ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2017

WEDNESDAY, FEBRUARY 24, 2016

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

The subcommittee met at 2:34 p.m. in room SD–138, Dirksen Senate Office Building, Hon. Lamar Alexander (chairman) presiding.

Present: Senators Alexander, Murkowski, and Feinstein.

NUCLEAR REGULATORY COMMISSION

STATEMENT OF HON. STEPHEN G. BURNS, CHAIRMAN

ACCOMPANIED BY:

HON. KRISTINE SVINICKI, COMMISSIONER
HON. WILLIAM OSTENDORFF, COMMISSIONER
HON. JEFF BARAN, COMMISSIONER

OPENING STATEMENT OF SENATOR LAMAR ALEXANDER

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

Today's hearing will review the President's fiscal year 2017 budget request for the Nuclear Regulatory Commission.

This is our first budget hearing this year. We expect to have three more budget hearings in the coming weeks. Senator Feinstein and I will each have an opening statement, and let me—it gives me an opportunity to say again what a delight it is to serve with her, to serve with somebody who has such good, strong knowledge of the subject, but also who, as a former mayor of a big city, knows how to make a decision. So it's nice to work with her in an effective and bipartisan way. And we find areas where we can put our heads together and come to an agreement and get a result, which makes service in the Senate much more satisfying to me. So I thank her for the way she does things.

I will then recognize each Senator for up to 5 minutes after we have our opening statement for an opening statement, alternating between the majority and minority in the order in which they arrive, and will then turn to Chairman Burns to present testimony on behalf of the Commission. I will then recognize the Senators for 5 minutes of questions each, alternating from side to side.

Our witnesses today include Stephen Burns, chairman of the Nuclear Regulatory Commission.

Welcome, Mr. Chairman.

Commissioner Kristine Svinicki, welcome. Good to see you again.

Commissioner William Ostendorff. This will be the last hearing for Commissioner Ostendorff because he has announced he will be leaving the Commission at the end of his term in June, and returning to teach at the U.S. Naval Academy. He has been a strong and effective member of the Commission, and we thank him for that and wish him well in his new role.

Commissioner Jeff Baran. Welcome to you, Jeff.

As I said, we are here to review the proposed 2017 budget request for the Commission, which is the independent Federal agency responsible for regulating the safety of our Nation's commercial nuclear power plants and other nuclear materials.

The budget request is $970.2 million. That's a decrease of $19.8 million from fiscal year 2016. The decrease is, in my opinion, a positive step toward making the Commission's budget reflect its actual workload.

I also thank the chairman and the Commission for working together to identify more ways to reduce spending and reduce the NRC (Nuclear Regulatory Commission) funding needs for the coming year. And long as I talk about it, I thank you for working together because there was a time on the Commission when that wasn't going on, and for the last few years, it's been obvious to me that there is a collegial atmosphere there, and that obviously makes for a better functioning entity.

We want to work closely with the Commission to make sure our bill reflects the savings, making the best use of taxpayer dollars. However, we want to make sure we continue to invest in nuclear power, which provides more than 60 percent of our country's carbon-free electricity.

At a time when the President and many in the country see climate change as a major issue, it's difficult for me to see why we should not make nuclear power a primary solution, or one of the primary solutions, to dealing with that problem because of our expertise at it and because of the amount of carbon-free electricity it produces.

Safely extending our existing reactors, licensing new reactors, including small reactors, solving the nuclear waste stalemate, are all important to the future of the industry—of nuclear energy. And I will focus my question on four main areas: solving the nuclear waste stalemate is something Senator Feinstein and I are dedicated to; safely extending licenses for existing reactors, which seems to me to be the logical way, at least for the next 20 years or so, to produce the largest amount of carbon-free electricity in the country; licensing new reactors; and making sure that the Commission is operating efficiently. Let me take those one by one.

To be sure that we have a strong future for nuclear energy, we must solve the 25-year-old stalemate about what to do about waste from the reactors. Last year, Senator Feinstein and Senators Murkowski, Cantwell, and I reintroduced bipartisan legislation to create temporary and permanent facilities to store and dispose of our nuclear fuel. Our bill was consistent with the recommendations of the President's Blue Ribbon Commission on America's Nuclear Future.

Senator Feinstein and I, with the support of leaders of the authorizing committee, plan to include in the Energy and Water bill we're drafting this year, a pilot program for nuclear waste storage and language that allows the Secretary of Energy to contract with private storage facilities, as we have in the past. These new storage facilities and repositories would not take the place of Yucca Mountain in my opinion—we have more than enough waste to fill Yucca Mountain to its legal capacity—but, rather, would complement it.

I strongly believe that Yucca Mountain can and should be part of the solution. Federal law designates Yucca Mountain as the Nation's repository for nuclear fuel. The Commission's own scientists have told us that we can safely store nuclear waste there for up to 1 million years. But regardless of where we build permanent repositories, we still need facilities where we can consolidate all of the used fuel that is currently located at more than 75 sites around the country. The Blue Ribbon Commission concluded, "That it would be prudent to pursue the development of consolidated storage capability without further delay," and Senator Feinstein and I agree with that recommendation.

Over the last 4 years, we have heard from communities and States who are interested in hosting a consolidated storage site. I support moving forward with a consolidated storage on as many tracks as we can at once, whether it's at a private facility or one built under our own pilot program. And it's important to make sure the Commission is ready to act expeditiously.

I understand that at least one private company is planning to submit an application to the Commission later this year for a license to build and operate a consolidated storage facility, and there may be others. I want to make sure the Commission has all the resources it needs in fiscal year 2017 to complete a review of such applications.

And I also want to be clear that, in my opinion, the Commission should continue licensing activities for Yucca Mountain. The Nuclear Waste Fund, which is money that utilities have collected from customers on their monthly bills from 1983 until 2013, and paid to the Government to dispose of their used nuclear fuel, plus accrued interest, will have a balance of about $37.5 billion at the end of the year, and there are still several steps to go in the licensing process of Yucca Mountain.

The Government has been prevented from collecting fees since 2013, when the Court of Appeals for the D.C. Circuit said the Federal Government should comply with the Nuclear Waste Policy Act as it's currently written—that is, open Yucca Mountain—or until Congress enacts an alternative nuclear waste management plan. Yet, for the sixth year, the Commission has not requested any funding to continue licensing activities for Yucca even though the Commission will run out of money later this year for that purpose, and there are still several more steps that need to be taken.

Number two, safely extending licenses for existing reactors. Instead of building more windmills, which only produce 14 percent of our carbon-free electricity despite 25 years of multibillion dollar subsidies, or solar farms, which produce 1 percent of our carbon-free electricity, the best way to make sure the United States has a reliable source of cheap, efficient, carbon-free electricity is to ex-

tend the licenses of the nuclear reactors that are today already operating and producing 60 percent of our carbon-free electricity. Most of our 100 reactors have already extended their operating licenses from 40 to 60 years. Some utilities are planning to begin the process to extend these licenses from 60 to 80 years.

The Commission told the subcommittee in last year's hearing that it had already developed the framework to safely extend licenses beyond 60 years, and I want to make sure the Commission has the resources it needs to take any final—any additional steps prior to receiving those applications.

Number three, licensing new reactors. In addition to the reactors we already have, the Commission needs to be ready to review applications for new reactors, especially including small modular reactors. I understand that NuScale may file an application for design certification of a small reactor with the Commission later this year. Last week, NuScale received a permit from the Department of Energy, which will allow the company to build a small modular reactor module within 10 years on the property of the Idaho National Laboratory and use the site for 99 years for its operation.

This new reactor design has been supported by the Department of Energy's small modular reactor program, which this subcommittee has funded since 2012. The subcommittee has also provided the NRC with funding to prepare to receive applications for small modular reactors. I want to make sure the Commission is ready to review this new technology once it receives its application. I also understand the Commission has requested $5 million to look at advanced reactor designs, and I would like to understand more about your plans for those funds.

And, finally, making sure that the Commission is running efficiently. One of the challenges is to make sure the agency is running efficiently and focusing on the right goals. That's part of management.

In the 2000s, the Commission began planning to receive a large number of applications for new reactor licenses, and the Congress increased the Commission's funding from $470 million in fiscal year 2000 to a high of $1.043 billion in 2014, a doubling of funding. But most of these expected licenses were never actually submitted, which has left the Commission's workforce and budget out of balance with its actual workload.

In June 2014, the Commission began an effort, known as Project Aim, to address this imbalance by looking at the work that would be needed over the next several years and then aligning its workforce and budget with that forecast. As a result of this effort, the Commission's budget has decreased. In fact, this year's budget request is about $74 million less than what the Commission received in 2014.

Last year, we worked with the Commission to cut its budget request by about $30 million. I am pleased that this year's budget request continues in that direction. I understand the Commission's staff has identified an additional $32 million in savings that could be applied to this year's budget request. I want to make sure the bill that Senator Feinstein and I and the committee members will be drafting reflects these additional savings so taxpayer money is wisely and effectively spent.

I look forward to working with the Commission as we begin putting together our Energy and Water Appropriations bills. My hope would be that our bill would be one of the first on the floor, and that Senator McConnell and Senator Reid can put it up there and we can begin an appropriations process of the kind the Senate should have, and that we haven't had for a while.

And I will now recognize my distinguished Ranking Member, 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 2017 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.

The budget request for the Nuclear Regulatory Commission is $970.2 million dollars. This is a decrease of $19.8 million dollars from fiscal year 2016. This decrease from last year's appropriations bill is a positive step toward making the Commission's budget reflect its actual workload.

I also appreciate the Commission's efforts to identify more ways to reduce spending and reduce the NRC's funding needs for the coming year. We want to work closely with the Commission to make sure the Energy and Water Appropriations bill we are drafting reflects those savings, making the best use of taxpayer dollars.

However, we also want to make sure we continue to invest in nuclear power, which provides more than 60 percent of our country's carbon-free electricity. Safely extending licenses for our existing reactors, licensing new reactors, including small modular reactors, and solving the nuclear waste stalemate are all important to the future of nuclear energy.

Today, I will focus my questions on four main areas:

1) Licensing facilities for used nuclear fuel and solving the nuclear waste stalemate;
2) Safely extending licenses for existing reactors;
3) Licensing new reactors; and
4) Making sure the Nuclear Regulatory Commission is operating efficiently.

LICENSING FACILITIES FOR USED NUCLEAR FUEL

To ensure that nuclear power has a strong future in this country, we must solve the 25-year-old stalemate about what to do with used fuel from our nuclear reactors.

Last year, Senators Feinstein, Murkowski, Cantwell, and I reintroduced bipartisan legislation, to create temporary and permanent facilities to store and dispose of our used nuclear fuel, consistent with the recommendations of the Blue Ribbon Commission on America's Nuclear Future.

Senator Feinstein and I, with the support of the leaders of the authorizing committee, plan to include in the Energy and Water bill we're drafting this year, a pilot program for nuclear waste storage and language that allows the Secretary of Energy to contract with private storage facilities, as we have in the past. These new storage facilities and repositories 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.

I strongly believe 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, and the Commission's own scientists have told us that we can safely store nuclear waste there for up to 1 million years.

But regardless of where we build permanent repositories, we still need facilities where we can consolidate all of the used fuel that is currently located at more than 75 sites around the country. The Blue Ribbon Commission concluded that "it would be prudent to pursue the development of consolidated storage capability without further delay," and Sen. Feinstein and I agree with that recommendation.

Over the last 4 years, we have heard from communities and States who are interested in hosting a consolidated storage site. I support moving forward with consolidated storage on as many tracks as we can, whether it's at a private facility or one built under our pilot program, and it is important to make sure that the Commission is ready to act expeditiously.

I understand that at least one private company is planning to submit an application to the Commission later this year for a license to build and operate a consoli-

dated storage facility, and there may be others. I want to make sure that the Commission has all the resources it needs in fiscal year 2017 to complete a review of these applications. I also want to be clear that the Commission should continue licensing activities for Yucca Mountain.

The Nuclear Waste Fund, which is money that utilities have collected from customers on their monthly bills from 1983 until 2013 and paid to the government to dispose of their used nuclear fuel plus accrued interest, will have a balance of about $37.5 billion at the end of the year, and there are still several steps to go in the licensing process for Yucca Mountain.

The government has been prevented from collecting fees since 2013, when the Court of Appeals for the D.C. Circuit Court said the Federal government should comply with the Nuclear Waste Policy Act as it is currently written—i.e. open Yucca Mountain—or until Congress enacts an alternative nuclear waste management plan.

Yet for the sixth year, the Commission has not requested any funding to continue licensing activities for Yucca Mountain, even though the Commission will run out of money later this year for that purpose and there are still several more steps that need to be taken.

SAFELY EXTENDING LICENSES FOR EXISTING REACTORS

Instead of building more windmills, which only produce 14 percent of our carbon-free electricity, or solar farms, which only produce 1 percent of our carbon-free electricity, the best way to make sure the United States has a reliable source of cheap, efficient, carbon-free electricity is to extend the licenses of the nuclear reactors that are already operating.

Most of our 100 reactors have already extended their operating licenses from 40 to 60 years, and some utilities are planning to begin the process to extend these licenses from 60 to 80 years.

The Commission told the Subcommittee in last year's hearing that it had already developed the framework to safely extend licenses beyond 60 years, and I want to make sure that the Commission has the resources it needs to take any additional steps it needs prior to receiving those applications.

LICENSING NEW REACTORS

In addition to the reactors we already have, the Commission also needs to be ready to review applications for new reactors, including small modular reactors.

I understand that NuScale may file an application for design certification of a small modular reactor with the Commission later this year. Last week, NuScale received a permit from the Department of Energy, which will allow the company to build a small modular reactor module within 10 years on the property of Idaho National Laboratory and to use the site for 99 years for its operation.

This new reactor design has been supported by the Department of Energy's small modular reactor program, which this subcommittee has funded since 2012. The subcommittee has also provided the NRC with funding to prepare to receive applications for small modular reactors. I want to make sure the Commission is ready to review this new technology once it receives an application.

I also understand that the Commission has requested $5 million to look at advanced reactor designs, and I'd like to understand more about the Commission's plans for these funds.

MAKING SURE THE NUCLEAR REGULATORY COMMISSION IS RUNNING EFFICIENTLY

One of the challenges for the Nuclear Regulatory Commission is to make sure the agency is running effectively and focusing on the right goals.

In the early 2000s, the Commission began planning to receive a large number of applications for new reactor licenses, and Congress increased the Commission's funding from $470 million in fiscal year 2000 to a high of $1.043 billion in fiscal year 2014. But most of these expected licenses were never actually submitted, which has left the Commission's workforce and budget out of balance with its actual workload.

In June 2014, the Commission began an effort, known as Project Aim, to address this imbalance by looking at the work that would be needed over the next several years and then aligning its workforce and budget with that forecast. As a result of the first step of this effort, the Commission's budget has decreased. In fact, this year's budget request is about $74 million dollars less than what the Commission received in 2014.

Last year, we worked with the Commission to cut its budget request by about $30 million dollars, and I'm pleased this year's budget request continues in the right direction. I understand that the Commission's staff has identified an additional $32

million in savings that could be applied to this year's budget request. I want to make sure the bill Sen. Feinstein and I are drafting this year reflects those additional savings so taxpayer money is used effectively.

I look forward to working with the Commission as we begin putting together our Energy and Water Appropriations bill for fiscal year 2017, and also with my Ranking Member, Senator Feinstein, who I will now recognize for an opening statement.

Senator ALEXANDER. Senator Feinstein.

STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Well, thanks very much, Mr. Chairman. I think you have made a very erudite and important statement, and I tried to listen to it carefully. I have come to have great respect for your knowledge, your acumen, and your ability to sit down and work out a solution. So, unfortunately, we have tried with the House, and not been as successful as we might have been, but, you know, hope springs eternal——

Senator ALEXANDER. Right.

Senator FEINSTEIN [continuing]. And I would really hope that this year we could make some progress with respect to a nuclear waste policy. And I understand your priorities.

And I guess what I ask you to do, and others to do, is understand that I was a young child when the bombs were leveled at Hiroshima and Nagasaki. And I was old enough to read, so I read every newspaper I could get and saw pictures that were etched in my consciousness for the rest of my life. So I became very much aware, and I tried to follow Chernobyl and people going back to Chernobyl even after all these decades and finding how hot the radiation is. I remember watching a television program on it when they went to where the uniforms were stored in a building from the first people onsite, Russian soldiers and others, that first went into Chernobyl. And I don't know how many of them lived, but the uniforms all these decades later—they had Geiger counters, and the Geiger counters just went ballistic. So they're all still very, very hot. And I think we have to really at times be brought back to the reality.

I think a lot of my concern is because I'm on the Pacific, I'm a westerner, and I happen to believe that the Pacific Ocean is in fact a ring of fire for big earthquakes, and, therefore, seeing that waste is properly disposed of so that it can't be done or the spent fuel pools won't split, as they have in Fukushima, and the other problems that Fukushima has had have been solved.

Since our last meeting—and I want to very much compliment Southern California Edison because they have—are in the process of decommissioning with the NRC their two big reactors. And I think as the Commission knows, and we know, they have maybe 4,000 elements in spent fuel pools that are just a few yards from the beach, and 6 million people live on the other side. I know what the problem was in the faulty steam generator, and I think they did the right thing by decommissioning those reactors, but there is still a lot to worry about.

We have another utility company that is located, again, on the ocean. I've been there. And they have taken a lot of precautions, but there are earthquake fractures and faults that run not too far away. So all of that is an increasing concern for me. But the need for a nuclear waste policy, which you have so well described and

which we together, as well as with the authorizers, have worked on for, what, 4 years now?

Senator ALEXANDER. Yes.

Senator FEINSTEIN. And we've gone through three chairs of the Energy Committee, and it's still sitting there, and it's sitting there because of a conflict with Yucca. And I'm really concerned about that because we cannot be stopped by Yucca from doing good public policy around nuclear. You pointed out that it's 60 percent of our clean power, and it's very cheap. Well, if we're moribund, if we're in stasis, and we can't do anything to see that we can fix the problems, it's a very difficult time that we're going to have.

So I couldn't ask for anyone more reasonable, more informed. And I really hope that we can spend some time and try to see if we can't get these problems resolved. We've tried before, but we have to succeed. So that's the need for our nuclear waste policy, and as you pointed out, ensuring the safety of nuclear plants, particularly after Fukushima, and applying the regulations to aging plants.

It's my understanding that spent nuclear fuel is piling up at reactor sites around the country, 74,000 metric tons of it to date. Approximately 130 million people live within 50 miles of a storage site for commercial or government-owned spent nuclear fuel and other high-level waste. I mentioned in California alone, they shut down San Onofre Nuclear Generating Station, stores the 4,000 highly radioactive spent fuel assemblies just yards from the ocean. Reactors are being given license extensions, even though we have no long-term plan to store the waste they produce. This is very hard for me.

So I think NRC needs to play a key role in helping us solve that problem, notably by being ready to review license applications for spent fuel storage sites as we envision in our Appropriation bill. NRC will also need to ensure that storage and transportation equipment and the procedures for handling spent fuel are fully protective of human health and the environment.

So what Senator Alexander and I have done, and Senators Murkowski and Cantwell, we hope we can push to get that Nuclear Waste Policy Act into law. But we're nearing the fifth anniversary of the Fukushima disaster, which showed us how nature can quickly overwhelm even the best designed safety systems.

Diablo Canyon, as I mentioned, sits on two major faults, and it could be subject to some of the same risks as Fukushima. Some post-Fukushima analysis argued that the Japanese regulatory structure was too close to the nuclear industry it was regulating, which contributed to the disaster, and so we can't allow that to happen here. The NRC must be independent, tough-nosed, and puts reactor operations above all.

Finally, the fleet of nuclear reactors in our country is aging. Of the 99 operating reactors, as you pointed out, Mr. Chairman, 81 have been granted license extensions to operate for 60 years; another 11 have applications pending before the Commission. In addition, NRC has implemented the subsequent license renewal program to license reactors out to 80 years, and expects its first application in 2019.

To me, this gives me pause, and I think it should give us all pause. As these plants age, and the stresses of operations and exposure to radioactivity take their toll, I hope that the NRC takes a rigorous, evidence-based approach to ensuring that all of the systems that comprise a nuclear power plant function are safe and secure. The consequences of failure, however small the chances, are really too grave to ignore.

I understand the NRC has undertaken an effort called Project Aim—A–I–M—to make sure its budget and workforce are in line with the agency's future needs. The goal of the project, as I understand it, is to reduce funding and staffing levels by 10 percent by 2020. With its 2017 budget request, the NRC will have reduced staff by 280 employees, and funding by $74 million from 2014 levels. That's a very big decline. The nuclear industry has applauded this effort and called for deeper cuts.

Now, I'm all for increasing Government efficiency, but I really grow concerned when an industry champions less oversight of its operations. So let me repeat: the American people need NRC to be a strong, independent, and capable regulator, and the nuclear industry should be held accountable to it for the safety of all reactors, both operating and retired.

So I think we should sit down and talk about this. You know, I still—I went to San Onofre. I looked at the steam generator that was a Mitsubishi product. It was not like-for-like, but believed to have alloys that were much improved. I was told about where the punctures were, and at that time, it was limited to one of the pair. Well, the other one began then to develop punctures. I'm not an expert, so I don't know. I know whether it's vibration or exactly what it was. And apparently the company felt it strongly enough to shut them both down and decommission them. Right in my State, that's a very major occurrence because this is a huge company, which I think they serve 16, 19 million people. It's enormous. And so they have had to find substitute power, which they have been able to do I think in a very solid way. But I am really worried about all this waste.

And I'll say one other thing. As we have kind of looked into the WIPP (Waste Isolation Pilot Plant) facility in New Mexico, and we found that this most revered lab, Los Alamos, contracted with a contractor that put the wrong kitty litter in these drums, so they began to explode, and the facility is now out of—not out of business, but out of business temporarily for I think—how many years is it?

Senator ALEXANDER. It's been 2 years so far.

Senator FEINSTEIN. Two years so far, and I gather another 2 at least.

Senator ALEXANDER. Well, it should be back this year.

Senator FEINSTEIN. It should be back this year. Well, that's good news. I did not know that. But to think that the most capable people in a nuclear-related lab contracted out and made a mistake. See, I can't forget that, and it does condition my thinking.

Accidents do happen, and I think maintaining a robust NRC is our stop against incidents. So I'll be very—I don't want to see the NRC, in any way, shape, or form, be able to come in, in a year and say, "Well, you cut us back, so we couldn't do this or that or the

other thing." And I think we need to take a very sober appraisal of, A, what we believe they should be doing, the priority items, and see that they are well and professionally staffed to do that.

So I hope we can make progress this year on our nuclear waste policy. I know that I am grateful to you because you have put the pilot in the bill every year, and I have kind of come down off my high horse on the advanced modular nuclear reactors a little bit.

Senator ALEXANDER. You did exactly that. Yes.

Senator FEINSTEIN. But the high horse is still there about more when you don't have a place for the waste.

Senator ALEXANDER. Yes.

Senator FEINSTEIN. So it's a great treat to work with you, Mr. Chairman. Thank you very much.

Senator ALEXANDER. Thank you, Senator Feinstein. We certainly don't want you back on your high horse. That would not be good, so we'll redouble our efforts.

Well, that's a very compelling statement, and I thank you for it. And I think—let me suggest that we each take about 10 minutes with our questions. We're the only two here—and if the other Senators come, why, we'll let them—we'll cut it back to five when they get here. But that will give us a chance to have more of a conversation.

Let me start—oh, that's right. I forgot. The next thing is for Chairman Burns to give his testimony, and then we will ask our questions, and maybe by that time there will be other Senators.

So, Mr. Chairman, welcome.

SUMMARY STATEMENT OF HON. STEPHEN G. BURNS

Mr. BURNS. Thank you, Chairman Alexander and Ranking Member Feinstein. We appreciate the opportunity to appear before you to discuss our budget request for fiscal year 2017.

As you know, and you said, the NRC is an independent agency established to license and regulate and oversee the civilian use of radioactive material and facilities in the United States. And the resources we're asking for in fiscal year 2017 will allow us to continue to uphold our important safety and security mission.

The proposed budget is $970.2 million and 3,462 full-time equivalent staff, which represents a decrease of $20 million and about 90 full-time equivalents from the fiscal year 2016 enacted budget. In addition, there is a provision for about $12.1 million for the budget for our inspector general.

For further context, our request is $74 million and 280 FTEs less than our fiscal year 2014 enacted budget. And the request reflects our continued focus on our mission, our important safety and security mission, while it also achieves some resource savings and improves our efficiency. As we continue to work through the Project Aim initiative, we anticipate additional savings.

We are required to recover, by law, approximately 90 percent of our budget through fees, and, accordingly, about $861.2 million of the fiscal year 2017 budget request would be recovered from NRC licensees, resulting in a net appropriation of $121.1 million.

Let me highlight some of the work we will achieve. We will continue our licensing and oversight activities for 100 operating nuclear power reactors, and 31 research and test reactors. The NRC

expects to continue reviewing three new reactor combined license applications, and, additionally, the NRC will continue the inspections of four nuclear—new nuclear units under construction in Georgia and South Carolina, and will also continue our vendor inspection program.

We expect to review one small modular reactor design certification, that's the NuScale design that was mentioned earlier, and we will review three applications for medical isotope facilities.

The budget request provides funding for licensing reviews and oversight activities at reactors undergoing decommissioning, as well as continued oversight over waste and spent fuel storage facilities. We expect to review one application for a spent fuel storage facility.

We'll continue to license and oversee the safe and secure use of radioactive materials. In fiscal year 2017, the NRC will complete about 2,000 materials licensing actions and about 900 routine health and safety inspections in this area.

Of note, our budget request includes $5 million in non-fee billable activities to develop regulatory infrastructure to effectively review advanced reactor applications.

As we continue to work through the Project Aim initiative, we are confident the agency is on the right track. We have already identified savings through a comprehensive evaluation that involves staff and stakeholder input. Still, we remain mindful of the importance of our highly skilled technical staff in carrying out our mission, and while our size may change to reflect efficiency gains, the need for the service we provide to the American people remains unchanged.

I want to highlight one other area where we are focusing on improvement. We're cognizant of the committee's concerns regarding early Commission involvement in rulemaking, and we have approved a new approach to do so, to enhance the involvement of the Commission, and we'll provide requested information to the committee next month, as provided in the committee's report on the fiscal year 2016 appropriation.

On behalf of the Commission, I thank you for the opportunity to appear before you today, and I know you share our dedication to the vital mission of the NRC. And we'd be pleased to answer your questions.

Thank you.

[The statement follows:]

PREPARED STATEMENT OF STEPHEN G. BURNS

Good afternoon, 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 2017 budget request.

As you know, the NRC is an independent agency established to license and regulate the civilian use of radioactive materials in the United States to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. The resources we are requesting for fiscal year 2017 will allow the NRC to continue to uphold our important safety and security mission.

We'd like to underscore that this budget request reflects a substantial reduction from the 2016 enacted budget. Project Aim is delivering on the promise to achieve efficiencies in both corporate and programmatic areas. The NRC has taken a hard look at the proposed budget, and is proposing reductions in both full-time equivalents (FTE) and contract support dollars that represent real savings. As we continue

our work through the Project Aim initiative, we anticipate additional savings and efficiencies to come.

To put this in context, the fiscal year 2017 budget request reflects a decrease of $73.7 million and 279.7 full-time equivalent employees from the fiscal year 2014 enacted budget. We believe this fiscal year 2017 budget request reflects our continuing focus on our important mission while achieving resource savings and improving the agency's efficiency and effectiveness.

In fiscal year 2017, the NRC will continue licensing and oversight activities for 100 operating commercial nuclear power reactors, including the Watts Bar Unit 2 nuclear power station slated to begin commercial operation later in calendar year 2016, and 31 research and test reactors. The resources we have requested for fiscal year 2017 also support ongoing work associated with implementing lessons learned from the Fukushima Dai-ichi Nuclear Power Plant accident in Japan. While we expect the bulk of the most safety significant enhancements to be completed in calendar year 2016 and to bring to closure our work on most of the longer-term "Tier 2 and 3" issues, resources requested for fiscal year 2017 support the continued implementation of the "Tier 1" enhancements, including seismic and flooding hazard reevaluations, spent fuel pool instrumentation and mitigation of beyond design basis events.

During fiscal year 2017, the NRC expects to continue reviewing three new reactor combined license applications. Additionally, the NRC will continue to conduct inspections of four new reactor units under construction—Vogtle Electric Generating Plant, Units 3 and 4, and Virgil C. Summer Nuclear Station, Units 2 and 3—and will continue to carry out its vendor inspection program for both new and operating reactors. The NRC also expects to receive and begin review of one small modular reactor design certification application from NuScale.

Further, the NRC plans to review three applications for medical isotope production facilities, including reviewing an operating license for one facility and conducting environmental and safety reviews of construction permits at two others.

The fiscal year 2017 budget request includes $5 million in non-fee billable activities related to developing the regulatory infrastructure for advanced nuclear reactor technologies. This funding would prepare the NRC to undertake effective and efficient licensing reviews of advanced reactor technologies consistent with the maturity and development pace of the technologies. The intended activities to be initiated in fiscal year 2017 would fall into three categories: licensing infrastructure, technical preparation, and outreach.

Additionally, the fiscal year 2017 budget request provides funding for licensing reviews and oversight activities at power reactors undergoing decommissioning, including Kewaunee Power Station, San Onofre Nuclear Generating Station Units 2 and 3, Crystal River 3 Nuclear Power Plant and Vermont Yankee Nuclear Power Plant.

The fiscal year 2017 budget request also ensures the NRC can continue to license and oversee the safe and secure use of radioactive materials used for medical, academic, industrial and research purposes. The NRC and Agreement states oversee approximately 21,000 specific materials licensees. In fiscal year 2017, the NRC will complete approximately 2,000 materials licensing actions and approximately 900 routine health and safety inspections, as well as reactive and follow-up inspections.

In fiscal year 2017, the NRC will continue its oversight over nuclear waste and spent fuel storage facilities, certify storage and transportation containers and respond to events involving our licensees. The NRC expects to review one application for an interim consolidated storage facility.

In fiscal year 2017, the NRC's research program will continue to support the NRC's regulatory activities by evaluating and resolving safety issues for NRC-regulated nuclear power plants, other nuclear facilities and materials users that the agency regulates. The NRC will further enhance its regulatory programs through coordination and cooperation with other Federal agencies, States, Tribes, and international organizations and foreign governments. The NRC will continue to support international conventions on safety and treaty compliance, and support a wide range of activities to help foreign regulatory counterparts develop or enhance their programs and their controls over radioactive sources.

THE CHANGING REGULATORY ENVIRONMENT

Before I get into the specifics of the NRC's fiscal year 2017 budget request, I would like to talk about our Project Aim effort to find efficiencies, use resources wisely, and streamline processes and regulatory decisionmaking while continuing to meet our critically important safety and security mission.

Since 2001, the agency grew significantly to enhance its security and incident response regulatory structure, and to prepare for the projected growth in 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 response to these changes and the resulting use of resources. The agency can and should maintain focus on our mission while we take a hard look at our workload and how to achieve efficiencies.

We are confident that the agency is on the right track. Over $9 million in savings has already been identified through a comprehensive evaluation that involved staff at all levels of the agency, as well as stakeholder input. The savings, particularly in the areas of rulemaking, travel and corporate support are significant. However, through Project Aim, we are seeking additional efficiencies. Corporate efficiencies include centralizing financial management and human capital staff, and reducing information technology security costs. The NRC's safety and security mission remains paramount as actions are taken to re-baseline the agency.

The Project Aim Steering Committee has delivered to the Commission a rebaselining paper that outlines additional proposed efficiencies. While still under Commission review, the now-public paper reflects more than 140 activities that could be eliminated or reduced over the next 6 months, for a savings of about $41.1 million in fiscal year 2017. Total potential reductions identified over 18 months is $49.5 million. The staff will later submit to the Commission a paper outlining additional areas for longer-term efficiencies and projected workload changes through fiscal year 2020.

However, we cannot emphasize strongly enough that the NRC's ability to ensure adequate protection of public health and safety and the common defense and security will always be our main concern. While our size may change to reflect workload reductions and efficiency gains, the need for the great majority of the services we provide the American people remains unchanged.

As we proceed, the agency remains mindful of the importance of its highly skilled technical staff and the need to maintain our expertise. We must keep a focus on knowledge management as some senior staff retire and new experts take their place. We must not forget that the success of the agency is due, in no small part, to the quality and dedication of the agency's people. Remaining one of the best places to work in the Federal Government is important to our ability to continue to recruit the most talented candidates, and retain our skilled and knowledgeable technical experts.

I want to highlight one other area where the Commission is focusing on improvement: the Commission's involvement in the rulemaking process. Over the last several years, the Commission has revised its rulemaking processes to improve its understanding of, and, where 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.

We are cognizant of the Committee's concerns as expressed in the fiscal year 2016 Joint Explanatory Statement regarding the timing of Commission involvement. The Commission directed the NRC staff last September to propose a plan for increasing the Commission's involvement in the rulemaking process before significant resources are expended. The Commission has just issued its direction on the proposed plan, which presented eight recommendations to better define and enhance the Commission's role in the early stages of rulemaking. We believe our approved approach meets the intent expressed in the report language and we will provide the requested information to the Committee in March 2016.

FISCAL YEAR 2017 BUDGET REQUEST

The NRC's proposed fiscal year 2017 budget is $970.2 million and 3,462 FTE, excluding the Office of the Inspector General (OIG). The proposal represents a net decrease of $19.8 million from the fiscal year 2016 enacted budget, as well as a decrease of 90 FTE.

The OIG's component of the fiscal year 2017 budget is $12.1 million, of which $11.2 million is for auditing and investigation activities for NRC programs and $1 million is for auditing and investigation activities of the Defense Nuclear Facilities Safety Board (DNFSB). These resources will allow the OIG to carry out its mission to independently and objectively conduct audits and investigations to ensure the efficiency and integrity of the NRC and DNFSB, 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 fiscal year 2017 budget request provides for 90 percent fee recovery, less the amounts appropriated for generic homeland security activities, waste incidental to reprocessing activities and DNFSB activities. Accordingly, $861.2 million of the fiscal year 2017 budget will be recovered from fees assessed to NRC licensees, resulting in a net appropriation of $121.1 million. This appropriation is an increase of $2.1 million compared with the fiscal year 2016 enacted budget due to the inclusion of $5 million in non-fee-billable resources for advanced nuclear reactor technology.

The NRC carries out its safety and security activities through two major programs: Nuclear Reactor Safety, which includes both Operating Reactors and New Reactors, and Nuclear Materials and Waste Safety, consisting of fuel facilities, nuclear materials users, decommissioning and low-level waste, and spent fuel storage and transportation. Compared to the fiscal year 2016 enacted budget, the NRC's Nuclear Reactor Safety Program decreased by $3 million and 61.9 FTE; the Nuclear Materials and Waste Safety Program, including Decommissioning and Low-Level Waste, decreased by $1.8 million and 28.1 FTE.

I would now like to highlight portions of the fiscal year 2017 budget request.

NUCLEAR REACTOR SAFETY

Operating Reactors

The fiscal year 2017 budget request for the Operating Reactors Business Line is $587.5 million, a decrease of $1.7 million from the fiscal year 2016 enacted budget. This reflects declining or completed workload associated with, among other activities, implementation of the Fukushima lessons learned, license renewals and National Fire Protection Association 805 license amendment requests.

New Reactors

The fiscal year 2017 budget request for new reactors is $169.9 million, which represents a funding decrease of $1.4 million when compared with the fiscal year 2016 enacted budget. The decrease is a result of delays in application submittals, and project slowdowns or suspensions. The New Reactors Business Line is responsible for the regulatory activities associated with siting, licensing, and overseeing construction of new nuclear power reactors.

NUCLEAR MATERIALS AND WASTE SAFETY

Fuel Facilities

The fiscal year 2017 budget request for fuel facilities is $41.5 million, which represents an overall funding decrease of $2.9 million when compared with the fiscal year 2016 enacted budget. 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.

Nuclear Materials Users

The fiscal year 2017 budget request for nuclear material users is $92.5 million, which represents a funding increase of $0.9 million when compared with the fiscal year 2016 enacted budget.

The Nuclear Materials Users Business Line supports the safe and secure possession, processing, handling of nuclear materials in many diverse applications, along with associated activities related to licensing, oversight, rulemaking, international engagements, research, generic homeland security, event response, and State, Tribal, and Federal Program interfaces. This increase is due to the resumption of security rulemakings and to address an industry petition for rulemaking. These were delayed in fiscal year 2016.

Spent Fuel Storage and Transportation

The fiscal year 2017 budget request for spent fuel storage and transportation is $37.2 million, which represents an overall funding increase of $1.1 million when compared with the fiscal year 2016 enacted budget. 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. This increase is due to safety and environmental reviews of an interim consolidated storage facility and related safety analysis.

Decommissioning and Low-Level Waste

The fiscal year 2017 budget request for decommissioning and low-level waste is $41.6 million, which represents an overall funding decrease of $1 million when compared with the fiscal year 2016 enacted budget. 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 termination of the NRC license, and disposition of low-level radioactive waste from all civilian sources. The Commission has directed staff to proceed with a decommissioning rulemaking that would establish clear requirements for decommissioning reactors. Comments from stakeholders are being collected through March 18 of this year with the bulk of the work on the regulatory basis and proposed rule completed by the end of fiscal year 2017.

CLOSING

As I said at the onset, this budget request represents a substantial reduction from the 2016 enacted budget. The President's Budget takes advantage of the Project Aim-identified efficiencies, and, as we continue our work, we anticipate additional savings and efficiencies to come.

Chairman Alexander, Ranking Member Feinstein, and distinguished Members of the Subcommittee, this concludes my formal testimony on the NRC's fiscal year 2017 budget request. On behalf of the Commission, I thank you for the opportunity to appear before you. We look forward to working with you on the 2017 budget and going forward. I know you share our dedication to the vital mission of the NRC.

I would be pleased to respond to any questions that you may have. Thank you.

Senator ALEXANDER. Thanks, Mr. Chairman.

And we'll each take 10 minutes for questions, and then we'll go from there.

CURRENT STATE OF THE POWER REACTOR FLEET

Mr. Chairman, it sounded like you mentioned seven reactors. You're monitoring four and are considering three more applications. Is that right?

Mr. BURNS. We have the four——

Senator ALEXANDER. Tell me—tell me where they are.

Mr. BURNS. Okay. We have the two Vogtle plants in Georgia and the two Summer plants in South Carolina are under construction.

Senator ALEXANDER. Okay.

Mr. BURNS. In the last year, we have approved the combined license applications for the Fermi Unit 3 and the South Texas Unit 3 and 4 plants. Now, what the companies there have indicated——

Senator ALEXANDER. Is that two more?

Mr. BURNS. That's—well, actually, it would be three—actually it would be three more plants.

Senator ALEXANDER. Okay.

Mr. BURNS. Now, what they've indicated they're going to do is in effect—they've gone through the process of receiving the license, but they're going to bank—if you will, bank the license until they determine probably in early 2020 or thereabout, whether they would proceed, you know, whether the conditions are right to proceed with construction of those plants.

Senator ALEXANDER. Yes. So——

Mr. BURNS. And we also have a couple other plants which we expect to see from I think Duke, I think it's the Lee and the Levy plant this year, which we would also be asked to act on a combined license for.

Senator ALEXANDER. Those are new.

Mr. BURNS. Those would be new sites, yes.

Senator ALEXANDER. So four under construction.

Mr. BURNS. Four under construction.

Senator ALEXANDER. Three new reactors in Texas that are in the application process.

Mr. BURNS. Well, two in Texas that received the combined license. They could proceed with construction today.

Senator ALEXANDER. Yes. And where's the third?

Mr. BURNS. In Fermi, which is in Michigan, near the Michigan-Indiana border.

Senator ALEXANDER. Yes. And then two more?

Mr. BURNS. Yes. It's—is it two or—it's two—it's two more. Under the Duke Power and the locations, I've——

Senator ALEXANDER. Yes. So that's four——

Mr. BURNS. In the southeast——

Senator ALEXANDER. That's four, three, and two.

Mr. BURNS. Yes.

Senator ALEXANDER. The way I'm hearing you, that's seven and nine.

Mr. BURNS. Yes. Yes. And then——

Senator ALEXANDER. They're potential new reactors.

Mr. BURNS. Yes, the—yes.

Senator ALEXANDER. In various stages of——

Mr. BURNS. Yes.

Senator ALEXANDER. Now, how many reactors—we have 100 today, right? With the opening of Watts Bar, if you count Watts Bar.

Mr. BURNS. Correct.

Senator ALEXANDER. But how many are being decommissioned or closed?

Mr. BURNS. Well, there are announcements for two sites in the Northeast—the FitzPatrick plant in upstate New York, and the Pilgrim plant south of Boston—which Entergy has announced that it would be closing down. I think FitzPatrick in 2017, and——

Senator ALEXANDER. What about the California sites that we talked about?

Mr. BURNS. Well, San Onofre has already been closed. The other——

Senator ALEXANDER. So that's already in your——

Mr. BURNS. Yes. Yes.

Senator ALEXANDER. So you know of two sites that would be closed.

Mr. BURNS. In addition to sites that are already under decommissioning, such as the San Onofre site in Southern California.

SAFETY RECORD OF U.S. REACTORS

Senator ALEXANDER. Yes. So it's 100 potentially, plus 7, minus 2, potentially, that we know.

Let me start this out by asking you a few questions about the safety record, because Senator Feinstein very properly brings this up. How many in the United States—we have 100 reactors—how many deaths have there been in the history of our commercial nuclear program associated with reactor accidents, with the failures of the reactor?

Mr. BURNS. With—from a radiation-induced accident, none that I know of.

Senator ALEXANDER. Okay. Let me ask Mr. Ostendorff—although I could ask you—how many deaths have there been associated with Navy reactors?

Mr. OSTENDORFF. None.

Senator ALEXANDER. Three Mile Island was our most celebrated nuclear accident in the United States. That was in 1978? No——

Mr. OSTENDORFF. '79.

Mr. BURNS. Nine. Nine.

Senator ALEXANDER [continuing]. 1979. How many people were hurt at Three Mile Island?

Mr. BURNS. From radiation, none.

Senator ALEXANDER. None. And that's despite the fact that there has been monitoring probably still going on, maybe not, but there was monitoring at least for many years of individuals in that area to make sure that no one had radiation sickness as a result of the accident.

So no, no let me go further than that. We have used fuel, which we would like, both of us, and Senator Murkowski is now here, chairman of our authorizing committee, we have used fuel on 75 sites or so around the country that we would like to begin to move to either a consolidated site, or I would like to move to Yucca Mountain. What is the Commission's view of the safety of the storage of the used fuel on those—at those 75 sites?

Mr. BURNS. We believe it's safe. We monitor it. We, in some—we will license the fuel storage at those sites, and we monitor and inspect it. We also license and review the casks, and we believe it's safe, can be safely held there.

Senator ALEXANDER. Yes. Okay.

Senator Feinstein, we have Senator Murkowski here now. I think what I'll do is stop my questions at 5 minutes and go to you for your questions, and then go to Senator Murkowski. Would that——

Senator MURKOWSKI. That is fine.

Senator ALEXANDER. We're glad you're here.

So Senator Feinstein.

DIABLO CANYON POWER PLANT

Senator FEINSTEIN. Thanks, Mr. Chairman.

As part of its response to Fukushima, the NRC has asked all nuclear plants for information regarding seismic and flooding hazards, as I understand it. And I think this analysis is of particular importance in Diablo Canyon, which sits on the California coast near a series of fault lines. For each fault line, I understand—and correct me if I'm wrong—the NRC will compare the newest evidence of potential ground movement against the design tolerances of the plant. Is that correct?

Mr. BURNS. Yes. Yes, that's my understanding. We have them, as we have plants across the United States, doing a seismic reevaluation. I believe the Diablo Canyon final report is due in about a year. In the meantime, we believe that the plant is safe to operate taking into account knowledge that's been developed regarding the faults and the new designs that we know of with respect to seismic activity.

Senator FEINSTEIN. Right. And if I understand this correctly, your staff has confirmed that the new seismic data is, quote, of sufficient quality and suitable, end quote, for conducting this final risk analysis. And then that report will be out in September of 2017. Is that correct?

Mr. BURNS. That's correct.

Senator FEINSTEIN. Okay. So can you talk a little bit—because this is one reactor that's had a lot of public concern around it, as you know—why does it take so long to complete the risk analysis? And what makes you confident that there are no safety concerns in the interim?

Mr. BURNS. Well, Diablo Canyon, I think as you are well aware, since its original licensing, there has been a high degree of focus on seismic—the seismic profile, the seismic design basis for the plant, and as new knowledge is developed, as the science developed, that's fed into it. Why we're confident with respect to the safety of the plant, pending the evaluation, is because the parameters that have been used in licensing allow a very robust design, they envelop some of what we are seeing from the potential information from other fault lines or other material.

Part of the reason it takes that long is to do the science well, and also, you know, the availability of top experts to conduct that work. Again, I want to assure you, from our standpoint, we believe that pending the outcome of those evaluations and what it may show, we think the plant is safe to operate.

SAN ONOFRE NUCLEAR GENERATING STATION

Senator FEINSTEIN. Got it. Thank you. I want to get in my time the second reactor site, which is the decommissioning at San Onofre. I understand they're moving ahead with expanding their dry fuel storage area, and their plans include demolishing the reactor buildings on an expedited timeframe, potentially concluding work in 2027. And I understand that you have issued all the necessary approvals, and if the State does the same, physical dismantlement could become—could begin next year. Is that correct?

Mr. BURNS. That's my understanding.

Senator FEINSTEIN. Okay. Can you confirm that the NRC will continue to inspect the site and oversee the decommissioning program to ensure safety?

Mr. BURNS. Yes. That's part of our normal program. It would be not only for San Onofre, but the other sites that are under decommissioning.

Senator FEINSTEIN. Okay. Now, what are the biggest risks in your view to completing the decommissioning process in a safe and timely manner?

Mr. BURNS. I think if I—Senator, one of the things I learned from a site visit to the Zion plant, which is north of Chicago undergoing decommissioning, it's not so much the biggest risk, but the biggest challenge and I think the biggest focus is sound planning, because you want to be able—you want to—when you're taking apart the facility, you want to do it in a way that minimizes occupational exposure of radiation to workers, but not only that, you also have to worry about making sure you're not getting overexposure to heavy metals and other types of chemicals that may have

been used appropriately at the site. So my sense is it's sound planning.

I met with the folks from San Onofre, as I think some of my colleagues are——

Senator FEINSTEIN. Good.

Mr. BURNS [continuing]. And, again, I think they have—my sense is that they have that understanding, that good planning as you go into the process for not only the dismantling, but the planning for the spent fuel storage pad and the dry storage, is underway. So I think keeping a good focus on that planning, from my standpoint, is the biggest challenge.

Senator FEINSTEIN. Let me ask you this, Does the NRC have contact with the CEO, who actually, you know, made the decision, and I think is a very constructive and cautious individual who wants to do the right thing? Do you keep in touch, or is it with the technical staff that you keep in touch?

Mr. BURNS. Well, sometimes I forget maybe the titles, but I met with the manager, actually I saw him yesterday at another conference, who is responsible for laying out the planning for it. So we do have interaction. I think they try to reach out to us to let us know where their plans are. So there's an engagement, I think, both at the management level within the company, as well as, importantly—obviously importantly—the technical level within the agency.

Senator FEINSTEIN. Well, the reason I ask is I know technical people and professional people are very good, but I think it's very important that the person of a big company who makes the decisions really keeps in contact, or you keep in contact with him, so that he gets firsthand information in the case anything goes a little out of the normal. And would you agree to do that?

Mr. BURNS. Certainly.

Senator FEINSTEIN. Thank you.

Senator ALEXANDER. Thank you, Senator Feinstein.

We welcome Senator Murkowski, chairman of the Energy Committee.

Senator MURKOWSKI. Thank you. Appreciate the opportunity to be with you to discuss some of the nuclear issues, and again to thank you both for your leadership as we try to figure out some solutions when it comes to nuclear waste. I know we haven't picked up that baton yet in 2016, but I think the commitment still is there. Know that I certainly share that with you, that we're going to figure this out. So thank you for that.

And thank you to our commissioners for the work that you do.

And, Commissioner Ostendorff, I understand that you're going to be signing out of here at the end of this fiscal year, so thank you for your service.

SMALL MODULAR REACTORS

I want to direct my questions this afternoon to small modular reactors and where we are, and just kind of have some sense of understanding, because what I'm hearing are just horror stories in terms of the length of time that this process is taking and the costs involved.

So we understand that NRC is preparing to receive full license applications for SMRs. So the question is, How long do you expect that a full application review of an SMR would take? Have you identified some of the barriers that we clearly know are in place, either legislative or regulatory, so that we can have a more expedited and yet thorough review of these full SMR applications? And I throw that out to all of you here.

Mr. BURNS. I'll start off, and please—and joined by my colleagues.

One of the things I want to make sure when we talk about small modular reactors is what we do expect to receive. We expect to receive an application from NuScale at the end of this year for a small modular reactor. It's a light-water reactor base. But I want to make sure I distinguish between small modular reactors we may receive in the next few years and the longer term look at advanced reactors, which are non-light-water reactor designs, which are coming, and which we've been having a lot of engagement with the Department of Energy with some vendors on.

Back to your question in terms of what we have before us. We've been interacting with NuScale to make sure we both understand each other before the application comes in and so that we're well prepared for it. Again, I expect we will receive it at the end of this year. My expectation is the design certification would take on the order of about 3 to 4 years for the review of that application.

Senator MURKOWSKI. So it is correct—I'm told that they will—they expect to have spent—"they" being NuScale—$1.1 billion by the time construction begins on their first NuScale unit. That's a cost, I'm told, of about $268 billed per NRC man-hours given the review time that has been outlined.

So in terms of cost to the agency to do all this, cost to the entity that's making the application, can't we build a better mousetrap here?

Mr. BURNS. Well—go ahead, Commissioner.

Mr. OSTENDORFF. I just want to clarify one thing. The last 2 weeks I've had a chance to speak at two conferences with the NuScale Chief Operating Officer Mike McGough. It was out at Oak Ridge National Laboratory the week before last, and last week I spoke at Platts. Mike McGough was at both of these sessions, and he is their primary face in Washington, D.C. And I want to separate out the regulatory cost from the total cost.

Senator MURKOWSKI. Okay.

Mr. OSTENDORFF. I think the total cost you're talking about, Senator, is about the same number I've heard. That is not all regulatory cost. That is the cost to go and design, hire staff, and do test work to ensure there's a safe design that can be submitted. When I asked Mike McGough, "What is your concern with the NRC and our regulatory hat as far as the cost?" he says that that cost is a small proportion, or is a small portion, of their overall cost.

Last June, June 2015, the NRC published a Federal Register Notice, 118 chapters, was called the "Design Specific Review Standards" that would be the guidebook that our staff would use to review that NuScale license application, which has not yet come in to the agency, but is expected in December of this year. And I asked Mike, "How is that going? How is your company looking at

this design specific review standard process?" He told me he's satisfied with it.

So I think there's a lot of numbers that get thrown around and so forth. I don't believe the $1.1 billion is anywhere close to regulatory costs, which is a lot, lot lower than that number.

Senator MURKOWSKI. So——

Mr. OSTENDORFF. And we can provide feedback to you.

Senator MURKOWSKI. Well, and I think it would be helpful to have a handle on what real numbers are. But further to the point, I think there's a recognition that this is—this is lengthy, it's complicated, and it's expensive, and if there are ways that we can be more efficient, not only with the Commission's time, but again for the applicants, are there ways that we can work to enhance efficiencies, either through the regulatory or the legislative track? And I guess that's what I would hope for.

And I think, Chairman Burns, you mentioned working with folks within DOE. Are we seeing greater communication back and forth so that everybody is working together? I want to know that we're not at odds with one another as we're trying to enhance these efforts.

Mr. BURNS. No, I don't think we're at odds. What we do, we have good communication with DOE. Obviously, we have the arm's length relationship because we have the regulatory responsibility, they have more of the research and development responsibility.

But we, for example, in the advanced reactor areas, we held a workshop last May with DOE and invited people who are interested in potentially advanced designs to come to that. We're having another workshop co-sponsored with DOE this coming June. I meet with John Kotek about quarterly—you know, three to four times a year—on issues. We're looking for again in the advanced reactor area. They did some work, which we have under review with respect to how the general design criteria that have been largely used in light-water reactor applications, how do they line up with these non-light-water reactor designs that may be coming in?

So I think we've got good communication, and we'll continue to work within our respective scope of responsibilities well together.

Senator MURKOWSKI. Mr. Chairman, my time has expired. So I thank you for the opportunity to ask these questions, but to each of you, know that this is something that I'm going to continue to press and inquire on because my observation—or at least the people that are coming to me are saying it's lengthy, it's costly, there must be some way that we can be a little more efficient there.

But thank you, Mr. Chairman.

Senator ALEXANDER. Thank you, Senator Murkowski.

Mr. Chairman, have you requested sufficient funding in your budget to perform the review of the small modular reactor application when it comes?

Mr. BURNS. Yes, we have.

Senator ALEXANDER. And are the regulations in place that you need to have in place in order to review the design?

Mr. BURNS. Yes. We have the basic design certification framework. And as Commissioner Ostendorff discussed, we have this design—help me out here.

Mr. OSTENDORFF. Design specific review standards.

Mr. BURNS. Thank you. Design specific review standards that will help and carry out the review.

CONSOLIDATED INTERIM STORAGE

Senator ALEXANDER. Let me switch to something that I know Senator Feinstein is interested in, and I believe Senator Murkowski, too, and that's the—you said you expected to receive one application for a private consolidated storage facility this year. Is there a possibility there might be more than one?

Mr. BURNS. Yes, there could be more than one. We expect from waste control specialists in western Texas sometime within the next 2 to 3 months, I believe, and then the Holtec or Eddy Lea Alliance, which is on the other side of the border in New Mexico, later this year, I don't have the exact timeframe and——

Senator ALEXANDER. Yes. And, of course, my view is that we ought to proceed on all these tracks at once. Senator Feinstein—I don't want to speak for her—she is not prepared to say the same thing on Yucca Mountain, but I don't—I think we ought to move on all the tracks at once if we want to do something about nuclear waste. How long would you expect the Commission's review of the application for a private storage facility to take?

Mr. BURNS. I would expect about a 3- to 4-year period. Now, that may—if there is a hearing requested and a hearing granted, there might be somewhat more time on that, but generally about a 3-year period.

Senator ALEXANDER. Do you have sufficient resources to review the application? Have you requested enough funding in the new budget to continue that review into next year?

Mr. BURNS. We have in the request specifically requested or have funds specifically provided for, for one—for at least one application. If we get the second application, we would look at reprioritizing some work and do it, but we would—we would——

Senator ALEXANDER. So the answer would be yes.

Mr. BURNS. Yes, we would go, yes, and continue forward with the review.

Senator ALEXANDER. Do you have all the legal authorities that you need to license a private consolidated storage facility?

Mr. BURNS. Yes. Yes, we do. And we have done—we have actually done this kind of review at an earlier time for a facility that did not go forward.

ADVANCED NUCLEAR REACTORS

Senator ALEXANDER. You mentioned advanced nuclear reactors. What kind of reactors do you consider to be advanced reactors? This is different than small modular reactors.

Mr. BURNS. Right. This would be different types of design, a high-temperature gas reactor, a pebble-bed reactor, and modernized forms of some reactors, a molten-salt reactor. There are different types of designs.

Senator ALEXANDER. And what kind of work are you doing on those types of designs?

Mr. BURNS. Well, we have some limited work that we're doing now. With the $5 million off fee proposal, we would continue work on regulatory infrastructure addressing some of these issues about

readiness to handle those. There are some technical—I think some technical issues we would do, and then also engagement with the companies or entities who may be interested in it, and also continue an engagement internationally, for example, the Generation IV Forum, which is a group of countries, including the United States, that is interested in the potential advanced reactor design.

Senator ALEXANDER. I wonder if any of the other commissioners would have any comment about the role of advanced nuclear reactors in the future for our country.

Mr. OSTENDORFF. I'll comment, Senator, because I had a chance just 2 weeks ago to be out in your State at Oak Ridge to talk at a conference on advanced reactor technology development. And there's a lot of interest out there. There were 21 different vendors that were represented at this conference for 2 days. As the chairman mentioned, there are technologies being discussed. There are non-light-water reactors, very different from our current reactor fleet, very different from small modular reactors. I heard one that was being discussed that was a lead-bismuth design. I never heard of that before, but in addition to pebble-bed and molten-salt, as the chairman mentioned.

So there's a lot of interest in different technologies. I think most of these are very interesting, and some of them have promise, but I think at the end of the day, the vendors and the investors, especially the venture capital community, is trying to look at, Does this make economic sense? So I think the economic question is perhaps the biggest one rather than a technical question.

Senator ALEXANDER. Yes, Commissioner.

Ms. SVINICKI. Chairman Alexander, may I state or bring to the subcommittee's attention that although it is true that these advanced reactor types are very different than what we have in commercial generation now, the history of nuclear power development in the United States, is that actually many of these concepts are where we began as a country. If you visit Oak Ridge National Laboratory, Idaho National Laboratory, you find that we developed small scale prototypes of some of the sodium-cooled reactors.

So it's a very interesting challenge to try to access some of that knowledge from 50, 60 years ago, and many of those leading experts have retired, but there is in the Department of Energy, and Atomic Energy Commission history a lot of relevant information, and in this country, we tried a lot of these things.

Senator ALEXANDER. That's very interesting.

Commissioner Baran.

Mr. BARAN. I'll just briefly add, going back to the budget piece of this, I think the approach of funding advanced reactor activities separate from the fees licensees pay actually make a lot of sense here because I'd have a hard time justifying charging current plants for the work we're doing to get ready for future advanced reactor applications. I think having it separate from the fees is a fairer approach, but it makes sure that we have the funds we need to move forward on some of these regulatory and technical issues.

Senator ALEXANDER. Thank you. Thank you for that.

Senator Feinstein.

Senator FEINSTEIN. Thanks very much, Mr. Chairman.

The chairman asked the questions, you know, how many people have died as a product of a nuclear accident, and it hasn't happened. That sort of really isn't my goal in this. My goal is I know what can happen, and the key is to prevent it from happening.

CRYSTAL RIVER NUCLEAR PLANT

Let me ask you some questions about the Crystal River plant in Florida, which I gather operated for 36 years. We're talking about 80-year licenses now. And apparently the concrete began to separate in the dome, and that led to its shutdown. Could you tell me a little bit about that and what happened? Because if we're going to go for 80-year licenses, we ought to—and I just went into the faulty steam generators in San Onofre, and I suppose they could have, you know, patched them and kept operating, but they did the responsible thing and decommissioned it. And that—I've been there, and that site has been impeccably maintained by Southern California Edison, at least what somebody who is not a professional could see.

So could you talk about, just a little bit about, what happened at Crystal River in Florida?

Mr. BURNS. Yes, I can. We can provide you maybe some—probably more granular information than I probably have. But what—the issue of concrete degradation at Crystal River, as I understand it, was in part because of some of the evolution or operations they undertook there, which had an adverse impact on the concrete. And noting that, when we look at subsequent license renewal, and we look at the things that we are most concerned about, in terms of aging management, particularly when you talk about passive long-lived components, well, one of them is—one of the issues is for us, and that we do, do and have done research on, are doing research on, and will look at as part of the renewal review, is the question of long-term adequacy of concrete structures at a site. So that is certainly something we look at in terms of and is of concern to us, as is, for example, the integrity of the reactor pressure vessel, certain piping, certain cabling, on the long term.

Senator FEINSTEIN. Do you have people that know what to look for? And has the Commission seen the concrete degradation at Crystal River?

Mr. BURNS. I believe—I believe we have—yes, I believe our inspectors have looked at it and—because when I think it was discovered several years ago, my understanding is the licensee was considering whether or not it would restart the facility, whether it would do appropriate repair work, could do appropriate repair work, ultimately made a business decision to shut the facility down.

Senator FEINSTEIN. Yes.

Mr. BURNS. But it is something we certainly were aware of. They—when discovering those conditions, they would have had to report those conditions to us, and we would have seen it through our inspection program. So, yes, in that sense, very much so something we were aware of, became aware of.

Senator FEINSTEIN. Commissioner Ostendorff.

Mr. OSTENDORFF. I just wanted to add one specific aspect to Crystal River. There was a maintenance error by the utility. Let's

pretend that this water bottle is the containment, and pretend there's a rubber band around the circumference of this water bottle. The water bottle is being compressed by this rubber band. Now think that this is a containment made of concrete, and there's a cable, rather than a rubber band, around this bottle. Improper detensioning of that cable during maintenance is what caused the crack——

Senator FEINSTEIN. Is it improper——

Mr. OSTENDORFF. Detensioning. There's this cable that was supposed to be——

Senator FEINSTEIN. Detensioning, which means loosening?

Mr. OSTENDORFF. It means loosening.

Senator FEINSTEIN. Okay.

Mr. OSTENDORFF. Take the rubber band off.

Senator FEINSTEIN. Right.

Mr. OSTENDORFF. And so when that cable was detensioned improperly, you had irregular application of forces to the containment, and that was the root cause of why the concrete cracked.

Senator FEINSTEIN. Well, is that possible in other plants or is it isolated to Crystal River?

Mr. OSTENDORFF. Well, I think the procedure itself could happen someplace else. I think that Duke Energy learned a very expensive lesson here in that maintenance error. I want to make sure it was maintenance error that caused the concrete to fail. We have a lot of people that do detailed reviews of concrete structures in nuclear power plants around the country. There's been a concern that the Seabrook plant in New Hampshire that we have spent a lot of time with industry and outside research groups to understand and are satisfied with the concrete structure at Seabrook. But there's a lot of attention paid to this particular area.

Senator FEINSTEIN. Well, that's good, but how was it brought to your attention about Crystal River?

Mr. OSTENDORFF. Well, this was a pretty catastrophic failure. I think Commissioner Svinicki probably has been to the plant, and we've both been there. You see the cracks on the containment itself that occurred, you know, I don't know, like 6 or 8 feet long, something like that, after the cable was taken off inappropriately.

Senator FEINSTEIN. Okay.

Mr. OSTENDORFF. It was visually detected by the licensee and at the same time by our resident inspectors.

LESSONS LEARNED FROM FUKUSHIMA

Senator FEINSTEIN. Yes. If someone were to ask this question—and I'm about to—what were the lessons for NRC from Fukushima?

Mr. BURNS. Well, I'll start. I think our primary lesson, which actually reinforced a concept that we had adopted or pursued after the terrorist attacks in 2001, and that was being prepared for things that you don't expect to happen that may go beyond where the design is, and that is, for example, if you lose—what happens at Fukushima is they lose electric power that allows them to proceed with cooling of the reactors there.

So the primary lesson, and where I think that the agency has had and that the industry had, is, How do you cope with those

things if those worst case things and beyond your design basis things happen? So positioning additional diesel generators to provide power, pumps because you may have lost important pumps, cabling, electrical supply, positioning those things onsite, and what the industry has also done is it's established two——

Senator FEINSTEIN. I don't mean to interrupt you.

Mr. BURNS. Yes.

Senator FEINSTEIN. But does that mean a secondary system of redundancy?

Mr. BURNS. It's redundant equipment that can go in and be used to help with the recovery, for example, of electricity if you need electric power within the plant.

Senator FEINSTEIN. Well, why are they still pumping radioactive water into the ocean?

Mr. BURNS. Who——

Senator FEINSTEIN. At Fukushima.

Mr. BURNS. I don't know that they are pumping radioactive water——

Senator FEINSTEIN. I believe they are.

Mr. BURNS [continuing]. Into the ocean because the Japanese have been——

Senator FEINSTEIN. There is still some that apparently goes into the ocean. At least I read about that in a magazine.

Mr. BURNS. Yes. Yes. Well, the Japanese have been extraordinarily conservative about what they will allow to go into the ocean, in fact, to the point that some—that they have—they control water, they decontaminate the water of the very—sort of high-level radionuclides and leave—you basically have tritiated water, tritium——

Senator FEINSTEIN. Yes.

Mr. BURNS [continuing]. Water with tritium. So they've been extraordinarily—trying to be extraordinarily careful about that.

Senator FEINSTEIN. Well, what I was told, it's a no fishing zone, and so I asked, "Why is it a no fishing zone?"

Mr. BURNS. Yes.

Senator FEINSTEIN. It's because of water going into the ocean that's contaminated. So——

Mr. BURNS. Yes. I am not particularly—I would have to say I am not particularly aware of what their current restriction is. Certainly, they had, after the accident, restrictions. I don't know what they are today.

Senator FEINSTEIN. I'll find out.

Mr. BURNS. But what I'm trying to help visualize is that before you get to that state is look—thinking about ways of if you've lost certain systems in the plant, restore them to the point that you can get the safe shutdown so you don't have the melted reactor core, that you provide—that you mitigate the consequences of the accident and prevent releases to the extent you can.

Senator FEINSTEIN. Commissioner.

CRYSTAL RIVER NUCLEAR PLANT

Mr. OSTENDORFF. Senator, I would like to provide a clarification to my response on Crystal River. I should have told you a significant fact. At the time this containment cracking occurred in the

concrete, the reactor was fully shut down and cooled down. It was in a maintenance period. I did not tell you that. I apologize.

Senator FEINSTEIN. Thank you. That's helpful. Thank you.

Senator ALEXANDER. Mr. Chairman, isn't the—isn't——

Are you ready for me to——

Senator FEINSTEIN. I'm finished.

LESSONS LEARNED FROM FUKUSHIMA

Senator ALEXANDER. Mr. Chairman, isn't the answer to Senator Feinstein's question that the lesson from Fukushima is that you need to make sure you have water to cool the reactors or the spent fuel rods?

Mr. BURNS. Yes. I would say you need—one thing that you need, you need electricity because——

Senator ALEXANDER. Well, no, no. In the answer, you needed water.

Senator FEINSTEIN. Yes, I——

Mr. BURNS. You need a cooling water——

Senator ALEXANDER. I'm not asking you how you get the water——

Mr. BURNS. Okay.

Senator ALEXANDER [continuing]. I'm saying in the problem, you didn't have water to cool the rods or the reactors.

Senator FEINSTEIN. Sufficient.

Senator ALEXANDER. Isn't that right?

Mr. BURNS. Yes. Yes. Yes.

Senator ALEXANDER. Right. And then you can go into a whole bunch of explanation about how you have redundant ways to do that, but it was a fairly simple problem, if I'm correct. You didn't have water to cool rods that were in the reactor or that were used fuel.

Mr. BURNS. And most—I would say the primary reason for that is the tsunami knocked out the diesel generators.

Senator ALEXANDER. Yes, but if you're analyzing the problem, the problem was you needed water.

Mr. BURNS. Correct.

Senator ALEXANDER. Right. And the response has been, if I'm not mistaken, that you've begun a process throughout our reactors in the United States to create redundant ways to provide water in case of unanticipated problems so that that doesn't happen here.

Mr. BURNS. Correct. You're trying to get to safe shutdown, and that's what those redundant systems will help you do. That's what we're looking at.

Senator ALEXANDER. Right. But basically so that it's not held out to be some big scientific mystery——

Mr. BURNS. No.

Senator ALEXANDER [continuing]. You just need to make sure water is there to cool the—to cool the—now, tell me if I'm wrong about that, but I think that in the end is the problem, that the water is available for the rods and the reactor and/or in spent fuel.

Mr. BURNS. That's correct. So you achieve then a safe shutdown and equilibrium.

Senator ALEXANDER. I mean, walking around Watts Bar, which is just about to begin to produce electricity in our region, you know,

I saw—and I think that was the first of the new plants that had newly redundant—or one of the first, maybe the first—that newly redundant facilities to try to take into account Fukushima. Is that correct, as you came out of your review of the Fukushima disaster and what we do about it here?

Mr. BURNS. Yes. I think that's correct. They were one of the first with this flex equipment.

Senator ALEXANDER. And they made a decision, I think, to go in an accelerated way basically to do almost anything that was suggested that might avoid that sort of problem. That was the sense I got.

Mr. BURNS. Yes. They—yes, certainly, I—and I think probably given where they were in terms of licensing and coming on as a new plant, they wanted to get that done, and also it helps in terms of Unit 1 needs—needed support as well.

YUCCA MOUNTAIN LICENSING

Senator ALEXANDER. Right. Let me just ask you some questions about Yucca Mountain, which shouldn't take long to answer.

Is the Commission following the court's order?

Mr. BURNS. Yes, we are.

Senator ALEXANDER. The next step in the licensing process is to complete the Supplemental Environmental Impact Statement. How much will that cost?

Mr. BURNS. I believe that the remaining—I think that costs about $3 million.

Senator ALEXANDER. I've got $1.1 million. Would that be right?

Mr. BURNS. Okay. That was probably accurate.

Senator ALEXANDER. Do you have $1.1 million to do that?

Mr. BURNS. Yes. And we expect to issue it by mid-year.

Senator ALEXANDER. By mid-year of this year.

Mr. BURNS. This year. This year.

Senator ALEXANDER. Thank you. Would you agree the next step of the licensing process is to restart the hearings before the Atomic Safety and Licensing Board?

Mr. BURNS. Yes. A next step would be the hearing process.

Senator ALEXANDER. I believe that you testified last year that—that—well, it would take an additional $330 million to obtain the construction authorization for Yucca Mountain. Does that sound correct?

Mr. BURNS. Yes. That's the estimate we've had.

Senator ALEXANDER. Do you have the $330 million to do that?

Mr. BURNS. No, that would have to be appropriated.

Senator ALEXANDER. Mm-hmm. Why was that not in the President's—in the budget request?

Mr. BURNS. This is the administration's budget. The administration did not provide for additional funds on Yucca Mountain.

Senator ALEXANDER. Yes. Well, we—you know, I think it's fair to characterize—and she will correct me if I'm wrong—we are united on the urgent desire to break the nuclear waste stalemate; we're not on what to do about Yucca Mountain. For me, it seems to me plain that it's the law, that the court has ordered moving ahead. Your own environmental scientists have said that it's safe for 1 million years. We get frequent lectures about the importance of fol-

lowing science, and following the law and following science, we would then have a place to put a great deal of the spent nuclear fuel we have at sites all around the country, and we could also get agreement with the House of Representatives to move ahead with our short-term repositories in our private facilities.

So we will keep working on our part. That's not necessarily your problem. But you're going to be continuing to hear from me that I think that you should follow the law and follow the science and move ahead with Yucca Mountain. Senator Feinstein, I don't have any other questions.

Senator FEINSTEIN. I have—I would like to.

Senator ALEXANDER. You're welcome to ask anything you would like.

FUKUSHIMA

Senator FEINSTEIN. If I may, Mr. Chairman, I would like to put in the record a February 10 "Washington Post" article, "How Is Fukushima's Clean-Up Going 5 Years After Its Meltdown? Not So Well." And my staff has prepared a couple of brief papers on Fukushima clean-up, that radioactive water remains a big problem at Fukushima. Initially water used to cool the reactor cores was stored in huge tanks, but they have leaked and continue to do so. There are about 1,000 tanks on the site holding 750,000 tons of water. And that goes on.

A second one on the NRC has required two types of actions following the Fukushima disaster.

And a third one on the number of fish with excessive levels of radiation have been significantly reduced.

So I would ask that those documents be entered into the record, if I might.

Senator ALEXANDER. They will be.

[The link for "Washington Post" article follows:]

https://www.washingtonpost.com/world/asia__pacific/five-years-after-nuclear-meltdown-no-one-knows-what-to-do-with-fukushima/2016/02/10/a9682194-c9dc-11e5-b9ab-26591104bb19__story.html?utm__term=.c73d78c27db8.

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

Senator ALEXANDER. Any other questions or comments?

Senator FEINSTEIN. No, I think I'm fine.

And let me thank you all for your service. I think it's a very serious thing because we all look at things, and unless something has happened, you know, it's hard to believe that it's going to happen on a major basis. And maybe because I live in a State where everywhere is 5 miles from an earthquake fault, I know it can happen. And so that kind of changes your view of things, because it's on your watch, and if you know something can happen, you have an obligation to do something about it.

Someday I'll tell the chairman a story of how I learned that when I was mayor of San Francisco.

Senator ALEXANDER. I think you've already told me.

Senator FEINSTEIN. I've already told you, but I really——

Senator ALEXANDER. And you did the right thing about the baseball stadium; right?

Senator FEINSTEIN. That's right.

Senator ALEXANDER. No, no. She is making very good points, and I know that it's points that each of you agrees with because that's what you do every day. And I would also join Senator Feinstein in thanking you for your service.

Commissioner Ostendorff, thank you for your term of service.

Senator FEINSTEIN. Yes.

Senator ALEXANDER. But thanks to every one of you and to your technical staff, some of whom are here. I've been to the reactors with you and I've seen the technical staff and how it operates and the rigor of it, which is pretty obvious, even to a layman. And I think it's a pretty remarkable record that we have in the United States. It's not—of course, a reactor, if there is a problem, could cause severe damage to property and to people. Fortunately, that hasn't happened to us in the United States, either in the military or in our commercial reactors, and that's because you're accountable and you've made the operators accountable, and we have a very strict safety protocol.

So as long as we are a country that uses 25 percent of all the electricity of the world, more or less, and as long as one of our major national priorities, at least a majority of the people, is to do what we can to reduce the human effect on climate change, and as long as 100 nuclear reactors produce 60 percent of our carbon-free electricity at a pretty low cost, and it's reliable as well, I think we ought to do all we can to create an environment in which we can continue to operate nuclear reactors safely.

So we'll look forward to working with you on the budget. I think you actually have an exciting period of time coming up as these different forms of reactors—small, advanced, whatever they may turn out to be—come along, and we look forward to working with you on them.

I also want to thank you for being responsive to our staff on both sides of the aisle.

Senator FEINSTEIN. Yes.

Senator ALEXANDER. That's very important, when we ask questions, we get answers, and I think so far we're doing—we feel pretty good about that, and we thank you for that.

Senator Feinstein, I think, unless you have further comments, that concludes the hearing.

Senator FEINSTEIN. No. Well done, Mr. Chairman.

And let me just, too, say thank you. I mean, this is a very big deal, what you do, so I for one am very, very grateful. Thank you.

Mr. BURNS. Thank you.

SUBCOMMITTEE RECESS

Senator ALEXANDER. It's adjourned.

[Whereupon, at 3:52 p.m., Wednesday, February 24, the subcommittee was recessed, to reconvene subject to the call of the Chair.]