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HEARING ON `` THE FISCAL YEAR 2012: DEPARTMENT OF ENERGY AND NUCLEAR REGULATORY COMMISSION BUDGETS''

WEDNESDAY, MARCH 16, 2011

House of Representatives,

Subcommittee on Energy and Power

joint with the

Subcommittee on Environment and the Economy

Committee on Energy and Commerce

Washington, D.C.

The Subcommittees met, pursuant to call, at 9:35 a.m., in Room 2123 of the Rayburn House Office Building, Hon. Ed Whitfield [Chairman of the Subcommittee on Energy and Power] presiding.

Members present: Representatives Whitfield, Upton (ex officio), Barton, Shimkus, Pitts, Terry, Burgess, Bilbray, Bass, Scalise, Latta, Harper, Cassidy, McKinley, Gardner,

Griffith, Waxman (ex officio), Dingell, Markey, Rush, Green, DeGette, Capps, Doyle, Inslee, and Matsui.

Staff present: Maryam Brown, Chief Counsel, Energy and Power; Allison Busbee, Legislative Clerk; Andy Duberstein, Special Assistant to Chairman Upton; Mike Gruber, Senior Policy Advisor; Dave McCarthy, Chief Counsel, Environment and the Economy; Mary Neumayr, Counsel, Oversight/Energy; Peter Spencer, Professional Staff Member, Oversight; Jeff Baran, Democratic Senior Counsel; Phil Barnett; Democratic Staff Director; Gret Dotson, Democratic Energy and Environment Staff Director; Caitlin Haberman, Democratic Policy Analyst; and Karen Lightfoot, Democratic Communications Director, and Senior Policy Advisor.

Mr. {Whitfield.} We will call the hearing to order this morning. The title of today's hearing is `` The Fiscal Year 2012 Department of Energy and Nuclear Regulatory Commission Budgets.'' And we certainly extend a warm welcome to Secretary Steven Chu, Secretary of the U.S. Department of Energy. Mr. Secretary, we appreciate your being with us today very much and look forward to your testimony. We also have with us on the second panel the Honorable Gregory Jaczko, who is chairman of the Nuclear Regulatory Commission.

Circumstances have certainly changed since we decided to have this hearing, and with the events taking place in Japan we all want to extend our very best wishes and thoughts to the people of Japan as the result of this tragedy. And we will certainly benefit today from the insights of Dr. Chu and Dr. Jaczko on this ongoing matter.

Obviously, nuclear energy plays a vital role in the energy needs of our country today. It provides roughly 20 percent of all electricity generated in America. Countries like France and Japan have an even greater percentage of electricity produced from energy. And we recognize the importance, when we talk about energy, also of the safety aspect of that as well.

And while I didn't really intend to talk a lot about

nuclear energy today, there are so many points relating to our country as it pertains to nuclear energy today: the storage issue, Yucca Mountain, what is happening there, the 104, 106 nuclear plants around the country and the location on those sites of the waste material instead of going to Yucca Mountain, the permitting period, roughly 10 years to get a plant permitted. In other countries it is less than that but, as we have learned just in the last few days from what happened in Japan, we can expect unexpected events to occur and we have to maximize safety. I, for one, do not believe that we can meet our future demands of energy without nuclear playing a vital role in that.

So Mr. Secretary, we are going to look forward to your testimony. I know that there will be a lot of questions for you. And at this time I would recognize for his opening statement Mr. Rush of Illinois.

[The prepared statement of Mr. Whitfield follows:]

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Mr. {Rush.} Well, now, thank you, Mr. Chairman. I want to thank Mr. Secretary Chu for being here today. I understand we have Chairman Jaczko coming in a little later.

Before I give my thoughts on the nuclear situation in Japan, as you have, Mr. Chairman, I would like to bring attention to the drastic cuts that have been proposed by my Republican colleague under H.R. 1. Section 3001 of H.R. 1 would rescind all unobligated Recovery Act funds without any exception. And these cuts would directly impact crucial job-creating renewable energy projects under the Loan Guarantee Program. At least 26 job-creating projects across the country, from California to Illinois, Michigan to New York, and Oregon to Texas would be affected by these proposed cuts.

In all, projects with negotiated terms reach $12.5 billion in loan guarantees that would create over 28,000 construction jobs and over 5,000 permanent jobs are at stake. The Republican proposal would basically put all of DOE loan guarantee funding into 1 category, and that category is nuclear energy.

And while I am in support of nuclear energy, I also believe we must invest in renewable energy projects that would generate power from solar, wind, geothermal, biomass, and cellulosic ethanol, as many of these projects do. Mr.

Chairman, my State of Illinois obtains 47 percent of its electricity from nuclear, one of the highest in the Nation. I personally believe that nuclear must be part of any portfolio of renewable energy sources that will move this Nation forward.

However, as far as the events unfolding in Japan are concerned, my advice for the nuclear energy industry, both here and in Japan and elsewhere, would be to be as transparent as possible. Transparency is really the key word. The American people, the people around the world are looking for transparency. They want to believe in the nuclear energy and I think it is up to us and others to make that happen. We must make sure that we are honest with the American people about exactly what we know and also what we do not know.

Mr. Chairman and Mr. Chairman, I look forward to discussing this more in depth during the discussion with Secretary Chu and Chairman Jaczko. Thank you, Mr. Chairman, and with that I want to recognize Mr. Waxman. I yield back the balance of my time.

[The prepared statement of Mr. Rush follows:]

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Mr. {Whitfield.} Mr. Rush, thank you for your comments. I noticed you had about 2 minutes left on your opening statement. I had about 2 minutes left on my opening statement, and I was looking so forward to hear what you said that I neglected to recognize my friend, Mr. Shimkus, who is chairman of the Energy and Environment Subcommittee. So I am going to recognize him for the remaining 2 minutes of my opening statement. So Mr. Shimkus, you are recognized for 2 minutes.

Mr. {Shimkus.} Thank you, Mr. Chairman. Welcome, Mr. Secretary.

We always live in interesting times and this is another one. This is a DOE budget hearing and, of course, budgets are all the rage, size-of-government spending. Your budget request is 29.5 billion, which is about a 12-percent increase from fiscal year 2010, so a lot of questions will be--obviously, that is not going to happen. We are going to have to prioritize and we are going to have to see what works and go through the list and make sure we are funding the priorities, but nowhere in America is anyone expecting us to increase the size of government and federal agencies by 12 percent. In fact, I would--as I said in another hearing--be prepared for 2008 spending levels or a significantly reduced

amount. So that is an issue.

Having said that, we want to, you know, applaud the work and continue to support, as Mr. Rush said--I am from Illinois also--the nuclear power industry, make sure it is safe. There are interesting issues going on with your loan guarantees that we want to keep pursuing the 3 facilities that are moving forward, while we still have to address--and my subcommittee has a nuclear waste portfolio. And we have got to get serious about addressing this issue. I will talk about that more in my questions, but for the President to have a Blue Ribbon Commission that excludes any discussion about Yucca Mountain is a fraud. And I think you probably had some writings in the past that also addressed the importance of Yucca Mountain. And we will continue pushing all of the above energy strategies.

So with that, my time is expired, Mr. Chairman. So I yield back.

[The prepared statement of Mr. Shimkus follows:]

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Mr. {Whitfield.} Thank you. At this time I recognize the gentleman from California, the ranking member, for his opening statement.

Mr. {Waxman.} Mr. Chairman, during the last year we have had wakeup call after wakeup call warning us that we need a new energy policy. Last April a coalmine explosion in West Virginia killed 29 miners. It was the worst coal disaster in 40 years. That same month, Deepwater Horizon exploded in BP's Macondo well. Oil was gushing into the Gulf for 3 months. Now oil is $100 a barrel because the Middle East is in turmoil. And Japan faces potential nuclear meltdowns at its damaged reactors. We don't know yet whether Japan will be able to avoid catastrophic release of radioactive material. We don't know what the full impact will be, but we should be investigating the safety and preparedness of the U.S. facilities.

After all of these energy catastrophes, it should be obvious we need a new energy policy that promotes clean, safe, and affordable energy. We need more vehicles that run on electricity, natural gas, and renewable fuels. We need more wind and solar power. And we need more energy efficiency. Instead, what we have gotten from the Republican-controlled house is partisanship and an assault on

clean energy.

The Republican budget for this year, H.R. 1, would slash DOE's energy efficiency and renewable energy budget by 35 percent. It would completely eliminate assistance to low-income families who want to weatherize their homes or save energy and lower their utility bills. And the Republican budget would wipe out DOE's ability to award loan guarantees to worthy renewable energy projects. This would cost us thousands of jobs. Some of these loan guarantees have recipients just waiting to close the deal, and now there will be no money left for them, whether it is a solar project in California, a wind turbine plant in Idaho, a geothermal project in Oregon, a biofuels facility in Louisiana. The list goes on. All these projects and all these jobs are on the Republican chopping block.

Yesterday in this committee we debated a bill the Republicans said, oh, we are for all-of-the-above energy policy. But that is not is what is in their budget. The Republican budget would rescind 25 billion of the 47 billion in loan guarantee authority provided by Congress in 2009. The bill would preserve the entire 18.5 billion in loan guarantees for new nuclear reactors and $2 billion available for uranium-enrichment projects, while leaving only $1.5 billion for all other technologies. This is not an all-of-

the-above strategy. This is an all-nuclear strategy.

Mr. Chairman, instead of spending our time debating partisan legislation that denies science and guts the Clean Air Act, we should be working together to encourage clean energy investments that will create jobs in the U.S. It should not take a nuclear meltdown to make us face reality. We urgently need a new energy policy, and I hope the testimony today from Secretary Chu and Chairman Jaczko will help point the way.

[The prepared statement of Mr. Waxman follows:]

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Mr. {Waxman.} I would ask unanimous consent to enter into the record a supplemental memo detailing the effects of the Republican budget on clean energy jobs.

Mr. {Whitfield.} Without objection.

[The information follows:]

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Mr. {Waxman.} And Mr. Chairman, I yield now to the ranking member of the subcommittee on environment, Mr. Green.

Mr. {Whitfield.} The gentleman is recognized.

Mr. {Green.} Thank you, Mr. Chairman, for holding the hearing today on the Department of Energy and Nuclear Regulatory Commission's fiscal year 2012 proposed budgets. I want to thank Secretary Chu and also Chairman Jaczko for taking the time to appear before our committee and I know both of you are extremely busy working with Japan to assist them in their current situation at several of their nuclear reactors.

Our thoughts and our prayers are with the people of Japan, and I hope the United States can assist them in their time of need. This is truly a devastating disaster and they need as much assistance from around the world so they can recover.

As a Member of Congress who represents one of the largest energy-producing areas in the country, an area of the country that also has permits pending before the Office of Management and Budget for construction of new nuclear power plants, I am interested in the testimony of our witnesses today.

In 2008 our Nation produced over 800 billion kilowatt

hours from nuclear power. Japan produced 245 billion. We need to step back and take a breath and see what we need to do to produce clean electricity safely and at a reasonable cost. And I know that is our bottom line and we need to do that, particularly with what has happened with Japan.

And I do hope that Secretary Chu and Chairman Jaczko can update us on the current situation in Japan, as well as give us information on the fiscal year 2012 budget and how Congress can take the leadership in doing that. And with that, Mr. Chairman, I yield back my time.

[The prepared statement of Mr. Green follows:]

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Mr. {Whitfield.} Mr. Waxman, you can call the time.

Mr. {Waxman.} Mr. Chairman, I don't know if we are reserving any balance of our time, but we have exhausted our speeches for the opening of--

Mr. {Whitfield.} Thank you very much. At this time I recognize the full chairman of the committee, Mr. Upton, for his opening statement.

The {Chairman.} Well, thank you, Mr. Chairman, and welcome, Mr. Secretary.

Given all of the energy challenges the American people face, this hearing on DOE and the NRC '12 budgets would have been a very important one even if it was held before the tragedy in Japan. But given the unfolding of events there and the impact on several nuclear reactors, today's hearing certainly takes on added significance.

In the midst of a natural disaster and a tragedy that we are watching unfold literally hour by hour, we need to allow time for reflection and careful analysis and learn from their mistakes. This is especially true when it comes to proposals that would make permanent changes in policy based on incomplete information.

We will be having a number of hearings on this issue as details unfold and we welcome your participation. This

committee is going to hear the facts as soon as they become available. That is for sure.

For me, I live 15 miles from two nuclear power plants, so the safety of U.S. nuclear facilities is not an issue that I have ever taken lightly. I am not straying from my support for safe nuclear energy as a vital component of America's present and future energy mix. It is just as important to dispel overstated fears as it is to discuss legitimate concerns. And I know that we can begin the process of doing both.

The Department of Energy's '12 budget is $29.5 billion, an increase of almost 12 percent or $3 billion from current levels and I see areas where funding is excessive and perhaps others where it is insufficient. Spending--even for laudable goals like energy efficiency or developing affordable alternative energy sources and technologies--needs to be scrutinized for effectiveness. Indeed, we just had a large-scale real-world test of the merits of throwing a lot of money at nice-sounding energy projects in the 2009 stimulus. The stimulus program was very generous the American people's tax dollars and certainly for energy programs, but a series of DOE inspector general reports on stimulus spending for home and building weatherization projects in other agencies found significant flaws.

In other areas I believe that the budget is inappropriately cheap, and this is especially the case with regard to fossil fuels. Wishful thinking about magic bullet alternatives is not going to heat and cool our homes, get us where we need to go, and power the businesses the provide the jobs that America wants. The reality is we still need fossil fuels and we will continue to do so for the foreseeable future. Now, I don't believe that this reality is reflected in the budget, which calls for a 44-percent decline in funding for the Office of Fossil Energy. That, along with the President's support for raising taxes on domestic oil and natural gas producers, is indicative of a hostility to domestic fossil fuel production.

On nuclear energy we have got similar concerns. Blocking Yucca Mountain is penny-wise and pound-foolish, especially considering we have spent nearly $13.5 billion and the need ultimately to find a repository for nuclear waste. Instead, preventing the need for interim storage is 1 way of reducing risk from nuclear energy and reducing risk is certain to be a major part of the energy discussion moving forward.

This committee will look long and hard at Yucca Mountain, the nuclear fuel cycle and spent-fuel policies. Now more than ever the politically-based policies must end.

America demands safe, common-sense solutions. And I yield the balance of my time to Chairman Emeritus, Mr. Barton.

[The prepared statement of Mr. Upton follows:]

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Mr. {Barton.} Thank you, Mr. Chairman, I concur with your statement. We welcome the distinguished Secretary of Energy and the distinguished Chairman of the Nuclear Regulatory Commission. I think you know that I was a White House fellow for one of your predecessors, Dr. James B. Edwards, so it is always good to have the Secretary of Energy here.

Obviously, we want to talk about the budget and a big part of the budget is going to be the $36 billion Loan Guarantee Program for nuclear energy. But in light of what has happened in Japan, we are obviously going to be interested in your comments about the safety and the NRC Chairman's safety of our existing nuclear reactors and the new reactors that are beginning to be permitted and hopefully be built in our Nation. I continue to be a strong supporter of nuclear energy, and I hope that you and the President also continue to do so.

I noticed your support for a clean energy standard. I am not sure, Mr. Secretary, that we need any kind of an energy standard for America, but I think myself and others may be willing to look at it. Obviously, it depends on what the definition of clean is. And I think any definition should include clean coal, nuclear, and natural gas.

With that I yield back to the chairman or yield back to the subcommittee chairman.

[The prepared statement of Mr. Barton follows:]

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Mr. {Whitfield.} Thank you very much, Mr. Barton. Because of the fact that Mr. Rush did not use all of his time and had 2 minutes left, I am going to recognize Mr. Rush for an additional 2 minutes.

Mr. {Rush.} Thank you, Mr. Chairman. Mr. Chairman, I yield 2 minutes to Mr. Markey.

Mr. {Markey.} Thank you, Mr. Rush, very much.

Right now, a few dozen brave souls are fighting a nuclear meltdown with water trucks. We send our prayers to those heroes and to the people of Japan.

The effects of this disaster have already rippled through the world. China, Venezuela, Germany, Switzerland, and other countries are shutting down older plants and scrapping plans for new ones. We, too, need a seismic shift in our approach to nuclear reactor safety. I fear that we are not moving fast enough to take these important steps.

Just yesterday, the Department of Health and Human Services announced that it would study the distribution of potassium iodide, a radiation emergency pill that is being distributed to Japanese people and to U.S. military personnel in the region. It has been 32 years since the Kemeny Commission that investigated the Three Mile Island accident recommended it.

It has been 29 years since I held a hearing and called for a jus. It has been 10 years since the Nuclear Regulatory Commission began making potassium iodide available within 10 miles of a nuclear reactor. It has been 9 years since this committee passed my law to expand the distribution zone of these pills from 10 miles to 20 miles away from the reactor. It has been 7 years since the National Academy of Sciences endorsed its use. And yet two administrations have ignored the law. We don't need to study these pills to know that they can prevent cancer. I believe that the Obama administration should immediately implement my law from 7 years ago, having it be distributed within a 20-mile radius.

Our economy crumbled because Wall Street took high-risk investments and transformed them into safe-looking bonds. As the underlying sub-prime loans defaulted en masse, these investments turned into toxic assets that no one wanted. So President Bush created the TARP Program so the government could buy them. That is pretty much what we are looking at on nuclear loan guarantees. They are just like a toxic asset, literally and financially guaranteed by the federal taxpayers if something goes wrong. The industry will be okay financially. The taxpayers will be left. We have already known what happens when the taxpayer has to pick up the tab when things go wrong. We should be very careful from this

moment on.

[The prepared statement of Mr. Markey follows:]

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Mr. {Whitfield.} Thank you, Mr. Markey. At this time, Secretary Chu, we recognize you for your opening statement and look forward to your testimony.

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^STATEMENT OF STEVEN CHU, SECRETARY, UNITED STATES DEPARTMENT OF ENERGY

} Secretary {Chu.} Thank you, Chairman Whitfield, and I thank Chairman Upton, Ranking Member Waxman, Mr. Barton--Mr. Dingell I don't see is here today--and of course all the Members of the committee. Thank you for the opportunity to discuss the President's fiscal year 2012 budget request for the Department of Energy.

I want to begin by expressing the administration's support for the people of Japan, as well as American citizens in Japan as they respond to and recover from the tragic events of the past few days.

Officials from the Department of Energy, the Nuclear Regulatory Commission, and other agencies have maintained close contact with Japanese officials and provided the Japanese Government with expertise in a variety of areas. As far as that effort, the Department of Energy has sent 2 experts to Japan to provide advice and technical assistance. We are positioning Consequence Management Response Teams in U.S. Consulates and military installations in Japan. These teams have the skills, expertise, and equipment to help assess, survey, monitor, and sample areas. They include

smaller groups that could be sent out to gather technical information in the area. We have sent our Arial Measurement System Capability, including detectors, analytical equipment used to provide assessments of contamination underground. In total, the DOE team includes 39 people with more than 1,700 pounds of equipment.

The Department is also monitoring activities through the DOE Nuclear Incident Team as employing assets at its national laboratories to provide ongoing predictive atmospheric modeling capabilities based on a variety of scenarios. The American people should have full confidence that the United States has rigorous safety regulations in place to ensure that our nuclear power is generated safely and responsibly.

Information is still coming in about the events unfolding in Japan, but the administration is committed to learning from Japan's experience as we work to continue to strengthen America's nuclear industry. Safety remains at the forefront of our effort to responsibly develop America's energy resources, and we will continue to incorporate the best practices and lessons learned in that process.

To meet our energy needs the Administration believes we must rely on a diverse set of energy sources, including renewables like wind and solar, natural gas, clean coal, and nuclear power. We look forward to a continued dialogue with

Congress in moving that agenda forward.

Now, I would like to turn to the budget. President Obama has a plan to win the future by out-innovating, out-educating, out-building the rest of the world, while at the same time addressing the deficit. The President's budget makes touch choices, and cutting in many areas while recognizing that we must invest in strategic areas like clean energy innovation that will create jobs and strengthen competitiveness. To that end, President Obama has called for an increase in investments in clean energy research, development, and deployment. In addition, he has proposed a bold but achievable goal of generating 80 percent of America's electricity from clean sources by 2035.

A clean energy standard will provide clean long-term signal, a clean long-term signal to industry to bring capital off the sidelines and into the clean energy sector. The government does not need to pick favorites. The most competitive clean energy sources will win in the marketplace.

The Department of Energy's fiscal year 2012 budget requires that $29.5 billion supports the President's goals. Defense-related activities such as nonproliferation and cleaning up the Cold War sites account for roughly half that budget. The other half, which includes energy and science programs, are also critical to national security in addition

to economic competitiveness.

Through energy efficiency programs, we will save money for consumers by saving energy. In addition, the budget supports the research, development, and deployment of renewable energy, the modernization of the electric grid, and the advancement of carbon capture and sequestration technologies. And it helps reduce our dependence on oil by developing the next generation of biofuels, by accelerating electric vehicles research and deployment.

The budget supports loans for renewables and energy efficiency technologies. Nuclear energy also has an important role to play in our energy portfolio. The budget requests up to 36 billion in loan guarantee authority to help deploy a new generation of American nuclear reactors. It also invests in research and development of advanced nuclear technologies. The budget invests in basic and applied research and keeps us on a path to doubling funding for key scientific agencies, including the Office of Science.

The budget invests 550 million in Advanced Research Projects Agency-Energy. The administration also seeks an additional 100 million for RPE as part of the President’s Wireless Innovation and Infrastructure Initiative. This investment will allow RPE to continue the promising early-stage research projects that aim to deliver game-changing

clean energy technologies.

Another key piece of our research effort is the Energy Innovation Hubs. The hubs bring together our Nation's top scientists and engineers to achieve similar game-changing energy goals. Over a concentrated effort over a longer-time horizon is needed to establish innovation leadership. The budget requests $146 million to support three existing hubs and to establish three new hubs.

Finally, the budget supports the Energy Frontier Research Centers, which are mostly university-led teams working to solve specific scientific problems that are blocking clean energy development. To reach our energy goals we must take a portfolio approach: pursuing several research strategies that have proven to be successful in the past. This is not a kitchen-sink approach. This work is being coordinated and prioritized with a 360-degree view of how the pieces fit together.

Together, these initiatives will help America lead in innovation. In addition to strengthening out economy, the budget request also strengthens our security by providing $11.8 billion for the Department's National Nuclear Security Administration.

The Department is mindful of our responsibility to the taxpayer. We are cutting back in multiple areas, including

eliminating unnecessarily fossil fuel subsidies. We are streamlining operations. And we are making some tough choices by freezing salaries and bonuses for hardworking National Laboratory Site and Facility Management contractor employees.

The United States faces a choice today. Will we outcompete the rest of the world or will we fall behind? To lead the world in clean energy, we must act now. We cannot afford not to.

Thank you. And I would be pleased to answer any questions you may have.

[The prepared statement of Secretary Chu follows:]

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Mr. {Whitfield.} Well, thank you, Secretary Chu. And because of the event in Japan and Chernobyl and Three Mile Island and other events, the news media certainly is focused on what is happening in Japan and the impact that that would have on nuclear power in America. It is my understanding that the International Atomic Energy Agency has a 7-level international nuclear and radiological event scale, and that on that scale, the event that occurred in Japan was at a Level 4. It is my understanding that Three Mile Island was a Level 5, which, according to the International Atomic Energy Agency, would have been more serious than even what is in Japan is the information that I have.

My question is that I read an article recently about Three Mile Island and it said that a person standing at the property line of Three Mile Island during that event would have received a dose of radiation equivalent to between a chest x-ray and a CAT scan. And my question, as a layman, that does not sound like a lot of exposure, and particularly when you consider this would be a Level 5. And I was just curious, are you aware of that kind of exposure at Three Mile Island or do you have any additional information on that?

Secretary {Chu.} My knowledge of Three Mile Island actually comes from an NRC report that was issued--I don’t

know exactly when--but later after the analysis had been done, and what I remember is within a 20-mile-or-so radius, that the average exposure of those people closest to Three Mile Island was a very small fraction of background radiation. It could have been a scale of 1 percent or less.

Mr. {Whitfield.} Right.

Secretary {Chu.} That is what I recall.

Mr. {Whitfield.} Well, you know, I think that is important that we talk about that because, obviously, safety is an important issue. We don't want to American people to be panicked about any of this. And did you have an additional comment you were going to make?

Secretary {Chu.} Yes, I do. I think that the events unfolding in the Japan incidents actually appear to be more serious than Three Mile Island. To what extent we don't really know now. And so as they are unfolding very rapidly on an hour-by-hour, day-by-day basis and there are conflicting reports, and so we don't really know in detail what is happening. This is one of the reasons why the Department of Energy, the NRC are there with boots in the ground, with detectors in the ground, not only to help assist the Japanese power company and the Japanese Government, but also for our own sake, to know what is really happening directly though our own instruments.

Mr. {Whitfield.} But the U.S. Government is offering in any all assistance that has been requested?

Secretary {Chu.} That is correct.

Mr. {Whitfield.} Okay. Now, just to touch on Yucca Mountain for a moment, it is my understanding that the Department of Energy or the U.S. Government had entered into contracts with the nuclear power plants in the U.S. to take their waste material from the operation in their reactors. And because Yucca Mountain has not been completed, that lawsuits were eventually filed by the industry against the Federal Government for violation of that contract. Is that the case?

Secretary {Chu.} That is the case.

Mr. {Whitfield.} And do you know what the total amount of judgments against the U.S. Government is as of today?

Secretary {Chu.} I don’t exactly recall. There have been some judgments. They are certainly non-trivial. They are a considerable amount of funds. These are settlements so that the money could be used by the industry to help store the waste on their own sites.

Mr. {Whitfield.} Now, I don’t know if my information is correct, but I have been told it is in the neighborhood of 10 or $12 billion in judgments already. Does that sound in the neighborhood to you?

Secretary {Chu.} I don't know. It is certainly over a billion. I don't know where my staff is but we can get back to you on that.

Mr. {Whitfield.} Well, we could follow up.

Secretary {Chu.} We will get you the exact number.

Mr. {Whitfield.} Okay. And I am assuming that this is ongoing legal action because of Yucca Mountain not being completed, is that correct?

Secretary {Chu.} Not specifically Yucca Mountain not being completed. It is a legal action in the sense that we have a responsibility to provide for the storage of the nuclear waste, and as we exceed that, what happens is that--and the NRC has determined that--dry cask storage at the site--

Mr. {Whitfield.} Right.

Secretary {Chu.} --is a safe procedure for at least a half a century, but we would be still obligated to reimburse the companies--

Mr. {Whitfield.} Yeah, we just don't have the capability to take care of it, right?

Secretary {Chu.} Right. Exactly, and so that is--

Mr. {Whitfield.} My last question, and this would just not be a question but to ask for information. Would your staff be able to provide me information on the dollar value

of loans, loan guarantees, and/or grants that the Department of Energy may be making for wind and solar projects in the U.S.?

Secretary {Chu.} Yes, we would be able to--in the sense that the ones that we have offered conditional commitments to or have closed.

Mr. {Whitfield.} Yes, sir. Thank you. At this time I will recognize the gentleman from Illinois for 5 minutes.

Mr. {Rush.} Thank you, Mr. Chairman. Mr. Secretary, it is good to see you again here before the committee.

And I am going to get my questions about Japan asked and over with in the first one, okay? The first question I have, as far as security, can you assure the members of this committee, the American public, that what happened in Japan cannot happen here in America at any of our nuclear power plants?

Secretary {Chu.} We are going to be looking very, very closely at the events happening in Japan and take those lessons. And you can be assured that, you know, with the NRC leading, but the Department of Energy employing any assistance to look again at the current existing nuclear power plants and any that are being considered for design, to look very hard and see how one could, if possible, upgrade the security. We don’t believe that there is imminent

danger, but in any instance like this when there are truly unfortunate events like what we are seeing in Japan, what we do is we look and we learn from that. This is true of all of the technology--transportation technologies, energy technologies, you name it. And so we will be looking very carefully and gathering whatever lessons that can be learned from that double disaster of the 4th-largest earthquake in recorded history and a huge tsunami. And so we will take those lessons and apply them to all the nuclear facilities we have in the United States, not only earthquakes, but violent storms, everything, anything that could affect them

Mr. {Rush.} I have been told, Mr. Secretary, that as far as natural disasters, that it would be fairly difficult to have created and repeated what happened in Japan happened here in America as far as man-made disasters. And I have also been told that our number-one threat to our nuclear facilities is terrorism and that that is really what we should also keep a sharp eye on, especially terrorism, to our nuclear facilities. Can you expound on what the level of activity at the DOE and you have committed and what are your plans for countering any terroristic attack that might wind up having the same results or even different results?

Secretary {Chu.} Well, all of the civilian nuclear facilities are tasked to have very high security measures,

and I can certainly vouch for the Department of Energy nuclear facilities. They have extraordinarily high security measures. I would rather say whether terrorism or natural disasters is higher or lower, we and the NRC are very focused on actually preventing either from happening.

Mr. {Rush.} Okay. I am going to shift my direction. Sentence 1425 of H.R. 1, the Republican-proposed Continuing Resolution plan, where we sent 25 billion of the 47 billion in DOE's Loan Guarantee Programs under Title XVII, which includes funding for renewable energy and energy efficiency projects, can you speak on the impact of cutting funds for renewable sources of energy under the DOE Loan Guarantee Program? How important is it that we invest in renewable sources of energy?

Secretary {Chu.} Yes. In our budget request for 2012 we ask for those additional funds to help support the 1705, the loan guarantees, but also for an expanded authority so we could also invest in energy efficiency technologies as well, because energy not used is money saved and energy saved. Without that additional loan guarantee authority, many of the projects that would also help unleash private capital and bring that off the sidelines we are afraid would not go forward. And so that would mean a significant decrease in the job creation of going forward. It would really set back

what we are trying to do both in starting our economy and also, quite frankly, in having development source that would give a signal to industries in the United States to be developing these new sources. We want to give that signal because it is a competitive world out there and there is going to be a race in who develops these technologies that will be demanded worldwide.

Mr. {Rush.} Thank you. I yield back the balance.

Mr. {Whitfield.} At this time I recognize the gentleman from Michigan for his questions.

The {Chairman.} Thank you, Mr. Chairman. I have a number of questions and I will abide by the 5-minute rule.

I must say that I have the same complaint with you as I may have with your predecessors. At least I think I have a complaint with you. And that is from time to time we hear the Department give its gas estimates and, at least when I hear them, I wonder if we are not going to hit those estimates by the end of the week and not by Memorial Day. And last week I heard a national report that the Department was indicating that they thought that gas prices would be $3.70 by Memorial Day. The particular gas station that I was passing that day going into the office from Northern Virginia was already at 3.89, and it is higher than that in a lot of places around the country. USA Today had a headline, it must

have been about a month ago, ``Will Gas Prices Hit $5 by the 4th of July?'' I look at the projections that the Administration has put forth showing--as we all know, we get about a third of our oil from the Gulf. We are a quarter of a million barrels less per day than we were getting a number of months ago, and when you looked at the time from ’09 to ’12, again, DOE indicates that we are going to get about 450 million barrels less per day in ’12 than we got in ’09.

As one that believes in supply and demand, I see Alaska has, you know, continued declines in production. Where do you think we really will be? And this was, again, before Libya, before Egypt, before all the different things that were happening in the Middle East. Where do you really think we are going to be on gas prices, something that is on every household’s mind across the country?

Secretary {Chu.} Well, there is an official EIA prediction as you mentioned.

The {Chairman.} They must be career bureaucrats. Whether it is Republican or Democratic administration, it just--

Secretary {Chu.} Actually--

The {Chairman.} --seems wrong--

Secretary {Chu.} It is actually an independent arm so it is independent of any political influence. But in any

case, certainly, the gas prices in Washington, D.C., are higher than the average in the country. The gas prices in California are--

The {Chairman.} But I see those same prices in Michigan.

Secretary {Chu.} Yeah.

The {Chairman.} They were 3.80 this week in Michigan.

Secretary {Chu.} But anyway, going back to--I don't really know what the gas prices are going to be this summer. The mean projection is 3.70 as you said. There are large uncertainties. So we don't really know. And I don't have any better crystal ball than you do on that.

In terms of the oil production in the United States, again, first, you were talking about the oil production in the Gulf of Mexico and what is going to be projected. And I believe you were talking about this is what was happening because there was a suspension for a while of the deepwater exploration. The oil production in the Gulf has continued. The shallow-water exploration has continued but the deepwater permitting has begun again.

The {Chairman.} But again, if you look at the actual production levels, they are down from the projection from only 4 or 5 months ago, and they are down again according to your own numbers from the trend line from '09 to '12.

Secretary {Chu.} I don't want to focus just on the Gulf. If you look at the total oil production in the United States, again, there are some uncertainties, but we are actually seeing increased oil production in the continental United States. And we are actually expecting to see an increase in oil production from the extraction of shale rock. And again, it is uncertain to how much that will grow, but already it is a couple hundred thousand barrels a day production. It could increase 12 million barrels per day in the near future. So again, it is the total oil production in the United States we are also looking at.

The {Chairman.} In my remaining time let me ask 2 questions. I know you have been in contact with your counterparts in Japan. Is there anything that they have asked for that we have not done?

Secretary {Chu.} To the best of my knowledge, no. They have accepted our help in terms of the services, the airborne radiation detectors, things of that nature. And so we are continuing to offer them help and they are accepting it.

The {Chairman.} I just note, too, I know I said million. I mean hundreds of thousands in my declining production.

Secretary {Chu.} Hundreds of thousands of--

The {Chairman.} Yeah, I said 450 million--

Secretary {Chu.} Right.

The {Chairman.} --but I--

Secretary {Chu.} Right. I understand.

The {Chairman.} Last question in my 2 seconds, a number of us sent you a letter back in February asking questions about the Nuclear Waste Policy Act. If you could take a look at the letter and give us as a response as we get prepared--

Secretary {Chu.} All right.

The {Chairman.} --that would be terrific. Thank you.

Secretary {Chu.} Okay. Thank you.

The {Chairman.} I yield back my time.

Mr. {Whitfield.} At this time I recognize the gentleman from California for his questions, 5 minutes.

Mr. {Waxman.} Thank you, Mr. Chairman. Mr. Secretary, after Chernobyl many said such an event could not happen in the United States because the Soviet Union’s nuclear sector was not as advanced as our own. And there was truth to that. The Chernobyl plant was not as advanced and was not designed with many of the safeguards we have in the United States. But Japan is a highly developed country. It is technologically sophisticated as us and there is much concern in the U.S. that a similar accident can occur here. How do you respond to that concern?

Secretary {Chu.} Well, first, I would agree with you.

The reactor in Chernobyl was of a different design. It had points of instability. It had no containment vessel. But we are looking very carefully at what is happening in Japan because, as you say, they are using more advanced designs. A number of reactors in the United States are similar designs, and we are going to look at what went wrong in terms of this double-barreled whammy of this huge, huge earthquake and then a huge tsunami and look to our reactors again and learn as much as we can so we can, if needed, improve the safety. By ``if needed'' what I really mean is that we are always increasing the safety of our reactors, and not only our reactors but the safety of all our industrial systems.

Mr. {Waxman.} Mr. Secretary, 2 days ago a number of us wrote the Chairman Upton, Whitfield, and Stearns, requesting that our committee here investigate and hold hearings about the safety and preparedness of nuclear power plants in the United States. Do you think we should investigate the issues to ensure the safety of our nuclear plants?

Secretary {Chu.} I think that will naturally occur, especially given the events in Japan. We will look back as we learn what happened and apply those lessons where needed to all of our nuclear power reactors. That will be a natural consequence.

Mr. {Waxman.} Well, a natural consequence for everybody

to look at it but, quite frankly, I think we have a responsibility--

Secretary {Chu.} Right.

Mr. {Waxman.} --in Congress, not just you in your position but we in the Congress for our oversight and investigative purposes since we write the laws.

Now, let me ask you about the laws that we are in the middle of writing. We are trying to figure out our energy policy. And the Republican energy policy seems to be depending on coal, oil, and nuclear power. That is what they look to for the future. In fact, it has been the past. And we do have a problem of climate change because of the carbon and other greenhouse gases. We do have a problem now that so much of all of our eggs are in the nuclear basket.

When we look at the Republican budget, they are putting in billions of dollars of investment and thousands of construction and permanent jobs are all going to nuclear, but they are rescinding a lot of your budget to deal with other things that are clean and reliable and safe such as renewable energy and energy efficiency.

Just to dramatize this issue, Republicans would rescind 25 billion of the 47 billion in loan guarantee authority that was provided to you in 2009. But they preserve $20.5 billion in loan guarantees for nuclear energy while leaving only 1.5

billion for all other technologies. They say they are for an all-of-the-above strategy. That is an all-nuclear strategy to me. I would like to have you explain why it is so important for America to be looking at these other projects as we devise our energy strategy to move us away from dependence on oil and coal and maybe even nuclear for our future.

Secretary {Chu.} Certainly. If you look at what is going to be happening in this century, we believe, for example, that the prospect of solar power coming down in price, the business community thinks that within this decade the falling costs of solar generation of electricity will be cut in half. We have had a number of workgroups and we think it is very possible that by the end of this decade that costs can be cut to 25 percent of what it is today.

Mr. {Waxman.} They will be competitive if we make investments in them.

Secretary {Chu.} It will be very competitive and realizing that there is a high probability, a reasonable probability that solar energy, other renewable energies--wind--could be competitive with fossil fuel by the end of this decade--

Mr. {Waxman.} But nuclear energy, on the other hand, is not competitive unless the government subsidizes it. The

market does not pick nuclear power as a winner if the market works its will by itself, isn't that correct?

Secretary {Chu.} At the moment I think nuclear and renewables do need help, but going forward we are trying to figure out a plan where none of those will need subsidy.

Mr. {Whitfield.} The gentleman's time has expired. At this time I recognize the gentleman from Illinois for 5 minutes.

Mr. {Shimkus.} Thank you. And again, Mr. Secretary, welcome. I have got a lot of questions, short, and I am going to try to go, not disrespectful, but trying to get through my list. But I will just say to the chairman emeritus, that is why coal will still be king because it does address the market issues, and coal will still have a major issue in our portfolio for years to come.

Just an issue I had by a battery technology guy who said that he was laughed out of your battery office. And my concern is is that the DOE may be so big and already have a designed belief on battery technology that if someone comes with something new that they are not going to get a good hearing. Can we talk about this later on and visit with this--

Secretary {Chu.} Sure.

Mr. {Shimkus.} --because if we are going to do

research, we don't want to have--because we put billions of dollars into one sector, if a new entry comes in that may offer more, we want to give them a fair hearing. Can you define clean?

Secretary {Chu.} Well, you can start with what we all recognize are traditional pollutants, sulfur dioxide, nitrogen oxide, mercury, particulate matter--

Mr. {Shimkus.} The criteria of pollutants in the Clean Air Act.

Secretary {Chu.} Yes, but also clean also includes carbon dioxide.

Mr. {Shimkus.} Okay. And that is good because a lot of people will not add that. They will say clean but they won't address the CO2 issue. And just a message, Waxman-Markey failed as a national policy through the legislative process because the public decided to not price carbon. So we had that argument yesterday. We have a bill moving through the floor of the house that will start addressing the EPA, but we need another approach. And I would say energy security is a better way to bring both sides together than pricing carbon.

DOE was established in, what, 1977?

Secretary {Chu.} Around that time, '75, '76.

Mr. {Shimkus.} I got a yes. Our reliance on imported crude oil at that time was what percent? Do you have any

idea?

Secretary {Chu.} '70s? I am going to take a wild stab, something around 25 percent.

Mr. {Shimkus.} Yeah, I thought maybe 35. I am not sure. And what is it today?

Secretary {Chu.} It is about 50, 51 percent.

Mr. {Shimkus.} So can we say that we have really made any great strides by having the DOE here over 25 years?

Secretary {Chu.} No. In fact, a little while ago it was close to 60 percent.

Mr. {Shimkus.} Thank you. That is a point. FutureGen 2.0, is that really BushGen 1.0?

Secretary {Chu.} No. This is--

Mr. {Shimkus.} Let me explain. I followed FutureGen a lot.

Secretary {Chu.} Yes.

Mr. {Shimkus.} FutureGen was a new coal fire plant that actually would go to hydrogen technology and a research center. Bush tubed it, said let us gasify coal in existing plants and use CCS. Isn't that what FutureGen 2.0 is?

Secretary {Chu.} No. The first FutureGen was a gasification and capture and storage. This is--

Mr. {Shimkus.} Using hydrogen turbines, though, new technology.

Secretary {Chu.} Yes. In gas turbines in most--

Mr. {Shimkus.} Okay. So my point is just for clarify when we are retrofitting Meredosia with current technology, which is gasification, capturing it, that really was the Bush plan. That is really what Bodman was moving to do. Was that correct?

Secretary {Chu.} Certainly the taking of a commercial-scale power play and capturing the carbon dioxide and sequestering it was the Bush plan. This FutureGen is slightly different because it is burning in an oxygen atmosphere.

Mr. {Shimkus.} Thank you. I got the answer that I needed. We want to decrease reliance on imported crude oil. Senator Obama joined Senator Bunning to push coal-to-liquid legislation through the Senate. What is the DOE's position on coal-to-liquid technologies?

Secretary {Chu.} We think it is something we should look at. There are new coal-to-liquid technologies. I am not talking about the older ones invented by Germany during World War II but new ones that are more efficient. We have to capture the excess carbon dioxide in those technologies. And, indeed, the National Academy of Sciences, America's Energy Future, has issued a report looking at the mixture of coal plus biomass classification methods to then create

liquids with carbon capture.

Mr. {Shimkus.} And it is my understanding that carbon footprint is actually lower than crude oil refineries in that design?

Secretary {Chu.} Significantly lower, and once you exceed 30 percent biomass, it actually becomes negative.

Mr. {Shimkus.} We want to be helpful in that. Last question is one of the risks in Japan is that one of the decommissioned or offline nuclear power plants had a storage pool that went dry, is that correct?

Secretary {Chu.} We don’t know--

Mr. {Shimkus.} At least that is what the industry reports are.

Secretary {Chu.} There are so many conflicting reports.

Mr. {Shimkus.} Let me just make this point and I will be done. There are 11 pools within 40 miles of downtown Chicago. Wouldn’t it make sense to have one center location for storage of high-level nuclear waste? Like you identified in your report when you were the lab director when you said licensing of Yucca Mountain repository as a long-range resource was one of the findings.

Secretary {Chu.} We are talking about 2 different things. In a nuclear reactor site immediately after you take out the rods and put them in, you need to put them in water

pools. That is a very short-term storage. Yucca Mountain is a long-term--

Mr. {Shimkus.} The folks who are holding the nuclear waste in pools think it is pretty long-term right now.

Mr. {Whitfield.} The gentleman's time has expired. I recognize the gentleman from Texas for 5 minutes.

Mr. {Green.} Mr. Secretary, in the line of questioning we had a lot of questions of Members talking about solar and wind. Does either solar or wind have the potential in the next 10 years of ever becoming a stabilized base load like coal or nuclear or even natural gas?

Secretary {Chu.} It depends on the development of energy storage technologies along with that. You know that they are variable and when the sun sets or the wind stops blowing, they are no longer generating electricity. So it would have to depend on that. But before that happens I think that it can certainly go to a reasonable fraction of our electricity use. Countries like Ireland are now at 20 percent wind coupled with fossil fuel.

Mr. {Green.} Is there any country in the world--I know Denmark's is lead--what is the percentage of wind, for example, in Denmark?

Secretary {Chu.} It is a little over 25 percent but there it is coupled into a massive grid and so Ireland is

actually a better example because they have to be self-sufficient in themselves.

Mr. {Green.} According to our grids, we have it much more difficult in our own country is because Texas our own and, of course, the East and West Coast. Let me ask another question, though. The administration has proposed repealing numerous subsidies for tax preferences on fossil fuels, one you mentioned that has been part of the U.S. Code since 1926, another created to help U.S. manufacturers maintain and create U.S. jobs. I am concerned about this because increasing cost for domestic energy industry would jeopardize both some small business jobs but also increase our reliance on foreign sources of energy.

Would you agree that increasing cost for domestic production may also impact our ability to address climate change because we failed to provide natural gas, which is cleaner burning, as a bridge, whatever we have, whether it is nuclear or solar or whatever, to meet our short-term carbon reduction goals that we hope to have while providing affordable and reliable supplies for energy for American consumers?

Secretary {Chu.} Well, I would say based on what has been happening in shale gas and the lower gas prices and the anticipation that for the next decade and possibly 2 decades

natural gas prices will be low. There will be a natural move towards gas. But I would also say, then, I think the utility companies, the power generators are very aware of this, that you still want a diverse set of energy sources.

Mr. {Green.} Well, and I know what could hurt us on our natural gas success in our country--we pay actually less, you know, per MCF than anywhere else in the world almost for natural gas because of our success--but either tax increases or limitation on hydrofracking could eliminate that 100 years of natural gas that we have. So I would caution you. To jumpstart the domestic nuclear energy industry, your budget requests 36 billion in loan guarantees and authority for fiscal year 2012. How many projects do you think we would be able to support with that even with the tragedy that has happened in the last few days? Do you still think we ought to go forward after taking a breath, for example, and saying okay, what do we need to do different? Do you still think we need to go forward in expansion of nuclear power in our country?

Secretary {Chu.} Well, first, I agree with you. I think based on the events in Japan we need to look harder at these projects and guarantee that they can go forward in a safe way. This is a question of the $36 billion we believe should be able to fund something like 6 to 8 projects. The

loan guarantees could get six to eight projects going. Then we believe if they can proceed and be built on time, on schedule, there would be enough confidence that the private sector should be able to pick that up.

Mr. {Green.} Thank you. In the President's State of the Union address he had a goal of clean energy sources account for 80 percent of American's electricity by 2035. If we shut down our expansion of nuclear power like we did after, you know, Three Mile Island and Chernobyl, is there any possibility we can even get anywhere near 80 percent from clean burning fuels?

Secretary {Chu.} It would certainly make it harder. Right now we are 40 percent clean by this rough definition where you account, you know, for natural gas giving half-credit. But I think we will need, certainly, a large increase in wind and solar. We will need clean coal. And I believe we will need to have some fraction coming from nuclear.

Mr. {Green.} Okay. And I know the Energy Information Institute, Mr. Chairman, and I was surprised at the billions of kilowatt hours that our country generates even compared to what Japan does. Of course, Japan is blessed with a great deal of hydropower that, for example, in my area in Houston, we are flat. We don't have the option for hydropower like

the West Coast or other areas of the world. So we have to look at natural gas and nuclear and coal. Mr. Chairman, thank you for your patience.

Mr. {Whitfield.} Yes. At this time recognize the gentleman from Texas, Mr. Barton, for 5 minutes.

Mr. {Barton.} Thank you, Mr. Chairman. Again, thank you, Mr. Secretary, for being here.

In light of what has happened in Japan, I would like to hear what you believe President Obama's position is now on nuclear power generally in the United States. Does he still support a rebirth of nuclear power and construction of new plants? Could you just give us your best estimate of what his position is?

Secretary {Chu.} Well, I think the President and the administration believes that we have to be looking very, very closely at the events in Japan. As I said before, we have to apply whatever lessons that can be and will be learned from what has happened and is happening in Japan. Those lessons would then be applied to first look at our current existing fleet of reactors to make sure that they can be used safely and also to look at how, as one proceeds forward, that any lessons learned could be applied. It would be premature to say anything other than we will use this opportunity to learn as best we can and consider carefully how to go forward.

Mr. {Barton.} I am not sure what you just said.

Secretary {Chu.} Okay.

Mr. {Barton.} Does the President support new nuclear power plant construction in the United States?

Secretary {Chu.} The present budget is what it is and we are asking for long guarantees. The present budget is also calling for small modular reactors. That position has not been changed.

Mr. {Barton.} So that is a yes?

Secretary {Chu.} That is a yes.

Mr. {Barton.} Good. That is what I wanted you to say. See, if you had just said yes. Now, with regards to the loan guarantees that you just mentioned, given again what has happened, do you and the President want the Congress to support the full 36 billion that you have put in the President's budget?

Secretary {Chu.} Yes.

Mr. {Barton.} Okay. You are learning. You are not a Nobel Prize winner for nothing, I guess. Okay. This one is going to be a little bit trickier. You are a former director of a national laboratory and did an excellent job. I am a strong supporter of the national laboratories. At one time I had hoped to have one in Texas, the Super Collider laboratory that wasn't funded under President Clinton. However, having

said that, given the situation of our budget, do you think it might be time to reevaluate the number of national laboratories and perhaps begin to come up with a plan to reorganize and consolidate them?

Secretary {Chu.} You are right. That is a toughie. I would say before we do that, there are a lot of things we can do to look at how we can get real efficiencies in what we do. Even though the President and I firmly believe that the Department of Energy will play a critical role in guaranteeing the future prosperity of the United States in its research and development, we do also recognize that we have to look to gain efficiencies wherever we can and to streamline what we do, knowing that ultimately the money that we give to universities, to national laboratories and help research in businesses, that is our real job. And the other structures are there to ensure that we do this in the most intelligent way possible, in the most responsible way possible. So we are going to be working very hard to look at how we can increase those efficiencies.

Mr. {Barton.} Well, I support the national laboratories, but I do think we ought to begin to reevaluate them in the light of the budget and also the fact that perhaps some of their missions are not quite what they were when they were originally established.

My last question, Mr. Secretary, is, again, something that is of a sensitive nature. We have had repeated security violations at the Sandia National Laboratory in Los Alamos. There have been a number of investigations, a number of special taskforces trying to get control of the security situation in terms of our national secrets in those institutions. Can you elaborate and tell the committee what the status is of trying to make sure that those 2 laboratories are secure in terms of the secrets that we have out there?

Secretary {Chu.} I think the Department of Energy takes the security very seriously, not only in Los Alamos, Sandia, but also Livermore, the NSA laboratories. There are other laboratories that carry out classified information. And we take those very, very seriously. And I can give you the details. I have a slightly different view than you on the number of security violations, but every one of them we take seriously and we would be glad to brief you and your staff on that.

Mr. {Barton.} I appreciate that. And thank you, Mr. Chairman, for the courtesy of giving me the time to ask some questions.

Mr. {Whitfield.} At this time I recognize the gentlelady from California, Mrs. Capps, for 5 minutes.

Mrs. {Capps.} Thank you, Mr. Secretary, for your timely testimony. I recently toured the University of California Santa Barbara's Institute for Energy Efficiency, which was named a frontier research center by your Department, and I was pleased that you mentioned your support for this program in your testimony.

As you know, this center is researching energy savings in photable tags and solid state lighting. I am so impressed by the work of the professors and the students, especially their commitments to the commercialization of new technologies like LEDs.

So would you talk for a minute or two about how your budget request will support the administration's effort to get projects from the laboratory and the marketplace with a direct impact on the economy?

Secretary {Chu.} Certainly. I think the budget request in the Office of Science that is funding the group that you are speaking about is precisely the kind of research we will need to ensure that America stays at the forefront in these developing technologies. It is a very competitive world out there. Currently, the United States does make the best LEDs but we can easily lose that lead. Korea, China, Japan, Europe wants to take this away.

In the meantime we are actually trying to recapture the

lead in things we have lost. For example, advanced battery technology and what we see coming out of universities and national labs are the next generation of new batteries where I think we can recapture that lead. These are multi-, multi-billion-dollar markets in the future and this goes to the heart of what the budget request is about, that in this very competitive world where all of the countries and companies are trying to say we want to own this share, this is what is going to be at risk.

Mrs. {Capps.} Thank you. I also want to ask you about the State Energy Program. Decreased support for these programs will limit efficiency aid to small businesses and families, as well as to our local governments. As you mentioned earlier, efficiencies will produce major energy and cost savings. That has been clearly demonstrated over time. I have been told that the State Energy Program has produced cost savings of $300 million annually. It also leverages $10 in private money for every $1 of government money spent. So would you describe now about how the cuts in the State Energy Program, particularly those proposed in H.R. 1 by the Republican majority will affect local clean energy initiatives? Would you anticipate job losses from these cuts and how would these cuts affect small businesses trying to reduce their energy bills, not to mention homeowners and

other--

Secretary {Chu.} Right. Well, they certainly will have the impacts you talked about, and this is one of those areas where we have to make some tough choices. You know, we had a very good State Energy Program in the Recovery Act and also the EECBG and we will have to work with Congress going forward and whatever budgets they do give us and how to apportion what monies between research and development and things like the State Energy Program.

Mrs. {Capps.} Finally, I want to ask you about the innovative approaches to generating electricity from marine renewables. And I have a particular company in mind. Right now the Department has planned funding for 9 companies with active projects, including a company based in my congressional district called Ecomerit. First, can you please talk to us about the promise of marine renewables, maybe the steps the Department is taking to avoid or mitigate environmental impacts in coastal areas? And second, are you concerned that cuts to clean energy programs like this one might slow down the development and deployment of marine renewables?

Secretary {Chu.} Well, again, the cuts would definitely affect the research we can fund. And by marine renewables I think you are referring to kinetic energy-type extraction

techniques. There are at least a dozen companies that I know of that are looking into this both here in the United States and abroad. It is something that is a research project, so we don't really know it is going to see wide deployment, but it is certainly one of those areas that there is tremendous energy in ocean waves and in ocean currents. And so that is why these companies--and also research in universities, national labs are looking at this.

Mrs. {Capps.} And the other steps that your Department is taking to mitigate environmental impacts--

Secretary {Chu.} Yes.

Mrs. {Capps.} --in coastal areas?

Secretary {Chu.} It is all part of the package because we all know that whatever form of energy production we use, they could easily have environmental impacts. And you do this, you know, at the very beginning because in the end what you want to do is develop a technology that can actually be deployed and there would not be strong objections to that deployment. So it is always a part of the package, environmental impacts.

Mrs. {Capps.} Thank you.

Mr. {Whitfield.} At this time Dr. Cassidy of Louisiana is recognized for 5 minutes.

Dr. {Cassidy.} Now, I am struck that you mentioned the

subsidies, the heightened or continued subsidies for wind and solar and other renewables. I am looking at something from--I think this is from EIA, Energy Information Administration, and it says as of 2007, which I gather is the latest it is available, the subsidy and support per unit of production of solar is $24.34 per megawatt hour, for wind it is $23, for coal it is 44 cents, and for natural gas and petroleum liquids, it is 25 cents. So given that there is almost, what, 100 times increase subsidy for solar and wind versus natural gas and petroleum, maybe 80 times for coal, how much subsidy is required for us to take wind and solar up to 25 percent of our grid and can we afford that subsidy?

Secretary {Chu.} Well, there are two ways of calculating subsidies. One is by absolute dollar amount and another is by fraction of energy produced. I think you referred to fraction of energy produced--

Dr. {Cassidy.} And does it seem a more reasonable way because obviously if coal is 50 percent of our energy production to take the absolute number is a little misleading versus that as a percentage of the energy it actually produces.

Secretary {Chu.} Well, it really depends because if you look at the subsidy of oil and gas beginning in the beginning of the 20th century--

Dr. {Cassidy.} If we can just stay on--just because I have limited time. I don't mean to interrupt. I don't mean to be rude. But just to take right now electricity--

Secretary {Chu.} Um-hum.

Dr. {Cassidy.} --because there is a kind of, if you will, lingua franca, which is the megawatt hour--

Secretary {Chu.} Um-hum.

Dr. {Cassidy.} --and the subsidies per, so it is $25 roughly for solar and wind, 25 cents for natural gas per megawatt hour. How long can we subsidize solar and wind and can we afford it if we are going to increase it to 25 percent of our electrical use?

Secretary {Chu.} Well, I certainly think that wind and solar should not have any longer subsidies than oil and gas, which is about 80 or 90 years.

Dr. {Cassidy.} My concern is--because obviously others have attempted to do this, so there is a renewable energy magazine, ``Renewable Power News,'' which is kind of an advocacy group for renewable power. Spain has clearly attempted this high-subsidy market. I am quoting from an article they wrote. ``Spain will cut renewable energy subsidies. These have grown exponentially, their use of renewable energy, but it has been associated with an astronomical rise in energy prices, which has equally

resulted in heightening inflation and decreasing levels of competitiveness, which is an alarming threat to a feeble economy.'' So not to put words in your mouth, but are you committing to 80 years of us to follow the path of Spain?

Secretary {Chu.} Absolutely not. As I said, we are developing plans of what we can do in order to bring the costs of renewables like solar and wind down to the cost of fossil fuel, and we are talking about a decade, maybe 2 decades maximum. So this is an accelerated plan because the world is racing ahead. The development and the drop in price of these renewables will be very fast.

Dr. {Cassidy.} Now, my concern, though, is is that we are racing ahead, but there are certain laws of physics. Who am I to tell you about laws of physics? But the battery capability to store huge numbers, millions of electrons, if you will, doesn’t really seem that it is ready for commercial use in the next decade.

Now, that said, I am from Louisiana. Our hydropower ability is limited. Clearly, the reason that wind works in Denmark is that they have lots of hydropower, so if the base load goes down from wind, they can ramp up with hydropower. In my State, the Peking Plant will be coal or natural gas. You still get carbon emissions, but you get the higher cost of the renewables. This works in hydropower. What do we do

elsewhere?

Secretary {Chu.} Well, first, Denmark has access to other grids. Denmark itself I don't believe has hydropower. But never mind.

Dr. {Cassidy.} Sweden's hydropower is what I was referring to.

Secretary {Chu.} Right. Yeah, the point is that they have access to other sources of energy outside their own borders. In terms of batteries, what we are seeing, we are pretty certain within the next couple of years, the battery storage technology that begins to go to utility scale will be dropping perhaps by 50 percent--

Dr. {Cassidy.} But will it be adequate to say power in Washington, D.C., if we have windmills turning and the wind stops to blow or the night comes or the cloudiest day, will it have sufficient capacity to power Washington, D.C.?

Secretary {Chu.} I think it is going to be taking several decades to transition to renewables at the extent. But to get to 10, 20, 30 percent renewables, you can get to 20 percent renewables, possibly even 30 without energy storage, but energy storage will be an increasingly important part as you go higher than that.

Dr. {Cassidy.} I think we are a little circular because obviously the Peking Plants will still be necessary, in which

case you still have your emissions. I yield back. Thank you.

Mr. {Whitfield.} At this time I recognize the gentleman from Washington, Mr. Inslee, for 5 minutes.

Mr. {Inslee.} Thank you. Mr. Secretary, I was excited by your comments about prospective gains in solar. I just said the other day that Kleiner Perkins, the folks who started Google, just made a big investment in a group that could, I think, obtain I think they said 30 percent efficiency from solar cells. Could you tell us sort of in layman terms to the extent you can why you think we can get these big advances in solar and what do you think realistic projections for those advancements are in the decade?

Secretary {Chu.} The realistic projections within a decade are somewhere between a 50 percent drop and a 70 percent drop in the cost. It is full cost. Not only is it the module but it also includes the installation cost, the electronics cost, the full cost. We actually don't know which of the photable tag technologies will work because silicon continues to make dramatic strides, and we are especially looking at dramatically changing the costs of the manufacturing of silicon cells. There are wonderful ideas out there that are being pursued by companies and by researches. There are also a number of thin-film

technologies.

But if you look at these, and all the companies are looking at each other, we also need to increase the efficiency. Silicon is now in the low 20 percent deficiency. We expect it to make climbs in efficiency. The thin-film technologies are also beginning to make significant increases. And so there is a great deal of excitement. When I talked to the pho-tag manufacturers, they are pretty certain this drop will occur in this decade. But we think it can even better. And that is what we are focused on.

Mr. {Inslee.} Well, shoot for that. The Republican budget has proposed a 35-percent cut from last year in efficiency and renewable energy portfolio, and about half of that degree of cut for nuclear. That just doesn't make any sense to me. It would seem to me you would want to have a balanced portfolio. We have great strides available in efficiency and renewable. Would you want to comment on that?

Secretary {Chu.} Yeah, I think we would like to see research in both, just as we would like to support the engineering for small modular reactors. The engineering for looking at how we can improve both the safety and the productivity of future nuclear power plants, we think a balanced approach we should be looking at renewables as well.

Mr. {Inslee.} Thank you. I want to ask about Yucca

Mountain. We have some real issues, my State. We have paid about $300 million are rate-payers into the nuclear waste fund. There has been about $100 billion spent already on Yucca. We are told that the Office of Civilian Radioactive Waste is proposed to be shut down that was responsible for moving forward. In the State of Washington we have had 53 million gallons of radioactive and chemical waste stored in 77 underground tanks. We need a solution. Right now we don't see a viable proposal by the administration in this regard and would like to see one in the near future. Could you give us what options you intend to put on the table because we would like to see Yucca move forward.

Secretary {Chu.} Well, first, as you well know, the waste treatment plant at Hanford got a lot of attention, a lot of personal attention from me and a lot of personal attention from my deputy secretary, Dan Poneman. And we have, in fact, put on the table first both the contractor and all the people in the DOE involved. We now have 8 teams there. We are proposed to accelerate the budget so that we can drive this project forward so that we will be delivered on time, on budget. And that is the first thing that we get the material from those liquid waste tanks and into a much more stable form.

Mr. {Inslee.} And we appreciate your work there. There

is good work going on there and we appreciate your leadership. But we are concerned about--

Secretary {Chu.} Right.

Mr. {Inslee.} --the depository. If you could address that.

Secretary {Chu.} Certainly. And so the first order of business is to stabilize that waste. The second order of business is that going forward we do need a plan. I believe we don't really have a plan but that is the intent of the Blue Ribbon Commission, to look at what to do in the future beyond what we now have, beyond what the knowledge was when Congress wrote the Nuclear Waste Act of 1982 and modified in 1985. A lot of water has passed under the bridge. And so that is the charge of that committee. I believe they are going to be coming out with results this June.

Mr. {Inslee.} I suspect you know our position, but not only water over the bridge, but there is some radioactive water may be burning right now and we do have pools around this country in scores of places--

Secretary {Chu.} Um-hum.

Mr. {Inslee.} --that do present risk, not just financial risks. So we are going to continue to press the administration on this issue. Thank you, Mr. Secretary.

Mr. {Whitfield.} Thank you. At this time I recognize

the gentleman from West Virginia for 5 minutes, Mr. McKinley.

Mr. {McKinley.} Thank you, Mr. Chairman. There were several questions I have. One was there has been a dialogue from people who have come before you in this hearing have called about coal subsidies. I don't expect you to give them to me now, but could you share with us those companies that are being subsidized and how that is? Because people seem to be loosely applying their coal subsidies. And I have had opportunities to talk to quite a few coal companies and they are not getting any subsidies. So I would be curious if you could share with us any coal subsidies.

There is another issue is this SOAP program, this Small Operators Assistance Program. There seems to be some funding difficulties with that and I would appreciate if you would look into that. Your Department is not freeing up monies to the State to reimburse some of the small operators that are producing coal. So if you could get back to me on that I would appreciate it.

Also as it relates to funding ratios of cost/benefit ratios for you that it was alleged earlier that since you have been funded somewhere in the early '70s, you have probably received in the neighborhood of maybe $800 billion of revenue to operate, and I am just curious on a cost/benefit ratio if you could share with us sometime if you

could put that from your staff that what are the benefits that we have received out of that $800 billion? If you could just provide something. I don't want to get into that right now. I am sure it could go on for some time because I am hoping that it is a more than 1-to-1 ratio that we have received. So I would like to get some idea of where that would be.

But more importantly where I want to spend as much time was talking about with the National Energy Technology Lab that we have in Pennsylvania, Texas, Alaska, Oregon, West Virginia. When I met with them, they indicated that they are the only laboratory for the DOE that is owned and operated by the DOE according to their literature as well. And they are indicating that the budget being proposed is going to reduce their expenditure by almost $800 million by their own data that they have. That is very threatening because I see a paradox with this. I heard the administration talking about we want to do more research and development in energy but yet the very laboratory that you all fund is being reduced by $800 million. There must be a misunderstanding there someplace, either in the administration making that representation or in the data that they have provided in a chart.

So if you could provide us something back on that

because they are doing some wonderful things there at the NETL and they are trying to build research cooperatives with the universities in the area. And for us to cut their expenditures at this time is just unconscionable.

For example, one is with the Marcellus Shale that we have in Pennsylvania, New York, West Virginia, and they are trying to find ways through NETL of getting more than 15 percent of the gas out. Right now that is all they are getting out of Marcellus for all of that expenditure.

Secretary {Chu.} Um-hum.

Mr. {McKinley.} And they want to spend the money but yet the proposed budget is cutting the amount of money that we have for research. Can you share what is that underlying current? Why are we cutting money in energy research at your own facilities?

Secretary {Chu.} I will get back to you on that. I certainly know the NETL labs and we have now an excellent laboratory director that I am very positive about. And I know what they are doing in terms of increased contractions with the universities. I am very positive about it. I will get back to you on the details of that because there may be a misunderstanding. Certainly, the research that NETL does and does in universities we are very positive on that. And I will get back to you.

Mr. {McKinley.} You can get back to me and I appreciate it. Thank you very much.

Mr. {Whitfield.} Thank you. At this time I recognize the gentlelady Matsui from California.

Ms. {Matsui.} Thank you, Mr. Chairman, and thank you, Mr. Secretary for being with us here today. I applaud your leadership on supporting continued investments and clean energy technology. These investments are critical for the economic growth in my home district in Sacramento.

The developing nuclear situation in Japan has captured the attention of the world and certainly this committee. And my thoughts and prayers are certainly with the people of Japan.

Mr. Secretary, when Chairman Whitfield asked you about the crisis in Japan, he mentioned the international rating system for nuclear accidents, and you explained that the situation in Japan is already likely worse than that on Three Mile Island. My understanding is that the big difference between Three Mile Island and Chernobyl is that in Three Mile Island, the reactors containment system was able to contain the radioactive material. So most of that radioactive material didn’t spread into the environment. At Chernobyl there was no containment. So the release of radioactive material devastated the Soviet Union and other countries.

Mr. Secretary, what happens if there is a meltdown and one or more of the Japanese reactors and the containment system fails?

Secretary {Chu.} Well, we think there is a partial meltdown but--as you correctly noted--that doesn't necessarily mean the containment vessel will fail. Three Mile Island had a partial meltdown and it did not fail.

But we are trying to monitor very closely. We hear conflicting reports about exactly what is happening in the several reactors that are now at risk. And I would not want to speculate on exactly what will happen and so let us just say that we monitor it very closely and we will take it as it comes.

Ms. {Matsui.} I imagine we do not want to go there at all. We don't want this to become Chernobyl. But I would think that in the light of these events, the committee should investigate the safety and preparedness of our own reactors. And I think you said that also. But I think this committee should really take that seriously because we have an obligation to make sure that our own reactors are safe.

Mr. Chairman, my home district of Sacramento, we have a decommissioned nuclear power plant which now manages the used nuclear fuel. And there are about 10 sites around the country, including Sacramento, where used nuclear fuel is

being stored but where the nuclear power plant has been dismantled. I am interested in knowing what is being done at DOE to prioritize these sites, to move the used fuel so that they can be placed back into productive use. How does your requested budget address these issues?

Secretary {Chu.} Well, I would have to get back to you on the details of the sites you are speaking about, but there are various stages. After you take the fuel rods out of the reactor, immediately you put them in a pool of water for a period of time where they are actually still dissipating a considerable amount of heat. But then after that, the next stage is that you can put them in dry cask storage--

Ms. {Matsui.} Um-hum.

Secretary {Chu.} --which is much safer and Chairman Jaczko will be following me, but the NRC has recently ruled that storage on site of dry cask storage would be a safe interim--by interim, something on the scale of 50 or 60 years--and that gives us time to develop a coherent, integrated strategy on what to do with spent fuel.

Ms. {Matsui.} So we have, well, maybe not 50 or 60 years for our Rancho Seco, but maybe 40.

Secretary {Chu.} Well, we hope to develop a plan far sooner than that.

Ms. {Matsui.} Okay, great. Mr. Secretary, we are

fortunate in the Sacramento region that we have access to clean hydropower resources as part of our growing renewable energy portfolio. I believe if we are to achieve the President's goal of establishing a clean energy future, hydropower needs to be part of the discussion.

I would like to know what DOE is doing to advance the adoption of new hydropower systems to generate more clean electricity in the country.

Secretary {Chu.} There are several things we can do. We don't anticipate building new, large dams but we can replace the old turbines in existing dams with more efficient turbines that are actually friendlier to fish--

Ms. {Matsui.} Um-hum.

Secretary {Chu.} --and more efficient. We should look at what are called run-of-the-river hydro dams. So again, it has far less environmental impacts than a conventional dam. And we should also look at sites where we store water for flood control--

Ms. {Matsui.} Yes.

Secretary {Chu.} --and we release the water to put turbines in those sites, again, would have virtually no environmental impact but you can capture the electricity. So those are things we are looking at.

Ms. {Matsui.} Okay. Thank you, Mr. Secretary. I see

my time has run out.

Mr. {Whitfield.} Thank you. At this time I recognize the gentleman from Colorado for 5 minutes, Mr. Gardner.

Mr. {Gardner.} Thank you, Mr. Chairman. And Mr. Secretary, thank you for your attendance today.

A couple of questions for you following up somewhat on other Members' questions but also some questions concerning Yucca Mountain and also what is happening in Japan. Right now, what is your level of communication with the administration in Japan regarding the events?

Secretary {Chu.} Well, I spoke to the METI minister. I think it was--it is a blur now. It was yesterday morning. And offered him some of our services, our equipment, things like that, to which he accepted and expressed gratitude for that. I don't know whether it is hourly but it is certainly constant contact with people in Japan of our people. There are communications with Ambassador Roos, several daily and so we are mostly going through channels. The State Department is also communicating, NRC. And so there are many, many--and then other informal channels. But we are continuing to offer assistance to Japan in any way we can, as well as informing ourselves of what the situation is.

Mr. {Gardner.} And at this point you are satisfied with their response to the situation?

Secretary {Chu.} Well, I can't really say. I think we hear conflicting reports, but I will go back to say that Japan is a very advanced country. They take these things very seriously and so I don't want to say anything more than we will stand by and help them as best we can.

Mr. {Gardner.} Thank you. And Mr. Secretary, I have seen various what appear to be conflicting statements regarding the use of the Strategic Petroleum Reserve in news reports. Do you or do you not support at this point the access of the Strategic Petroleum Reserve?

Secretary {Chu.} Well, if by access you mean that regarding the Strategic Petroleum Reserve as one of several options that we can hold in our arsenal, it is designed for severe disruptions in supply. The President has made very clear that that is an option that he can consider. And there are other things that are happening right now. I think the other oil-producing countries in the world are stepping up their production.

Mr. {Gardner.} What about production here? Have you talked to Secretary Salazar or perhaps the Department of Agriculture about stepping up production within our own resources?

Secretary {Chu.} That is right. Secretary Salazar, as I understand it, two deepwater leases have been recently

issued. There have been a number of shallow-water leases that have been issued. There is an increase in production in the continental United States, as I mentioned before, because of the shale gas actually has shale oil in it as well. We see an increase in recovery of that and that is going to be a significant asset going forward.

Mr. {Gardner.} Are you encouraging domestic production to help lower the price of gasoline in the country?

Secretary {Chu.} I think domestic production should be part of a coherent plan going forward in what we need to do with our transportation fuel.

Mr. {Gardner.} But what is the President's plan right now to lower gas prices by the summer?

Secretary {Chu.} Well, first, domestic production itself doesn't turn on instantly, even if you have a known reserve. Producing more production from that known reserve will actually take months to years. Developing new reserves would take longer.

Mr. {Garner.} But the fact that that is coming online should be reflected in price?

Secretary {Chu.} That is true. So the immediate thing is that if you know that there are reserves coming online, just as oil-producing exporting countries around the world, you know that they are increasing their production. So that

should have a calming influence on price. But in the long run I think we should also say that if we look at the demand --by the long run I mean 10-plus years--

Mr. {Gardner.} So the administration's plan to lower gas prices by this summer is 10 to 12 years?

Secretary {Chu.} No, we are working towards doing what we can in the short term but I am also saying that this problem can emerge easily again because of the laws of supply and demand.

Mr. {Gardner.} So what is the administration's plan, though, by the summer to lower the price of gas?

Secretary {Chu.} Well, we are going to be seeing if production can be increased. We are in conversations with other countries around the world on how we can increase production. And again, the petroleum reserve option is on the table.

Mr. {Gardner.} But you are talking to the Secretary of Interior and Agriculture, Department of Agriculture, to increase production here?

Secretary {Chu.} Well, I talked to the Secretary of Agriculture and Interior several times a week. But I think the licensing and things of that nature are in the purview of Secretary Salazar and it is in good hands.

Mr. {Gardner.} Again, I have additional questions on

Yucca Mountain that I would like to submit if you wouldn't mind giving them back for the record. Thank you.

Mr. {Whitfield.} At this time the chair recognizes the gentleman from Michigan for 5 minutes.

Mr. {Dingell.} Curtis, I thank you for holding the hearing and for your courtesy in recognizing me. Mr. Secretary, welcome to the committee.

The President in his State of the Union said if the United States is to compete, we intend to out-innovate, out-educate, and out-build the rest of the world. A big part of that from my perspective is the Section 136 Program or the Advanced Technology Vehicles Manufacturing Loan Program. I have heard from numerous entities that have applied for funding under Section 136 and I find that in the development of that, none of them have been able to tell me that it has been an entirely positive experience, although I believe you and the Department have tried to be as helpful as you can. It is, of course, a complicated and a new law, which is somewhat made difficult by the fact that you had to function under very, very limited time frames.

In fact, I hear a complaint that the goalposts are constantly moving. This is perhaps the most serious and it is perhaps the one that I hear most. Companies feel that everybody enters into the negotiations with the best of

intentions but they have no assurance that they will ever get to the end of the road. For the record, please, would you provide a detailed summary of how Section 136 process works?

Mr. Secretary, I note that your budget request for this year is 40 percent less than was requested in 2011 and that the 2011 request is 50 percent less than the 2010 enacted levels. I understand our budget situation is serious but this seems to be inconsistent with the President's out-innovate, out-education, and out-build message. Has the need for funding to reequip, expand, and build more facilities to create the vehicles of the future gone down since 2010? Yes or no?

Secretary {Chu.} No, we certainly need to expand and build facilities. Were you comparing the recovery budget or our base budget?

Mr. {Dingell.} Well, my concern here is the Section 136 process and how it is working. And what I am trying to find out is has the need for that section to be used for funding to reequip, expand, and build more facilities to create the vehicles of the future gone down since 2010 so as to justify the reduction in the level of funding requested by the administration? Yes or no?

Secretary {Chu.} I think it has gone down if you are including Recovery Act funding.

Mr. {Dingell.} Say again?

Secretary {Chu.} I said if you are referring to the ATVM loans and including the Recovery Act funding for 2010, if you include that, our funding request has gone down.

Mr. {Dingell.} Well, I think it would be helpful to both of us if you were to submit the answers to the record, but where I am concerned is that we up there find that there is still a substantial need and yet we are finding that the requests for funding are going down. And what I am soliciting, Mr. Secretary, is your comments on this matter.

Last question, Mr. Secretary. Could you for the record submit a comprehensive list of applicants for assistance under Section 136 and give us each--with regard to each--an indication of where they are in the process?

Secretary {Chu.} Really we would be violating some confidentiality in the applicants of who has applied, and so that would be difficult.

Mr. {Dingell.} Well, Mr. Secretary, I am not trying to lay any traps for you. And I recognize this is difficult, which is why I ask that you submit this for the record. And my staff will be happy to work with your staff to see to it that we are able to work together to get the proper answers.

Secretary {Chu.} We can supply information in the aggregate, anonymity, things of that nature, and we can do

that.

Mr. {Dingell.} And I hope you understand, Mr. Secretary, these are friendly questions, not hostile. Mr. Chairman, I thank you for your courtesy.

Mr. {Whitfield.} Thank you. At this time I recognize for 5 minutes the gentleman from Pennsylvania, Mr. Pitts.

Mr. {Pitts.} Thank you, Mr. Chairman. Thank you, Secretary Chu, for your testimony today. In light of your opening statement, I believe if I can paraphrase it, you said nuclear power should continue to be a key part of our national energy policy, is that correct?

Secretary {Chu.} That is correct. We would like it to be part of our energy in this century, yes.

Mr. {Pitts.} In light of this, the administration has eliminated the Office of Civilian Radioactive Waste Management, an office within DOE expressly created by statute. The administration has also shut down the Yucca Mountain repository program. There are currently concerns about the status of spent nuclear fuel rods that have been in wet storage at the Japanese nuclear plants affected by the recent earthquake.

In light of the events in Japan, does the decision to eliminate the Office of Civilian Radioactive Waste and the shutdown of Yucca Mountain program deserve reconsideration

from the President?

Secretary {Chu.} Well, we shouldn't conflate what is happening with the events in Japan and the need to have a long-term repository. And again, as I said, there are stages. Once the fuel rods have been used, they are stored in a pool but that is a very short-term thing. And then you convert after several years to dry cask storage and then finally you look for disposition. But technology is changing and there is, again, I don't want to preempt what the Blue Ribbon Commission will say, but there could be potentially going forward in the coming years other opportunities to perhaps capture more of the energy content of that used yield.

Mr. {Pitts.} So at present, how does the administration fulfill its obligations under Nuclear Waste Policy Act to manage and permanently dispose of the Nation's spent fuel inventories?

Secretary {Chu.} Pardon?

Mr. {Pitts.} How do you manage and permanently dispose of the Nation's spent fuel inventories today?

Secretary {Chu.} Well, the Department of Energy is responsible for dealing with the spent fuel, and again, we are asking the Blue Ribbon Commission to give us advice on--which they will do in June in a draft report on how to

proceed forward so that we can actually take this spent fuel. As I said, I don't want to preempt what they are saying, so I don't really know what they are going to be recommending in terms of what you use with the fuel once it is cycled once.

Mr. {Pitts.} In light of the events in Japan, can you make any conclusions at this point about the safety of nuclear power in the United States as a result of what you know about the incident?

Secretary {Chu.} No, as I said before, what we want to do is look at what happened in Japan and say if there are these multiple events, as what has happened in Japan, a terrible earthquake and a tsunami, and look to whether we would vulnerable to a cascade of multiple events and how they might compromise safety. And so we first intend to look fully at whether we have considered all possibilities and get whatever lessons we can learn from--

Mr. {Pitts.} What is DOE doing in terms of monitoring any potential radiation emitted from the Japanese facility? Will you collect exposure and health effect data?

Secretary {Chu.} Well, what we have done is we have airlifted airborne equipment that can help monitor. We have made that available to the Japanese. We also have ground equipment that can pick up exposure levels and the type of radiation of people on the ground that we have also in the

process--so it is in Japan now. And we are looking to deploy this in various areas so that we can have a firsthand understanding of what the exposure levels are and how they might change.

Mr. {Pitts.} And in your testimony you say we are cutting back in multiple areas, including eliminating unnecessary fossil fuel subsidies, reducing funding for the Fossil Energy Program and reducing funding for the Hydrogen Technology Program. Will this decision increase or decrease gas prices in your opinion?

Secretary {Chu.} Well, I think the Fossil Fuel Program--well, let me back off and say that because of the Recovery Act, there was a tremendous amount of investments in clean coal technologies, carbon capture, sequestration technologies. And so because of that we thought that given that essentially $4 billion of investments that we can, given the issues about the fiscal responsibility, we thought that that very large investment can carry us forward for a number of years. So that is where most of the investments in our Fossil Energy Program were going into. It was going into clean coal technology. So we will still continue to make those investments because we believe that is a proper government role, to develop clean coal technologies. But that is different than transportation fuel.

Mr. {Pitts.} Thank you, Mr. Chairman. Thank you, Mr. Secretary.

Mr. {Whitfield.} At this time the chair recognizes the gentleman from Massachusetts, Mr. Markey.

Mr. {Markey.} Thank you, Mr. Chairman. Dr. Chu, you wear many hats as the Secretary of Energy. One of them is banker-in-chief to the nuclear industry, a socialist system that allows for the U.S. Government to provide taxpayer-backed loan guarantees for nuclear power plant construction in our country. I want to know from a purely financial-risk perspective, do you think that the events in Japan will probably make it less likely for Wall Street investors or utility executives to want to assume the financial risks associated with ordering new nuclear power plants?

Secretary {Chu.} I can’t really predict what Wall Street will do, but certainly the events in Japan are going to cause everybody to look back and look back at their existing plants and their future plans and I think that is a good thing in the sense that you take this opportunity to look back and see what you are doing and are you doing everything possible to maximize the safety.

Mr. {Markey.} So along those lines, are you going to reassess as the banker-in-chief the risk premium that you charge nuclear utilities for the loan guarantees you are

giving them in light of the events in Japan?

Secretary {Chu.} The risk premium is ultimately a credit subsidy issue.

Mr. {Markey.} Are you going to reexamine it in light of what happened in Japan?

Secretary {Chu.} Well, I think all factors get folded into a nuclear loan.

Mr. {Markey.} So you are going to reexamine it?

Secretary {Chu.} But ultimately, as you know, the OMB is the part of the government responsible for the determination of that credit--

Mr. {Markey.} Should OMB reexamine the risk premium?

Secretary {Chu.} I think they will include anything like what has happened in Japan in their determination.

Mr. {Markey.} So they should go back again. I thank you.

The Department has awarded an $8.3 billion loan guarantee to the Southern Company conditional upon the certification of the brand New Design, the AP1000 reactor by the Nuclear Regulatory Commission. Three days before the Japanese earthquake I sent a letter to the NRC because I learned that one of its most senior scientists, Dr. John Ma, has said that the design of that plant may be too brittle to withstand a strong earthquake and that it will ``shatter like

a glass cup'' under strong impact. He even said that Westinghouse modeled the resiliency of the reactor using a totally unrealistic earthquake simulation.

Don’t you think it is too risky to issue conditional loan guarantees backed by the federal taxpayer for reactors like the AP1000 that have not been fully approved by the NRC in final form after public notice and comment, particularly when one of the NRC’s own top technical people has raised serious concerns about its safety?

Secretary {Chu.} One of the conditions of a loan is that the NRC has to grant approval of the license, and that is still pending before the NRC. And so the Southern Company and its collaborators do not get federal money until the NRC approves their construction.

Mr. {Markey.} Don’t you think that we should hold off on licensing new reactors on new reactor designs or approving new loan guarantees until we assure that these new reactors are safe and we have learned the lessons of Fukushima?

Secretary {Chu.} I think we will, no matter what happens going forward, try to take the lessons of Fukushima and apply them to our existing fleet and any future reactors that we will be building.

Mr. {Markey.} Now, in the case of the conditional loan guarantee you gave the Southern Company for the two new

AP1000 nuclear reactors at Vogtle, that $8.3 billion taxpayer loan guarantee will then allow the Southern Company to get an $8.3 billion loan directly from the Federal Financing Bank at the Department of Treasury, again, a U.S. taxpayers'. So the taxpayers are fully on the hook for 8.3 billion out of the $14 billion project. If there is a default on this Vogtle plan and the first 2 units that they have already built in past years there were 11 times over budget. So if there is a default on the Vogtle loan, what would happen?

Secretary {Chu.} On our loan guarantee program the people who work in that program work very, very hard so that they make sure that if there is a default, that the government taxpayers are protected, that there are assets in Southern Company and others--

Mr. {Markey.} But if you can't get paid off, what happens then?

Secretary {Chu.} Well, it is a very complex agreement and there are specific--

Mr. {Markey.} Would we own the Southern Company like we involuntarily wound up owning General Motors if they can't pay?

Secretary {Chu.} That I would have to get back to you on the details of what the exact--

Mr. {Markey.} Yeah.

Secretary {Chu.} --recovery is.

Mr. {Markey.} I think the American taxpayer really has to be protected here going forward.

Mr. {Whitfield.} The gentleman's time has expired.

Mr. {Markey.} Should not be licensing AP1000s--

Mr. {Whitfield.} The gentleman from Mississippi, Mr. Harper, is recognized for 5 minutes.

Mr. {Harper.} Thank you, Mr. Chairman. Thank you, Secretary Chu, for being here today. I know that you can see the end in sight here of the questioning. I know you will appreciate your time, though, today being here.

And I wanted to talk to you about something that President Obama said in a press conference recently, that we should increase energy production in this country and he mentioned oil specifically, but it appears in his 2-plus years in office I would argue the President has really not done much in that way, not much towards increasing our production of oil. When the President came into office, gas at the pump was actually under $2 a gallon. We are approaching $4 a gallon in many regions. And, of course, we have had the Deepwater Horizon explosion back on, I believe it was April 20, approaching that 1-year anniversary. And then a moratorium was placed on the deepwater offshore drilling in the Gulf of Mexico following that and there have

been limiting of leases on the East Coast. And of course, we continue to ignore our resources in ANWR.

And I would ask if you have had any conversations with the President recently about expanding exploration and production of domestic oil, and if you have had those conversations, what input or direction have you received from the President?

Secretary {Chu.} The President has already spoken on this matter. He mentioned in a press conference that in 2010 the production of oil in the United States was as high as it has ever been since 2003. Prior to the Macondo accident, what had happened is more land was made open to have access to drilling, and that was certainly an administration policy. The oil companies are seeing a lot of leases are not fully utilized and the President has said that they would ask if those companies are just sitting on those leases, they are not actually using them, that we can explore mechanisms to find other lessees who would, then, explore those. So the President is, as part of a comprehensive transportation strategy, going forward. That is one of the things, in order to deal with what we are now facing.

Mr. {Harper.} When we say, or when the President says, or the White House says that production is as high as it has been since 2003, is that high enough in light of what is

going on around the world, first with the concerns in Egypt, and then Libya, and now what has happened in Japan? Are you convinced that we are pursuing the recovery of our own natural resources as it comes to oil in this country and the regions that we can go into offshore? Do you believe we are doing a sufficient amount at this level?

Secretary {Chu.} I think we are going to have to do many things. Increased oil production is only part of the solution. As the President said, we now have 2 percent of the known oil reserves in the world, and yet we consume 25 percent of the oil. And so we can increase production in the United States, but it clearly can't be the full solution. That is why we are focused on improving still further energy efficiency in automobiles, biofuels, advanced biofuels especially, and finally electrification.

Mr. {Harper.} Secretary Chu, have you had any conversations with the Department of Interior about the slowness in the permits being approved for the Gulf of Mexico drilling?

Secretary {Chu.} No, I haven't.

Mr. {Harper.} Okay. Do you intend to have any about the slowness of the permit process?

Secretary {Chu.} Well, I believe that this has gotten started again and the shallow-water permits were continuing

and now we have 2 deepwater permits. And I anticipate that that will be accelerating.

Mr. {Harper.} And what is your position on drilling and ANWR?

Secretary {Chu.} Right now there are many other sites open for drilling and so we need not tap there. And the President is also exploring other sites in Alaska both on- and offshore. And so at the present time, there are many sites open for drilling that are not being used. And so I think we first look to those sites and try to get the oil companies interested.

Mr. {Harper.} Would you look to those sites being used first before you tap into the Strategic Petroleum Reserves?

Secretary {Chu.} Well, the Strategic Petroleum Reserve, again, is something which was meant to have a continuous oil supply in case of significant disruption, and that is a strategic reserve. I mean, oil is very essential for our country and so that is the original intent.

What you are speaking of are things that has--even in a known reserve, it takes a year or two to bring up production and then for unknown reserves and exploration--

Mr. {Harper.} Sure.

Secretary {Chu.} --5-plus years.

Mr. {Harper.} And exactly, wouldn’t it be necessary? I

will yield back my time with that. Thank you.

Mr. {Whitfield.} Thank you, Mr. Harper. At this I recognize the gentlelady from Colorado, Ms. DeGette.

Ms. {DeGette.} Thank you so much, Mr. Chairman. Thank you for coming today, Mr. Secretary. Mr. Upton said that we are going to have more hearings about what happened with the nuclear power plants in Japan, but I just wanted to ask you a couple of questions that have been on my mind since the terrible events of last week.

The Fukushima Daiichi plant, at that plant, three of the six reactors were operating at the time of the earthquake to my understanding. Is that correct?

Secretary {Chu.} That is my understanding also.

Ms. {DeGette.} Okay. And so when the earthquake struck, the control rods essentially shut down those reactors as it was designed to do if there was an earthquake. Is that also right?

Secretary {Chu.} That is my understanding.

Ms. {DeGette.} And then after the reactors were shut down, then power was lost in the plant and then the cooling pumps were shut off. Is that correct?

Secretary {Chu.} That is correct. The power was lost.

Ms. {DeGette.} So then the backup diesel generators came on as that was also designed to do and then those

generators quit functioning because they went under the floodwaters from the tsunami. Is that right to your knowledge?

Secretary {Chu.} The generators came on and then later I have been informed that some of them then shut off. This is where I couldn't give assurances because you hear conflicting reports, but the story I heard was that the cooling for the generators was at risk and they tripped off for that reason.

Ms. {DeGette.} Right. Okay. So then now what they are trying to do is pump the seawater in to keep these rods from melting down, right?

Secretary {Chu.} That is correct. They are using, now, fire trucks.

Ms. {DeGette.} So--

Secretary {Chu.} And other pumps.

Ms. {DeGette.} --this is the concern I have got--and I imagine you share this concern--is that there were numerous failsafe systems here with this plant. I mean, it is 40 years old but it is a pretty technologically advanced plant and there were numerous failsafe methods, correct?

Secretary {Chu.} Yes.

Ms. {DeGette.} The plant was built to withstand earthquakes, but because of the tsunami, now we have got this

crisis about what to do. And the thing I am concerned about is that you can't always plan for every exigency in these situations. We saw this on this committee. You saw it last year with the Deepwater Horizon disaster because there were numerous failsafe mechanisms on that rig and then each one of them failed, and then we saw huge amounts of oil spewing out into the Gulf.

So my question for you is I know DOE is putting resources towards advanced reactor technology and there are a lot of concerns from this committee and from my colleagues who live in California and some of the other earthquake zones. But here is my question is how can you, with something so potentially destructive as these nuclear rods, how can we ever anticipate the worst so that we can be prepared for it? That is a tough question, I know, but maybe you have some initial thoughts on it.

Secretary {Chu.} Well, what the Department of Energy is very interested in doing is developing tools to get a better handle on these multiple cascading events, interacting events, an earthquake plus a tsunami, a tornado plus this or that, things like that. One of the things that we are very keen on doing because we have developed high-performance computers and simulation techniques, that this is one of the tools we think that can actually be used to make any system

we have, including nuclear reactors, safer. You know, if you consider all the things we do now, we fly on airplanes, we do all sorts of things, and there is ever-increasing ability to make each of these systems safer as we go forward.

Ms. {DeGette.} Sure. Well, you know, 1 thing that strikes me--and I was just in Japan a couple of weeks ago with the Congressional Delegation--and the 1 thing that strikes you about Japan, this is not, you know, Chernobyl. This is not some Third World country with rinky-dink technology. This is state-of-the-art technology and yet it failed.

So I really think one of the questions, Mr. Chairman, we are going to want to explore as we move forward is do we really have the kinds of modeling that we need to develop nuclear energy safely in this country. And I am sure you are looking at that, too.

Secretary {Chu.} Um-hum.

Ms. {DeGette.} Thank you. Thank you, Mr. Chairman.

Mr. {Whitfield.} At this time I recognize the gentleman from California, Mr. Bilbray.

Mr. {Bilbray.} Yes, Mr. Chairman. And I think the secretary will agree with the statement that Japan is state-of-the-art is inappropriate. It is a state that was designed maybe 40 years ago. We have now got designs even in the fuel

composition that really address these issues. So as somebody who lives downwind of San Onofre, I just want to assure everybody our surge wall is three times what they had in Japan. The surge wall, the construction at Diablo is eight times higher and the fault line is inland, not offshore. So I think when we talk about this, there are differences scientifically.

Let me just say, Mr. Secretary, I am 1 guy sitting on this side of the aisle that is very excited to see you as the secretary. And we talked about this last year over in the Science Committee. I just realized the connection. Back when I was a young 26-year-old city councilman, the Department of Energy was created. Back in the ‘70s when it was created our dependency on imported energy was what again?

Secretary {Chu.} Well, I heard 35. I was guessing 25. But--

Mr. {Bilbray.} I think you are right. I think it was more like 25. And when you took over in ’08 the imported energy was what percentage?

Secretary {Chu.} In ’08 probably 60, 59, 60.

Mr. {Bilbray.} And that is how much success our Department of Energy has had in the past, but that is why I am optimistic that you are the right guy at the right time with the right President to finally get this country to,

rather than have an anti-energy policy, actually have an energy policy. And that is one of the things I am really encouraged about. My biggest concern--and I will say this with tongue-in-cheek--to the fact of how much obstructionists always seem to be there every time you come up with an innovative approach.

I want to point out that as one of the three California surfers in Congress, you mess with our ways to try to generate electricity, you are going to have a real problem with us, okay? Just the fact is every time somebody says there is something nobody will complain about, believe me. You start talking about wave actions in Southern California and Hawaii, we are going to have some concerns.

But that aside is that one of the things I want to talk about is you are being asked to do things in isolation. And my attitude about our oil reserves or the areas being drilled is that right now we are buying oil overseas, sending our resources overseas. What happens to the federal profits that we get from opening up lands like ANWR or Alaska? We do make some profits off those oil exploration and development, don't we?

Secretary {Chu.} We do.

Mr. {Bilbray.} And where does that resource go now?

Secretary {Chu.} As far as I know it goes to the

Treasury.

Mr. {Bilbray.} Okay. Don't you think that we may want to at least discuss the possibility of opening up lands and committing those profits to next-generation green fuel so that we have a built-in resource like the transportation components, the freeway interstate system, have a built-in source for you to use to be able to pay for that bridge to a greener future?

Secretary {Chu.} I would love the Department of Energy to have a build-in source that we can do the research that will lead to technology the private sector will pick up.

Mr. {Bilbray.} Okay. Let us talk about obstructionists. We talk about going to electrical generation. We talk about energy development. Isn't it true that the technology we use for efficient electric motors and the efficient generation of wind power depends on permanent magnet technology because it is so much more efficient than the AC technology that it replaced?

Secretary {Chu.} The permanent magnet technology is more efficient and we are also looking at other because these permanent magnets and the rare-earth magnets--

Mr. {Bilbray.} This is where we come down, the rare-earth. At the same time we are talking about electrification, nobody in this town is talking to the

Department of Interior about opening up public lands to allow the mining of rare earth, 70 pounds in every Prius where in 30 years that we have gone with this Energy Department, the Department of Interior has created an environment where instead of 98 percent of the rare earth being produced in the United States, it is now in China. Don't you agree that we need in this committee if we want to create efficient electrical generation and use, we have got to be brave enough to ask our colleagues over at the Department of Interior and the Resource Committee to start looking at opening up public lands within our country so these essential rare earth can be developed if we are going to go to electrification?

Secretary {Chu.} I agree with you that having China control 98, 99 percent of the rare earths of the world is not a good situation. And we are looking--I believe Molycorp Corporation in California will be--I think it is in California--will be--I am not sure actually.

Mr. {Bilbray.} My point, Doctor, is that you understand the barriers. My frustration is the barriers is more government obstructionism. We write checks quick but we are not willing to change regs. We talk about we need a Manhattan Project for energy independent. The fact is today the Manhattan Project would be legal to perform under federal and state regulations. And we have got to be willing to not

just tell other people how they have to change their operation and their way to do business, those of us in government have to change the way we do business, too. Wouldn't you agree?

Secretary {Chu.} I think we are going to be looking at many, many things, but certainly there need to be requirements is something we also have to take seriously and I would be glad to talk to you about that in private.

Mr. {Whitfield.} At this time I recognize the gentleman from Pennsylvania, Mr. Doyle.

Mr. {Doyle.} Thank you, Mr. Chairman. Mr. Secretary, welcome. It is a pleasure to have you here before our committee today.

Secretary Chu, you know in Pittsburgh we are fortunate to have the National Energy Technology Lab that does a lot of innovative research. And I was hoping I could ask you a few questions concerning some of the cuts in the administration's upcoming budget proposal. I see that you have terminated all of the natural gas and oil programs run out of the NETL. Don't you view these research programs as being particularly relevant today, since it funds environmental protection projects that are related to drilling, hydraulic fracturing, oil and gas production, as well as the development of advanced technologies that will allow increased recovery from

our domestic unconventional oil and gas resources?

Secretary {Chu.} Well, I think the Department of Energy played a very important role in the developing of natural gas recovery in the late ‘70s, early ‘80s to 1992. It was actually the Agency that funded the research that led to the fracking of natural gas. But the private sector has picked it up and it is doing quite well.

There has been a transfer of funds from FE, Fossil Energy, to the Office of Science for doing research in methane hydrate recovery because, commercially, energies are that interested so far, but the bulk of our funding in FE, as you know, is for carbon capture and sequestration.

Mr. {Doyle.} Um-hum. And I understand the larger companies have the ability to pick up some of that slack but, you know, this program, at least in my view, is really not subsidizing the bigger companies. In the United States we have 5,000 small independent producers. They do 90 percent of the wells and 60 percent of the domestic oil and 80 percent of the natural gas comes from these small companies that employ an average of 12 people or less and they don’t have the resources to invest in the R&D. And this is where DOD has really fulfilled a critical need for technology advancements through partnerships with companies like these and university researches and technology.

I do want to ask also to follow up because you just mentioned this. The administration has proposed that the Gas Hydrate Research Program and fossil energies being terminated and transferred responsibility for future research over to the Department's Office of Science. Now, the program has been well managed. It has made significant progress, and it concerns me that you are going to kill a program that is on the verge of making production from gas hydrate a practical reality after decades of research and millions of dollars spent by DOE and other agencies to bring this to this point, that you are going to start up a new program in the Office of Science that I think would have little bearing on anything.

And when you look at the language just in the most recent Energy and Water Senate report, we contain language about this that the committee recommended, includes 22 million. Of this amount 15 million is provided for methane hydrate activities. The committee actually restored this hydrates technology program of the account, and they don't support funding this within the Office of Science. Their intention was that this was to be funded out of Fossil Energy. So I am curious why you are deciding to defund this program and transfer it over to the Office of Science?

Secretary {Chu.} Well, I know the program very well and will certainly abide by--and I do think highly of it. We

hope the Office of Science will look to the people doing that research, but we will abide by Congress' wishes.

Mr. {Doyle.} Thank you. One more question, too. As the co-chair of the Hydrogen and Fuel Cell Caucus, I am also concerned about the Department is basically zeroing out funding for the Fuel Cell Energy Program within the Office of Fossil Energy. I understand that one of the projects managed by DOE won and R&D 100 award in 2010 for improving the service life of solid oxide fuel cell stack materials. I am curious, why would you eliminate this very successful Fossil Energy program that is developing fuel cell technology required for large-scale power generation applications to produce affordable, efficient, and environmentally friendly electricity from coal?

Secretary {Chu.} Well, we actually have several fuel cell programs within the Department of Energy and we were consolidating them. We are continuing to fund fuel cell development as stationary fuel cells, and so it was moved out of Fossil Energy.

Mr. {Doyle.} See, my understanding is that you are continuing to fund transportation fuel cells but that you have zeroed out the stationary fuel cells. Are you saying that is not accurate?

Secretary {Chu.} It is my understanding that we are

mostly concentrating on stationary fuel cells. We do have some on transportation but it is concentrated on that.

Mr. {Doyle.} Thank you. I see my time has expired. Thank you, Mr. Secretary.

Mr. {Whitfield.} At this time the chair recognizes the gentleman from Virginia, Mr. Griffith.

Mr. {Griffith.} Thank you, Mr. Chairman. Continuing talking about coal a little bit, I am concerned that new regulations will slow growth and send jobs to China. Both you and the President are supporters of China's energy policy. We hear time and time again from the administration that China has a strong commitment to wind and solar energy and that we need to catch up or we will lose the future.

But you would agree and are aware that China gets 70 percent of its total energy and 80 percent of its electricity from coal. Wouldn't you agree with that?

Secretary {Chu.} I have heard numbers like that, yes.

Mr. {Griffith.} Yes, sir. And isn't it true that China uses 3.5 times as much coal as the United States uses and that that number is actually growing?

Secretary {Chu.} I think so. Again, I am not sure the exact numbers.

Mr. {Griffith.} Okay. And you are aware that under the Kyoto Protocol, China has no obligation to reduce emissions

and it is not imposing anything anywhere close to the EPA's greenhouse gas regulations on its coal use, isn't that correct?

Secretary {Chu.} That is correct.

Mr. {Griffith.} And you are also aware that the Chinese Government has repeatedly stated that they would never put a price on carbon, isn't that also true?

Secretary {Chu.} I don't know. China is committed very emphatically to transition to 15 percent renewable energy by 2020 and they may get to 20 percent.

Mr. {Griffith.} Okay. And while you are aware that wind and solar in China are growing in percentage terms, they will never--or at least not anytime in the near future--be equal to their relationship or their reliance on coal, isn't that true?

Secretary {Chu.} Well, it is their intention to greatly diversify their energy supplies. In the short term they are heavily dependent on coal, but they have made it very clear that they want to develop wind, solar, hydro, nuclear.

Mr. {Griffith.} Yeah. And the factories that make the wind turbines and solar panels for export to Europe and the U.S., isn't it true that they are actually powered by coal energy sources?

Secretary {Chu.} I would presume given that coal is

still the dominant form of energy.

Mr. {Griffith.} And don't you think that is a part of their competitive advantage is that they are using a cheap source of fuel that we seem to not want to use in this country?

Secretary {Chu.} Well, it is more complicated than that. If you don't mind, I will tell you a little story. I toured a Chinese solar company and they would get their silicons from companies in the United States and then add the high value part of it to make the modules in China--

Mr. {Griffith.} And I appreciate that. My concern is I only get a certain number of minutes to ask you questions, and I guess my concern is is that, you know, it appears to many that the future of coal in the United States is merely to mine it and send it to China for them to use and that our jobs are going to go over there. They are going to send their pollution back to us over the Pacific Ocean because they are not going to have even some of the more reasonable regulations that we have, but that we are not using our own coal for our manufacturing purposes. And so as a part of that I am wondering if you have talked to any of the folks at the EPA about their slowness to permit new coalmining or is this part of an administration plan to slow down the production of coal and thus force us to, I think, lose jobs?

But the plan would be force us to not use coal because there isn't a supply available domestically?

Secretary {Chu.} I have not talked to the EPA regarding this, but just to finish that story, China takes its silicon from the United States because it says that energy is so cheap in the United States and that is why we do it.

Mr. {Griffith.} Okay. And in regard to coal you would agree that it is a fairly affordable and reliable source of energy in the United States and that it is a good source, at least over the next 20 or 30 years it is a good source that we shouldn't cripple, would you not agree?

Secretary {Chu.} Well, I think that is why the Department of Energy is committed to developing those technologies to use coal as cleanly as possible.

Mr. {Griffith.} And I would encourage you to work with the Environmental Protection Agency to make sure that they don't shut down your supply for those purposes and other purposes. Thank you.

Mr. {Whitfield.} Thank you. At this time I recognize the gentleman from Texas, Dr. Burgess.

Dr. {Burgess.} Thank you, Mr. Chairman. Dr. Chu, I appreciate you being here. I certainly appreciate how generous you have been with your time over the past 2 years to visit with Members of the committee outside of the

committee room.

In response to a question from the gentleman from Mississippi about ANWR and whether or not the President would consider that, you said that there were other sites in Alaska that the President was looking at. Now, in all honesty, I mean, his background is as a community organizer; you are the energy expert. Are you helping him with that?

Secretary {Chu.} Well, actually, this is the domain of the Secretary of Interior and so it is the Secretary of Interior who would be helping him with that.

Dr. {Burgess.} All right. But he has got some petroleum people who are actually helping him make that decision?

Secretary {Chu.} I would think so, yes.

Dr. {Burgess.} Okay. Maybe we ought to find that out who can help him. Now, also mentioned in a previous answer to a previous question, you said that oil can't be our only solution. We have 2 percent of the reserves and 25 percent of the consumption.

Now, a resource where we do have significant reserves is natural gas. And in my part of Texas we have new technology that allows recovery of natural gas from strata that previously were thought to be inert and that is ongoing at the present time. As you are aware, there is some

controversy about the methods of extraction and to be certain all of us do need to be concerned about safety. We have seen it in Japan this week. We saw it in the Gulf Coast last year, so we do need to be concerned about safety. But we also need to be concerned about the overregulation of these processes that inhibit our ability to take advantage of a resource that we do have in abundance.

Now, on the utilization end, I am sure you are familiar with people like Boone Pickens who talk about our heavy transportation fleet should be run much more on natural gas rather than liquid petroleum products. What are you doing at the Department of Energy right now in regards to that?

Secretary {Chu.} We are supporting pilot programs. We think especially in delivery vehicle situations where there are central fueling stations because we don’t have a natural gas infrastructure, that that would be a good place to prove natural gas and establish the technology. I think we had a loan guarantee for natural gas vans for helping handicapped people. We have supported programs using Recovery Act money for centralized fueling stations.

Dr. {Burgess.} Sure. So things like city buses and school buses make sense because they are not long-haul vehicles and they--

Secretary {Chu.} And they always go back to the same

place.

Dr. {Burgess.} Correct. They could be centralized. Now, are you working with your counterparts at the Environmental Protection Agency to help ensure the correct utilization of this resource, the ability to continue to recover it and that it is to be done in a safe manner? Because you know the EPA has a couple studies going on right now as regards to hydrologic fracturing. Are you communicating with them about that?

Secretary {Chu.} Well, first, the Department of Energy is using some resources in this fiscal year to look at fracking safety. I think it is something that can be done safely but we have to--

Dr. {Burgess.} Can you say that again?

Secretary {Chu.} The Department of Energy currently--

Dr. {Burgess.} I think that--finish that thought.

Secretary {Chu.} I think that--

Dr. {Burgess.} I think that it can be done safely. Did I hear you say that?

Secretary {Chu.} I believe it is like everything else. We learn from what is happening and it can be done much more safely just as deepwater oil drilling can be done more safely than it has been done in the past. We learned from the--

Dr. {Burgess.} Don’t parse your own language. I heard

you say it. It can be done safely as a simple statement of fact?

Secretary {Chu.} It can be done safely.

Dr. {Burgess.} I agree with you, Mr. Secretary.

Secretary {Chu.} But you also have to be on guard. One can't be absolutely certain of these things and you have to take that responsibility very seriously.

Dr. {Burgess.} Absolutely. And I will tell you in my home area right now the public doesn't get the sense that its safety is being protected. That is why I urge you to work with your counterparts at the Environmental Protection Agency. This is an important resource for the country and we cannot afford it to become locked in where we can't develop it because it was either done incorrectly or unsafe practices were pursued and the public's then reaction against it is such that it just can't be developed.

Just briefly on Japan for a moment. Is your Department sending a contingent to Japan or has Japan asked for any help from the United States Department of Energy?

Secretary {Chu.} As I said in my opening remarks, we have sent some 33 or 34 people to Japan to help them monitor with equipment.

Dr. {Burgess.} Just for what it is worth, I think at some point in the future when you deem it safe, your presence

in Japan, I think, would go a long way towards reassuring the people there. Thank you, Mr. Secretary.

Mr. {Whitfield.} The gentleman from Ohio, Mr. Latta, is recognized for 5 minutes.

Mr. {Latta.} Thank you, Mr. Chairman. And Secretary, thanks very much for your indulgence with us today. We really appreciate you being here and I am going to follow up a little bit on Dr. Burgess' comments a little bit ago.

But just to kind of give you a little background about my district and how important energy is out there, Ohio overall gets about 80 percent of its energy is coal-based. And also, interestingly enough, about 80 percent of everything that comes in and out of Ohio comes in by truck. So we are talking about oil.

The 5th Congressional District, according to the National Manufacturers, is the 20th largest manufacturing district in Congress. It is also, interestingly enough, the largest ag district in the State of Ohio. We also have two solar manufacturing plants in the district. I have two ethanol plants in my district. The first four really working turbines in the State of Ohio I can see from my backyard. There are four of them not too far from my home. And I am one that really truly believes that we have an all-of-the-above energy policy. And again, that is your oil and natural

gas, coal, nuclear, and all of the alternatives because we have to really utilize all of those.

But at the same time when I am out talking to my companies, my businesses, the factories across my district, one of the things that always comes up in the conversation is we have to have base-load capacity to turn these machines on in the morning. And I know that a question was asked, I think it might have been Mr. Green had asked a little earlier in regards to, you know, where are we at that, you know, through the alternatives? I think the question he posed was in 10 years that we could really start supplanting, you know, some of the oil, natural gas, coal, and nuclear.

But, you know, to make sure that we can compete, and I know the questions have come up because it all comes down to really jobs and making sure people can get out there and work and we have these jobs in the future. Is there anything out there right now that can supplement those 4 basic methods that we have right now from nuclear, the clean coal, the oil, and natural gas?

Secretary {Chu.} I think it is going to be a transition period. If you look at other countries around the world and if you look at what we are doing here in the United States that these things don’t happen overnight. It will take decades to make these transitions. And one recognizes that.

Mr. {Latta.} Well, let me ask this. I represent quite a few co-ops in my district and one of the things that they are worried is is that, you know, the cost of having to buy a lot of the alternatives right now are driving up their cost, which is driving out the businesses from the area. And do you foresee that happening?

Secretary {Chu.} There is background noise.

Mr. {Latta.} Sorry. I have a lot of co-ops in my district. And one of the questions that they always bring up to me is that they are fearful that if they have to buy too much on the alternative side--and I know that we all want to see alternative--but they see it that they are not going to be able to supply power cheaply enough to be able to maintain the businesses that they service right now. And do you see that as a problem?

Secretary {Chu.} Well, we have to be very sensitive to that and that is why the Department of Energy is so focused on looking at exactly where we think the trajectory will be and what are the time scales that would be needed in order to bring down the price of renewables so that they are absolutely competitive without subsidy with fossil generation of energy.

Mr. {Latta.} You know, in your testimony you also, on page 8 where the cuts are occurring under the Office of

Fossil Energy, how do you define unconventional fossil energy?

Secretary {Chu.} Unconventional fossil energy I would think methane hydrates would be an example of that. This is natural gas trapped in crystalline structures of ice.

Mr. {Latta.} And just kind of following along in the lines that Dr. Burgess talked, especially in the fracturing question. You know, we now have in Ohio and Pennsylvania, New York, the Utica reserves are being found. They are saying that probably Ohio they will be able to get to that maybe first. And again, just making sure because I know there has been talk around the Hill by some individuals that, you know, fracturing shouldn't be done. And I am one who has looked at the EPA reports that they have put out from several years back that said that fracturing can be done. And I know that, you know, Dr. Burgess has asked that question of you that, you know, I believe it can be done safely. And, you know, will the Department of Energy also make sure that that can be done and that these people out there aren't going to be impeded to get this energy that we need in this country?

Secretary {Chu.} I think yes. When I said it can be done safely, let me reiterate ``can be done'' is different than ``is being done'' safely. I think industry can take the steps needed to extract these resources safely. And I think

it is important that we continue taking those steps to improve the methods.

Mr. {Latta.} Well, I guess finally is that as we look at everything that is out there, hopefully the Department of Energy always is looking at all of these alternatives that people are coming up with. And I know my array of individuals working on clean coal technology and trying to make sure that, you know, we can utilize high sulfur coal that comes from like our region of the country and put it to use since the United States does have such large reserves when it comes to coal.

And with that I appreciate you being here today. And Mr. Chairman, I yield back.

Mr. {Whitfield.} At this time I recognize the gentleman from Iowa, Mr. Terry.

Mr. {Terry.} Or Nebraska. Yeah, corn states. Confuses tobacco state people.

Mr. {Whitfield.} At least I got your name right.

Mr. {Terry.} Yeah, coal states.

Mr. {Whitfield.} I got your name right.

Mr. {Terry.} It is progress, Mr. Chairman. Sorry, Doctor. I really appreciate you being here and I think we all have great respect for you and your talents that you are lending to the Nation right now.

Harping on the fracturing, let me ask you a simple question. You mentioned earlier that you are in discussions with Interior and EPA all the time. Have there been any discussions about limiting fracturing now?

Secretary {Chu.} I have not been part of those discussions. I have not been.

Mr. {Terry.} Okay. Because there is a lot of discussion or rumors that Interior is going to shut down all fracturing within Interior lands and there is rumors that EPA is going to come down on current fracking techniques. Now, have you heard any of that within the administration discussions?

Secretary {Chu.} No, the only thing I heard about, the EPA has requested that monitoring be done and certainly there have been reports of possible contamination and things of that nature. So the ones I have heard said we should monitor what is being discharged. For example, the water being used and the fluids being used in fracking as they go into, let us say, sewer treatment plants that the EPA has, I believe, asked for the monitoring in the discharge of those sewage plants.

Mr. {Terry.} Very good. And I appreciate that you said to Dr. Burgess that fracking can be done safely.

Secretary {Chu.} Um-hum.

Mr. {Terry.} Without that technique we aren't going to have the level of natural gas that we are going to count on. The Bakken shale up in North Dakota, their production would go down greatly. We want to do it safely and cleanly but we don't want an overreaction and just start shutting it down either. So we need to do it safely. Are you engaged in any activities right now to set out what techniques or changes to make it safe or safer?

Secretary {Chu.} Right now we do have a small program--it is located in universities--to look at what are the issues in terms of the safety in fracking fluids. The Department of Energy does have expertise in how fluids move around in rock because of both carbon capture sequestration, also because of the underground repository work that we need to do. And so those same technologies can be brought to bear on fracking.

Mr. {Terry.} I have got 1 more question in my minute, 45. So let me interrupt with this one. I want to know if there are any reports due or their findings--and I will send you a written question as fairly common at the conclusion of hearings that we will send written questions to you. Expect that one from me. It would be nice to know when you will get that information in so we could look at it, too, and maybe have you back.

But in regard to natural gas you have a lot of

proponents of natural gas not only in electrical generation but moving it more towards a transportation fuel. I see in your budget that there is $200 million in the competitive program to encourage communities to invest in electrical vehicle infrastructure. Can you tell me what measures the DOE is undertaking to promote natural gas vehicles?

Secretary {Chu.} Yeah. As I said, we have invested in some pilot projects for centralized delivery van type of things where you can go to a centralized fueling station. I can get back to you on the full details of what we are doing on natural gas.

Mr. {Terry.} I would appreciate it. And I think the focus, if I could be so bold, is probably in large fleets with on-premises fueling stations.

Secretary {Chu.} That is correct.

Mr. {Terry.} And so in regard to providing us information if you could do that on any of the programs that would help implement or build on-site stations for large fleets--

Secretary {Chu.} Um-hum.

Mr. {Terry.} --I think that would be helpful. Thank you.

Mr. {Whitfield.} Thank you, Mr. Terry. At this time I recognize the gentleman from Louisiana, Mr. Scalise.

Mr. {Scalise.} Thank you, Mr. Chairman. Mr. Chu, I appreciate you being with us today.

I want to talk about the broader picture of energy policy. And I know a few of my colleagues touched on some of the various objectives. And over the years our dependence seems to have increased on foreign oil especially over the history of the Department of Energy. In your mission statement you talk about ensuring America's energy security.

And I think one of the concerns I have is when you look at what the current policies are from this administration. It seems like despite the current levels of production which are the result of years of exploration in the past, it seems like this administration has shifted policies away from energy exploration in America. And, of course, we are seeing this in a very devastating way in the Gulf of Mexico and the parts of the outer continental shelf that have been closed down where only two permits have been issued in 10 months. And that seems to run counter to even the President's own scientists, a panel he had put together after the explosion of the Deepwater Horizon where his own scientists and engineers recommended against any kind of moratorium or now permitorium where you literally are strangling the ability for our country to seek its own energy, which then increases our dependence on countries like those Middle Eastern

countries that are so volatile.

So how do you, I guess, reconcile what the mission statement of your Department is that really says you are going to strive to increase our American energy security when, in fact, you have got the President initiating policies that close off more areas of our known resources?

Secretary {Chu.} Well, the President actually increased the resources in the sense that more areas were open to exploration with not such great timing, a couple weeks before the Macondo disaster. And--

Mr. {Scalise.} But has since closed those areas off and they are not issuing permits at any level close to what they were before. And while the President may hang his hat on two permits issued in 10 months, that is an embarrassing low number, you know, when you look at the safety records of those companies that didn't make the mistakes of BP that are being punished for BP's actions.

Secretary {Chu.} Well, the permitting of deepwater has resumed and--

Mr. {Scalise.} Would you consider than an adequate resumption, 2 permits in 10 months?

Secretary {Chu.} Well, you could say it is two permits over the last couple weeks as well, so I think it has been resumed and will continue to resume. I think the committee

that investigated the Deepwater spill said that, you know, it is not only just BP that has been implicated in this, that the whole industry can up its game and make improvements in safety.

Mr. {Scalise.} Well, and there were some serious flaws in the report where they basically try to say it was the entire industry that was at fault when, in fact, that is not the case, considering the fact that in all of the wells, thousands of deepwater wells that have been drilled, you had one disaster because of a series of mistakes by that partnership that weren't replicated at all of the other wells. So I think it is inaccurate for them to say it is systemic. I would hope you wouldn't think that it is the entire industry that is at fault when you clearly had an example of one company in a partnership that did cut corners where others didn't.

And I think that is the key point is there is this kind of broad brush it seems like from this administration that they are almost shying away from American energy exploration. I wanted to ask you about a comment you had referring to use it or lose it provisions in leases. And you seem to imply that there are companies that are not utilizing their leases adequately and you inferred that maybe other people should be given that ability when, in fact, right now in the Gulf of

Mexico, all of those companies that want to go and reestablish what they were doing before and exploring for American energy are not being allowed to. And yet the clock is still ticking on their leases. Now, would you support a change in policy where if a company does want to expand and go and explore that lease but right now they are being prevented by the administration that that clock shouldn't keep running while the administration is holding them back?

Secretary {Chu.} I think the leases, the permits for exploration has started again and you were talking about a hold on deepwater leases for something like 6, 8 months. I think the lease time is considerably longer than that.

Mr. {Scalise.} And let me ask one last question as my time is about to run out. When you were talking about known reserves, you used the term 2 percent of the world's reserves are in America. There is a CRS report and I am not sure you have read it. I am sure you have read something like this that looks at this. Nineteen billion barrels of oil reserves are what I think are alluded to in this 2 percent number, but in fact there are about 145 billion barrels of reserves that are estimated to be recoverable using new technology. So there are some outdated numbers when people use this 2 percent number. First, are you aware when people say 2 percent they are referring to 19 billion barrels of known

reserves when, in fact, it is estimated that there are over 145 billion barrels of reserves in America using the newest technologies?

Secretary {Chu.} Reserves are a very specific thing. It is a known asset, bankable asset. You are talking about potential future reserves and there is a difference there. There are potential future reserves in the U.S. territories.

Mr. {Scalise.} Would you give an estimate on how much?

Secretary {Chu.} Well, I am not sure the exact numbers but I can get them to you. But there are significant potential reserves in--

Mr. {Scalise.} I would appreciate it if you would share that with the committee. Thank you, Mr. Chairman. I yield back.

Mr. {Whitfield.} I recognize the gentleman from New Hampshire, Mr. Bass, for 5 minutes.

Mr. {Bass.} Thank you, Mr. Chairman. Mr. Secretary, I don’t come from coal or oil or nuclear. I am interested in biomass. What is the status of the DOE’s support for advanced biofuels development?

Secretary {Chu.} It is in a very good position. We have, as you may know, three biofuel centers and we do sponsor a lot of research in universities, also in national labs. Those biofuel centers and other research with DOE

support have generated a significant amount of intellectual property. That intellectual property is being picked up by industry. Already some of the intellectual property in the first 3 years of our biofuels centers advanced biofuels, so this is to make a drop in diesel fuel, gasoline jet fuel from simple sugars using bacteria. Those things have been licensed and already there are now plans in the private sector for building pilot plants based on that. So it is a very good track record.

Mr. {Bass.} As I recall when I was here before, Secretary Bodman was announcing or getting a loan guarantee program to build a commercial-scale advanced biofuels facilities around the country. How many of those have you--I don't know the answers to these questions. What is the status of that program?

Secretary {Chu.} That, we are looking at. I know we did 1 loan guarantee but that is for not what we are talking about, the fuels. I think the loan guarantee program is constrained in that if the research is too advanced and if it is too much of a pilot because in our loan guarantee program, we have to make sure that the taxpayer is protected. And when it becomes too much of a research enterprise, then there are some constraints. And so I can get back to you on the details of those.

Mr. {Bass.} That is fine. And I would like to have a further discussion about that. You mentioned run-of-the-river hydro dams. That is hydrokinetics. Is there any action there?

Secretary {Chu.} No. There are two forms, hydrokinetics in the ocean of waves and things that extract wave energy or things that bob up and down or flex like this or currents. Run-of-the-river is you take a little part of the river and you make a detour and put in a spinning turbine--

Mr. {Bass.} Okay. Let me change the subject, then. What about hydrokinetics? Is there anything going on--

Secretary {Chu.} Well, we are supporting some of it. It is a very research-oriented thing. It is certainly not ready for primetime but there are a number of companies that are very excited about the process.

Mr. {Bass.} I am taking the subject slightly once more to see does the Energy Department support any research in hydrofracking compounds or materials that would be perhaps more environmentally acceptable?

Secretary {Chu.} Well, right now we aren’t supporting research in hydrofracking because when very big oil and gas exploration companies like Schlumberger got into it in 1992--

Mr. {Bass.} Um-hum.

Secretary {Chu.} --or '91 we got out. I do know that there is some exploratory work going on. You know, fracking has become mainstream and so it is now supplying 30 percent of U.S. gas. There are companies looking at fracking with carbon dioxide as, perhaps, a better fluid.

Mr. {Bass.} Lastly, I am trying not to express any opinions here. I love ARPA-E, though. You described there is significant difference between the ARPA-E program and the grants that are given out under EERE?

Secretary {Chu.} Yes, there are. ARPA-E has a very short time scale, a leash of 2 years, perhaps renewable for yet another year and that is it. And so it is a very short program that tries to identify--it mostly goes to companies. And it also tries to identify what we call radical breakthrough technology. So in doing that it also knows full well that some of these grants may turn out not to yield anything. But on the other hand, but it is looking for are really dramatic advances that completely change the landscape of our choices. And so it is a more venture-capital approach if you will to--

Mr. {Bass.} Are there any notable successes there, (a)? And (b), what is the EERE grant program? How does it differ?

Secretary {Chu.} Okay. First, there are some notable successes in the sense that in about half a dozen of our

grants, we have given companies money to do some research. They have done that research and in less than a year they were able to go out and raise five times, four times that amount in the private sector because the private sector says okay, this is great. We now have enough confidence to invest in you. That is precisely what we want to do to allow companies to do research and get further funds from the private sector.

We are looking in EERE. There are now a whole new cast of program directors who are full of energy and we are looking towards rejuvenating those areas to do the best it possibly can in giving out whatever precious dollars we have.

Mr. {Bass.} Thank you, Mr. Chairman. Thank you, Mr. Secretary.

Mr. {Whitfield.} Thank you, Mr. Bass. I am going to recognize Mr. Inslee for 30 seconds.

Mr. {Inslee.} Thank you. If we can put this picture up. Mr. Secretary, I just wanted to congratulate you, sir, on the work you are doing on advanced biofuels. I want to show you a picture. This is a picture of the U.S. Green Hornet. It is a picture of an F-18. It is the first jet ever to fly on biofuels breaking the sound barrier. And you have been doing some great work in conjunction with the DOD. I just want to compliment you and hope you continue that and

is there anything we could do in 10 seconds that we could really do to help you in that regard?

Secretary {Chu.} Well, I think you can do much more in appropriations.

Mr. {Inslee.} We will work on that and I am sure our Republican friends are listening to you with great interest. Thanks very much.

Mr. {Whitfield.} We are always interested in appropriating money so--but Secretary Chu, we thank you for joining us today. We enjoyed the dialogue. We look forward to working with you as we strive to meet the energy needs and safety of our country.

And we are going to actually recess until 1:30 because Mr. Jaczko has been called down to the White House. So we will reconvene at 1:30.

And once again, Mr. Secretary, we look forward to working with you and appreciate your time today.

Secretary {Chu.} All right. Thank you.

Mr. {Whitfield.} Thank you.

[Recess.]

Mr. {Whitfield.} Okay. I will call the hearing back into order. We took a recess because, Commissioner, you were called away to the White House, I believe, for a meeting. And we completed with Secretary Chu. So everyone has already

given their opening statements. So at this time we would recognize you for 5 minutes for your opening statement.

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^STATEMENT OF GREGORY JACZKO, CHAIRMAN, NUCLEAR REGULATORY COMMISSION

} Mr. {Jaczko.} Well, thank you, Mr. Chairman, to you and the other chairman of the two subcommittees and the Ranking Members Rush and Green and other Members of the subcommittee. I am honored to appear before you today on behalf of the U.S. Nuclear Regulatory Commission.

Given the events that are unfolding overseas, my opening remarks will focus on the crisis in Japan. And I have additional information on the fiscal year 2012 budget that I have submitted for the record. Of course, I would be happy to answer questions on those matters, but I will focus my testimony on the situation in Japan.

I would first like to offer my condolences to all those affected by the earthquake and tsunami in Japan over the last few days. My heart goes out to those who have been dealing with the aftermath of these natural disasters. And I want to publicly acknowledge the tireless efforts, professionalism, and dedication of the NRC staff and other members of the federal family in reacting to the events in Japan. This is just another example from my 6-1/2 years on the commission of the dedication of the NRC staff to the mission of protecting

public health and safety.

The American people can be proud of the commitment and dedication within the federal workforce exemplified by our staff every day. While the NRC regulates the safe and secure commercial use of radioactive materials in the United States, we also interact with nuclear regulators from around the world. Since Friday, the NRC's headquarters operations center has been operating on a 24-hour basis to monitor events unfolding at nuclear power plants in Japan.

Since the earthquake hit Northeastern Japan last Friday, some reactors at the Fukushima #1 plant have lost their cooling functions leading to hydrogen explosion and rises in radiation levels. Eleven NRC experts on boiling water reactors have already been deployed to Japan as part of a U.S. international Agency for International Development team. And they are currently in Tokyo.

Within the U.S. the NRC has been coordinating its efforts with other federal agencies as part of the government response to the situation. This includes monitoring radioactive releases and predicting their path. Given the thousands of miles between Japan and the United States, Hawaii, Alaska, the U.S. territories, and the West Coast, we are not expected to experience any harmful levels of radioactivity.

Examining all available information is part of the effort to analyze the event and understand its implications both for Japan and the United States. The NRC has been working with several agencies to assess recent seismic research for the central and eastern part of the country. That work continues to indicate that the U.S. nuclear facilities remain safe, and we will continue to work to maintain that level of protection.

U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. And the NRC requires that safety significant structures, systems, and components be designed to take into account the most severe natural phenomenon historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the historical data's accuracy. This basically means that U.S. nuclear power plants are designed to be safe based on historical data from the area's maximum credible earthquake.

And the NRC remains attentive to any information that can be applied to U.S. reactors. Our focus is always on keeping plants in this country safe and secure. As this immediate crisis in Japan comes to an end, we will look at

whatever information we can gain from the event and see if there are changes we need to make to our own system.

Within the next few days, I intend to meet with my colleagues on the commission on the current status and to begin a discussion of how we will systematically and methodically review information from the events in Japan. In the meantime, we continue to oversee and monitor plants to ensure that the U.S. reactors remain safe.

The NRC will continue to monitor the situation and provide updates by our press releases and our public blog. The NRC also stands ready to offer further technical assistance as needed. We hope that this situation will be resolved soon so that Japan can begin to recover from this terrible tragedy.

And I would like, if possible, to give you a brief update of what we believe the current status of the reactors in Japan is. There are essentially four reactors that we are currently monitoring as best we can. They are all at the Fukushima #1 site. Three of those reactors were operating at the time of the earthquake and were shut down following their normal procedures. We believe that in general for these three reactors they have suffered some degree of core damage from insufficient cooling caused ultimately by the loss of offsite power and the inability of the onsite diesel

generators to operate successfully following the tsunami. We also believe that for these three reactors that seawater is being injected with reported stable cooling. The primary containment is described as functional.

Now, I would note that for Unit #2 at this site we believe that core cooling is not stable. But also for that site believe at this time that primary containment is continuing to function. I would also note that for Unit #2 we believe that the spent fuel pool level is decreasing.

For Unit #3 we believe that the spent fuel pool integrity has been compromised and that there has perhaps been a Zerck water interaction.

Now, in addition to the three reactors that were operating at the time of the incident, a fourth reactor is also right now under concern. This reactor was shut down at the time of the earthquake. What we believe at this time is that there has been a hydrogen explosion in this unit due to an uncovering of the fuel in the fuel pool. We believe that secondary containment has been destroyed and there is no water in the spent fuel pool. And we believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures.

For the two remaining units at this site we have an IAEA report that the water level was down a little bit in this

spent fuel pool as well. And for the final reactor we don't have any significant information at this time.

Recently, the NRC made a recommendation that based on the available information that we have, that for a comparable situation in the United States, we would recommend an evacuation to a much larger radius than has currently been provided in Japan. As a result of this recommendation, the ambassador in Japan has issued a statement to American citizens that we believe it is appropriate to evacuate to a larger distance, up to approximately 50 miles.

The NRC is part of a larger effort, continues to provide assistance to Japan as requested, and we will continue our efforts to monitor the situation with the limited data that we have available.

So that provides a general summary of where the incident stands. And with that and my testimony, I would be happy to answer questions you may have. Thank you.

[The prepared statement of Mr. Jaczko follows:]

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Mr. {Whitfield.} Well, Commissioner, thank you. We appreciate your being with us this afternoon.

In the earlier question-and-answer period with Secretary Chu, the gentleman from Massachusetts, Mr. Markey, had referred to a finding by Mr. John Ma for--I believe his last name M-a--relating to the AP1000 design. And he had indicated that Mr. Ma had some serious reservations about the design. And I was just curious, have you all had the opportunity to review his concerns and have you come to any conclusions about that?

Mr. {Jaczko.} We have done a very thorough review of the AP1000 design relative to a large number of safety issues. As part of that review process, we have had a vibrant discussion among the members of the NRC staff. We have thoroughly reviewed as part of that discussion the concerns by one of our staff members that you indicated. And we believe based on a thorough analysis that that design going forward can be acceptable. It is right now in the process of additional review. It is right now out for public comment essentially. We do our designs almost like a regulation, so we allow them to be commented on by the public. And so we are at that stage in the process of that review. But the concerns while we believe would certainly

enhance the safety of the design, we don't believe at this time that they are necessary to meet our strict regulations.

Mr. {Whitfield.} Right. Well, thank you for that comment. I just wanted to follow up on that.

Of course, as a result of what has happened in Japan, the focus is on safety as it relates to nuclear, and I believe this is a safe industry. Historically, it has been a safe industry. And I know that in France and Japan and many other countries, a large percentage of their electricity comes from generation by nuclear. In the U.S. it takes--and you can correct me if I am wrong because I may be--but it takes roughly 10 years or so to obtain permitting for a nuclear plant. Am I in the ballpark when I say 10 years or not?

Mr. {Jaczko.} Well, I think right now the process is taking, I would say, closer to about 5 years right now to go through the permitting. Now, of course, we are not finished, but we are getting nearer to the end of our reviews. And I like to think about this in a way like when I went to college. You know, people go to college with the intent to graduate in 4 years, but as you go through that process, you take your classes, if you do well you have a chance to get done in four, sometimes a little bit sooner. Some people take a little bit longer time depending on how things go. So

as we continue to work with the licensees or the applicants, we have, I think, improved our understanding of how to make the process work effectively and efficiently. So right now this has been the first-of-a-kind effort and something we haven't done in a long time and it involves a new process. So I would say at this time I think we are moving at a relatively effective pace, but again, keeping our focus first and foremost on safety.

Mr. {Whitfield.} And in your testimony you did say that you evaluated these permit applications for seismic as well as tsunami-type activities, correct?

Mr. {Jaczko.} That is correct. We review all designs against a wide range of natural disasters: tsunamis, earthquakes, tornadoes, hurricanes. It just depends on the geographic location.

Mr. {Whitfield.} Right. But with all the publicity surrounding Japan right now, everyone, as I said, is certainly focused on safety and we are certainly thinking about the Japanese people, but with more focus on safety, I am not a nuclear engineer but I know that there is some technology based around sodium-cooled reactors. And I have been told that sodium-cooled reactors, that there is not a possibility of a meltdown and that these are smaller-type plants, maybe 50- to 100-megawatt plants. And I was

wondering if you would mind commenting on that technology of sodium-cooled technology?

Mr. {Jaczko.} Well, we don't currently have any specific applications in front of us for a sodium-cooled design. I would say it is a different type of technology than what we currently have operating in this country, and as a result, it presents its own challenges when it comes to operation. But I wouldn't want to speculate too much on what those kinds of challenges are because we really haven't gone through the specific review of one of these. But in general, with a smaller reactor, a smaller energy output, usually the risks are lower because you just have a smaller amount of radioactive material--

Mr. {Whitfield.} Right.

Mr. {Jaczko.} --but as I said, sodium reactors do present slightly different technical challenges because of the way that they operate. The sodium has to be maintained in a liquid form and there are different types of risks and hazards that you would have on that type of design.

Mr. {Whitfield.} But that type of technology, I guess, was developed in the United States at one point and there are some countries that evidently have at least some of these plants in operation. Is that your understanding?

Mr. {Jaczko.} Yeah, it is my understanding, but we

don’t currently have any license in operating in the U.S.

Mr. {Whitfield.} Okay. Well, thank you very much. My time has expired. I would like to recognize the gentleman from Illinois, Mr. Rush, the ranking member.

Mr. {Rush.} I want to thank you, Mr. Chairman. And to Chairman Jaczko, it is good to see you and welcome to the committee. I am going to get my Japan question in first.

The question in Japan that is first and foremost on the mind of many of my constituents in Illinois for the specific reason we have more reactors in Illinois than any other State. And my constituents are asking a simple question. And that question was summed up in a Fox Chicago News headline published on Sunday, ``Should Illinois be Worried About its Nuclear Plants?'' And before you answer the question, I want to also note that Illinois lies within the new Madrid earthquake zone, although we do not have to worry about tsunamis. But what assurances can we give to the people in my State with as high a concentration of nuclear reactors that also sits on an earthquake zone? And in your answer, would you please speak to the possibilities and to the effect--we are in a tornado zone--that tornados could have on nuclear reactors?

Mr. {Jaczko.} Well, Congressman, at the NRC we focus every day. And the dedicated women and men at the NRC work

every day to make sure that nuclear power plants in this country continue to operate safely. All the nuclear power plants that are in the United States are reviewed against a very significant standard for seismic activity. We take what we can find out from the historical record from looking at the rocks and the geology and the seismology, we try and determine what we think is the largest earthquake that can happen in an area. And from that we do an analysis of what kind of effect we think that will have on the power reactor. Namely, how much will the building shake or what kind of forces will it feel? And we require that the nuclear power plants can withstand that kind of event. And we actually go a little bit larger than that just to make sure if there are any uncertainties in our analysis. So that is a part of what we do for every reactor in the country, whether it is in the Midwest--of course, the seismic activity may be different in that part of the country versus another part of the country.

Mr. {Rush.} It seems to me, though, in Japan it wasn't just the earthquake that caused the problem; it was the tsunami that really caused the problem. And my question is in terms of a tornado?

Mr. {Jaczko.} We look at tornadoes as well.

Mr. {Rush.} All right.

Mr. {Jaczko.} We actually look at all natural

phenomena: hurricanes, tornadoes, earthquakes, tsunamis, although as you indicated, some sites in the country don't experience all of those phenomena. But we look historically to make sure we have captured all the natural phenomena that occur. So in Illinois we certainly would examine the impacts of tornadoes and other extreme weather events in Illinois.

Mr. {Rush.} Okay. And it seems to me--I asked this question of the secretary this morning--that the number-one threat to nuclear facilities in this Nation is terrorists' actions and activities and acts. So can you speak to how the NRC is handling the threat of terrorists?

Mr. {Jaczko.} Well, we have a very robust program that requires nuclear utilities to ensure that they can protect their plants against terrorist-type attacks. That includes a very strong program to do exercises once every 3 years to actually participate in a mock terrorist attack on the facility. And we observe that and oversee that and ultimately use that as a way to ensure--

Mr. {Rush.} Once every 3 years?

Mr. {Jaczko.} Once every 3 years. In addition to that, we do conduct our normal inspections at the facilities to make sure that all the security systems are in place and operating effectively. And I would add that in addition, following September 11, we required all of the nuclear power

plants in this country to look at some of the more severe kinds of impacts and effects you could get at a nuclear power plant from a terrorist attack or other types of severe natural phenomena, and as a result, we require--

Mr. {Rush.} My time is almost over and on Friday I am headed to Dresden to sort of generate a station there in rural county Grundy, Illinois in northern Illinois and I am going to be there with some of your resident inspectors on location there. So I will give them your regards.

Mr. {Jaczko.} Well, good. Well, I appreciate that and we are very fortunate to have some very fine people at our power reactors overseeing them.

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

Mr. {Shimkus.} Thank you, Mr. Chairman, and welcome, Mr. Jaczko.

When did the Licensing Board return its decision denying the Department of Energy motion to withdraw its Yucca Mountain application?

Mr. {Jaczko.} I believe that was earlier in the--

Mr. {Shimkus.} End of June.

Mr. {Jaczko.} End of June. Thank you.

Mr. {Shimkus.} Isn’t it true that all commissioners participating in the decision-making relating to the License

Board decision have already filed votes on that matter, including you?

Mr. {Jaczko.} We have filed what I would consider to be preliminary views that we exchange among our colleagues on the commission. Those are views that we use, then, to inform our final decision-making.

Mr. {Shimkus.} So you are saying you have not filed votes?

Mr. {Jaczko.} We have not come to a final decision at this point.

Mr. {Shimkus.} So it is your position you have not filed final votes?

Mr. {Jaczko.} That is correct. We have not reached a final decision on our act, unlike perhaps here, your familiarity with voting. I would consider votes to be more akin almost to prepared statements and remarks of members of the commission. The practice of the commission is to circulate those prepared remarks on any of the things that we do, and then, based on those circulated views, we work to see if there is a majority position.

Mr. {Shimkus.} So you are saying, then, on October 29, 2010, there wasn’t filed votes cast by all commissioners?

Mr. {Jaczko.} On October 29 I believe we had all prepared our written statements that we circulated among--

Mr. {Shimkus.} So those written statements are considered votes?

Mr. {Jaczko.} They are considered votes but they are not the final decision of the commission.

Mr. {Shimkus.} Okay. So since you have written statements that are considered votes, when do you plan to schedule a commission meeting?

Mr. {Jaczko.} We will have a meeting and issue an order when we have, per statute, a majority position.

Mr. {Shimkus.} And so you have these statements. They are considered votes but you don’t have a majority position?

Mr. {Jaczko.} Correct. As I indicated, the terminology here I think is unfortunate. These votes are not, as I said, the final statement of the commission. In an adjudicatory matter, which is what this is, a formal hearing that we issue, the final statement--

Mr. {Shimkus.} Is there a minority decision already rendered--

Mr. {Jaczko.} There is no--

Mr. {Shimkus.} --by commissioners?

Mr. {Jaczko.} --decision by the commission at this point.

Mr. {Shimkus.} By the chairman?

Mr. {Jaczko.} There is no decision by the commission.

Mr. {Shimkus.} Was the NRC decision to close out Yucca review and hearing activities yours alone or one made by the full commission?

Mr. {Jaczko.} That was a decision that I made as chairman of the Agency consistent with the budget that was prepared by the commission--

Mr. {Shimkus.} Okay. But let me ask you this question. What was your legal authority to do so?

Mr. {Jaczko.} My legal authority was as chairman of the commission and the decision was fully consistent with appropriate law.

Mr. {Shimkus.} No, I think your position is the budget zeroed it out, but I would beg to differ that you had the legal authority to do that.

Mr. {Jaczko.} Well, I would respectfully disagree with that.

Mr. {Shimkus.} Well, I think we will review that and follow up.

Mr. {Jaczko.} And I would add if I could that following that decision--

Mr. {Shimkus.} I mean, you wouldn’t do anything that would be illegal, would you?

Mr. {Jaczko.} Of course I wouldn’t. Following the decision to begin the closedown activities of the Yucca

Mountain project--

Mr. {Shimkus.} Begging to differ, I think it is a stated federal position by law that Yucca Mountain should be opened. That is the legal authority. There is no legal authority to close Yucca Mountain. The only authority that has been rendered is the administration in compliance with Majority Leader Reid to pull funding. But there is no legal authority to close Yucca Mountain by law.

Mr. {Jaczko.} As I indicated, our action is consistent with all appropriate appropriations law and any other statutes that we have.

Mr. {Shimkus.} You better be double-checking your facts because we are not through with this debate on legal authority. And I hope you are well prepared. We have been told that the courts may not rule on whether or not the commission's position is legally defensible until the full commission takes a position. But you seem to be preventing that vote from occurring. If the court runs out of patience and does rule, will you abide by the court's decision and act promptly to carry it out?

Mr. {Jaczko.} The Agency will act according to any legal decision by the courts or any act of Congress.

Mr. {Shimkus.} Thank you, Mr. Chairman. I yield back.

Mr. {Whitfield.} At this time I recognize the gentleman

from California, Mr. Green, for 5 minutes.

Mr. {Green.} Thank you, Mr. Chairman. Welcome, Mr. Jaczko. And I know you are busy and I appreciate you coming back to our committee. And I know last week you and I talked about the President's budget and the proposals to go back to fiscal year 2008 for your funding and we both expressed concerns about the layoff of hundreds of workers and particularly what happened in Japan. Obviously, this is not the time to go after our Nuclear Regulatory Commission. So share that and hopefully that message will get to other folks.

Let me talk about a local issue because I think all politics is local, as is what has happened in Japan. Texas has 1 proposed nuclear plant that is pending at the OMB. And they are receiving their funding from CPS Energy, NRG, and Tokyo Electric Power Company, which presents part of the problem. One of the sites experienced problems. They own one of the sites that is experiencing the problems in Japan. And so knowing what may happen with their potential investment, CPS Energy and NRG have announced they have trouble finding new investors. Again, part of it is the market. We have low natural gas prices and for someone to buy into a long-term investment of nuclear power, which our country needs but we may not be able to get the investors.

Can you talk about the review process for new plants like Texas and how long NRC and OMB processes are taking? It seems like I have worked on the congressional side now for a number of years to get the expansion at the South Texas plant that is just southwest of Houston and just to see just some information on how long it took, for example, for that expansion that goes through both your process and the OMB?

Mr. {Jaczko.} Well, right now the South Texas project was one of the first applications that we received for new licensing. The review that we do for that project will be focused, for sure, on safety and security. That is always our primary focus.

We are continuing to do that review. We are nearing some significant milestones as we work to complete the actual design reviews for that type of reactor. That design review right now is out for public comment as part of our process and we anticipate having that back in and working to resolve the comments over the summer. If we resolve those comments and it is successful, then we would move forward with completing the final reviews that are necessary, possibly perhaps within 12 months or so.

But as I said, I want to reiterate our focus fundamentally, first and foremost, is on the safety and security of these designs.

Mr. {Green.} When you said it was one of the first applications, can you tell me the time frame when that was filed?

Mr. {Jaczko.} It was approximately, I believe, 2007. However, we immediately within several months had to suspend our review because the applicant in that case made a change in the vendor that they were using to support the design. So that took about a year, year and a half to work through that particular issue on the part of the applicant.

Mr. {Green.} Okay. I know the concern, literally, for the whole world and particularly for our own country, if what we are doing, making sure we are learning from what has happened to Japan--and I understand the Texas plant southwest of Houston has actually 3 safety backup systems instead of 2. and it is my understanding that Texas emergency power sources are separate and watertight. We don't have a problem on the Gulf Coast with, you know, tsunamis or earthquakes. We do have a hurricane every once in a while and tornadoes. But I understand that they have watertight concrete buildings that could withstand a hurricane or storm surges and even earthquakes. But like I said, I don't think in geological time we have had an earthquake along the Gulf Coast. Our soil is too soft. But the Agency actually looked at that plant and all the applications, like you said, for safety.

Mr. {Jaczko.} That is correct. We look at all the plants for a variety of natural phenomena. And on the Gulf Coast than can include seismic activity, hurricanes, and other types of events. And we do have some analyses to look at tsunamis along the Gulf Coast and portions of the Atlantic coast. Those wouldn't be expected to be tsunamis that are the same magnitude as ones we could--

Mr. {Green.} That particular plant is about 11 miles inland. It is not right on the coast. I know there have been technological advances. I am almost out of time. But sometime I would like if your staff could provide to the committee separately some of the technological advances in the current and proposed plants in the United States as compared to, for example, what has happened in Japan with the tsunami and also the earthquake.

Mr. {Jaczko.} We can certainly provide that.

Mr. {Green.} Thank you. Thank you, Mr. Chair.

Mr. {Whitfield.} The gentleman from Michigan, Mr. Upton, is recognized for 5 minutes.

The {Chairman.} Thank you, Mr. Chairman. And again, Chairman, we welcome you here today. And I just want to say a couple things at the beginning.

First of all, I certainly did appreciate our meeting that we had several weeks ago. I know we both discussed

Yucca. We may have a different view but we are going to have ample time in Mr. Shimkus' subcommittee with all the commissioners sometime this spring to fully talk about that and ask a good number of questions.

As you know, I--as you do--we both support safe nuclear power. We both support appropriate and rigorous oversight of all of our 104 sites around the country. And I, too, appreciated the visit that I paid to the NRC several years ago and viewed firsthand the NRC operations center and looked in in terms of your day-to-day activities to make sure that things are safe.

Could you tell us what specifically the functions are of the 11 folks that you have sent to Japan and what they are doing and they are reporting back to you and some of the information you might have received?

Mr. {Jaczko.} The 11 individuals that we have in Japan are providing a variety of services. They are helping to organize the look at the reactors, the nuclear look at the reactors and helping to provide a good coordinated team to provide assistance to the embassy in Japan.

The {Chairman.} So does Japan have a similar operation like we have in terms of the operations center that I visited in Maryland out there?

Mr. {Jaczko.} It is my understanding they do but I am

not terribly familiar with--

The {Chairman.} But they are in Tokyo, right? They are not at the Fukushima site?

Mr. {Jaczko.} Our staff is in Tokyo working to interface with their counterparts in the Japanese nuclear regulatory authority.

The {Chairman.} And you announced that our ambassador now has urged all Americans to move at least 50 miles away. What reaction did you receive from your counterparts in Japan and the government there?

Mr. {Jaczko.} I am not familiar of any reaction.

The {Chairman.} But that announcement was made very shortly, right?

Mr. {Jaczko.} It was made about 45 minutes ago.

The {Chairman.} You talked about the four different reactor vessels and the status of the four. Do you know where the hydrogen explosion was in the fourth reactor?

Mr. {Jaczko.} At this point we don’t know that kind of specific information. But we believe that there was a hydrogen explosion at some point, likely because the spent fuel in that reactor has lost its cooling and at some point, then, was producing some degree of hydrogen. And that ultimately accumulated and led to an explosion.

The {Chairman.} And was that explosion today, U.S. time

today?

Mr. {Jaczko.} No, it occurred several days earlier. We can get you the exact date and time as we know it.

The {Chairman.} Okay. As it relates to your budget--remember that was the original ask for you to be here today--what is your budget for safety oversight as part of the NRC?

Mr. {Jaczko.} The bulk of our budget, probably about ¾ of our budget goes to the reactor safety work, about 77 percent. It is slightly over approximately $800 million.

The {Chairman.} So does that include the personnel? Because I visited my two sites in my district and I would welcome you and I know you that you indicated a willingness to come out. But on all of my visits I have always stopped to say and welcome the oversight of your staff that has been there.

Mr. {Jaczko.} Yeah, most of our budget goes to our staff. We have mostly salaries and benefits. We have a small portion of our budget that is contracting dollars, but the bulk of it, about 60 percent, is the salaries and benefits of the staff.

The {Chairman.} And do you have any reason to believe that your proposed budget is not adequate to assess and monitor the nuclear power plant safety systems? I mean, do you feel that it fits the bill?

Mr. {Jaczko.} At this time we believe it is a sufficient request that will allow us to do the work we need to make sure that plants stay safe. The only caveat I would add is that as we continue to review the situation in Japan, if it becomes apparent that we would need additional resources to address issues related to the situation in Japan, then we would perhaps have to come back and ask for additional resources for that.

The {Chairman.} Well, I was going to ask you if you thought you were going to need--will you be able to determine that within the next couple of weeks?

Mr. {Jaczko.} I intend to meet with the commission within the next several days and begin looking at the kinds of questions we have to answer. And I think that will be one of the first. But first we want to kind of systematically figure out what it is that we need to look at and what are the important sources of information.

The {Chairman.} But you don't really have a reserve cushion today to do that, is that correct?

Mr. {Jaczko.} At this time--

The {Chairman.} For fiscal year 2011?

Mr. {Jaczko.} At this time I would say we don't necessarily have that. But again, I would like to take a look at that first before I make any conclusions.

The {Chairman.} Okay. Well, again, I appreciate your willingness to be up here on a day as tough as it is today. And we appreciate your answers and look forward to working with you on a host of issues. Thank you. I yield back.

Mr. {Whitfield.} I recognize the gentleman from California for 5 minutes, Mr. Waxman.

Mr. {Waxman.} Thank you, Mr. Chairman. Mr. Jaczko, you describe a pretty dire situation in Japan. I want to ask you about this. An official from the European Union today used the word apocalypse to describe the potential damage that could occur in Japan. What is your reaction to this comment? Could Japan be facing widespread devastation from a nuclear meltdown or radiation release?

Mr. {Jaczko.} Well, I don't really want to speculate too much at this point on what could happen. I think people are working really very diligently to try and address the situation. It is a very serious situation without a doubt. And that is part of the reason why I thought it was important for the Agency to make the statement it did that we thought in a comparable situation in the United States we would have issued evacuation instructions to a larger distance away from the plant.

Mr. {Waxman.} Um-hum.

Mr. {Jaczko.} So it is a very serious situation. And

efforts are ongoing to try and resolve it. but it will be some time, I think, before it is finally resolved.

Mr. {Waxman.} Well, you said that you are recommending an evacuation of U.S. citizens within 50 miles. What are the risks that are causing you to make this recommendation?

Mr. {Jaczko.} Well, it is based on an assessment of the current conditions of the site. Because of the damage to the spent fuel pool, we believe that there is very significant radiation levels likely around the site. And given that the reactors, the 3 reactors that were operating, given that they are operating with more of a backup to a backup, if you will, to a safety cooling system, if anything goes wrong with that, it would be very difficult for emergency workers to get into the site and perform emergency actions to help maintain that cooling. So there is the likelihood that the cooling functions could be lost, and if they are lost, it may be difficult to replace them, and that could lead to a more significant damage to the fuel and potentially some type of release. So as a prudent measure with a comparable situation here in the United States, we would likely be looking at an evacuation to a larger distance.

Mr. {Waxman.} So is it the spent fuel problem in this Unit 4 where there is no water covering the fuel rods? Is that the greatest concern you have at the moment?

Mr. {Jaczko.} Well, I think it is all of the factors together really. It is the combination. And so, yeah, there is the possibility of this progressing further. And so, as I said, in this country we would probably take the prudent step of issuing an evacuation to a larger distance.

Mr. {Waxman.} High levels of radiation are being released from the pool, is that right?

Mr. {Jaczko.} We believe that around the reactor site that there are high levels of radiation. Again, we have very limited data so I don't want to speculate too much.

Mr. {Waxman.} And what would be the significance of that?

Mr. {Jaczko.} Well, first and foremost, it would mean that it would be very difficult for emergency workers to get near to the reactors. The doses that they could experience would potentially be lethal doses in a very short period of time. So that is a very significant development and largely is what prompted the Agency to make the statement that it did.

Mr. {Waxman.} And if the emergency workers cannot get in there because of the danger to themselves, what would be the possibility then to deal with this problem of the spent fuels?

Mr. {Jaczko.} Well, again, I don't want to speculate

too much because, again, we don't have direct information about the conditions on the ground. But it is certainly a difficult situation and one that needs to be addressed.

Mr. {Waxman.} Well, you describe serious risk at these facilities. Can you describe what you think are the highest risks and why?

Mr. {Jaczko.} At the sites in Japan?

Mr. {Waxman.} Yeah.

Mr. {Jaczko.} I think right now, as I think it has been the situation from the beginning, the efforts are to continue to keep the reactors cool, the three reactors that were operating at the time of the earthquake. And that is right now being done with a variety of different systems, and again, in more of a nontraditional way because they have lost a lot of their electrical power in their offsite power capabilities.

In addition, the other risk is really to the spent fuel that may be in the spent fuel pools for possibly up to six of the reactors at the site. So keeping those pools filled with water and keeping that fuel cooled is also then the primary concerns.

Mr. {Waxman.} And what is the significance of the report of a crack in the unit itself, in the containment unit?

Mr. {Jaczko.} I want to be clear. Certainly, the indication that I was referring to was a crack possibly in the spent fuel pool on one of the other units. And the significance of that would be if there is a crack then there is the possibility of water draining from that pool and perhaps an inability to maintain the appropriate level of water in the pool, which could lead to damage of the fuel in that pool.

Mr. {Waxman.} What would you say is the best case now for Japan and what do you think might be the worst case?

Mr. {Jaczko.} Well, I think certainly the efforts are to continue to provide cooling of the reactors and to do everything possible to provide cooling to the spent fuel pools. Again, I don't want to speculate on what could happen because, you know, it is a very dynamic situation and there are, you know, certainly a lot of efforts that are being undertaken with efforts of the U.S. Government in particular. I want to emphasize that this is really a U.S. Government response. The NRC is playing one small part but other assets have been located from other parts of the U.S. Government and are being provided to help provide this cooling and do what we can.

Mr. {Waxman.} Thank you very much.

Mr. {Whitfield.} The gentleman from Texas, Mr. Barton,

is recognized 5 minutes.

Mr. {Barton.} Thank you, Mr. Chairman, and thank you, Chairman, for being here on what is obviously a very difficult day for you.

You may have answered some of these questions before or you may have even commented on them in your opening statement so I apologize if I ask something that has already been addressed.

My understanding is that the safety systems at the power plants or the reactors in Japan are an older technology that requires an active backup and that the licenses that you are reviewing now have a different system that is a passive backup, i.e. if something happens catastrophic, the system automatically shuts itself down and the cooling system can perpetuate itself without outside power. Is that correct?

Mr. {Jaczko.} Well, I wouldn’t necessarily want to comment too much on the Japanese sites because they are designed a little bit different from the designs we have that are similar in this country. But we are reviewing new reactors that do operate on what they call a ``passive cooling system.'' It is not all of the designs that we are reviewing, however. It is only two of the designs that we are looking at but--

Mr. {Barton.} Well, my understanding is that there is--

and correct me if I am wrong--that there is one new nuclear power plant under construction and that is the Southern Company facility in Georgia and that their safety system is a passive safety system. Of course you won't have a tsunami in central Georgia but you could have an earthquake. And if there were to be an earthquake that it would automatically shut itself down without outside intervention and the coolant is a gravity-flow cooling system that self-perpetuates itself, again, without any outside power. Is that correct?

Mr. {Jaczko.} That is correct. The system that is used for that particular design, which is the AP1000, does essentially rely on gravity to initiate circulation of water through the reactor and then naturally circulate based on the heat flow. It will circulate without the use of offsite power. However, there are other safety systems that do rely on the offsite power and--

Mr. {Barton.} But we could say in the instance of the 1 new plant that is currently under construction, what happened in Japan, assuming the construction of the plant is robust enough that the containment is not destroyed by the earthquake in terms of cooling the reactors and shutting down the reactors, they would be shut down and they would stay cool.

Mr. {Jaczko.} Well, again, I wouldn't necessarily want

to speculate on everything. We don't really know what happened in Japan. We obviously know there was an earthquake. We know that there was a tsunami. We know a lot of safety systems haven't functioned as would be needed. So, you know, at this point I don't really want to speculate on how that applies to any U.S. facilities until we have a chance to really do a methodical and systematic--

Mr. {Barton.} I am not asking you to speculate on what happened in Japan. I am asking specifically if an earthquake hit the power plant in Georgia, based on your Agency's review of their safety design, would it withstand that earthquake?

Mr. {Jaczko.} All of the plants that we have licensed and all of the plants that we are currently reviewing will meet strict safety standards for earthquakes and other natural phenomena. So certainly, for the existing plants we believe absolutely that they can withstand an earthquake and they can meet the high standards that we have put in place. In the new plants we are still continuing our review. We haven't completed our review so I don't want to prejudge the outcome of that by making any final determinations.

Mr. {Barton.} Okay. But you are allowing this plant in Georgia to be constructed, so you have approved something.

Mr. {Jaczko.} It is a preliminary approval for a limited amount of construction activity that is not related

to the most safety significant systems at this time.

Mr. {Barton.} Now, in general, for each plant in the United States, regardless of where it is located, does it have a minimum safety requirement to withstand an earthquake?

Mr. {Jaczko.} That is true. All the plants have a requirement to be designed to deal with the kinds of earthquakes we would expect in about a 200-mile radius from that nuclear power plant.

Mr. {Barton.} Now, obviously, if a plant is in an area that is more prone to earthquakes, it might have a higher requirement than a plant that is in a location that has never had an earthquake in 500 years, but they all have to withstand some base-case earthquake design criteria?

Mr. {Jaczko.} That is correct. They all have to withstand what we think is the maximum expected earthquake from the historical record within about 200 miles of that site.

Mr. {Barton.} Now, I am told that the earthquake that hit Japan is order of magnitude the fifth most powerful ever recorded anywhere in the world. So that is obviously a very powerful earthquake. In the United States is the design criteria currently for that level of an earthquake or is it for an earthquake that would be, say, the standard of the earthquake that hit San Francisco in 1906?

Mr. {Jaczko.} Would you like me to answer?

Mr. {Barton.} I would like you to answer.

Mr. {Jaczko.} I think it is important--I want to try and give a demonstration. I think we talk a lot about the magnitude of the earthquake, and that is not really what the NRC looks at. If you look at the cup of water that I have over here and you think of that as the nuclear reactor, the earthquake would be--I probably should fill up the water glass.

Mr. {Barton.} This is going to make TV so do it right.

Mr. {Jaczko.} I practiced it before I started. So if you think of this as the nuclear power plant, when you talk about the magnitude of the earthquake, it would be like me hitting the table with my fist. So something like that. And you will see that it makes the glass over here vibrate. That is what we actually measure and we design our nuclear power plants around is that shaking of the power plant. So the actual impact depends upon where I hit in relation to the glass. So if you have a large earthquake like this that is very far away may not have the same impact on a site as an earthquake that is maybe a little bit less but much closer. So something like that. So we actually worry more about--we look at all of the different earthquakes that could happen in this region and we look at what that shaking is and we make

sure that that shaking can handle what we think are the maximum historical earthquakes in that region. Now--

Mr. {Barton.} No, go ahead.

Mr. {Jaczko.} Sorry.

Mr. {Barton.} Summarize.

Mr. {Jaczko.} In addition to that, we know that we don't always know everything. So we have done a lot of studies over the years to look at earthquakes and phenomena beyond that kind of design earthquake, and we have had the plants go back and look and see if there are things that they could do to ensure that they would be able to better withstand some possible earthquake that nobody has thought of or seen at this point. And so we have what we call severe accident programs that all of the utilities have where they have procedures and they have ability to mitigate that kind of more severe event that may not ever have occurred in a particular region. So it is a multi-layered system of defense.

And if I could just briefly summarize one other point, in addition to that, following September 11, we required all of the nuclear reactors in this country to pre-stage equipment that can perform this emergency last--kind of-- ditch effort cooling to the reactor and the spent fuel. And that is a variety of procedures and different types of

equipment that are required to be at the reactor sites. And we have inspected the reactors to make sure that they have that. So, you know, that gives you another level of defense beyond, really, just what the design of the reactor is.

Mr. {Barton.} Thank you. And thank you for the chair's courtesy in letting him answer that question.

Mr. {Whitfield.} The gentlelady from California is recognized for 5 minutes.

Mrs. {Capps.} And Mr. Chairman, if you wouldn't mind granting me a little consideration. I represent Diablo Canyon Nuclear Facility and I have three questions. But something was stated earlier that I believe needs to be clarified just for the record if I could ask the chairman in addition to thanking him for his testimony, did you say that Unit 4 in Japan in the incident there that there was no water in Unit 4 surrounding the spent fuel and that Unit 3 was in danger of losing the water source?

Mr. {Jaczko.} We believe at this point that Unit 4 may have lost a significant inventory if not lost all of its water.

Mrs. {Capps.} And that Unit 3 is in danger?

Mr. {Jaczko.} Well, what we know at Unit 3 is that there is possibly--again, and our information is limited so we do--well, we believe that there is a crack in the spent

fuel pool for Unit 3 as well, which could lead to a loss of water in that pool.

Mrs. {Capps.} Thank you. Diablo Canyon Nuclear Facility in my congressional district sits on the Hosgri Fault Zone, then in 2008 the U.S. Geological Survey informed the utility that a new fault had been found near Diablo Canyon. It is called the Shoreline Fault. You are well aware about the California law requiring the Energy Commission to perform reviews of the seismic issues associated with our State's nuclear plants, sir. The Energy Commission recommended and our State PUC directed that independent peer-reviewed advanced seismic studies be performed prior to applying for re-licensure. Do you think the NRC should take advantage of the talent, expertise, and resources available in California so that all information on seismic issues could be analyzed with the goal of avoiding a costly duplication?

Mr. {Jaczko.} Well, ultimately, we have to make decision as an Agency based on the technical review that we as an Agency do. And again, I can't get too far into some of these issues because we do have an ongoing hearing related to some of the very points that you have raised. So in our hearing process we are prohibited from discussing those things outside the context of the commission.

Mrs. {Capps.} Right. I will tell you what it seems to me--

Mr. {Jaczko.} Um-hum.

Mrs. {Capps.} --and to my constituents that having the best eyes and minds in our country working together looking at the seismic issues makes the most sense. First and foremost, for my constituents this is about safety. But seismic concerns also impact affordable and reliable generation as well. So I hope that this issue can be revisited not to take away from the responsibility and authority of the federal agency but to work with other agencies. And I look forward to working with you as we go along in this area.

Mr. {Jaczko.} Well, Congresswoman, if I could just briefly say--

Mrs. {Capps.} Sure.

Mr. {Jaczko.} --we actually did host a workshop within the last year, actually, that brought together a lot of these technical experts to have a discussion for the point that you said. We certainly are always open to hearing information from any technical expert that can provide information to us. So I just want to make the point that in the end the decision-making has to come from our--

Mrs. {Capps.} Right.

Mr. {Jaczko.} --expert staff.

Mrs. {Capps.} Right. Here is another question. My constituents have become increasingly concerned about the preparation for a station blackout event. If power is lost, they want to be assured that backup power will be available throughout the duration of an accident in order to prevent fuel melting. In the last half-decade both California reactors have been cited by you, by the NRC, for instances in which both backup diesel generators were down or there were problems involving battery power availability. In such instances, merely citations were given to the utilities. Should the NRC reevaluate its regulations and perhaps increase the penalties for such infractions in light of the accident in Japan as an incentive to force better compliance from the nuclear operators?

Mr. {Jaczko.} Well, as I said, we intend to do a very systematic and methodical look at any lessons we can learn from this Japanese incident. And I certainly will keep your suggestion in mind as something for us to take a look at.

Mrs. {Capps.} Finally, I would like you to address some safety issues in the event of an earthquake and a simultaneous accident in a nuclear plant. Diablo Canyon has a workable evacuation plan. They would not be able to operate without one. But as you may know, there is basically

only one way in and out of San Luis Obispo, narrow Highway 1 along the coast. The NRC has ruled that it was non-credible that there could ever be multiple catastrophes such as an earthquake and a meltdown at the plant. This is the quote from the NRC. ``The commission has determined that the chance of such a bizarre concentration of events occurring is extremely small. Not only is this conclusion well supported by the record evidence, it accords most imminently with common-sense notions of statistic probability.'' That is the end of their quote.

Now, we have just witnessed an earthquake, a tsunami, and a nuclear meltdown all occurring sequence. I want to ask the commission, if you would on my behalf, do they still believe the chance of this bizarre concentration of events is merely hypothetical? Do you think this decision should be revisited in light of the events in Japan?

Mr. {Jaczko.} Well, I certainly will take your suggestion back to the commission. I would want to review that entire document in its entirety because certainly we do examine the possibility of earthquakes as an initiating event for a possible reactor problem. Of course, we believe we have systems in place that would, (1), really prevent any kind of core damage from that but (2), if there is subsequent problems, we have mitigating strategies in other ways to cope

with those. So I would be happy to take a look at that document in its entirety.

Mrs. {Capps.} Thank you. And just in conclusion, Mr. Chairman, you know, that is what they said 2 weeks ago, no doubt, in Japan as well. I have enormous anxiety and sadness over the events that happened there. And here we have seen in the past year our three major sources of energy that this country uses, coal, oil, and nuclear, all experiencing tragic accidents. And I do look forward to working with your commission on the number-one goal of keeping our energy sources safe. Thank you.

Mr. {Jaczko.} Thank you. And Congresswoman, if I could just add, of course, you understand we have not had any nuclear incidents in the last year in this country. The incidents were another country.

Mr. {Whitfield.} The gentleman from West Virginia, Mr. McKinley, is recognized for 5 minutes.

Mr. {McKinley.} Thank you, Mr. Chairman. In light of what has happened in Japan, I assume the NRC still has the authority to grant the permits for continuing the design implementation of nuclear facility?

Mr. {Jaczko.} Certainly. The Agency is an independent regulatory agency.

Mr. {McKinley.} Is there any delay or are you hearing

anything that would set up--I would expect some extension might be necessary but what would you suggest is a reasonable time frame for someone making an application?

Mr. {Jaczko.} Well, as I said, I think the process of reviewing an application for a nuclear power plant is a very complicated process. And this is the first time we are doing this, the first time we have done it in a long time. So I think there is going to be some lessons that we learned, both the applicant and the Agency. I am sorry. I don't want to get into kind of speculating how long or surmising how long I think it should happen. I would just say that we will do the thorough job we need to--

Mr. {McKinley.} Okay.

Mr. {Jaczko.} --do to ensure safety of--

Mr. {McKinley.} Given that this also is for budgeting, do you have some R&D money allocated for researching alternate uses for spent fuel rods?

Mr. {Jaczko.} We currently in our budget right now have significant resources that we are using to look at spent fuel, the safety and security of spent fuel and transportation. We have a small piece of our budget that is looking at reprocessing and developing a framework for reprocessing, which would be perhaps what you are referring to--

Mr. {McKinley.} If you could send more to me, I would like to know a little bit more about it.

And let us go to the Yucca Mountain just for a moment. I don't know whether it is anecdotal or I know, of course, the application has been withdrawn but it was my understanding that consumers are still paying on their utility bills funds for that project. Is that accurate?

Mr. {Jaczko.} I believe it is, although I would add that that is not an area that the NRC has authority over.

Mr. {McKinley.} But is that accurate?

Mr. {Jaczko.} I believe it is, but again, I don't follow that very closely other than generally what I read in the press.

Mr. {McKinley.} Okay. I am just curious because from what I understand that we are collecting money for something that is never going to happen. You don't understand that?

What about Shippingport? I think that was the first facility we had in this country, isn't it? Was that '65? '63? When was Shippingport opened?

Mr. {Jaczko.} I don't have the exact date of the initial license but it was very early on in the U.S. Nuclear Program.

Mr. {McKinley.} In light of the circumstances--and maybe I don't want to do a knee-jerk reaction at all to this

--but will you be looking at some of the older facilities what new technology or has Shippingport been upgraded all along?

Mr. {Jaczko.} Shippingport is no longer an operating reactor.

Mr. {McKinley.} It is no longer in operation at all? So what happens when Shippingport goes out?

Mr. {Jaczko.} Any of the reactors when they go out of service are eventually decommissioned. And we have decommissioned a large number of reactors in this country.

Mr. {McKinley.} Okay. There was also a story in the media that one of our naval vessels sailed through a cloud out off Japan's--were you aware of that?

Mr. {Jaczko.} Yes. We did have indications that the early days of this incident the reactor was going through a process that involves venting steam that accumulates in the reactor containment structure. And that steam needs to be released in order to reduce the pressures in that containment vessel, which is one of the important barriers to--

Mr. {McKinley.} Could that have been avoided, the ship going through that? Could that have been avoided?

Mr. {Jaczko.} Well, my understanding was they were performing activities to support search-and-rescue efforts in Japan and that the doses that they were experiencing were

from that particular plume were not doses that would have a significant impact to health and safety.

Mr. {McKinley.} That is all. I yield back my time. Thank you very much.

Mr. {Whitfield.} Thank you. At this time I recognize the gentleman from Massachusetts, Mr. Markey, for 5 minutes.

Mr. {Markey.} Thank you, Mr. Chairman. Welcome.

What interim safety measures are you going to require while you study the issue? In Germany they are taking interim steps right now, as well as Switzerland, China, Venezuela. Are there any steps you would like to announce that you are going to take in order to ensure that the plants in our country are safe?

Mr. {Jaczko.} Well, Congressman, we continue every day to make sure that the plants are safe. And at this time we don't have any specific actions that we think are necessary to add to the safety of the facilities beyond what we do.

Mr. {Markey.} Are there any interim advisories that you are going to send out? After 9/11 the NRC sent out some interim advisories. After Fukushima are you planning on doing that?

Mr. {Jaczko.} We do intend to send out what we refer to as a Regulatory Information Summary. That will generally characterize the event in Japan. Again, at this point we

don’t have detailed information. But that will remind licensees of, of course, their obligations under their existing license, but as well as these additional measures that I talked about to these severe accident types of strategies, as well as the efforts that we implemented after 9/11 to put in place these systems and procedures to ensure that they could provide emergency cooling to the reactor if necessary.

Mr. {Markey.} Going back to the question which Chairman Whitfield asked you about, Dr. Ma and his concern about the AP1000 design, you said with your vote that ``while it is clear that the use of ductile material in all areas of the shield building would provide an additional enhancement to safety, that I am not convinced that such a design requirement exists.'' After what is going on in Japan right now, would you reconsider that in order to perhaps consider adding that ductile material as part of the process of the construction of AP1000 plants?

Mr. {Jaczko.} As I said, I think we will do a very thorough review of the information from Japan. And we don’t anticipate getting to a final decision on that design at least until the end of the summer. So I think there will be plenty of information from our review at that time to inform that decision.

Mr. {Markey.} Yeah. As you know, I authored legislation in 2002 that required the distribution of a potassium iodide to residents living within a 20-mile radius of nuclear power plants based upon a Sandia study, because we learned after Chernobyl that this cheap medication can prevent cancers caused by radioactive iodine. The Bush White House ignored my language and blocked an effort by HHS to implement it. In fact, they even took away HHS' power to complete its KI distribution guidelines. The Obama administration has not implemented it even though the surgeon general has just said yesterday that she thought it was a worthwhile precaution for West Coast residents. Don't you think that distribution of potassium iodide to residents within 20 miles of nuclear power plants is a common-sense measure that should be implemented?

Mr. {Jaczko.} Well, the particular protective actions that would be issued for any nuclear power plant incident are ultimately the responsibilities of the state and local governments. They have that primary on-the-ground responsibility to decide how to deal with an accident. So--

Mr. {Markey.} But the plants are licensed by the Nuclear Regulatory Commission, not by the states. You are the Agency of expertise in terms of the spread of nuclear materials, not state officials. Do you believe that it is

advisable to look at a 20-mile radius for distribution of potassium iodide?

Mr. {Jaczko.} The current policy of the commission is that potassium iodide would be one of the protective action that could be considered within what we call our emergency--

Mr. {Markey.} The Bush guideline was that for 10 to 20 miles, please should just start running or ducking under their bed. There is no other medicine. So is there a recommendation from you that they should look at potassium iodide for the 10- to 20-mile radius?

Mr. {Jaczko.} Again, I would really in many ways defer to state and local governments as they believe that that is appropriate. I think there certainly are many protective actions that could be taken.

Mr. {Markey.} I just don’t think that they have the expertise looking at the probabilistic risk assessment of the likelihood of an accident in terms of having KI there. Now, the San Onofre reactor is also rated to withstand a 7.0 earthquake. Should we be retrofitting those reactors to ensure that they can withstand much stronger earthquakes? The IAEA warned Japan 2 years ago that their nuclear power plants were not designed well enough to withstand a strong earthquake and they were only able to withstand a 7.0 earthquake. That is what San Onofre is designed to

withstand. Should we be looking at retrofitting of the San Onofre plant and plants like that?

Mr. {Jaczko.} Well, as I said, the plants are actually designed to the ground motion and the shaking that you would get at any facility. And that is based on what we think is the maximum earthquake that has occurred in any particular area. So it doesn't directly necessarily mean a 7.0 earthquake. It is what we think is the maximum credible earthquake. And I continue to believe that that is the appropriate standard for the Agency. But again, we will take a look at all of the information we have from Japan as that comes in and if we have to make modifications to our requirements, we will.

Mr. {Markey.} I would just hope that maximum credible earthquake would be reexamined after what has happened in Chile, New Zealand, and Japan, we being in the other part of that earthquake zone that is yet to have an earthquake so that we do have the proper protections.

Mr. {Whitfield.} The gentleman from Louisiana, Mr. Cassidy, is recognized for 5 minutes.

Dr. {Cassidy.} Thank you, sir. I am a physician so I am going to speak about it and sound like a physician. In effect, there is going to be a postmortem done on that accident and folks are going to go in there and see what went

wrong and learn from it to ideally keep it from occurring again. Now, are there going to be people from industry invited to that party if you will or to that postmortem or will it only be academia and government? It seems all 3 need to be there. And so I don't think I have heard you mentioned having industry there to kind of, well, what do we do? Thoughts?

Mr. {Jaczko.} Well, we haven't yet decided how we will go about our review but I want it to be systematic and methodical. Those are the two words that I think are most important right now. And in our normal practice as an Agency, we always reach out to--there is not just industry but public interest groups and other members of the public. So I would expect that whatever we do as part of this process will have a significant public involvement.

Dr. {Cassidy.} Now, let me ask because when I toured the nuclear power plant near my home--I am from Louisiana so it is the River Bend Nuclear Power Plant--and as I recall they were coming up with a failsafe mechanisms to keep the generators running even if there was something dire that happened to the plant. I gather what has happened here is that the tsunami, because the diesel was on the ground, washed away the diesel so they were unable to run the generators. So just for the reassurance to folks here and

frankly my city if you will, it seems that we have been proactive on that particular issue so that there is a backup to the backup to the backup to keep the generators running to pump the water in case--you see where I am going with that.

Mr. {Jaczko.} Well, we do. And again, I don't want to speculate on exactly what happened in Japan because we really just don't know yet.

Dr. {Cassidy.} I think I am channeling CNN right now.

Mr. {Jaczko.} All the diesel generators at nuclear power plants in this country are considered vital equipment. The emergency diesel generators are vital pieces of equipment, so they are designed as with the other safety-significant structures and components to be able to withstand the natural phenomenon. So depending on the plant that could be hurricanes, tornadoes, tsunamis, earthquakes, whatever the natural phenomena are that are relevant to a particular site.

Dr. {Cassidy.} Knowing that we are not speculating on what happened in Japan but just to go to the point, the backup generators, to keep those cooling units running, we have proactively addressed this in this country and there is a way if Hurricane Katrina comes through and hits my State and 1 system goes out, there is another system to keep it running. Is that my understanding?

Mr. {Jaczko.} That is correct. Each reactor has at

least two diesel generators. In the event that one of them can't perform its function, there will be an additional. In addition to that, many sites have what we call a station blackout diesel or some other type of electrical power supply that can function in the event that those primary emergency diesel generators are not operating. And then, of course, in addition to that, as I have referred to, all of the plants in this country have been required to look at pre-staging other additional emergency equipment that could deal with this kind of situation.

Dr. {Cassidy.} You mentioned that.

Mr. {Jaczko.} In some cases that would be electrical power supplies or portable generators and things like that.

Dr. {Cassidy.} Got you. You may have answered this next question. I am sorry I was out of the room for a bit. Clearly, we are talking not just natural disasters but manmade. Do I understand the new nuclear power plants or do I not understand correctly that they have to be built so that if there is a terrorist attack and a plane is driven into them that somehow it is still protected?

Mr. {Jaczko.} For the existing fleet of reactors, we have required them to be able to deal with large fires and explosions that could occur at the plant. And some of that was related to the possibilities of terrorist attacks

involving aircraft. For new plants the new designs are required to be able to withstand an aircraft-type impact at the site.

Dr. {Cassidy.} Again, you may have said this. The containment structure, though, even if there is a meltdown, how effectively can a containment structure keep it contained?

Mr. {Jaczko.} Well, that is the purpose of the containment structure is, again, in the very unlikely event that all of the safety systems fail and we are not able to keep cooling to the core and it were to eventually have significant fuel damage or some kind of melting that any radiological material would be contained within that structure.

Dr. {Cassidy.} Given that there is some that will be vented off but nonetheless, if there is a disaster, it is a disaster within the containment?

Mr. {Jaczko.} That is the design goal and the expectation. And of course, if that were to fail, we have very robust programs in place to do emergency evacuations--

Dr. {Cassidy.} So this is the 1970's-circa plants, so I presume since it dates from the '70s since we have even more robust protections?

Mr. {Jaczko.} We have looked at all of these plants

over the years and in some cases--well, actually in the late ‘80s and early ‘90s we did systematic evaluations of the plants to see how they would deal with these kind of very severe accidents. In some cases, plants took the step of low-cost modifications that would deal with these more severe kinds of events. So we have a lot of things that have been done. The plants are certainly not the same plants that they were when they were originally built and designed.

Dr. {Cassidy.} Thank you very much.

Mr. {Whitfield.} The gentleman from Michigan, Mr. Dingell, is recognized for 5 minutes.

Mr. {Dingell.} Mr. Chairman, I thank you for your courtesy.

Mr. Chairman, I am sure you are making a careful review of the events that are going forward in Japan with regard to the nuclear facility over there and the attendant circumstances. Will you make such a review?

Mr. {Jaczko.} We certainly do intend to. Once we have good, credible information we will do a thorough and systematic review.

Mr. {Dingell.} Good. Well, first of all, (1), would you submit to this committee your plans with regard to that as to how you intend to go into that to ascertain what happened?

Mr. {Jaczko.} We certainly will. We will make those available.

Mr. {Dingell.} And would you see that we are informed as events go forward so we know what is taking place over there?

Mr. {Jaczko.} We will certainly do that.

Mr. {Dingell.} And would you also submit to us for the record how NRC is going to go about defining the lessons that you have learned about events in Japan and how you will incorporate them into your regulatory requirements? You would do that for us?

Mr. {Jaczko.} We will certainly do that.

Mr. {Dingell.} Now, does the NRC regularly use new information about the different types of risk as these different types of risks and information become available? Yes or no?

Mr. {Jaczko.} Yes.

Mr. {Dingell.} Would you provide for the record the process by which NRC does this risk assessment?

Mr. {Jaczko.} Well, there is a variety of--

Mr. {Dingell.} No, just for the record.

Mr. {Jaczko.} Oh, well, of course. Yes.

Mr. {Dingell.} Our time, Mr. Chairman, is very limited.

Mr. {Jaczko.} Of course.

Mr. {Dingell.} I have a lot of questions here. Mr. Chairman, do the NRC's licensing standards for nuclear plants take into account the risk of earthquake or tsunami?

Mr. {Jaczko.} They incorporate all natural hazards, including earthquakes and tsunamis.

Mr. {Dingell.} I would note with distress, I think you probably remember Diablo Canyon some years ago where they were going to build right on a fault. Are you more careful about that than your predecessors were in that particular--

Mr. {Jaczko.} Right now we look at all the nuclear power plants in the country. We look at seismic activity from all of them because while not all plants are in high seismic areas, almost all plants could experience some seismic activity from lower-level earthquake activity. So we consider that for all plants.

Mr. {Dingell.} Now, Mr. Chairman, would you provide a list of the kinds of disasters for which NRC takes account of in terms of its licensing standards? Just submit that for the record, please.

Mr. {Jaczko.} We will provide that.

Mr. {Dingell.} Now, Mr. Chairman, it is my understanding that one of the main problems in Japan has been inadequate access to emergency power to keep the reactors cool and that that poses some substantial ongoing risk. Do

NRC's licensing standards include adequate access to emergency power and are you satisfied that they do so?

Mr. {Jaczko.} We believe that our requirements are very strong in this area and we continue actively in our inspection program to ensure that licensees have the appropriate equipment such as diesel generator and that it operates successfully.

Mr. {Dingell.} Now, Mr. Chairman, you have an unholy mess on your hands, you and the Department of Energy, with regard to Yucca Mountain. You have spent near as I can gather something like 17 billion on this that has been collected from ratepayers for long-term storage of nuclear waste. The administration opposes going forward. You have got this nuclear waste that is piling up all over the country. Some of it is going in to cooling ponds. You are talking about putting the rest in dry cask storage. Do you have any kind of long-term plan to address what you are going to do with this infernal mess and how you are going to deal with the problem?

Mr. {Jaczko.} Well, right now we are looking at a longer time frame for storage of spent fuel than we have in the past. But right now we believe that that spent fuel certainly can be stored safely and securely with the existing systems--

Mr. {Dingell.} But you don't have--

Mr. {Jaczko.} --for storing several decades' worth--

Mr. {Dingell.} --a plan for how you are going to deal with it. You are being sued by the electrical utilities because they are collecting monies from their ratepayers that are not being spent on the purposes for which they are being collected. The stuff keeps piling up and you have doubled the amount that you can store in a single pool but that is running out. You are running out of pools in which to store it. And as these plants close, you are going to perhaps lose the responsibility of the persons who are storing this thing and the stuff just keeps piling up. Is there a long-term plan anywhere in government, in your Agency, in the Department of Energy, in the Office of Management and Budget, or in any other Agency of Federal Government as to what we are going to do about this infernal mess?

Mr. {Jaczko.} Well, although it is not an area that we are directly working, the Secretary of Energy has convened a Blue Ribbon Commission to look at some of those longer-term options and see what an optimal approach will be.

Mr. {Dingell.} The answer, Mr. Chairman, is no, is it not?

Mr. {Jaczko.} I believe there are plans through this Blue Ribbon Commission to look long-term. And we believe

certainly from the Agency that the existing systems are--

Mr. {Dingell.} The answer, my beloved friend, is no. And I say this with respect and affection. But the simple fact of the matter is you are sitting on a mighty fine mess that nobody knows what to do with and each and every one of those situations offers unique opportunity for terrifying mischief to the proud public interest and to the people in the area and the cost of this whole sorry-ass mess keeps going up and going up.

Mr. {Whitfield.} And we agree with you, Mr. Dingell. At this point I would like to recognize the gentleman from Texas, Mr. Burgess, for 5 minutes.

Dr. {Burgess.} Thank you, Mr. Chairman. And Mr. Chairman, thank you for being here and spending so long with us today. Thank you for speaking with me yesterday at the end of, obviously, what was a very long day for you. And I appreciate your willingness to make yourself to Members of both sides of the dais during this crisis in Japan.

Recently, an email has been circulating and I think it came to the committee staff that suggested a much higher level of radioactivity at one of the plants that had previously been reported. Do you know anything about that?

Mr. {Jaczko.} Well, we are continuing to monitor the situation as best we can. Again, I am not familiar with the

email that you are talking about but we do believe that certainly with one of the spent fuel pools, that there have been certainly elevated radiation readings. And over the last several days there have been times based on certain incidents in the site where radiation levels have gone up and come back down.

Dr. {Burgess.} Well, when you say elevated, ballpark, are you talking about chest x-ray, CAT scan, multiple CAT scans? What sort of numbers are you talking about?

Mr. {Jaczko.} Right now we have indications at the site of radiation levels that would be levels that would be lethal within a fairly short period of time. So they are very significant radiation levels.

Dr. {Burgess.} Very significant. Okay. And that is different from kind of what we have been hearing before, is that correct?

Mr. {Jaczko.} Again, I would say it is certainly a more recent development that we have seen these very, very high readings.

Dr. {Burgess.} Okay. Now, you were very good to provide us with written testimony. You were very good to provide us with some updates on the situation. It is obviously a very fluid situation in Japan. Would you be good enough to give us in written form what you have described to

us as you were finishing up your prepared testimony this afternoon so that there is no confusion over what--when we quote you, the press is here and we will all be asked questions as you finish up. Could you provide us the written information that you would like us to have?

Mr. {Jaczko.} We will provide that for you.

Dr. {Burgess.} And I think Mrs. Capps on the other side talked about a little bit, I mean, you talked about spent fuel pool being dry and radiation being high, again, things that were different from what I had been gathering from just the press reports just prior to coming in here. And it would be good to see that, again, what is factual and what is not.

Mr. {Jaczko.} We would be happy to provide that. And I would just say that our information is limited so we have been very careful to only provide information that we believe is very reliable.

Dr. {Burgess.} Well, now, we are here to talk about the budget and the budget you prepared obviously was before all this happened. Do you anticipate submitting an addendum to the request in light of things that have happened this past week?

Mr. {Jaczko.} That is something we will review. At this point I don’t have an answer for you, but I will certainly come back to the committee if we do.

Dr. {Burgess.} Can you give us just kind of a back-to-the-envelope estimate, in a perfect world what would be the percentage of electricity in this country produced by nuclear power?

Mr. {Jaczko.} It is approximately 20 percent.

Dr. {Burgess.} What is being produced now?

Mr. {Jaczko.} Currently, I would have to look but I would take an estimate of probably about that number. I am not aware of any significant planned outages right now.

Dr. {Burgess.} So it would be your position as chairman of the Nuclear Regulatory Commission that the percentage of electricity produced in America would not increase over what it is today? Do I understand that correctly?

Mr. {Jaczko.} I am sorry.

Dr. {Burgess.} In an ideal world this country, maximizing all of the different energy-production possibilities that we have, what percentage would be nuclear?

Mr. {Jaczko.} Well, it is really not up to us to decide that. I think the Agency's responsibility is to make sure that if there are nuclear power plants in this country that they continue to operate safely and securely.

Dr. {Burgess.} Do you have a concept of what would be the ideal number of nuclear power plants in this country in the next 10, 20, 30 years.

Mr. {Jaczko.} Certainly, as an Agency we don't have a concept of an ideal number. Our job is to make sure it is safe and secure.

Dr. {Burgess.} How many would be too many for you to keep up with to ensure that they were safe?

Mr. {Jaczko.} Right now we think certainly we are planning for the possibility of new plants to be under construction in the next several years, so we believe with the budgets that we have developed, we would have the resources we need to handle those additional units if they are licensed.

Dr. {Burgess.} All right. Chairman Dingell described in very colorful terms an infernal mess at Yucca Mountain. If you were the king of the nuclear regulatory world, the sole decision-maker on nuclear waste, what would be the ideal solution? The cynic went on. What would you do?

Mr. {Jaczko.} Well, as I said, I can't get too much into that because we do have an ongoing proceeding with regard to Yucca Mountain. And the job of keeping plants and the materials and all the things that we regulate safe is pretty much a job that, in particular these days, keeps me awake almost 24 hours a day. So I will let somebody else worry about some of those other broader policy questions.

Dr. {Burgess.} We thank you for your activities during

this crisis. Thank you.

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

Mr. {Doyle.} Thank you, Mr. Chairman. Chairman, thanks for your patience and endurance today.

Given what has happened in Japan, I am sure this has been a reminder to all of us that everyone agrees that certifying new nuclear designs is a crucial and important task to make sure these reactors are durable and can be safely operated. And I understand that the new reactor design certification process involves not only professional and accredited NRC staff but there is also an outside expert advisory committee that oversees the review and recommendations of the NRC staff, is that correct?

Mr. {Jaczko.} It is an Agency Independent Advisory Committee.

Mr. {Doyle.} That is right, the ACRS.

Mr. {Jaczko.} Right.

Mr. {Doyle.} And then, ultimately, you and your colleagues also evaluate and make your own independent judgments, correct?

Mr. {Jaczko.} Correct.

Mr. {Doyle.} So I want to address this situation to get more clarification and more on the record about concerns

raised by my good friend, Ed Markey, regarding Westinghouse's AP1000. I want you to hopefully provide some more clarification to the process that was involved certifying this reactor.

Now, is it true that Dr. Ma's non-concurrence issues during the deliberation for the Westinghouse AP1000 Advanced Final Safety Report Evaluation were in fact given due consideration by his NRC staff colleagues?

Mr. {Jaczko.} I believe that they were.

Mr. {Doyle.} And also the members of the Independent Advisory Committee for Reactor Safeguards?

Mr. {Jaczko.} As part of their review, they did specifically receive a presentation from Mr. Ma about the situation.

Mr. {Doyle.} And you and your commission colleagues?

Mr. {Jaczko.} I don't want to speak for the actions of all of my colleagues, but I personally met with him and talked to him about his concerns.

Mr. {Doyle.} And can you tell us, what happened after Dr. Ma made his presentation and raised his concerns? So he raised these concerns and tell us what happened after that.

Mr. {Jaczko.} Well, I think they were looked at by certainly all of the staff at the Agency that were reviewing the design. This advisory committee also did look at his

perspective and they came to their own conclusions that I think, ultimately, no one disputes that the recommendations that he had would make the design safer, but we think the design as it is right now would appear to meet our standards. But I would add that it was also Mr. Ma who originally raised concerns with a previous iteration of the design. And as a result of those concerns, the Agency did indicate to Westinghouse that significant changes would need to be made. They, in fact, did make significant changes and again, I don't want to speak for him directly, but my understanding of Dr. Ma's position is that he thinks that those changes are not necessarily enough to satisfy his initial concerns.

Mr. {Doyle.} But it is true that his concerns were put forward and that the NRC team of reviewers that, throughout the drafting of the AFSCR, they evaluated it and they basically overruled his concerns, basically, as did the subcommittee. I mean, this went through a process. I just want to make clear for the record that we don't have a person at the Department who has raised concerns and they were swept under the rug or ignored. I mean, these concerns were addressed. Is that not correct?

Mr. {Jaczko.} Yeah, I feel very strongly that we create an environment at the Agency where people can raise concerns and those concerns can be thoroughly reviewed and vetted.

And I believe in this that that is what happened.

Mr. {Doyle.} Thank you very much. That is all I have, Mr. Chairman.

Mr. {Whitfield.} The gentleman from Nebraska, Mr. Terry, is recognized for 5 minutes.

Mr. {Terry.} Thank you for being here. I am just curious, there are two power plants. Mr. Barton talked about one in Georgia but there is one in Georgia, one in South Carolina that sometime this year, early next year should be issued their combined construction and operating licensure. My question, first, is there are any discussions occurring to delay that CO well now because of the Japanese disaster?

Mr. {Jaczko.} Well, right now, those two potential plants that you referenced are all based around the AP1000 design. That design is currently undergoing a public review process. I expect we will get comments as a result of that public process related to the situation in Japan. So we will evaluate those as we get them.

Mr. {Terry.} So it is yes and maybe no?

Mr. {Jaczko.} At this point we are following our normal path with the reviews at this point.

Mr. {Terry.} All right. It sounds like there may be some uncertainty in that process of whether they will get their combined construction operating license in ’11 or early

’12.

Mr. {Jaczko.} Well, we are proceeding down a path to continue the reviews. As I said earlier--

Mr. {Terry.} There is no reason to repeat the answer. I am curious to how many other applications have been made for the early site permits? Do you know how many are sitting with you all?

Mr. {Jaczko.} We currently have, I believe, 1 or 2 new early site permits in front of the Agency or expected to come.

Mr. {Terry.} All right. Are there any that have been provided the early site permit and now on course to go to the next level of permitting? I am just trying to figure out how many are in the pipeline.

Mr. {Jaczko.} Right now, we have 12 applications in front of us for approximately 20 reactors. Those are actual combined license applications, and then we have I believe it is two early site permits that are not yet tied specifically to an actual license for a plant.

Mr. {Terry.} All right. I have studied a lot over the past couple years the small modular reactors. Just want to know what your personal opinion is, where the process is in reviewing the technology, how close we are to perhaps even rolling out a pilot project.

Mr. {Jaczko.} Well, I like to think of the small modular reactors in three groupings. We have the small modular reactors, which are very much based on the existing type of reactors that we have now but smaller. For that type of design, which we call integral light water reactors, we would anticipate in the next year or so an application for the construction of a small modular reactor type. We also anticipate one or more applications for designs related to those smaller modular reactors.

The second category we have are what are basically called high-temperature gas fractures, so it is a slightly different technology. That is mostly work that is tied to the Next Generation Nuclear Plant project and that is an activity that is a little bit farther away, probably more like 2013 where we might see an application.

The area in which probably there is the least certainty is with more of the nontraditional reactor types--

Mr. {Terry.} The one that--

Mr. {Jaczko.} --sodium-cooled reactors--

Mr. {Terry.} --the chairman may have raised earlier with you?

Mr. {Jaczko.} Exactly. Those are much more right now in what I would call the conceptual stage. So they haven't progressed to the point where we really have detailed

discussions about possible reviews of applications.

Mr. {Terry.} All right. I appreciate that. I will yield my 59 seconds back to the Chairman.

Mr. {Whitfield.} Thank you. At this time I recognize the gentleman from Louisiana, Mr. Scalise, for 5 minutes.

Mr. {Scalise.} Thank you, Mr. Chairman, and Mr. Jaczko. I appreciate you being before our committee. I know we have some votes on the House floor so I will try to be brief and ask direct questions. I think the secretary had indicated that the United States was helping Japan doing some testing on contamination on the ground. Are you familiar with what types of testing that is currently being done that we are involved in and have you all found anything right now that is a concern?

Mr. {Jaczko.} Well, right now my understanding is we are working to provide the ability to do air sampling of radiation. We have some readings, as I said, of very high levels of contamination around some of the reactor sites. And at this point I am not sure of the origin of that, whether that is coming from U.S. assistance in Japan or whether that is coming directly from the Japanese.

Mr. {Scalise.} Okay, thanks. I would imagine right now there are a number of applications that are pending before your Agency at various levels awaiting decisions. Do you

anticipate that those decisions will still go forward at the current pace or do you see anything changing there?

Mr. {Jaczko.} Right now we don't have any intention to change the approach we are taking. But as I said, we are going to do a very systematic and methodical review of the information coming from Japan. And if there is some information that would require us to revise our approach, then we will certainly do that.

Mr. {Scalise.} And I would imagine, you know, as with any crisis and, you know, we have experienced more than our fair share in South Louisiana, but there will be an evaluation in general just to see what lessons can be learned. And I would imagine, you know, we will make sure that if we learn some things from how they did things right, maybe how they did things wrong if they did, that we can incorporate that but in the end still move forward and not retreat from energy production in this country.

Mr. {Jaczko.} Well, we will certainly do that type of review. And again, I don't want to prejudge what comes out of it. If we get information that tells us we need to make a change, we will. If we get information that tells us things are good, then we will continue to proceed as we are.

Mr. {Scalise.} Thank you for your time. I appreciate it. Thank you. Mr. Chairman, I yield back.

Mr. {Whitfield.} Mr. Commissioner, I just want to ask in response to Mr. Terry's question you talked about on these small modulars there are three or four different categories, the exiting type, the third type is NGNP 2013 conceptual. What determines what category a design would be in? Is that based on actual applications or is that just on general knowledge?

Mr. {Jaczko.} It is really I would say the state of readiness of the designers and the venders themselves.

Mr. {Whitfield.} Okay.

Mr. {Jaczko.} So--

Mr. {Whitfield.} The state of readiness of the vendors and the designers.

Mr. {Jaczko.} Yes.

Mr. {Whitfield.} Okay. Thank you. Mr. Rush, do you have anything else?

Mr. {Rush.} Mr. Chairman, Mr. Administrator, I would like to know if, in fact, over the last 5 years, can you furnish this committee with the infractions or violations or emergency where the NRC had to send an emergency crew to any of the facilities that operates within the continental United States?

Mr. {Jaczko.} We can certainly send you that information.

Mr. {Rush.} Yeah, I would like to just know what level of responses and what level of issues that you have dealt with over the last 5 years.

Mr. {Jaczko.} We will send you that information.

Mr. {Whitfield.} Thank you very much. Mr. Rush, you and I have 3 minutes to go. Mr. Commissioner, thank you for your time today. We appreciate it very much. We look forward to working with you as we move forward in nuclear energy and safety. And we look forward to future opportunities.

Mr. {Jaczko.} Thank you.

Mr. {Whitfield.} With that, the hearing is ended.

[Whereupon, at 3:35 p.m., the Subcommittees were adjourned.]