oil, electricity at a significant level, not 50 percent of electricity or heat, but not, .5 percent either. So somewhere in between.

Senator SHAHEEN. And can you talk about the role of the Department of Energy in encouraging, looking at the use of thermal biomass throughout the Federal Government and what kind of an alternative it might provide, and what other opportunities there are for DOE to help educate people about those opportunities?

Secretary MONIZ. I think there are some programs that have gone on in terms of also helping support pilot semi-commercial scale projects, especially with wood biomass. But I have to say perhaps we should go back and look at the question, whether we need to take a more coherent view of that, and carry out some of the educational activities that you said. I do not know, Lin, if you want to add anything.

Mr. ORR. I do not have anything to add.

Secretary MONIZ. Okay, thank you. We will do that.

#### SMART MANUFACTURING TECHNOLOGIES

Senator SHAHEEN. That would be great. I would encourage you to do that. I know that there is legislation that has authorized but has never been appropriated money to encourage some districting through biomass. So let me now switch to smart manufacturing, again manufacturing, and the re-emergence of a strong manufacturing based in this country is very critical to our economy. And one of the concepts that seems to be most promising to encourage manufacturing is the concept of smart manufacturing, the encouragement of new technologies to help with that.

Can you discuss what the potential is for deploying smart manufacturing technologies and what DOE's role might be in that?

Secretary MONIZ. Certainly. The smart manufacturing is one of a number of kind of enablers of a next generation of manufacturing. Certainly one of the—in terms of DOE, a specific initiative is that of establishing these national manufacturing initiatives. And we have done so while we worked with DOD to establish a pilot in Ohio for 3-D printing. But, again, for example, our Oak Ridge Laboratory, for the chairman, he knows very well. Our Oak Ridge laboratory, for example, working with a small, private company printed the first car using that technology. We then established another one on wide band gap semi-conductors, another on composite materials. And now we are in the process of running a competition for one on smart manufacturing, integration of sensors, controls, real time modeling, et cetera. And we think these kinds of technologies, if we propagate them, and that is why these institutes are really alliances of a number of academic institutions and companies that we have to get this technology out, not only to the very biggest companies, but to the mid-size companies so that they can compete.

Senator SHAHEEN. Thank you. My time is up. Thank you, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Shaheen. Senator Graham.

Senator GRAHAM. Thank you, Mr. Chairman. Mr. Secretary, thank you for your service. From my two cents worth, I think you are doing a very good job.

Secretary MONIZ. Thank you.

#### SEQUESTRATION

Senator GRAHAM. I hope that does not hurt you with the White House. But in 30 seconds—you may have already done this—can you tell us what sequestration will do to your Department if we do not find a replacement for these cuts?

Secretary MONIZ. Yes, sequestration would be very, very harmful. I think we would see a repeat of what we saw a few years ago. And earlier we discussed it particularly in terms of on the defense side, that our Stockpile Stewards Plan simply could not be executed to meet military capabilities on the schedule as desired.

On our civilian side as well, I should say, because it was also said earlier that we are way under investing in clean energy technology. So it is on both sides, certainly on the stockpile side, that we have discussed before. It blows the schedule.

Senator GRAHAM. And the bottom line is that our nuclear deterrent would be compromised.

Secretary MONIZ. Yes. We could not meet the dates that DOD is looking at to meet their military requirements.

#### MIXED OXIDE FUEL FABRICATION FACILITY

Senator GRAHAM. I am not so sure that is a message we want to send any potential enemy of the country. My favorite topic, and I am sure yours, MO<sub>x</sub> (Mixed Oxide Fuel Fabrication Facility). So just for the record, the MO<sub>x</sub> Program is an agreement between Russia and the United States to dispose of 34 metric tons of weapons grade plutonium. It started back in the 90s, right?

Secretary MONIZ. Each.

Senator GRAHAM. Yes.

Secretary MONIZ. Yes.

Senator GRAHAM. That is equivalent to 17,000 warheads someone told me. Is that about right?

Secretary MONIZ. Yes.

Senator GRAHAM. That is a lot of weapons material. And the goal is to take that off the market forever and turn it into commercial grade fuel here, the MO<sub>x</sub> Program.

Secretary MONIZ. Correct.

Senator GRAHAM. Take a sword and turning into a plowshare.

Secretary MONIZ. Correct.

Senator GRAHAM. In 2010, we signed an amendment to the agreement with the Russians where we pledged to use MO<sub>x</sub> as the disposition path.

Secretary MONIZ. Correct.

Senator GRAHAM. Taking weapons grade plutonium, blending it down to create commercial grade fuel that would supply our reactors. So at the end of the day we are about 60 percent complete, is that right?

Secretary MONIZ. On the MO<sub>x</sub> fabrication facility. There are other facilities as well.

Senator GRAHAM. Yes.

Secretary MONIZ. Right.

Senator GRAHAM. Okay. So we have had a funding problem. I want to reduce costs. There are some studies being done as an alternative to MO<sub>x</sub>. When can we expect those studies to be submitted to the committee or to the Congress?

Secretary MONIZ. Well, the first study is due April 15th, and we are hoping to meet that date.

#### THE FUTURE OF NUCLEAR POWER

Senator GRAHAM. Okay, thank you. And I just want to thank you for helping us the best you can to lower costs. But as the Chairman knows, this is a very big deal for South Carolina. We have agreed to be a partner with the Federal Government, to be the site that would accept the 34 metric tons of weapons-grade plutonium, and build and utilize the technology that would turn it from a sword to a plowshare.

I do appreciate the President's budget this year. It is better than last, and I know we have got some out-year costs that we have got to deal with, so I really appreciate your effort to work with us. And I do not believe there is a viable alternative that is cheaper or practical, so thank you very, very much.

In terms of the future of nuclear power in this country, how would you evaluate the future of nuclear power in this country, and particularly on the waste side dealing with nuclear waste? What do you see happening in the coming years?

Secretary MONIZ. Well, with regard to the future of nuclear power plants, first of all, I would just mention I think it is very important how the plants in Georgia and South Carolina end up coming in—with regard to budget and schedule, there have been some problems, but we will see how that ends up. Another direction, small modular reactors could be very interesting as well on the—

Senator GRAHAM. Are you open-minded to that concept of small modular reactors?

Secretary MONIZ. Absolutely.

Senator GRAHAM. Yes, it makes perfect sense.

Secretary MONIZ. I am very enthusiastic that we find out what the cost is, et cetera. They have very attractive features.

Senator GRAHAM. I agree.

Secretary MONIZ. On the waste side, well, we discussed it a little bit earlier, and I would say that we think we have to move out on three fronts. It used to be two perhaps, and yesterday it became three. The one is we should be moving towards interim storage, and especially a pilot project, as soon as we can. We discussed earlier that may have the flavor now of being a private as opposed to Federal. We are open to discussion on that.

We are continuing to push for the science based on ultimate geologies. We will need probably multiple repositories eventually for civilian spent fuel, especially if the fleet grows.

Senator GRAHAM. And would you encourage it to grow? Would we be smart as a Nation to increase our nuclear power production capabilities?

Secretary MONIZ. Well, as you know, I am very committed to a low carbon future. And today, of course, nuclear—

Senator GRAHAM. You cannot get there without nuclear.

Secretary MONIZ. Nuclear is the biggest contributor today. And, of course, if we do not have nuclear in the future, it certainly makes it a lot harder to get there. And finally as we announced yesterday, the President has authorized us to start planning for a separate disposal track for defense waste, which we think is a very, very good move for a whole variety of reasons.

And I might just add in pursuing that, clearly a small repository would be needed, but there may even be alternative geological pathways, like the bore holes, so it gives us more flexibility. And I think the whole system will move ahead sooner in this approach.

Senator GRAHAM. Well, thank you for your service. Dr. Orr, thank you for your contributions to our country. And I look forward to working with the Department. I think you are doing a good job, and we have got some challenges, but I look forward to working with you and the committee.

Secretary MONIZ. Thank you.

#### NUCLEAR REACTOR LICENSE RENEWAL

Senator ALEXANDER. Thank you, Senator Graham. Dr. Moniz, I know you have somewhere to go. I will ask a few more questions of you. Following up on Senator Graham's comment, are you concerned—the Center for Strategic and International Studies reported that perhaps as many as 25 of our 99 reactors might close by 2020. And in talking with utility executives, I am a little surprised that a number of them are not planning at the moment on asking for renewal of their licenses from 60 to 80 years. How many reactors do you think we will have in the United States 10 years from now?

Secretary MONIZ. Well, I think—I do not want to speculate on the number. I think that CSIS number is probably rather on the high side. But we do know that there are certainly another handful

or so at risk over these next years, depending on the outcome of various regulatory structures, et cetera.

This question of 60 versus 80 years, I would just note that if reactors go to 60 years, let us just say 60 years, then the large wave of retirements would be starting around 2030. That next decade would see a lot of retirements. And that is why if you run that movie back and ask about capital planning decisions, et cetera, at utilities, et cetera, having options understood in that 2025 or so timeframe is really critical. And that applies to the experience with building Gen 3 plus large plants. It also applies to the small modular reactors, and that is why our program on the SMRs has been really geared to trying to get something operating in the first half of the next decade so that it is there in time for this critical decision period potentially.

#### SMALL NUCLEAR REACTORS

Senator ALEXANDER. Well, I will give you credit for being a consistent supporter of the small reactor research and support for certification and licensing activities, even though we have been disappointed with one of the grants, which was not your fault. The Department has selected new scale power for the Second Technical Support Award Program, and your budget supports that. Are you at a point yet where some of the money this next year would be used to help pick a site? Do you know a site yet for the new scale project?

Secretary MONIZ. No, we do not, but I believe they have announced the intent to file at NRC at the end of next year.

Senator ALEXANDER. So what will happen in the next year? What is the status of the Small Reactor Program? Where are we?

Secretary MONIZ. Well, the status is for them to complete all of the design engineering work to the place where they can apply to NRC. Being a light water-based reactor, we hope that that could then go, which is where NRC, of course, has immense experience, we hope that that could go reasonably quickly and still hit something like a deployment date of, you know, 2022, 2023.

Senator ALEXANDER. Are small reactors an option you think will be important for the United States as it seeks to provide more carbon-free base load electricity generation?

Secretary MONIZ. It certainly could be. I think it is going to depend upon the cost performance. But if the cost performance is good, I see significant potential because it certainly makes a much more attractive financing approach.

#### WIND

Senator ALEXANDER. There are a variety of obstacles to nuclear plants. The cost of regulation is one. The low cost of natural gas is another. A third, according to some of the utilities, is the big wind production tax credit in markets which are not regulated. In some markets, the production tax credit now in its 22nd or 23rd year is so rich for the developers that they can actually pay the utility to take their electricity so the developers still make a profit. And this has the effect, according to the utilities, of what they call negative pricing, and it is one more pressure—it undermines their

ability to operate other kinds of base load activities like coal or nuclear power.

So the bottom line of that is one contributing aspect in some markets of the difficulty of economically operating a nuclear plant, much less building a new one, is the high subsidy for wind, allowing it to undercut nuclear. Secretary Chu in 2011 in response to my question said that wind was a mature technology. It costs us about \$6 billion a year every time we renew that big production tax credit. I would like to be spending the \$6 billion on energy research instead of a subsidy that 22 years ago jump started technology. Usually we measure maturity in terms of age.

If Secretary Chu, a Nobel Prize winning scientist, said a few years ago that wind power is a mature technology, would you not agree that today it must be an even more mature technology?

Secretary MONIZ. I do not follow the logic.

Senator ALEXANDER. Well, if I am older than you are, and we go 3 more years, am I not likely to be mature if I am older? If wind was mature in 2011—

Secretary MONIZ. The clock runs, I agree.

Senator ALEXANDER. If wind was mature in 2011, is it not even more mature today?

Secretary MONIZ. But I would just note that—okay. I do not know exactly what Secretary Chu was—how he was referring to—

Senator ALEXANDER. I asked him the question is it a mature technology. He said yes. That was 2011. Do you think it is a mature technology?

Secretary MONIZ. Well, I would say the technology continues to evolve in very important ways. It certainly is not at its asymptotic performance, if you like. The continued increase in turbine size and blade size, et cetera, the ability to work at lower wind speeds, these are all critical developments that are still going on.

Senator ALEXANDER. Well, in 22 years, should wind not be standing on its own, especially if it is undercutting nuclear power? I mean, wind is 4 percent of our electricity after billions of dollars. Nuclear is 20 percent, but 60 percent of our carbon-free electricity. Why would we want to have any sort of policy that would undercut our ability to produce carbon-free electricity that is base load, like wind, like nuclear?

Secretary MONIZ. Again, I would say the Administration clearly supports the PTC, and the tax credit also helps incentivize not just the deployment of the same technologies, but of these evolving technologies that are very important in terms of efficiency, costs, and being able to work in a greater variety of wind speeds, for example.

Senator ALEXANDER. If you had \$6 billion, would you rather spend it each year on subsidizing a 22-year-old mature technology or \$6 billion of energy research?

Secretary MONIZ. I think I would have to think about that.

#### MERCURY TREATMENT FACILITY

Senator ALEXANDER. I hope you and the Administration will. Let me switch to a more local concern since I have got you captured here all by myself. Mercury containment is the highest environ-

mental priority in and around Oak Ridge in Tennessee due to releases into the East Fort Poplar Creek, which runs through the City of Oak Ridge. You have been attentive to that, and I want to thank you for that. It is very important as we move from concern about radiation, which is not completely gone, but to begin to pay attention to the mercury contamination.

I believe your budget request includes some funding to begin testing technologies to stabilize the mercury in the soil. We are going to need to build a new mercury treatment facility, which will be able to capture a majority of the mercury before it can escape into the environment. When does the Department project that the mercury treatment facility will be started and completed?

Secretary MONIZ. I had the impression it was in the next couple of years, but I will have to get back to you on that, Mr. Chairman.

Senator ALEXANDER. Could you get back to me on that?

Secretary MONIZ. Yes.

Senator ALEXANDER. That is the most important new priority.

Secretary MONIZ. I am sorry, I misspoke. 2022 is apparently the target date.

Senator ALEXANDER. For?

Secretary MONIZ. For completion and operation.

Senator ALEXANDER. 2022 is the target date for completion of the mercury treatment facility. Has it started yet?

Secretary MONIZ. I think it is going to start next year. It is in the project engineering phase right now.

Senator ALEXANDER. Design phase?

Secretary MONIZ. Design phase, yes. Yes.

Senator ALEXANDER. Thank you for that information. There is a big increase in the Department's budget request for cleanup. There is a big increase in the Department's request, but there is a decrease in the request for cleanup. In Oak Ridge, funding is down \$65 million. Do you suspect that that is likely to produce layoffs of workers who are involved in the cleanup, and if it were to do that, would you not agree that it is wasteful and inefficient to have to lay people off and then rehire them again?

Secretary MONIZ. Well, I do not know all the specifics, but I know that certainly part of it is in things like the funding requirements for, you know, contract and post-retirement issues in terms of what is the contribution there. But certainly we would not like to see any significant force reduction, but I will have to look in more detail at the analysis of that.

#### EXASCALE SUPER COMPUTING

Senator ALEXANDER. Would you take a look at that cleanup? That is extremely important to us. Moving on to another—an area where the Administration and the Congress have seen eye-to-eye is in Exascale super computing, and I want to thank you for the priority you placed on that. Give me a little update on this super computer we call Exascale. What is the first step toward developing it, and how much do you estimate it will cost, and when can we expect it will be billed?

Secretary MONIZ. First of all, let me note that there is an intermediate step towards Exascale, which is the so-called CORAL computing initiative. In fact, Oak Ridge will be the first site for that.

That will get up into probably the \$150 petaflop region, and that would be in 2017, 2018 timeframe.

Senator ALEXANDER. This was the announcement you made just recently.

Secretary MONIZ. About a month ago or so. Yes, that is right. And Oak Ridge, Livermore, and Argonne are the three in that CORAL initiative. The Exascale target date is maybe 8 years from now or so. A lot of work to do. The estimated cumulative costs will be \$2 to \$3 billion. We actually have a report from my Secretary of Energy Advisory Board, which we will be happy to supply to you, which is an analysis of this, and that is kind of the scale. And I think this year it is \$325 million or so, and times eight or 10, you get into that region. So it is a major effort.

I should emphasize that going to this scale, it is not about the flops. It is about just managing huge data, so this is really big data to be managed. There are energy management issues. We have got to reduce the energy consumption by a significant factor to make this practical. Many, many challenges, but I think we have got to be out there in front.

Senator ALEXANDER. Well, I believe you said it is not just who has the biggest computer. It is also who has the personnel to operate such.

Secretary MONIZ. Right, because how you operate the computer is very, very challenging.

#### SPALLATION NEUTRON SOURCE

Senator ALEXANDER. Moving on the Spallation Neutron Source at Oak Ridge, it is a one of a kind tool to discover how materials and biology work. It is the world's most powerful pulse neutron scattering facility. There are plans for a second target station at the Spallation Neutron Source. When does the Department plan to begin work on the second target station, and how much funding could be used this year to begin work on such a facility?

Secretary MONIZ. The Spallation Neutron Source, first of all, I just want to reinforce what you said. I mean, it is a real gem and a very, very critical facility for our science. There have been some issues, as you probably know, with the current target station, but I think we are confident that those issues will get resolved.

The second station, which I think would be more oriented towards coal neutrons, is in the queue, but it has to be prioritized now among other BES projects. So I have no fixed date that I know of.

#### CLEAN LINE

Senator ALEXANDER. One other question on wind. There is an outfit called the Clean Line Energy Wind Project trying to sell wind from Oklahoma to the Tennessee Valley Authority. TVA has projected that by 2020, it will be about 40 nuclear, so that is completely clean. About 10 percent hydro. That is completely clean. That is 50 percent. Its new plants are natural gas. That is pretty clean, much less emissions. TVA has got an emphasis on efficiency.

Why does it make sense to buy from 700 miles away when you can operate nuclear plants, clean up coal plants and gas plants, and use hydro power? Is that not an example of carrying things too



far? And I know that at least one State, Arkansas, has objected to the project. Does the Department plan to override Arkansas's objection, and will you allow eminent domain authority to be used for new transmission lines, which will have to be stretched, I guess, from Oklahoma to Tennessee to bring that wind power to the TVA?

Secretary MONIZ. Well, that is the question of the Section 1222 authorities in terms of interstate transmission lines. That project is now in the EIS phase, so we have to see what the environmental impact statement is, and then move forward to a decision. As you say, yes, it will cross Arkansas from Oklahoma to Tennessee.

#### BASIC ENERGY RESEARCH

Senator ALEXANDER. My last question is one in an area where we agree. The Administration and the Congress over the last few years have agreed on the importance of basic science funding. The Congress enacted the America COMPETES legislation a few years ago with strong bipartisan support, and President Bush's support. President Obama has continued that. We have talked about ARPA-E, which came out of the America COMPETES recommendation. I have said in statement I would like to double energy research. I have said a good place to get it would be to take it away from the wind tax credit. But do you have any comment to make, and the last question I will have for you, about the importance of increasing basic science funding for energy research in the United States and the advantages of it to our country's future?

Secretary MONIZ. Well, I certainly agree with you completely that; (A) it is critical, and (B) we are under-funding the American Energy Innovation Council already several years ago. That is the council composed of a bunch of rather recognizable CEOs, not directly in the energy business, that made that point. They actually suggested a factor of three rather than a factor of two in terms of the funding. That has been repeated by others, by PCAST. There is actually some simple arithmetic that tells you that this is kind of the scale that we should be thinking about.

So I think the outcomes of that would be enormous. I think I have every reason to believe that we have a lot of additional creative and innovative capability in our country to fruitfully use that kind of funding, as you said, the doubling perhaps of energy. I think it would be a leader, taking us into a low carbon future with technology costs just continuing to drop, drop, drop, coming down. It would give us great export potential. I think it is just a winner across the board. I totally agree with you.

Senator ALEXANDER. Well, Dr. Moniz, Dr. Orr, thank you both for coming. I would say, Dr. Moniz, I want to thank you for yourself in the Cabinet. That is not always an easy job, but you come to it very well prepared because of your previous service in Washington and your experience at MIT. And I think both of us—those of us on the Democratic and Republican side here—both appreciate your skill and the fact that you work hard to stay in touch in with Congress. So we will look forward to working with you in most areas to help create an environment where you can succeed, and we will look for your help on a whole variety of issues that we have discussed today, including technical advice on nuclear waste, which, as you can see, now has a pretty good head of steam—

Secretary MONIZ. It sure does.

Senator ALEXANDER [continuing]. On this committee and the authorizing committee, so we need to take advantage of that opportunity. So thank you for being here.

#### ADDITIONAL COMMITTEE QUESTIONS

The hearing record will remain open for 10 days. Members may submit additional information or questions for the record within that time if they would like. The subcommittee requests all responses to questions for the record be responded—be provided within 30 days of receipt.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

#### QUESTION SUBMITTED BY SENATOR LINDSEY GRAHAM

*Question.* I applaud the Department of Energy's (DOE) work on the Grid Modernization Initiative, a critically important task for our Nation's security and economic strength. As such, Congress has previously funded the development of an industry-scale electric grid test bed. While I believe there is a continued need for such a facility to test additions to our electric grid and keep the grid secure, it seems prudent to examine whether such a facility already exists. Do you know of existing grid facilities that could serve in this capacity?

If such a facility does already exist, would the Department continue to require the development of a new facility? If so, what is the justification for duplicating limited Federal resources instead of partnering with existing facilities?

Separate from building a new facility, how does the Department plan to approach partnerships with any such facility for the testing and development of electric grid security going forward?

*Answer.* The Grid Modernization Initiative (GMI) is working to coordinate resources across the national laboratory complex and the Nation. A consortium of national laboratories is proposing an integrated network of test facilities across the laboratories, with connections to university and industry test facilities to perform coordinated testing that links testing assets across the Nation. The GMI is not proposing construction of new facilities. Rather, this effort reduces duplication, takes advantage of existing capabilities, and ensures that our resources are directed in coordination toward the multiple issues surrounding grid modernization. These issues include advanced control systems performance and protection, cybersecurity, resilience to natural disasters, new models and design platforms, and device integration and testing.

Congress has funded (directly and indirectly) several facilities across the DOE complex targeted at grid modernization activities. These include:

- The Savannah River National Laboratory (SRNL) partnership with Clemson, Duke Energy, and others.
- The Energy System Integration Facility (ESIF) at the National Renewable Energy Laboratory (NREL) for system testing of renewable and energy efficiency technologies.
- Pacific Northwest National Laboratory's (PNNL) Energy Infrastructure Operations Center and Electricity Infrastructure Cybersecurity and Resilience Center for grid operations tools development and cyber security research and response support.
- Idaho National Laboratory's (INL) extensive hardware testing and distribution feeder test loop for supervisory control and data acquisition (SCADA) testing and evaluation for security issues.
- Oak Ridge National Laboratory's (ORNL) extensive transmission cable testing, power electronics testing labs, and the CURENT Center for grid control research.

Universities and utilities expected to be linked into the national laboratory testing network include Southern California Edison, Pacific Gas and Electric, American Electric Power, Bonneville Power Administration, Tennessee Valley Authority, Clemson, Florida State, North Carolina State, Washington State, Arizona State, and others.

One goal of the GMI is to leverage these existing capabilities and link sites to expand overall capabilities to avoid duplication across the Nation.

To that end, rather than duplicating existing test bed capabilities, four national laboratories (PNNL, NREL, INL, and ORNL) have been coordinating the testing of advanced distribution circuits. DOE and other organizations, including the Electric Power Research Institute, the Smart Grid Interoperability Panel, and the National Institute of Standards and Technology (NIST), are considering techniques that expand the virtual connection of these distributed testing environments. In that way for example, renewable energy generation assets at NREL could feed realistic signatures and behavior to a control system test bed at PNNL, and cyber security threats could be introduced to both systems under test from a third test bed resource in Texas.

Newer capabilities at SRNL and NREL can test integrated distribution systems up to 10MW in size, creating unique opportunity for system simulation.

Robust information sharing and the resulting improvement in situational awareness have always been a key goal in the energy sector's Roadmap to Achieve Energy Delivery Systems Cybersecurity.<sup>1</sup> Several milestones are focused on tools and capabilities that will expedite the discovery, analysis, reporting, sharing, and mitigation of cyber threats. These milestones were identified by industry with concurrence from DOE and the Department of Homeland Security (DHS).

Achieving information sharing and communication is the first of six goals identified in DOE's Energy Sector Specific Plan as part of the National Infrastructure Protection Plan: establish robust situational awareness within the energy sector through timely, reliable, and secure information exchange among trusted public and private sector security partners.

We envision a robust, resilient energy infrastructure in which business and service continuity is maintained through secure and reliable information sharing, effective risk management programs, coordinated response capabilities, and trusted relationships between public and private partners at all levels of industry and government.

In its role as the Sector Specific Agency for Energy, DOE works collaboratively with two energy Sector Coordinating Councils (SCCs), one for electricity and one for oil and natural gas, and a Government Coordinating Council with members from all levels of government concerned with energy security. These coordinating councils represent nearly all members of the energy community and are committed to working closely with DOE and other government energy sector partners.

DOE works closely with the DHS's National Infrastructure Coordinating Center and National Cybersecurity Communications and Integration Center to enhance the efficient and effectiveness of the Government's work to secure the energy sector.

A centerpiece of DOE's efforts in information sharing is the Cybersecurity Risk Information Sharing Program (CRISP), which was tested in 2013 and 2014 and is now expanding in partnership with the North American Electric Reliability Corporation (NERC) and the Electricity Sector Information Sharing and Analysis Center (ES-ISAC). This activity is rapidly expanding grid operator engagement in information sharing both across industry and with appropriate Federal entities. The ES-ISAC establishes situational awareness, incident management, coordination, and communication capabilities within the electricity sector through timely, reliable, and secure information exchange. The ES-ISAC, in collaboration with DOE and the Electricity SCC, serves as the primary security communications channel for the electricity sector and enhances the ability of the sector to prepare for and respond to cyber and physical threats, vulnerabilities, and incidents.

Recent natural disasters have underscored the importance of having a resilient oil and natural gas infrastructure and effective ways for industry and government to communicate to address energy supply disruptions. To this end, in 2013 I asked the National Petroleum Council to give their advice through a study on Emergency Preparedness for Natural Disasters. This study resulted in seven recommendations, including leveraging the Energy Information Administration's (EIA) subject matter expertise within the DOE Emergency Response Team to improve supply chain situational assessments and recommending DOE and States establish routine education and training programs for key government emergency response positions. This report was delivered in December 2014 and the recommendations are currently being implemented.

I stand ready to work with all Members to develop practical solutions to address and respond to energy infrastructure security issues.

<sup>1</sup> [http://www.energy.gov/sites/prod/files/Energy%20Delivery%20Systems%20Cybersecurity%20Roadmap\\_finalweb.pdf](http://www.energy.gov/sites/prod/files/Energy%20Delivery%20Systems%20Cybersecurity%20Roadmap_finalweb.pdf).

## QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

*Question.* Secretary Moniz, during the hearing I raised concerns with the fiscal year 2016 Budget Request for Richland Operations at Hanford, with a specific focus on the 324 Building and 618-10 and 11 burial ground projects. These cleanup projects are well underway and are high risk projects located close to the City of Richland, Columbia River, and Energy Northwest facility. As of January 2015, the Department of Energy (DOE) has spent \$61 million on the 324 Building and this project is on track for completion of Phase 2 this summer. DOE has spent \$148 million on the 618-10 burial ground, which has resulted in completing 75 percent of the trench cleanup and completing all design preparations for cleanup of the vertical pipe units. And \$8 million has been spent on the 618-11 burial ground.

I am disappointed that you were unable to explain the Administration's proposed \$97.2 million cut to the Richland Operations budget, which would predominately come out of the River Corridor and Other Cleanup Operations account through which these three projects are funded. And I must point out that you failed to answer similar questions on these cleanup projects posed by my colleagues Senator Cantwell, Congressman Newhouse, and Congresswoman Herrera Beutler. Slowing or halting work on these projects poses a safety risk, delays cleanup, increases costs, and results in missing Tri-Party Agreement milestones.

The fiscal year 2016 Budget Request cites technical challenges when rationalizing the cuts to the 324 Building and 618-10 and 11 burial grounds, however, no one has been able to pin-point for me what these technical challenges are. Secretary Moniz, I again ask you to provide me with an explanation as to what these technical challenges are and what is holding you back from continuing to make progress on these critical cleanup projects.

*Answer.* Completing cleanup at the Richland Operations Office is a priority for the Department. There has been tremendous progress at Richland, and our fiscal year 2016 budget request focuses on continuing to make progress. Between now and the end of fiscal year 2016, we plan to complete the design and mockup to ensure we know how to safely clean up the 324 building, and complete trench work at the 618-10 burial ground.

At 618-10, the technology to remediate vertical pipe units (VPU's) has been successfully tested, but has not yet been deployed on actual waste. DOE-RL believes this technology will be successful, but we must increase our confidence that the technology will be successful when used on actual waste.

Much of the waste in 618-11 is in a similar configuration; however, 618-11 also includes waste contained in caissons, which are underground concrete vaults. The technology to remediate waste in caissons has not been designed, tested or deployed. Additionally, 618-11 is adjacent to an operating commercial nuclear power plant, and will require additional controls to ensure the safety of plant workers.

Remediation of the highly radioactive soils under the 324 building presents a number of technical challenges, including designing and testing equipment to remotely excavate the extremely high dose rate soils from under the building. The high dose presented by this waste site will also affect any electronic equipment used in the process.

We share a similar goal of focusing on high-risk cleanup projects, such as the Plutonium Finishing Plant and addressing the sludge in the K Basin, while addressing technical challenges in other cleanup work.

*Question.* Secretary Moniz, the fiscal year 2015 Consolidated and Further Continuing Appropriations Act provided \$45 million in additional funding for the River Corridor and Other Cleanup Operations account. This is additional funding that I fought to secure for DOE and was designated for use by Richland Operations for the 324 Building and 618-10 and 11 burial grounds. Report language included in the Senate Subcommittee mark for the fiscal year 2015 Energy and Water Development Appropriations bill stated "additional funding is provided for work related to . . . cleanup of remaining 300 area waste sites," which includes projects like the 324 Building and 618-10 and 11 burial grounds. Furthermore, during consideration of the fiscal year 2015 Energy and Water Development Appropriations bill on the House floor Chairman Simpson and Congressman Hastings clearly indicated that additional funding included in the bill was intended for cleanup along the Columbia River and for the River Corridor Closure project, which again specifically includes the 324 Building and 618-10 and 11 burial grounds.

It is my understanding that to date, DOE has not allocated the \$45 million in funding towards these cleanup projects. Secretary Moniz, why hasn't DOE used this funding to push forward on this critical cleanup work? Furthermore, I ask that you provide in writing a detailed explanation of how DOE intends to spend these funds in fiscal year 2015.

*Answer.* All funds have been allotted to the Richland Operations Office (RL), and the funds provided for fiscal year 2015 activities have been obligated to contracts consistent with the report language. RL has worked with the River Corridor Remediation Contractor to refine work planning for the remainder of fiscal year 2015 and fiscal year 2016. In fiscal year 2015, funding will enable RL to show progress in the following areas:

- Continued remediation of the 618–10 burial ground, including drum excavation in the trenches and installation of the Vertical Pipe Unit (VPU) over-casings.
- Completion of the design for the remediation of the 300–296 waste site under the 324 Building.
- Initiation of construction of mockup facility for remediation efforts associated with the 300–296 waste site.
- Completion of disposition of 300 Area Surplus Facilities, excluding the 324 Building.
- Completion of backfill of three deep-chromium contaminated waste sites in the 100–D Area.
- Continued remediation of the balance of 100/300 Area waste sites to include backfill and re-vegetation
- Continued operation and maintenance of Environmental Restoration Disposal Facility (ERDF).

*Question.* Secretary Moniz, I appreciate the commitment DOE has shown over the past year to protecting the Hanford workforce and addressing the risks associated with chemical vapors in the tank farms. We owe the men and women who work at Hanford the highest safety standards.

On February 10, 2015, DOE released an implementation plan for the “Hanford Tank Vapor Assessment Report” (Report). The implementation plan is a formal phased approach to addressing potential chemical vapor exposures and the 47 recommendations within the Report. It is my understanding that \$20 million was committed in fiscal year 2015 funding and that the fiscal year 2016 Budget Request includes \$41 million to support Phase 1 of the implementation plan, which would complete 30 of the 47 recommendations in the Report. Phase 2 would begin in fiscal year 2017, and specific actions would be determined by what is learned in Phase 1.

Secretary Moniz, I commend the actions DOE has already taken and urge you to ensure that DOE does not stop its work upon the completion of Phase 1 of the implementation plan. In addition, I ask that you continue to make funding the implementation plan a priority as you develop the fiscal year 2017 Budget Request and renew my request that you add a specific line item into the fiscal year 2017 Budget Request for this purpose.

The completion of the “Hanford Tank Vapor Assessment Report” resulted in immediate changes by DOE’s contractor in November 2014 to increase protective equipment requirements for the tank farms. Since then, employees must wear supplied-air respirators when work is conducted in the single shell tank farms and under circumstances where chemical vapors are anticipated or known to occur in the double shell tank farms. Since these requirements have been in place, DOE has been successful in reducing chemical vapor exposures for employees. However, on April 2, 2015, five employees working in a double shell tank farm experienced chemical vapor related smells and three of the five experienced symptoms. It is my understanding that the employees were not in supplied-air respirators because the double shell tank farm had an active ventilation system and no waste disturbing activity was occurring.

Secretary Moniz, given this most recent chemical vapor experience in a double shell tank farm I encourage DOE to reevaluate the supplied-air respirator requirements established in November 2014 and determine whether mandatory supplied-air should be extended to double shell tank farms.

Each year DOE works with the Small Business Administration (SBA) to establish small business prime contracting goals for the fiscal year. Section 318 of the fiscal year 2014 Consolidated Appropriations Act made changes to allow DOE to count first tier subcontracts awarded by Management and Operating contractors to small businesses toward this annual small business contracting goal.

Secretary Moniz, has the Department used this new tool in setting its small business prime contracting goals with SBA? If not, has SBA prevented Section 318 from being implemented? Furthermore, I ask that you provide in writing the small business prime contracting goal DOE and SBA set for fiscal year 2014, fiscal year 2015, and fiscal year 2016.

*Answer.* This authority has not yet been used in setting the Department’s small business prime contracting goal. As this is a monumental change to the small business contracting goaling process, DOE continues to work with SBA to implement the

new law. Section 318 of the fiscal year 2014 Consolidated Appropriations Act came into effect through Public Law 113-76 on January 17, 2014. Subsequently, the Department of Energy (DOE) recommended to the Small Business Administration (SBA) that the DOE fiscal year 2014 small business goal be adjusted upward to take into consideration the first-tier small business subcontracts awarded by DOE's Management and Operating (M&O) contractors, as reflected in statute.

In fiscal year 2014, SBA did not account for DOE's M&O contractors in the way the statute intended. SBA has indicated that implementation of this statute is complicated by the data systems used across the Federal Government to collect information about subcontracts; the level and type of data collected about subcontracts is not as detailed as what is collected for prime contracts. DOE, SBA, and the Office of Federal Procurement Policy (OFPP) in the Office of Management and Budget collaborated to develop a plan to implement Section 318 in fiscal year 2015. The plan will enable DOE to receive prime contracting credit for its first tier small business subcontracts awarded by DOE's M&O contractors while addressing SBA's concerns regarding DOE's subcontract data quality and transparency. DOE expects to receive the fiscal year 2016 small business goaling letter in the first quarter of fiscal year 2016. The small business prime contract goal for DOE was 6.59 percent for fiscal year 2014 and 6 percent for fiscal year 2015.

*Question.* While I support Section 318, I remain concerned it will not cover first tier subcontracts awarded by prime contractors working on nuclear waste cleanup. In my home State of Washington, the prime contractors at the Hanford site are committed to working with small businesses. All of these prime contractors have small business subcontracting goals ranging from 49 to 65 percent and all of them are meeting these goals. Unfortunately, these first tier subcontracts are not counted by DOE or SBA towards the prime contracting goals. Secretary Moniz, I ask that you continue to work with me and SBA to ensure prime contractors working on nuclear waste cleanup receive proper recognition and consideration for their extensive work with small businesses.

*Answer.* The Hanford prime contracts are not M&O contracts, which are a DOE-specific type of contract used for long-term continuing mission accomplishment, as opposed to the cleanup work performed under the Hanford contracts that is aimed at completion of the cleanup. The Hanford prime contractors thus are not covered by Section 318 of the fiscal year 2014 Consolidated Appropriations Act. The Hanford prime contractors' small business subcontracts are taken into account in the overall evaluation of DOE's support to small business because they will continue to be counted toward the DOE's subcontract goal.

*Question.* Secretary Moniz, I understand that several major prime contracts within the Office of Environmental Management are due for re-competition or extension in the next few years. This includes the following contracts at the Hanford site: River Corridor Closure contract held by Washington Closure Hanford, the Plateau Remediation Contract held by CH2M Hill Plateau Remediation Company, and the Tank Farm Contract held by Washington River Protection Solutions. Knowing the complexity of these cleanup projects and accompanying contracts, what steps is DOE taking to prepare for such a sharp increase in contract re-competitions, to ensure qualified contractors submit proposals to DOE for consideration, and to minimize disruption in cleanup work and to local communities?

*Answer.* On average, the acquisition process for large cleanup contracts begins at least 2 years ahead of the date individual contracts must be awarded. A key part of that acquisition planning and process is early outreach to determine if industry is well positioned to meet potential mission needs at particular sites and to encourage qualified contractors to participate. Activities include industry days and site tours that provide opportunities to see the location where work will be performed and an ability to interface with potential teaming members, and quarterly outreach sessions open to any industry participants. EM will continue to work closely with sites and affected communities as these procurements progress.

*Question.* Secretary Moniz, as you are aware, the Office of Environmental Management has been without a confirmed Assistant Secretary for almost 4 years. The Administration's nominee, Dr. Monica Regalbuto, was approved by the Senate Committee on Energy and Natural Resources on June 18, 2014 and by the Senate Armed Services Committee on June 24, 2014 but the full Senate was unable to vote on her confirmation before the end of the 113th Congress. With Dr. Regalbuto's nomination being resubmitted to the Senate for consideration, Secretary Moniz, I urge you to aggressively push her nomination forward with the two committees of jurisdiction and Majority Leader McConnell.

National scientific user facilities like the Environmental Molecular Sciences Laboratory and Atmospheric Radiation Measurement User Facility located at the Pacific Northwest National Laboratory in Washington State play a central role in the

U.S. research ecosystem by providing scientists access to unique instruments, expertise, and facilities. Each year approximately 750 scientists use the Environmental Molecular Sciences Laboratory, while the Atmospheric Radiation Measurement User Facility supports 900 users. As State and Federal budgets endure continued downward pressure in the coming years, the importance of user facilities will continue to grow as they are shared resources available to the entire scientific community.

I am concerned that the fiscal year 2016 Budget Request proposes a \$2 million cut to the Environmental Molecular Sciences Laboratory and an additional \$2 million cut to the Atmospheric Radiation Measurement User Facility. Secretary Moniz, while these cuts seem small they could have significant impacts to the availability of equipment and the number of users that can take advantage of these important resources. How does the fiscal year 2016 Budget Request continue to ensure that scientific user facilities have the funding they need to serve the scientific community and maintain U.S. global leadership in scientific innovation?

*Answer.* The President's fiscal year 2016 Budget Request supports a balance of substantial investments in the Office of Science's research programs, the operations of its existing 27 scientific user facilities, and the construction of several new user facilities and major upgrades to existing facilities. These user facilities are a major component of our national research infrastructure, and were used by more than 32,000 users spanning more than 2,300 institutions in fiscal year 2014. Nearly 1,000 users affiliated with Washington State institutions used the Office of Science user facilities in fiscal year 2014.

In formulating its budgets annually, the Office of Science considers the long-range—5-to-10 year strategic planning processes, aimed at identifying scientific leadership directions that demand suites of instrumentation that are generally unavailable elsewhere. The planning also evaluates facility construction needs, facility efficiencies, and operations strategies in a variety of budget scenarios. In fiscal year 2016, Environmental Molecular Sciences Laboratory (EMSL) will address a more focused set of science challenges that respond to needs of DOE biological and environmental research; thus, research activity (and associated instrumentation) outside this scope will be sunsetted and priority given to utilization of unique observing technologies, such as the High Resolution Mass Accuracy Capability (newly available in fiscal year 2016) and new capabilities in the Radiological Annex and Quiet wing. In addition to supporting EMSL at the level necessary to tackle identified biological and environmental needs, we believe that the fiscal year 2016 Request provides the resources for the Office of Science to successfully deliver our highest priority investments in new and upgraded user facilities while continuing to advance today's mission-driven research objectives through our existing facilities.

*Question.* The Department of Energy, through the Bonneville Power Administration (BPA), plays an important role implementing the Columbia River Treaty as a member of the U.S. Entity. Together with the U.S. Army Corps of Engineers Northwest Division, BPA engaged in a multi-year process with domestic stakeholders throughout the Pacific Northwest to reach a regional consensus to modernize the Columbia River Treaty. The "Regional Recommendation for the Future of the Columbia River Treaty after 2024" was presented to the Administration and U.S. Department of State in December 2013. Since then DOE, the Army Corps, and several other Federal agencies have been participating in an Interagency Policy Committee (IPC) process to determine the parameters for negotiations with Canada based on the Regional Recommendation. Secretary Moniz, as a participant in the IPC process, can you share the timeline for formulating a consensus among the Federal partners on these parameters? Furthermore, are there any specific issues preventing the Federal partners from reaching consensus, completing the IPC process, and beginning negotiations with Canada in 2015?

*Answer.* The Department of Energy shares your interest in the Columbia River Treaty review. The Regional Recommendation for the Future of the Columbia River Treaty after 2024 was negotiated by many sovereigns and stakeholders over many years, and reflects a balance of interests that the Department supports. My staff is working with the U.S. Department of State, which has been designated as the lead agency to coordinate and oversee the Federal interagency review process, to assure that this significant Pacific Northwest matter is moving forward and taking into consideration regional recommendations.

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QUESTIONS SUBMITTED BY SENATOR JEANNE SHAHEEN

*Question.* Without the economy-wide investments in energy efficiency made since 1973, it is estimated that today's economy would require 60 percent more energy that we currently consume. In fact, savings from energy efficiency improvements

over the last 40 years have reduced our national energy bill by about \$700 million. Many of these improvements would not have been possible without the research, technical support and market integration efforts from the energy efficiency programs at DOE.

Still, there are large, cost-effective opportunities to increase energy efficiency much further, which will cut energy bills, reduce pollution and encourage economic growth. However, a variety of market failures and market barriers contribute to keeping us from fully realizing our energy efficiency potential. This includes: (1) Imperfect information about available technologies in the marketplace and (2) Split incentives like landlord-tenant relationships where a building owner makes decisions about efficiency investments, but because she doesn't pay the utility bill, there is no incentive to purchase more efficient and cost-effective appliances.

DOE plays a vital role in helping leverage market forces and overcoming these barriers. Can you discuss initiatives within EERE that help with overcoming these types of market barriers when it comes to achieving more national energy efficiency gains?

*Answer.* The Department of Energy plays an important role in helping to reduce market barriers to the adoption of new technologies that are market ready—such as a lack of reliable information and workforce training gaps—through activities that include providing best practice information, stakeholder outreach, sustaining and enhancing the clean energy workforce, and providing reliable, objective data.

Select examples of activities within EERE that help with overcoming market barriers include but are not limited to:

—*Advanced Manufacturing Office.* Combined heat and power (CHP) is a proven approach to generate on-site electric power and useful thermal energy efficiently from a single fuel source. Through its Industrial Technical Assistance subprogram, the Advanced Manufacturing Office (AMO) supports Combined Heat and Power Technical Assistance Partnerships (CHP TAPs), which promote and assist in transforming the market for CHP, waste heat to power, and district energy with CHP technologies and concepts throughout the U.S. Advanced Manufacturing's CHP efforts support Executive Order 13624, which sets a national goal of deploying 40 gigawatts of new, cost-effective industrial CHP in the United States by the end of 2020. Through these partnerships, the Department supports deployment of these energy efficient technologies through a variety of services, such as education and outreach that provide information on the benefits and applications of CHP to State and local policy makers, regulators, energy end-users, trade associations, and others; and technical assistance to energy end-users and others to help them consider whether CHP is a viable technical and economic opportunity.

—*Building Technologies Office.* The Building Technologies Office (BTO) pursues solutions identification and technology-to-market initiatives through its Commercial Buildings Integration (CBI) and Residential Buildings Integration (RBI) subprograms to help reduce market barriers to widespread adoption of cost-effective advanced building energy efficiency technologies and solutions. Existing market barriers include high first cost, fragmented market segments, lack of uniform data and data formats, and insufficient availability of objective consumer information. These contribute to the building trades' slow acceptance and adoption of new technologies and practices. The CBI and RBI subprograms' approach to reducing these barriers includes partnerships with stakeholders to develop and share validated data and best practices, improvement of building design and audit tools, and the creation of reliable efficiency benchmarks and databases to facilitate energy efficiency financing and to define efficiency's value-add to consumers. The CBI and RBI subprograms' efforts focus on developing, demonstrating, and releasing a suite of cost-effective technologies, specifications, tools, and solutions, as well as analyzing their ability to deliver the intended energy savings.

—*Federal Energy Management Program.* Performance contracting includes both Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESC). ESPCs and UESCs allow the Government to engage a third-party private sector energy company to invest in needed energy projects and pay for the investment through the energy, water, and operations and maintenance (O&M) savings achieved over the life of the contract. Federal ESPC and UESC projects can include energy and water-efficiency improvements, renewable energy technologies, renewable alternative fuel (biomass/landfill), combined heat and power, advanced metering, and power management. These projects must improve site or system-wide energy efficiency and be life-cycle cost effective in order to guarantee the savings needed to pay for the project. Using performance contracts also provides agencies with access to private-sector expertise



in energy efficiency, renewable energy, water conservation, and emissions reductions and can provide a mechanism for smart project management that ensures building efficiency improvements and new equipment without upfront capital costs.

—*Weatherization and Intergovernmental Programs.* States face several barriers in retrofitting their existing buildings to make them more energy efficient, including the lack of requisite data to track energy use in their buildings (imperfect information). DOE's State Energy Program (SEP) has offered several competitively awarded funding opportunities aimed at helping States address market failures and market barriers, such as the deployment of data management programs, promoting information sharing to further the use of innovative financing mechanisms such as energy savings performance contracting, and outreach programs to decision makers. Since 2012, SEP has made 56 Competitive awards to 30 States in many of these areas, developing model solutions, policies and programs that can be replicated by other States and local government agencies.

*Question.* Can you discuss how EERE uses the Building Technologies Program and Advanced Manufacturing Office (AMO) to help deploy technologies once R&D in their respective economic sectors becomes proven and ready for market?

*Answer.* The Department plays an important role in helping reduce market barriers to the adoption of new technologies that are market ready through activities that include providing best practice information, stakeholder outreach, and providing reliable, objective data.

#### *Advanced Manufacturing*

—The Advanced Manufacturing Office (AMO) orients activities in each of its three subprograms to align with this investment strategy. In the Advanced Manufacturing R&D Projects subprogram, AMO takes into account down-stream R&D challenges to better facilitate the ultimate transition of various technologies into domestic industrial production facilities. Facilities supported under the Advanced Manufacturing R&D Facilities subprogram, such as Clean Energy Manufacturing Innovation Institutes, are designed to both accelerate the development and the implementation of cutting-edge energy efficiency technologies applicable to energy-intensive and energy-dependent industries and materials and technologies broadly applicable to the manufacturing of clean energy products. In addition, the AMO Industrial Technical Assistance subprogram helps manufacturers utilize energy-saving, market-ready technologies, such as combined heat and power, through various activities, including market assessments, outreach and information dissemination, and technical assistance.

#### *Commercial Buildings Market Deployment*

—The Building Technologies Office (BTO) has developed a model for spurring market uptake of new technology through its High Impact Technology (HIT) Initiative. The HIT is designed to promote the voluntary uptake of emerging, cost-effective energy-saving building technologies through partnerships with the commercial buildings industry via the Better Buildings Alliance, Federal leaders, regional non-profits, utilities, and efficiency organizations. HIT technologies are high potential technologies identified by DOE through scoring criteria based on national energy saving potential, cost, technology readiness, stakeholder interest, and help achieve the Commercial Building Integration's (CBI) goals to promote adoption and market uptake of energy efficiency technologies in the commercial building sector. From there, CBI then designs and conducts strategic deployment, dissemination and technical assistance activities using stakeholder input regarding the largest, most persistent barriers to adoption and can include partnering with manufacturers to innovate based on demonstrated industry demand, field testing, development of guides on how to use or select of high-performing technologies, or cost-shared technical assistance.

One example is the Lighting Energy Efficiency in Parking (LEEP) Campaign, which BTO launched in 2012, building on several years of BTO technology research, development, and demonstration and the development of tools to drive high-efficiency lighting and controls into the market. More than 100 organizations have joined the campaign, and, with technical assistance from BTO, have installed high-efficiency lighting or controls in over 445 million square feet of parking space. BTO's efforts to engage market leaders to demonstrate high-efficiency lighting in parking lots and structures has created momentum for further market adoption.

*Residential Buildings Market Deployment*

—BTO's Building America Program advances technology deployment through applied demonstration projects that cost-effectively integrate innovative technologies and construction practices into new and existing residential buildings systems, working directly with builders and home improvement contractors. Currently, the Building America Program is focusing on highly efficient wall systems that minimize the transport of heat, low load cooling equipment that effectively dehumidifies the home, and proper ventilation levels for efficient homes. Building America works directly with builders and contractors in the market place to demonstrate the market viability of these technologies. In addition, these innovative technologies and building practices are highlighted in BTO's Building America Solution Center, a web-based information source for these technologies that contractors can access from the field.

BTO also deploys these innovations into the new homes market through the DOE Zero Energy Ready Home Program, a voluntary partnership program for builders, architects, utilities, energy efficiency programs, lenders, and more. The DOE Zero Energy Ready Home label signifies a whole new level of home performance, with rigorous requirements that ensure outstanding levels of energy savings, comfort, health, and durability. BTO also works with EPA's ENERGY STAR New Homes Program to bring these technologies to the marketplace. Many innovations demonstrated by Building America have been included in codes over the years.

Within the existing homes market, the Better Buildings Residential Program (BBR) works with State and local energy efficiency program partners to deploy proven whole-house and staged upgrade solutions into our Nation's communities. Through the Home Performance with ENERGY STAR Program and the Better Buildings Residential Network, BTO utilizes market partnerships and network effects to increase the deployment of energy efficient, building science-based home performance improvement opportunities among builders, contractors, and homeowners. Home Performance with ENERGY STAR (HPwES) is a public-private voluntary partnership which works with program partners to promote and implement whole-house upgrade solutions for improved, energy-efficient homes. The Better Buildings Residential Network connects energy efficiency programs, contractors, financial institutions, State and local governments, nonprofits, and utilities to share best practices and learn from one another.

*Question.* Another important component of DOE's work is ensuring that relevant stakeholders in the business and advocacy communities have the opportunity to engage with EERE to identify the right types of R&D that DOE should be focusing on.

What processes are in place to ensure that the Building Technologies and the Advanced Manufacturing Offices effectively target and fund the type of technology research needed and wanted in the private sector?

*Answer.* The Advanced Manufacturing Office (AMO) funds technologies and processes that enable energy cost reduction and efficiency for the Nation's most energy-intensive and energy-dependent industries, and funds materials and enabling technologies with cross-cutting impact for cost reduction and performance improvement broadly applicable to the manufacturing of clean energy products. The Program identifies topical thrusts within each of these two categories and uses them as organizing priorities for existing and proposed technical work.

These thrusts are identified through extensive consultation with private sector firms, non-profit, university and National Laboratory partners through various forums, including technology analyses, workshops, and by soliciting input from stakeholders through requests for information prior to planning of the funding opportunity announcements. Funded topics will be selected based on the consideration of potential energy, environmental, and economic impacts, as well as overall relevance to the private sector, including a topic's additionality relative to existing public and private sector investments, degree of technical uncertainty and risk associated with a topic which limit potential private sector investment, whether investment in a topic can be a catalyzing influence, and the opportunity for long term impact of that topic on domestic manufacturing.

Similarly, input from industry stakeholders is a critical component of the Building Technology Office's (BTO) multi-year R&D and market transformation strategy. BTO primarily seeks industry input through three methods: Requests for Information (RFIs), which are delivered to over 25,000 building energy efficiency stakeholders; Technology R&D Roadmap Workshops; and events such as BTO's Annual Peer Review and Merit Review, where independent experts provide robust, docu-

mented feedback on BTO lab and FOA projects' alignment with our mission and goals. Each major technology area that BTO works in—lighting, HVAC, windows and building envelope, sensors and controls (in development)—has a roadmap that guides and prioritizes our research over the coming years. These roadmaps are developed with considerable input from scientists, engineers, academia, and industry experts. Typically, we invite these industry stakeholders to an all-day workshop that informs the development of the roadmap, and will then seek their review throughout its development. Similarly, the High Impact Technology Catalyst, mentioned in response to Question #2, issues an RFI every year to seek input from technology providers and technology end-users (such as building owner/operators) on which technologies should be considered for the Catalyst, and which market transformation methods may prove the most effective.

*Question.* The success of the U.S. manufacturing base is vital to our country's long-term economic well-being. Many of our domestic companies, including those in New Hampshire, face real challenges when it comes to remaining competitive in a global economy.

One of the most promising breakthroughs in helping companies deal with these pressures is the concept of smart manufacturing. New information and communications technologies (ICT) and supercomputing simulations allow manufacturing companies to optimize their production and supply networks by bringing together islands of information found throughout the manufacturing chain in order to achieve significant energy savings and increase productivity.

These types of technological innovations can help U.S. manufactures become and remain cost effective, efficient, and sustainable. However, there remain significant challenges to deploying these technologies more widely.

In particular, how can DOE make sure that smart manufacturing tools are made available to all manufacturing firms, particular small and medium-sized companies who may have more limited technical and financial resources?

*Answer.* While many Smart Manufacturing technology elements exist in some form and level of maturity today, the scale of the required industry collaboration and development needed for Smart Manufacturing technology integration, open and interoperable platforms, and widespread cost-effective adoption of these technologies is beyond the scope of most individual private sector organizations, including small- and medium-sized enterprises (SMEs). AMO supports the development of innovative next generation manufacturing processes and production technologies through the creation of collaborative communities with shared research, development and demonstration (RD&D) infrastructure, including Clean Energy Manufacturing Innovation Institutes, such as the proposed Smart Manufacturing Institute. At the technical core of these Institutes is shared RD&D infrastructure that contains equipment and resources accessible to external parties for technology development that would otherwise be cost prohibitive, particularly for SMEs. It is expected that the Smart Manufacturing Institute will engage the manufacturing community at all levels of the supply chain, including large companies, potential end users, researchers, and SMEs involved in critical development work and who will support the transition to commercial applications, to ensure the Institute is focused on industry relevant problems and increase likelihood of success.

*Question.* I was very pleased to see that the DOE released a Notice of Intent (NOI) in December 2014 to propose its 3rd Nationwide Network for Manufacturing Innovation (NNMI), the Clean Energy Smart Manufacturing Innovation Institute. I also understand that the AMO hosted an Industry Day workshop in February 2015 held in Atlanta, GA, to provide an opportunity for potential proposers to understand the concept, vision and technology needs for the potential smart manufacturing Institute.

Undoubtedly, the announcement and recent workshop has created excitement among manufacturers, academic institutions, national labs and State and local governments, all of whom welcome real-time control of energy, productivity and costs for manufacturing facilities and the benefits these advancements will bring to the sector. I understand the issuance of the Funding Opportunity Announcement (FOA) for the Institute was expected in March 2015, but an official FOA from DOE has not yet been issued.

My concern is that the delay of the issuance of the FOA coincides with the Department of Defense's announcement of their NNMI, competing for an overlapping resource base for non-Federal cost sharing. For furthering our joint interests and priorities for making smart manufacturing a common practice and asset throughout the U.S. and driving transformational gains in energy productivity with overall improved manufacturing performance, issuing the FOA quickly is important for aligning resources and partners adequately.

What are DOE's plans for the issuance of the FOA to ensure strong participation in the Clean Energy Smart Manufacturing Innovation Institute?

*Answer.* DOE's Smart Manufacturing Institute funding opportunity announcement (FOA) is planned for release in mid-2015. The DOE hosted an Industry Day on the Clean Energy Manufacturing Innovation Institute on Smart Manufacturing in February 2015, which allowed potential proposers to hear presentations from government officials about the framework for a potential Institute, specific technical topic areas of interest, and anticipated proposal requirements. The Industry Day was strongly attended, and the Department anticipates strong interest in the Institute FOA.

*Question.* I was pleased to hear about your commitment to ensuring that the benefits of thermal biomass will receive more focus within the Department of Energy. As we discussed during the hearing, I read with interest the President's recent Executive Order, "Planning for Federal Sustainability in the Next Decade," and was pleased to see that it recognizes the importance of thermal power by including it in the Federal government's renewable energy procurement requirements. This is of significant interest to me since I have long been a proponent of thermal biomass.

What is DOE's role in assisting Federal agencies comply with the new sustainability requirements pursuant to the President's recent Executive Order "Planning for Federal Sustainability in the Next Decade?"

*Answer.* The DOE's Federal Energy Management Program (FEMP) works with key individuals within agencies to improve the sustainability, energy and water use of the Federal Government, which facilitates the Government's ability to Lead by Example—encouraging establishment of energy goals, facilitating innovative technologies and creating change in the energy sphere. This mission helps serve the intent of the recent Executive Order 13693, which is to maintain Federal leadership in sustainability and greenhouse gas emission reductions. FEMP will continue assisting agencies with proven strategies to achieve sustainable reductions in greenhouse gas emissions. FEMP will be expanding its support for thermal renewable energy through two major types of assistance FEMP provides to agencies: technical assistance and alternative financing. For technical assistance, FEMP is already working with agencies to identify their largest energy-consuming campuses and then using FEMP's national laboratory experts and software screening tools to comprehensively analyze their most promising renewable energy, clean energy and energy efficiency opportunities. In financing these projects, agencies will now try to incorporate thermal renewable energy into on-site project acquisitions, energy purchase agreements with third-party developers, energy savings performance contracts and utility energy service contracts. FEMP will continue to advise agencies on the issues involved with all of these financing options, and provide agencies access to qualified energy service companies.

*Question.* Will DOE—through the Federal Energy Management Program (FEMP)—work with agencies on best practices for compliance? If so, how can FEMP help ensure that thermal power options like biomass have a viable opportunity to be used as a compliance option?

*Answer.* FEMP has and will continue to provide support for agencies in meeting their clean energy goals, including both renewable electric and thermal energy, as described in EO 13693. This support includes project technical assistance, project procurement assistance, guidance documents, training, and reporting. FEMP is responsible for tracking progress towards the achievement of Federal clean energy goals, and as such, advises agencies on how to report their renewable electric and thermal energy data to ensure compliance with Federal laws and requirements. FEMP will continue to help agencies identify existing and new incentives and programs either the agency or developers can use to reduce the cost of renewable energy and will continue to develop best practices for compliance.

*Question.* You may recall that I sent a bipartisan letter to you and EPA Administrator McCarthy regarding EPA's recently proposed regulation to phase out certain hydrofluorocarbon substances having a relatively high global warming potential under EPA's Significant New Alternatives Policy Program, or "SNAP" program. Specifically, my concern relates to the likely impact of the proposal on energy efficiency. As you know, the proposal would require a change in the blowing agent used to make several types of building insulations. As a result, the energy efficiency gains provided by these products could be negatively impacted because the alternatives are both less efficient and more costly to manufacture, which would increase the price for consumers.

My interest is ensuring that the EPA's rule does not have unintended consequences that results in achieving lower greenhouse gas emission reductions than expected. Can you please tell me whether DOE has reviewed the EPA proposal to

identify how it may impact energy efficiency in the insulation sector? Is there close coordination between DOE and EPA on this rule?

*Answer.* DOE is aware of the concerns expressed by some parties regarding SNAP rules and potential impacts upon energy efficiency. We consulted with the EPA to ensure that they were aware of our perspective on these issues. EPA has now issued their final rule in this matter.

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QUESTION SUBMITTED BY SENATOR CHRISTOPHER A. COONS

*Question.* Major issues—As you know, Delaware is an EPSCoR/IDeA State, and the EPSCoR/IDeA programs have been beneficial for many universities around the country. It has been brought to my attention that there are some general concerns about how much the Department of Energy is seeking for this program and how it is operating its EPSCoR program in terms of the grant award process.

In fiscal year 2013, the 25 States and three territories eligible for DOE EPSCoR received about 9 percent of all Office of Science research award dollars. There are two individual non-EPSCoR States that, on their own, were awarded more funding by the Office of Science than all of the EPSCoR States combined. In fact, one of these non-EPSCoR States' funding is more than double what half the States in the Nation receive through the Office of Science. This year, your fiscal year 2016 request once again keeps DOE EPSCoR flat while the EPSCoR programs at the National Science Foundation and the IDeA program National Institutes of Health continue to grow.

I am also concerned about how DOE EPSCoR handled last year's Implementation Grant award process. The University of Delaware and two other applicants were told in the fall that their proposals were being held over for possible fiscal year 2015 funding consideration. The University of Delaware was then informed, a few months later, that they were no longer being considered for the award and that DOE EPSCoR would only be considering funding of one additional proposal instead of all three.

Can you explain why the DOE is not seeking additional funds for its EPSCoR program while other agencies have continued to make larger requests for their own programs? Can you also explain what happened between the time when the University of Delaware was informed about their potential award in the fall and subsequently when they were told that they were no longer in consideration a few months later? As you know, Congress provided \$10 million last year for DOE EPSCoR, about \$1.5 million more than was requested. Why is only one award now being made with those additional funds?

*Answer.* Year-to-year changes in the DOE Experimental Program to Stimulate Competitive Research (EPSCoR) request are consistent on a percentage basis with changes in the core research portfolio in Basic Energy Sciences. The decision for declining the subject applications was due to the consideration of the available budget and the desire to have a future funding opportunity announcement with longer lead times. The additional funding provided in fiscal year 2015 is being used to minimize mortgages in future fiscal years of existing awards so as to increase funding available for potential new awards under a future funding opportunity announcement.

CONCLUSION OF HEARINGS

Senator ALEXANDER. Thank you for being here today. The subcommittee will stand adjourned.

[Whereupon, at 4:11 p.m., Wednesday, March 25, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]



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