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# STREAMLINING THE NUCLEAR ENERGY REGULATORY PROCESS

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**Introduction and Moderator:**

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P R O C E E D I N G S

MR. BANKS: So good afternoon, ladies and gentlemen, and welcome to The Brookings Institution. My name is John Banks. I'm a Nonresident Fellow in the Energy Security Initiative here at Brookings, and we're very pleased and honored to host the Chairman of the U.S. Nuclear Regulatory Commission, The Honorable Gregory Jaczko, today for a discussion on nuclear regulation in dynamic times. After my introduction, our program will continue with remarks from the Chairman, followed by a discussion in which I'll pose a few questions, and then we will leave time for audience Q&A after that.

As you all know, in recent years there's been an increasing interest in expanding nuclear power capacity in the United States and worldwide with demand for electricity increasing and concerns over greenhouse gas emissions and energy security becoming national priorities. Both developed and developing countries are looking to nuclear energy as a means of providing a secure and scalable source of low-carbon power. In the U.S. several developments reflect this renewed interest in nuclear power. The Energy Policy Act of 2005 authorized $18.5 billion in loan guarantees for reactor construction. In September of 2007, the first nuclear license application was submitted to the NRC since the 1970s and others followed. The NRC indicated that as of the end of 2009, it had received 17 license applications for a total of 26 new nuclear units.

The Obama Administration has stated its support of expanding nuclear power capacity. In his State of the Union address in January of 2009, he called for the building of "a new generation of safe, clean, nuclear power plants." In addition, the President has increased the loan guarantees available for new nuclear reactors to $54

billion from the amount previously authorized. In June of 2009, the Department of Energy announced the first four companies eligible for the guarantees and in February of this year, Southern Company received the first conditional commitment of $8.3 billion.

Nevertheless, as our program today indicates, these are dynamic times and there are growing concerns that new nuclear capacity may not be added at a pace and scale necessary to address the administration's energy, climate, and economic goals. Policymakers, regulators, and industry need to continue to be vigilant in addressing the challenges of economics, safety and security, waste disposal, and proliferation. The NRC is involved in each of these.

While the NRC instituted a new approach in the 1990s governing the licensing and regulatory process for building nuclear plants in an effort to reduce costs and delays as well as to improve safety -- for example, with the implementation of the combined construction and operating license process -- it's clear that economics, the financing of high, upfront, capital costs for complex projects that take many years to build, continues to be a particularly thorny issue. MIT's 2009 update to its report on the future of nuclear power in 2003 estimated that in that six-year period, the estimated costs of constructing a nuclear power plant increased at a rate of 15 percent per year and recent market and legislative developments have not helped. The economic downturn has reduced electricity demand. Increased supplies of natural gas, especially from shale gas deposits, and reduced prices for gas, and failure to pass energy climate legislation that contains some mechanism to put a price on $CO_2$ have all dampened enthusiasm for new nuclear reactor construction. We've seen the results of this challenging economic environment. Several utilities, including Exelon, Florida Power & Light, and Progress Energy, have all scaled back or delayed their reactor construction plans. And as we all

know and saw this weekend, Constellation Energy just announced it was canceling plans to build a new reactor at Calvert Cliffs, Maryland, even though it had access to a DOE loan guarantee of $7.5 billion.

Recent developments highlight how safety and environmental concerns continue to pose challenges for the nuclear industry. In February, the Vermont State Senate voted to block a license extension for the Vermont Yankee nuclear plant, citing a variety of factors including a tritium leak. This was followed in early April by a New York State decision that the water-cooling system at two units at the Indian Point nuclear plant violated the federal Clean Water Act and rectification of these issues would be a condition for re-licensing of both units in 2013 and 2016. And with the decision not to use Yucca Mountain, the United States needs long-term nuclear waste strategy. The de facto policy will continue to be the one through fuel cycle and to store spent fuel in dry casks on site where it is produced, but the long-term disposal of waste still needs to be addressed. And, indeed, in March of 2010, Secretary Chu appointed a Blue Ribbon Commission on America's Nuclear Future to study policy options for spent fuel. Dynamic times, indeed, and into this thicket Chairman Jaczko has graciously agreed to wade today to provide an update on the role and recent activities of the NRC.

Dr. Jaczko was designated Chairman of the NRC by the President on May 13th of 2009. He was first sworn in as Commissioner in January of 2005, and his term runs through 2013. As Chairman he's the principle executive officer of the NRC and its official spokesperson. Immediately prior to assuming the post of Commissioner, Dr. Jaczko served as Appropriations Director and Science Policy Advisor for Senator Reid and also worked as a Congressional Science Fellow in the office of Representative

Markey. Dr. Jaczko has a doctorate in physics from the University of Wisconsin, Madison. Mr. Chairman, welcome and thank you again for joining us today.

MR. JACZKO: Well, thank you for that introduction, and you certainly touched on a lot of, I think, the elements of what makes this a very dynamic time. I thought as I give my address, I'll try and start a little bit with a little bit of a history back to a previous, very dynamic time or the nuclear industry as well as the Nuclear Regulatory Commission, and then fast forward to where we stand with many of these issues and what are some of the bedrock principles that I think we need to continue to focus on to ensure that ultimately we carry out our responsibility as a regulatory agency to ensure safety and public health and safety and security when it comes to the use of nuclear materials in this country.

The history that I'll trace for you and the observations really go back to some of the foundational roots for the agency that I'm currently really honored to be a part of. And I think the need for and really the best methods to ensure effective regulation have been topics of increased interest for policymakers of late. We only need to point to several incidents of failures in the regulatory system really to accomplish the goals, whether it's the case of the oil spill in the Gulf, the West Virginia mine disaster, or even the financial crisis, and the shortcomings that were identified in the regulatory system in each of those incidents.

I think just as those disasters have caused those industries and their regulators to examine their past practices and focused on the best way to move forward, the nuclear industry really did this several decades ago following the Three Mile Island accident. And I think there were some very important lessons that came out of there. Some of them are probably a little bit more familiar, but I wanted to focus on one that I

think doesn't always attract some of the most attention, but I think is really an important piece and just shows, I think, how much the Nuclear Regulatory Commission has evolved and changed since that time.

In examining the events leading up to really the worst accident in the history of the U.S. nuclear industry, the administration at the time and the Congress recognized really two fundamental issues: One, that the NRC's regulatory failures had really been part of the contributing factor to that accident. And that two, some of those failures were really rooted ultimately in the agency's institution, the structure and the foundation of the agency itself. In identifying fundamental organizational weaknesses, the administration and Congress then established by law a clearly defined management structure for the agency. So I bring this up because I think we often think in terms of very technical issues, but effective regulation involves more than just the right scientific and technical data. It also involves having the right kind of management structure and the management system in place. So in 1980 there was a reorganization plan that created really the agency that we have today. And one of the important aims of that reorganization plan was to clearly define roles and responsibilities within the agency; that the Commission would be fundamentally responsible for carrying out and developing-- or for developing policy, and that the Chairman and then the rest of the staff would function in a clear way to execute those policies and to establish a more clearly defined management structure than had really ever been established. And that is really one of the most significant legacies of the Three Mile Island accident. It was the impact that it ultimately had on the agency structure and organization, and it's one that we continue to deal with today.

So fast forwarding today, I certainly recognize and the agency recognizes the important trust that Congress has placed in the agency and the tremendous importance of effectively exercising that authority to fulfill our public health and safety mission. So by providing that clearly defined management and policymaking structure, I think ultimately the Congress and the administration have accomplished two goals: The first was to ensure that the Commission's focus is on the important policy rulemaking and legal issues that come in front of the Commission. It's very interesting if you go back and read some of the debate and discussion at that time. It was really focused on making sure that the Commission was able to see the safety issues that were out there, to identify them, to investigate them, and really to explore them to make sure that there really were never any kinds of incidents like Three Mile Island ever again. And then ultimately it was to provide a clear management authority for the Chairman and the rest of the agency to be able to carry out those policies effectively and efficiently. Again, I think themes that are so important today, when there's such a strong discussion about the effectiveness of government and ensuring that government does its work effectively. And I think it's clear that with three decades of experience, the goals of the Congress and the administration at that time to really establish those two fundamental aspects for the agency really have been I think a very successful endeavor.

Now beyond that there are other things that came out of Three Mile Island. One of them was really the regulations themselves and the changes that we made as a result of Three Mile Island. And again, I think the parallels that we see to the work that we did then are very similar to the things that people are looking at today with some of these other incidents in which there have been some challenges to the regulatory system. In the case of the nuclear industry, fundamentally we saw an

overhaul of the emergency management approach. A significant recognition at that time that we needed to do much better planning and much better preparedness to deal with these kinds of situations, although very unlikely if they were to ever to occur again.

Another important theme which, again, is a common theme I think you see in many of these other industries and a common and important issue for us today as an agency, is the identification of human performance as a critical element of safety. It's very easy to think and talk of nuclear power plants as complicated machines that have a lot of industrial equipment and moving parts and all of these things. But one of the recognitions from Three Mile Island and a continuing theme for us as an agency was that human performance is such an important piece for safe operation. A piece of that as well then was the need to have operators that were well trained and to have the right kind of staffing requirements in place to ensure that those facilities were well operated and ultimately the operators had the right kind of experience.

Another significant milestone that came out of that was something that we're very proud of at the NRC, which was a program to have resident inspectors formally established. And this is a program whereby we have inspectors that are at these reactor sites essentially 24/7. They're there to see what's happening at the plants at all times. So a lot of the inspection work is carried out by those individuals as they live in the communities and as they work at these nuclear power plants.

And finally one of the important ideas that came out of this was for the agency to make sure that it was focusing on the most important issues for safety, that we looked at things not from a perspective of strict compliance, but from the perspective of always thinking about how do issues ultimately impact safety? And making sure that the agency was always committed to focusing on those things that were most important to

safety at all times, and that's an idea that we've carried forward in the agency in talking about ideas like risk-informed regulation. And using that as a tool to enhance the kind of regulatory safety net that we've established to make sure that we always look and focus on issues of most significance and most important.

So I think fundamentally those changes have led to important improvements and enhancements in plant safety, and I think in large part reflected the hard work of the Commission and the agency staff that was really I think reinvigorated by a lot of these institutional reforms. So I see it in these other industries as they're tackling some of these challenges now. That we have a lot of, I think, lessons that we've learned that we can help some of these other agencies with, but I think there's also an important need for us to continue to question ourselves to see if there aren't lessons we can learn as well from some of the challenges that have existed in some of these other areas recently.

So that brings us to today, and what are those challenges and issues that we're dealing with today? They are many, and I think there will always be in this industry a variety of different challenges and issues that we're constantly being confronted with. Over the past several months, the Commission has tackled a large number of significant policy issues and significant safety issues. Two of these that many of you may be familiar with I wanted to touch on a little bit because I think again, they reflect the various kinds of issues the Commission is dealing with and faced with. One of these is a significant update to our enforcement policy. The NRC's enforcement policy is really a crucial tool in our mission to protect public health and safety. I've always said that if I had to have one rule or one requirement for regulation, it would be that I've got an enforcement program because we can spend a lot of time and effort writing very good

rules. And what ultimately comes down to the most important issue, what really our activity comes down to, is the ability to enforce those rules or have those rules enforced. So at the heart of what we do as a regulator is ultimately that enforcement. And it's probably one of the things that I learned the most about when I came to the NRC was how much more complicated enforcement is than it appears at the outset. And it's one of the challenges that we continue to deal with and struggle with as an agency is how best to ensure compliance. So through our updated enforcement policy, the Commission has been able to better clarify how we go about doing enforcement and what kinds of approaches we will use to ensure compliance with all our regulatory requirements, as well as how we address prompt correction of violations and ultimately prompt identification. This has really been the first major revision since 1995 of the Commission's enforcement policy, and it reflects a lot of significant changes in that time. One of the most significant is the move to a new oversight process, something that we call the reactor oversight process, as well as the introduction of alternative enforcement techniques like alternative dispute resolution. Both of these elements have proven to be very effective in ultimately achieving our goals of compliance, although they don't use the traditional types of methods like civil penalties and other monetary enforcement tools.

The second issue that I want to touch on, and is one that really touches on a whole host of other issues, is something that we refer to as the waste confidence rule. This is a ruling that the Commission has made over the years, over the last several decades, and it has to do with the Commission's views about what we do with spent fuel absent a clear and definite decision about the ultimate long-term disposal of nuclear fuel. Through the update that the Commission recently completed to this waste confidence rule, we affirmed our confidence that spent nuclear fuel can be stored safely and securely

without significant environmental impacts for at least 60 years after operation of any nuclear power plant. So if you consider that most nuclear power plants will operate from at least 40 years, then we're talking about a period of at least 100 years of confidence in the ability to manage this material safely and securely. But we didn't stop there. What the Commission did next was to direct the staff at the agency to do the additional analyses, to look beyond that 100 years, to really figure out what kinds of challenges could be out there as we look to 200, 300, or 400 years of storing this material in some kind of aboveground storage site. So we asked the staff to ensure that they focus on really the best scientific and technical information, and that we focus on that information now so that we can identify any potential challenges that may exist in that several hundred-year timeframe, to ensure that we can reduce or eliminate any potential safety or security challenges that could be associated with that longer term storage of spent nuclear fuel. Now the Commission made clear that the revisions of the waste confidence findings and rule are not intended to signal an endorsement of indefinite storage of spent nuclear fuel at reactor sites. But simply out of an abundance of caution or in our efforts to always have additional layers of margin in our safety program, we wanted to nonetheless look to see what kinds of issues would be out there.

Now in addition to these two significant efforts, the Commission has also embarked on many other initiatives. We're working to take steps to enhance how we do oversight of fuel cycle facilities, which is becoming more and more prevalent as more fuel cycle facilities are being proposed and built in this country. It's facilities that process fuel, that enrich fuel, that do other types of efforts related to that. The agency also led an effort to provide a second report to Congress as a result of a task force that was created in the Energy Policy Act of 2005. And this was a Radiation Source Security Task Force

that really focused on ways that we can continue to ensure the secure use of radioactive sources in this country. And I was very pleased with the final report. I think it had some very strong recommendations about ways as a federal government that all of the different players involved in radiation source security can enhance their programs to continue to ensure that we have the right kinds of approaches for this today.

So that's a little bit of just a highlight of some of the things that we've accomplished over the last several months. What I want to do now is just turn to some of the issues that I think will be on the Commission's plate in the next several months. Most of the issues right now that we'll be dealing with from a policy perspective really deal with continuing to establish and deal with the infrastructure related to our new reactor licensing program.

The first of many of these issues has to do with, again, one of these structural issues at the agency, and that's with how we conduct the hearings that will be necessary as part of our new reactor licensing review process. And there's fundamentally two different ways that we deal with hearings in the reactor licensing role. We have those hearings which involve very specific and detailed challenges to findings of the staff or challenges to the applications themselves, and that's something we talk about as our contested hearing process. A second piece of that, and it's an element of our underlying statute, is something that we call the mandatory hearing. And the term is a little bit of a reference to the statutory requirement that we conduct a hearing anytime we're going to go about licensing one of these nuclear power plants. So one of the issues that the Commission is focusing on is how best to conduct that hearing in light of this contested proceeding that we have, and in light of the changes and enhancements that have been made to our oversight program over the last several years. And this is, in

fact, not an insignificant issue. Right now the agency is actively reviewing 13 applications for 22 new reactors, after I think there was some mention of a previous high of 17. In fact, we had up to 18 applications at one time. Five of those have been put on hold or have transitioned to other types of review processes. Now if you put this in perspective, just a few years ago -- or actually when I came to the Commission, I remember having a discussion with some of the senior staff at the agency. And we were debating whether or not we would see one or two applications come in; in fact, that almost increased by a factor of ten in the intervening several years. So certainly after the dramatic slowdown in the new reactor orders that we saw in the '70s, it's a significant change for the agency to have this large number of applications in front of us. And as I said, even as recently as 2005, this idea of 13 applications for 22 reactors was not really something that the agency was anticipating. But with the Congressional changes, things like the Energy Policy Act, there was an increased interest in what I would call right now probably, and probably at the time would have said as well, is the option to build a reactor. I think in many ways that's really what utilities are looking at right now is developing and preserving an option at some point in the future to construct a reactor if they receive a license from the NRC. So as the staff completes these final safety and environmental reviews that are related to these applications, we will have to turn to this idea of a mandatory hearing.

In the past the Commission's approach to this hearing has been to have our separate licensing boards conduct these hearings. But in 2007 the Commission determined that the right approach to dealing with this would be for the Commission itself to play a very significant role in actually doing this overall review of the work of the staff. And this will be the first time that the Commission has conducted these hearings itself,

which as I said are required by the Atomic Energy Act. And I think these are likely to command a great deal of attention from the public, from policymakers, and from the many stakeholders that follow the work that we do. And I think it's especially critical then given the importance of this activity, that these be done in the most open and transparent way possible. But keeping in mind some of the lessons from Three Mile Island, I think it's very important that as we look at these hearings that they stay appropriately focused on the most significant safety, security, and environmental matters relating to these applications. This will allow the Commission to serve as a check on the staff's work, but not necessarily replicating their very technical and detail-specific findings and review and analysis. After all, we have a large number of really talented and dedicated staff whose expertise really is in these technical areas, and the Commission's function in my view in this mandatory hearing is to ensure in an oversight role that the staff has conducted the kinds of work that they need to, to ensure that these plants if they are licensed are licensed safely and will be safe and secure going forward.

So over the next several months the Commission will be continuing to deliberate and discuss how we can best conduct these hearings. What are the best kinds of approaches that we take? But I think if we keep those big principles in mind of having a very open and transparent policy and making sure that we do this with the right focus at the appropriate level on the significant safety issues, I think we'll come out with a process that really accomplishes what the Atomic Energy Act intended and will do so in a way, I think, that demonstrates not only that the staff is committed to safety at the agency, but that the Commission is committed to ensuring that they accomplish that role.

Now this isn't the only significant issue that we'll be dealing with with new reactors. We'll also have several of the design rulemakings related to the actual reactor

designs coming to the Commission for approval at the proposed rule stage. That will happen over the next three to four months and that's a significant milestone in the review process as we begin to finalize our reviews of these designs. We'll also be taking a look at some very challenging issues dealing with how do you regulate a more advanced or an aged or an older fleet of reactors with a brand new fleet of reactors that can take advantage of a lot of new safety enhancements and new ideas in safety? And how do you regulate those systems side by side? Do we need to make changes to our regulatory system to properly account for the differences for ultimately, at least by design, the enhanced safety that these new reactors present? The best analogy I can always think of is you're at a stop light and you're in a car that may have been built 15 years ago. It doesn't have airbags. It doesn't have some of the more sophisticated technology that we use for safety now. How does that car match up to the car right next to it that may have some collision avoidance system and airbags and multiple airbags and all kinds of enhanced safety features? How do those two cars both stay on the road at the same time and stay safe, although they approach safety in a different way? That's the kind of issue we're dealing with now with some of these new reactor designs, and so we're taking a look at our programs to make sure that they can accomplish the right kinds of safety and security goals. So those are some of the challenges that we'll be looking at in the new reactor arena at the Commission level while the staff will continue making progress on their actual technical and environmental and safety and security reviews for the reactors.

One issue that we'll be touching on in the next several months, and I think is an issue that really is at the foundation of so much of what we do as an agency today, is the issue of safety culture. And it's that issue that I'll turn to and close out this

discussion before we turn to a little bit more of the discussion here. The issue of safety culture is an important issue for the agency. If we look at all of those incidents in the past in which there have been safety challenges, each time we go back and look at these we almost always at the core of this find some kind of degradation in the safety culture of that facility. So as a safety regulator, I think it's important that the agency remain keenly aware of factors that can undermine an individual's or an organization's commitment to safety. These include things like a focus on production or profit over safety, work environments that are not conducive to raising safety concerns, a lack of willingness by management to hear and respond to concerns or to correct known and recurring problems. So again, if you take a step back and think about the technology, the technology can function exactly as it's intended, but if these kinds of ideas are not carried out and not followed appropriately, you can have a facility that ultimately sees safety challenges.

And that's certainly what we've seen in the nuclear field, of course, most significantly with the Chernobyl disaster. These are the unfortunate consequences that can result from these sorts of failures and ultimately what we call safety culture. In recent years the Commission's main safety culture initiative has been the development of a Commission policy statement on safety culture. And this is something that I spearheaded several years ago because I thought it was important that we really define and clarify what we mean by this idea of safety culture. Obviously, when we talk about it, you can talk about it as the idea of ensuring that people do the right kinds of things for safety. But we needed a little bit more detail than that to be able to implement the program to ensure that that kind of structuring system existed and to try and figure out if there were ways we could measure it and ultimately then potentially regulate it.

So through this policy statement, the Commission hopes to guide the activities of the staff and help set the agency's expectations for our licensees. And the Commission set out two very important goals in drafting this statement. First, the Commission hopes to clarify the important role of security within safety culture. As with many other federal agencies, security issues have taken on added significance for the NRC over the last decade. Our licensees must recognize the importance of their security-related responsibilities and take an integrated approach to assessing how their safety and security initiatives impact each other. Many safety activities can have beneficial security impacts and vice versa, but there are also instances in which safety and security measures can work at cross purposes and diminish each other's effectiveness. A simple example or simple idea to think about in this area is you may have additional measures to prevent people from moving around a plant, but if those measures also prevent an operator from responding in the event of an emergency, then you have a challenge. You've ultimately potentially increased or decreased the safety of the facility while enhancing the security. So it's very important that these ideas work together. So a strong safety culture will help make sure than licensees proactively approach these issues and take the necessary steps to avoid these kinds of problems and challenges.

Second, this new policy statement seeks to make clear that safety culture is an important issue not just for power reactor licensees, but for the licensees that have nuclear materials that may be used in medical or diagnostic procedures, that may be used in industrial or research applications, or in the field of psycho facilities that as I said are becoming more and more important in the work that we do. Different factors may be at play for these different facilities, but a strong safety culture always remains an

important piece of what we do. For operating reactors with a strong safety record, we have to be concerned that there might develop a “can’t happen here” attitude, a sense of complacency born of past success. We need to be wary of the view that just because something hasn’t happened in the past that it won’t happen in the future. And our nation’s nuclear industry has gone down this road before as I talked about the Three Mile Island accident and more recently the Davis-Besse vessel had degradation. It was all of these things that at the time were thought couldn’t be possible and wouldn’t happen or wouldn’t occur. So it’s a need for that questioning attitude, not only to just look at what the past record is, but to think about what are all those things that we’re not seeing and how they could be challenging ultimately safety. So at the core of that is instilling that right safety culture in any facility or site or user of the materials that we regulate.

And, of course, for the potential new reactors with their enhanced safety by design, we have to be concerned that the operators don’t place too much faith in these new technologies. I think there’s no question that the industry has made a lot of progress in developing and enhancing nuclear safety technology over the last several decades. Events throughout the history of the nuclear industry, however, have repeatedly made clear that highly qualified and trained people are absolutely necessary for ensuring safety. And, of course, this is a tremendously important issue not only for operators of nuclear power plants, but as I said, for all of those thousands of material licensees who use nuclear materials for commercial, medical, and industrial purposes. So often the kinds of most significant exposures or inadvertent exposures we see to individuals, are actually in the nuclear material area rather than in the power reactor area because you’re dealing with a much more diverse group of licensees, many of whom may be at companies that have a few individuals at those facilities or at those companies and don’t

have the kind of sophisticated training programs or the sophisticated infrastructure that a nuclear power reactor may have with thousands of individuals potentially. So those uses expose large numbers of people to radiation on an everyday basis and obviously the bulk of that is intentional exposure. So it's critical that the professionals involved in those fields take seriously their safety responsibility. And so the safety culture initiative and effort is one way to ensure that we can reach all of this multitude of licensees with one overarching principle and idea, to really ensure and enhance safety. So I'm confident that the Commission's new policy statement will really make clear the importance of safety culture for the full range of our licensees, not just those in the power reactor community.

So as I said, this is just really a small sampling of some of the issues that we have in front of us as an agency, but I think at the core of all of these is ultimately the agency's commitment to ensuring safety and security in the licensing or in the use ultimately of nuclear materials throughout this country. And as I said, I'm very privileged to work at an agency with such a talented and dedicated group of individuals, and I'm pleased everyday I come to work to see their commitment to ensuring these ideas and principles of safety and security.

So with that I thank you and look forward to the discussion and your questions.

MR. BANKS: So as I indicated, what we'll do is kick off the discussion here with a few questions that I will pose for the Chairman, and then we'll be sure to leave enough time for audience Q&A. And by the way, thank you very much for joining us again today. It's a great privilege to host you.

I wanted to pick up on this theme of the increasing, seemingly increasing, challenges and topics that the NRC is taking on and linking this back to lessons learned from Three Mile Island and efforts to strengthen the Commission itself, and in one particular issue that you mentioned toward the end here on security. You mentioned that this is obviously an issue that is on many institutions' minds in infrastructure and in industry since 9/11, of course. And we just saw recently within the last few weeks this supposed al-Qaida suspect who was arrested and thought to have worked at the nuclear facilities in New Jersey. We've had this Stuxnet Internet virus that appears to have crept into the nuclear infrastructure of Iran. I wanted to ask, can you elaborate broadly on the types of security areas that the NRC is concerned with and that you're addressing?

MR. JACZKO: Well, I think it really covers a whole panoply of issues. We have programs in place to ensure protection against the kind of military-style raid. We're in the process now of really finalizing and formalizing the programs to deal with the cyber security threats. So in many ways I think we have a good foundation of a program, but it is a constantly evolving threat and a constantly evolving issue. So we have to adapt where necessary and update our programs. In many ways the challenge here is to establish a program that is, I think, able to deal with slight changes in the threat environment without requiring significant changes to the activities of our licensees, otherwise we don't have really a stable and sustainable program. And I think that's what over the last probably ten years or so we've really worked on. And I think we continue to work on to really find what that right balance is to make sure that the programs are out there and that they're accomplishing what they need to accomplish, but they're flexible enough to be able to deal with a changing environment. As I look out over the next several years, I think cyber will become one of the more and more important issues that

we deal with from a security standpoint. And that's not, I think, something that just affects the nuclear industry, but it will affect -- something that I think affects all of the critical infrastructure in this country.

MR. BANKS: On that note you mentioned also toward the end that there are instances where safety and security may work at cross purposes and you gave one example. How do you ensure that you avoid those approaches working at cross purposes? What steps can you take to work with industry or others to ensure that you avoid those approaches working against each other?

MR. JACZKO: We've actually put into our regulations a requirement that they look at this, and it's what we call a safety-security interface to ensure that they're examining these changes that they may be making to really make sure that they think about if it's a security change, what the impacts will be to safety and to operators or others in the plant. So it's something we've actually put in place and really required them to look at. And I think that it's one of those things that as I tour plants, I get an opportunity to see firsthand how these changes are being implemented. And there really is a high degree of focus on that to make sure that ultimately the safe operation of the plant continues.

MR. BANKS: So on this note of increasing issues and topics that the NRC needs to address, you mentioned that the new reactor applications will entail significant additional responsibilities for the Commission, especially the commitment to conducting the mandatory hearings as well as new reactor issues that will require the Commission's attention, proposed design certification rules, new reactor designs, et cetera. Can you describe what steps the NRC is taking internally in this theme of internal strengthening? You talked a lot about how to instill this type of approach with those that

you regulate. But what kinds of steps do you see the NRC taking internally to prepare for these new activities and to ensure that staff has the expertise and the breadth of knowledge to tackle these issues?

MR. JACZKO: I think we've done that in several ways. First of all, over the last five years or so we've hired a large number of new staff to just have the resources, the physical, the actual bodies if you will, to carry out the work and go through and do the reviews. The Commission has really tried to focus right now on looking and thinking that short-, medium-, and long-term from its agenda, to try and put these issues in a good queue if you will to be able to address them with the right focus and the right timing. The staff continues -- they're always on a constant learning path so they continue to look at training activities, to look at workshops and really other management techniques to continue to refine their skills to be able to deal with all of the work that's in front of them. But it is certainly -- with the hiring that we've done, we've brought in a lot of new people to the agency. So there are some efficiency losses as those people get up to speed and learn about how the agency works and why we do the things we do. We have a very rigorous program in knowledge management, which again is intended to capture the lessons and to capture the thinking of the people who have gone through these kinds of things before, who have gone through reviews in the past, and what are the good approaches and the good ways to handle it. So we're working to capture that and share that with all our staff through videotaping of people, through Websites that we have internally that share information like that.

MR. BANKS: And on this issue of the mandatory hearings, you mentioned that you were making an effort and are very conscious of the need to have this as an open and transparent process. And, obviously, you're aware of some

criticisms of the NRC in trying to be more open. How do you -- what is your approach to ensuring that you have as broad and as open public participation as possible in this new process?

MR. JACZKO: Well, I think with this mandatory hearing, the key to it will certainly be the hearing itself. I mean, it's there in our regulations so that there will be a day or two or three, however long it takes, where the Commission will have likely the staff, the applicant, come before it and talk about where we are in the review process, what are the kinds of things that the staff has found, what are the kinds of things that the applicant has presented. And it will really provide an opportunity, I think, for us to be able to talk about these issues and ask the staff questions, hear their answers, and do that in a very open way. So that hearing in and of itself, I think, captures a lot of it. Of course, the documents, all of the products that come out of that, we want to make accessible to the public so that they can see. But fundamentally, the safety decision here comes down to the staff review. And we really make an effort for the staff's review and as much of that review product to be publicly accessible as possible. And I think that really goes a long way to providing the public with a recognition for the thoroughness of the work that the staff does and the focus on safety that they have.

MR. BANKS: Okay. In tying into this, as you know and I mentioned in the introductory remarks, the revised COL process and this has come under some criticism. I've read some pieces where critics have suggested that this COL process is largely untested and, therefore, may not achieve the goals of reducing costs that many have talked about and delays in the licensing process. And there are others that have indicated that the NRC has struggled to keep pace with the docketing process and the review of site-specific license applications and other issues. I'm not sure, for those in the

audience who are not necessarily familiar with the COL process, whether it might be good to provide a sort of brief summary of that as well as an update on the status of the process and your views on how you answer some of those criticisms.

MR. JACZKO: Well, sure, I think fundamentally the way I look at our licensing process today compared to 20 or 30 years ago, in the past you would get a permit to construct. You would, if approved, begin constructing the plant, and then get the license to operate it. What we've done is we've almost flipped that. We made it now so that what you really come in for licensing is both a permit to construct as well as the permit to operate. So you get all of those at one time before you begin construction. So I think fundamentally, in the sense of -- what it's fundamentally done is it's shifted the financial risk to the construction phase rather than to the licensing phase. So in the past, somebody could get a permit, go on and build their structure, their plant, and then never receive an operating license. And as a result there was an investment of several billion dollars in the plant, and it never operated. This way the licensing decision is made up front so there's better certainty, I think, for utilities if they want to decide to move forward. Fundamentally, I think, it's been a very successful process. There certainly have been challenges as we've worked through this, but those challenges have really been, I think, a combination of the utilities learning as well as the agency learning. When I first started as Chairman, I asked the Bipartisan Policy Center to take a look at this question. Are there things that we could be doing better to make this process work better? And they actually came out with a very nice letter report that said that essentially that the Commission was really working well to meet its safety responsibilities and doing it in an efficient and effective way. I think alternately the advantage -- and one only has to look, I think, at the realities that are out there of the plants that are considering or not

considering construction. Very few of those that talk about perhaps eventual construction rarely say that they're not interested in licensing. So what we're seeing is plants that are interested in pursuing licensing, as I said, as an option to build more than anything. So the way the process works now, it creates that possibility because the licensing expenditure is much less relative to the actual construction expenditure. And again, this is all assuming that they successfully complete the licensing. But I'm very confident with the work that the staff has done to make sure that the designs that they're reviewing are going to be safe. And they have not hesitated, where they needed to, to put a stop to the review and tell vendors or applicants that they needed to make changes; and if they didn't make changes, the staff wouldn't approve them. So they've been very candid about that and, I think, really held the line on safety.

MR. BANKS: Does there seem to be any room for further improvements at this point? Is there anymore we can squeeze out of this stone or is this --

MR. JACZKO: I think the fundamental -- if by improvements you mean shorter timeframes, I think fundamentally the way the approach works, the review process involves a few different pieces. It involves an environmental review, a design review, and then an ultimate actual kind of licensing review. The intention of the new process was that the design work would be done really before any of the licensing work were to happen. So effectively somebody would get a generic design approved. That design would literally be on the shelf somewhere. Somebody who wanted to license a facility could pull that design off the shelf and do the detailed licensing work for their site. What we haven't seen is that model play out the way it was intended. Right now we're doing both that specific site licensing work and the design work really at the same time. So the driver for the licensing work right now is really the design completion. So if the

industry is disciplined, once those designs go through their review process and if they are approved, that will provide, I think, a more direct path for applicants in the future who want to build a particular site. But it requires a tremendous amount of discipline on the part of the industry that I'm not sure will be there to take those designs that are already approved and use those rather than a modification or an enhancement or a newer generation that somebody may be offering us.

MR. BANKS: On this issue of the designs, you mentioned one of the challenges, I think, for the NRC is looking at some of these new designs, some of the generation III and even generation IV, as well as modular reactor designs and I think even in the enrichment area of laser enrichment. Again, tying back into capacity, how do you guarantee or how do you ensure that your staff keeps pace with the advances in the various designs and technologies with seemingly so many coming before the NRC?

MR. JACZKO: Well, I think there's a stepwise approach to it if you focus, for instance, on the smaller modular reactor designs. I really group those into three categories: You've got those designs that are the so-called inner light-water reactor designs, which are most similar, while scaled down, to the kinds of designs that we review and look at today. That category of designs we're well prepared to deal with those through licensing today. There may be areas where the applicants think we can modify our regulations in certain ways given the small size with the lower risk or these kinds of things. But none of those changes are changes that are necessary for us to be able to review. There are some things that I think applicants would like us to change. We'll see to what extent we do that.

The next category of designs I would put would really be those that I call the high-temperature gas reactor designs. This is a group of designs that meet those

criteria, and those are reactors that would be used not necessarily for electricity production, but for the high heat that comes out of this reactor that could be used as process heat by the petrochemical industry or even as electricity generation in that industry. They're on a little bit longer timeframe simply because in many ways the work of the applicants isn't as far along or the potential applicants in that regard. So we're looking and trying to plan out the kinds of work we need to ensure that our staff has the right skills and the right resources, and we have the right regulatory infrastructure in place to do that.

The last group or what I would call more the nontraditional designs, they use the kinds of technical features that are not really found on the designs that we have today. They may be in other countries, but certainly they're not things that are used in the United States. Those are on a probably little bit longer path, but what I tend to find is that we tend to grow at the same pace as the skill, knowledge, and expertise of the applicants. So it's rare certainly from what I've found that the applicants are able to develop the technology and the infrastructure before we do. So as they're developing, it gives us an opportunity to develop. So as long as there's communication and a good sense of what a realistic path is and a good, clear understanding on their part of what they need to do to satisfy our stringent safety requirements, it usually gives us enough time to put in place the skills and the infrastructure that we need to do that. So I feel pretty confident that if you look at those three groupings that we're in good position or will be in good position to deal with each of those when they really become available.

MR. BANKS: A related question on this, with a number of these designs, both in the small modular reactors as well as the laser enrichment technology, there is a selling point that they are more proliferation resistant if you will. How does the NRC --

does the NRC factor into their design reviews a proliferation criteria? How do you take that into consideration when reviewing the designs for the various technologies?

MR. JACZKO: Well, fundamentally we have -- I think the basic nonproliferation goal is really two things: One is to control material and to control knowledge. So we do, where necessary, require the various types of facilities to have programs in place to ensure control of both of those things. It is perhaps more of a challenge in the enrichment area than it is in the power reactor side. It's not so much of a focus for the power reactors, the proliferation. The designs are well known and used throughout the world so there's really not a sense of controlling the designs necessarily anymore. There is much more on the enrichment side of the house. So given that, we've now -- we're back in the process of reviewing enrichment facilities. That is becoming a little bit more of a focus for the agency as we go forward. I know there's interest out there in the agency doing a more rigorous assessment of the nonproliferation elements or aspects of any particular enrichment facility. And that's something we'll continue to look at, but right now the approach we take is we ultimately defer to some extent the national nonproliferation judgments to the Department of Energy, the National Nuclear Security Administration, the Department of State, the broader federal family, and we work to make sure the implementation of those things is done successfully.

MR. BANKS: Just watching the time here, I want to make sure we allow a little bit for Q&A. A few more topics to broach to sort of get the juices flowing further, I think one of the other issues that you mentioned that the NRC is working on is conducting an additional analysis for longer term storage. Would you be able to highlight at this time the scope of that analysis, the types of issues that that analysis is including, and when you expect that to be completed?

MR. JACZKO: Well, it's a little bit of what we're doing right now is formulating exactly what the scope of that would be. I mean, it's envisioned to be something that will be a multiyear effort, so this isn't something that will take a couple of months. It's likely several years, probably anywhere from three to five years I would think. And that could cover a whole range of topics from characteristics of the fuel, transportation of the fuel, and then any research that we might need to do to verify assumptions that we're making about the long-term storage of the fuel. So that's really the focus and the ideas. Are there any issues right now that we could identify or develop or look at now that we could address to ensure that in 200 or 300 years, if the fuel is still in a dry-cask storage configuration, that if we need to move it to a reprocessing facility or to a disposal facility that it can be moved safely? So it's trying to look at that kind of an approach and see really what the challenges and issues are that are on the horizon.

MR. BANKS: And, of course, the larger question obviously related to Yucca Mountain, what is your view on the Commission's role now is vis-à-vis Yucca Mountain? I mean, how do you see that your role has changed, if at all? What's your position?

MR. JACZKO: Well, we -- right now with the starting of fiscal year, the agency is moving to begin to close out our review work on the program. And we'll see as Congress continues to look at these issues if they provide us with different direction. But fundamentally right now -- I think fundamentally the agency's responsibility is to make sure that this fuel that's out there is safe and secure, and that's something that we believe is something that can be done. But, again, we want to make sure that for the longer term we've got the right kind of programs in place to ensure that.

MR. BANKS: I want to ask just two more questions and then open it up. These are a bit more, higher level, thought pieces if you will. I was reading recently that there was a *Scientific American Magazine* and its sister magazine, *Nature*, did an Internet poll globally on a variety of scientific issues, science-related issues, and nuclear power being one of the elements of that. And I noticed that the response indicated that 24 percent of the respondents in the U.S. were totally comfortable with the risks associated with nuclear power. That's the way it was worded, 24 percent were totally comfortable with the risks of nuclear power. And I think something like on the order of 54 or 56 percent were somewhat comfortable, and there's a variety of other polls out there. Gallop has done some recent polling. The numbers seem to have been going up with regard to the comfort level or those that think that nuclear is a policy approach to pursue. My question is, there seems -- how important is public perception of nuclear power in your view, and what do you think explains this lingering doubt? I mean, as I say, there are certain polls that suggest that there's strong -- that folks strongly favor nuclear power, but when I see a figure that 24 percent are totally comfortable with the risks associated with nuclear power, that's a pretty good number for me. And do you see that the NRC has a role in this public perception of the safety of the industry? I mean, you elaborated on some points, but if you could elaborate a little bit more on this general theme?

MR. JACZKO: To some extent, the issue that I focus on is public perception of the agency because I think ultimately it is our responsibility to ensure that licensees act safely. So I worry more about that, and I think if the agency does its job well and the public believes we do our job well then other issues will take care of themselves. I mean, in the end if we're making sure the plants are safe then that's the most important goal. That's where I think the challenges are. I see a lack of 100 percent

public response that nuclear is safe, I see that more as a question for what are we doing as an agency that the public does not fully believe that we're carrying out our responsibilities successfully. So that's how I tend to look at those issues. I tend to see -- I tend to think that there's a sense -- poll numbers tend to be poll numbers, and I think they tend to be fickle. We have a lot of facilities right now for which the public perception of the risk with those facilities is very negative. And I think there's a tendency in this particular industry to want to think about these things in terms of is it safe or not safe or acceptable or non-acceptable. And what I tend to think -- these ideas of safety are very complicated concepts. We can't pin safety down to a number. We can't pin it down to a specific equation. A lot of it comes down to perception. We all kind of know the statistics. Driving a car you have a much higher risk of fatality than if you fly in an airplane, but far more people from my anecdotal experience don't like to fly than don't like to drive. So risk and perception of risk are two very different things. And, again, there's also very legitimate policy discussions about what is safe. One person's concept for safe could be very different from another's. Those are really societal policy decisions, and as much as we want a system at the agency that is based on numerical objective criteria, it's what I always remind people that where you set the number, where you set the limit, is always going to be a policy decision. We've set our limits for public health exposure at 100 millirem. I always find it somewhat ironic that nature determined that a round number was the perfect limit for radiation exposure, but obviously those are policy decisions. So we've come up with numbers that seem to make sense and we think are influenced by good technical judgments, but in the end there's a policy call. There's a determination about what is an acceptable level or what's not an acceptable level, and that could be higher or it could be lower based on a lot of different policy factors, so one

community's acceptance or risk threshold may just be different from another's. You could look at the same reactor with the same risk profile, and one may determine that's safe and one not. And there's no real simple answer for which is right or which is wrong, it's just simply a judgment. I like to look more about how people think we're doing to make sure that the plant is operating safely. And I think in general we do pretty well there, but there are some areas in which we don't do as well.

MR. BANKS: And finally with regard to some of the recent trends or perhaps bumps in the road with regard to the potential for expanding nuclear power, and this is perceived -- that the perception is that one man's nuclear renaissance could be another man's burst bubble, depending when you had your conversation when you first came to NRC and said maybe we'll get one or two license applications and now you're dealing with 17. But we've had John Rowe, for example, the Chief Executive of Exelon, in an interview recently and the *Financial Times* indicated that he didn't think there would be more than five reactors built in the next ten or 15 years. Obviously five reactors is a lot more than what has been built in the last 20 years, and obviously in light of the Constellation decision this weekend. What's your overall view as to the realistic prospects for a renaissance or at least an expansion of nuclear power in the U.S.?

MR. JACZKO: Well, I think, again from the agency's perspective, I think our focus is if there are plants, they need to be safe. I mean, that's bottom line. However many there are or there aren't, is really a decision for the utilities. So as I said, I think the process really now is more about the option to build than it is about construction. And three or four years ago as I talk to people, people who were involved in the financing, the numbers that people were really talking about coming out of all of these license applications and actually moving to construction if they were licensed, is about the same

kind of numbers that we're talking about today. There was never, certainly from my perspective, never really a realistic scenario in which all of those license applications we have under review turning into construction if they were licensed. So I don't know that -- to some extent, I think the private conversations are now becoming the public conversations as people are getting closer to that point in which they have to make that decision about construction. More people, I think, are deferring that judgment, but that's not terribly inconsistent with what I've been hearing privately for a long time. How one wants to characterize that, I leave others to label it.

MR. BANKS: Very good. Well, thank you very much. I would like to open it up to questions. We have two rules: One is, please identify yourself by name and by your affiliation, and also if you would constrain your remarks to questions as opposed to comments and pontifications. And I think there are some microphones going around. Yes, right here.

MR. LUCIBELLA: Hi. Mike Lucibella, APS News. I was wondering if you could just talk a little bit more about laser enrichment. And do you think that utilities that use laser enrichment should be subject to a proliferation assessment?

MR. JACZKO: Well, the Commission's currently reviewing an application for a laser enrichment facility, a GE facility in North Carolina. The issue of whether or not we should conduct a so-called proliferation assessment is something that we've heard from many outside stakeholders. At this point the Commission hasn't really made a judgment about this. We may be getting some requests to modify our regulations and take a look at this. We'll certainly take a look as that kind of request comes in, but at this time I don't really have a strong sense one way or other what the right approach is. As I said, fundamentally I think we want -- right now our regulations ensure that the material

and the information need to be controlled and that's really the focus. And I think this idea of a nonproliferation assessment is really a broader question of -- I think is maybe a broader philosophical question about whether those things are really possible, whether you really can successfully control the information or control the material. And that's probably a broader policy question that the Commission hasn't really grappled with right now. But right now I would say that we believe our approach to those two questions is adequate, but it's always possible that we could do some things to enhance it.

MR. NEWSTEAD: Thanks. Charles Newstead, State Department, apologizing for the voice. The question really refers to the tremendous expansion in China. They are embarking on a very aggressive nuclear energy program as everybody knows in this room, and I'm wondering what the role of the NRC would be in that. Now I know that you don't license these plants; in fact, you're not allowed to. But as a dear old friend of mine, Herb Touts, once said, "An accident anywhere is an accident for the world." So we can't afford to have the Chinese have an accident, something like Chernobyl, which would really set you way back. And I'm wondering what we could do or what you think we could do to help the Chinese within the constraints that, of course, you have on the NRC?

MR. JACZKO: Well, I would probably answer that question -- or I will answer that question this way -- we are, in fact, doing things right now. The NRC works very closely with our counterparts in China to help them in particular with those designs that they are constructing that are U.S. designs, namely Westinghouse designs, so we share technical information. We share information about our reviews. We exchange personnel to do -- really to share information, share best practices and that's actually something in which we learn and as well as I hope they learn. So we are working, I think,

very collaboratively to ensure that they'll be successful in their efforts and that ultimately then we'll be successful in our efforts here in licensing those facilities. I would say it's a very interesting topic internationally right now because I think there's really two avenues for this idea of collaboration between those countries that are embarking on new nuclear programs and those countries that have existing nuclear programs. And there's, I think, a discussion right now about where the focus should be. Should that focus be on countries by China that are embarking on a large, new build program, or should the focus be on countries that are beginning completely with a nuclear program?

MR. BANKS: Like the U.A.E. for example?

MR. JACZKO: Like the U.A.E. or other countries like Vietnam that talk about this. What is the right role for the established nuclear regulatory programs? Is it to help with those developing nuclear programs or to help those programs that are expanding at a very rapid pace? And there's a lot of discussion right now about which way is the right way to go, and I don't think the international community has really reached consensus. There is actually a program that's recently been started through the International Atomic Energy Agency. It's called the Regulatory Cooperation Forum, and the intention of that forum is to pair up if you will those developed regulatory programs with the developing regulatory programs to provide them with assistance so that they can institute the right kind of infrastructure, the right kind of independence, to ensure that they can then alternately regulate and ensure safety at facilities that might be built in their country. So it's an ongoing effort right now, and it's one where the United States is playing a very active role internationally, not just with China, but with many other countries.

MR. DOLLEY: Thanks. Steven Dolley with *Platts*. My question, Mr. Chairman, is about the mandatory hearings. You said that the Commission will be looking for the next several months; I think you said, at this question. The first part of my question is does that mean that we shouldn't anticipate that the first of these mandatory hearings would be convened for several months or maybe even as you said this summer, a couple of years? And the second question is as the Commission takes a look at this; would you consider adopting what your fellow Commissioners have called target schedules or milestones for completion of those hearings and the subsequent Commission decision on the applications?

MR. JACZKO: Well, on the first question of when we'll likely do this, that all depends on what the Commission establishes for this particular hearing. There's lots of different options we can consider doing this before the staff has completed their final licensing decision, but after they've completed all of their regulatory documents, their safety review, their environmental review. It will depend on whether or not there's actually a contested proceeding as well. And then the question in front of the Commission is do we wait until the contested proceeding is completed or do we do it before the contested proceeding is completed? So those are the issues that we're really working with right now. And so the timing of when one of these happens will depend on really what the Commission decides about when the right timing is for one of these. But I would anticipate sometime -- we don't anticipate the review to be at the stage at which we could even contemplate doing one of these probably until at the earliest next summer or early fall.

With regard to target milestones and schedules, I think milestones are always a good idea. We want to have something to shoot for, and so milestones are a

great idea. Where I'm not comfortable, though, is establishing a firm schedule now. I mean, we have to wait, of course, and see what the issues are that could come up. But I don't anticipate that this hearing will be something that we couldn't have some kind of schedule or milestones that we shoot for. And then, of course, reality and what happens and materializes with these applications and the issues could always drive that in a different way. And that's something that I think in the end the issue has to be about safety, not about complying with a schedule.

MR. BANKS: In the back, yes, the gentleman there.

MR. PAINE: Christopher Paine with the Natural Resources Defense Council. Several years ago when you established the early-site permit process, the Commission guidance to applicants was that they needn't address the so-called heart of the environmental impact statement, namely the analysis of reasonable alternatives, to a proposed reactor until the later call stage and the NEPA statement that goes along with that. What is -- and so as a result these early-site permits excluded an analysis of reasonable alternatives to a reactor until the later stage. What is the current Commission guidance on the inclusion of the alternatives analysis at the call NEPA stage?

MR. JACZKO: I'm not aware of anything that would not require the reasonable alternatives analysis. The issue -- and I'm not familiar with the specific decision to defer that to COL. There are many -- there are actually to some extent in the early-site permit -- the applicants -- and in my view probably the Commission gave too much leniency, not from an environmental review standpoint, but simply from an efficiency and effectiveness standpoint of these early-site permits, gave too much leniency to defer too many things to the COL. But in the end it's the COL that actually is the actual licensing action and there is an environmental impact statement that has to be

completed with that. So if the reasonable alternatives analysis isn't done at the early-site permit, it has to be done at the COL stage or would have to be done there. I don't see anything that would -- I don't know of any guidance that we've put out that wouldn't require that.

MR. FETTUS: I just have a follow up. Geoff Fettus, also with the Natural Resources Defense Council. That NEPA provision that Christopher was just mentioning is actually in the regs now for putting aside of the alternatives, that analysis is actually in the regs now and in the --

MR. JACZKO: For putting aside for COL or for --

MR. FETTUS: Correct, for the COL, the IS process, putting it aside until such time as the COL process.

MR. JACZKO: Oh, yeah, yeah.

MR. FETTUS: However, the recent climate bill that landed with a thud had a provision in it that would have done away with that alternatives analysis in the later COL. So we actually looked at a proposition where you would have early-site permits that would never actually do a meaningful NEPA process because that would have been done away with by legislation.

MR. JACZKO: That legislative proposal did not come from the NRC.

MR. FETTUS: Correct. I'm just clarifying that.

MR. JACZKO: Okay.

MR. BANKS: Yes, this gentleman here.

MR. PRITZKER: David Pritzker, Administrative Conference of the U.S. Early in your talk, when you were speaking about post-TMI changes, you mentioned use of alternative dispute resolution. How do you use it and what difference has it made?

MR. JACZKO: Right now we use it as an enforcement tool in cases involving willful acts or discrimination. It was originally a pilot to look at it in those very narrow cases. And we found it to be, I think, an effective tool ultimately for achieving outcomes that are things that we couldn't necessarily otherwise require licensees to attain. An example of one that maybe has some weaknesses, but demonstrates the idea, I think, is with a facility that we had in Tennessee that was having continued challenges with performance. And what we determined the root cause of those performance challenges was ultimately safety culture problems, but we don't currently have any requirements in our regulations for safety culture programs. So what we did as part of this alternative dispute resolution rather than going through our traditional enforcement process of issuing a civil penalty and taking other actions, we created an order through this alternative dispute resolution process that required the licensee in this case to establish a board of advisors specifically dedicated to looking at safety culture issues, and they went out and they completed two reviews of the safety culture program. So that was something we were able to impose as a requirement that we would have otherwise not been able to do because that's not in our regulatory program. So we use it. We tend to -- right now it's limited in its application to those violations of our regulations, willful violations of our regulations, or discrimination cases. And there's been discussion about potentially expanding it beyond that, but right now that's not certainly in front of the Commission to consider, but there's been discussion of that. So we found it to be a very useful program and many of our enforcement procedures go through that. And, of course, we always have the right to not use ADR and to go through our traditional enforcement, and, of course, the applicant has the right as well to not pursue that option.

MR. BANKS: All the way in the back.

MS. LING: Hi. Katherine Ling with *Greenwire*. You mentioned a little bit about the Yucca proceeding, but didn't really talk about it too much in the speech. You said at this point the 2011 budget guidance, you're starting to close down review unless Congress directs otherwise, but you still have a pending decision on the ASLB rule that DOE cannot withdraw the license. I was wondering how the budget guidance sort of works with the decision before the Commission, when that decision might be made. And how do you start reversing that if you decide to uphold the ASLB ruling or Republicans look to be gaining in Congress and they may very well direct you in another way next year?

MR. JACZKO: Well, the hearing process is somewhat of its own process and will follow its own path. So from an administrative standpoint, I'm moving the agency to close out because that's really what our fiscal year '11 budget guidance is, and that process will continue as I said absent some other direction from Congress. I mean, if Congress in the fiscal year '11 appropriations bill or whatever they finally complete were to give us different direction, we would, of course, always follow whatever direction we get from Congress. But right now, this is the agency's budget plans for fiscal year '11 is to begin close down and so we're beginning that activity.

MR. BANKS: We have time for a few more. This lady right here.

MS. JACOBSON: Debra Jacobson, George Washington University Law School. The Price-Anderson Act was reauthorized in 2005 for a period of 20 more years, but the reality is that by 2020 we're not going to have that many new nuclear power plants. And so my question is to what extent that limited term of Price-Anderson is affecting the risks the utilities are facing if they go out and try to finance a plant that

authority might not be available to them, particularly in a climate where Congress doesn't like bailouts too much.

MR. JACZKO: I've not heard anyone ever mention to me Price-Anderson, the expiration of Price-Anderson, as a challenge from a financing standpoint. My expectation is Congress would likely reauthorize Price-Anderson in 20 years, perhaps with modifications or changes, but I wouldn't foresee a significant change in that. Again, I never want to guess what Congress is going to do, but I don't foresee -- I've never heard from anyone that that is a problem, that anyone is looking to that as a financial uncertainty area, the potential lack of a reauthorization.

MR. BANKS: Kevin -- we'll take a few more after Kevin and then we'll wrap up.

MR. MASSEY: Hi. Kevin Massey with Brookings. We have already heard you mention countries that are considering constructing nuclear programs from scratch and my question is specifically about the U.A.E. program. They have a very ambitious schedule for getting their program up and running, and considering that they've had no history of regulatory capacity there, I wonder if you could first share with us any collaboration that the NRC has had with their fledgling regulatory authority? And also maybe give your thoughts on the schedule that they have set for getting their program connected? And whether you think that their regulatory process can be completed in time?

MR. JACZKO: Well, it is a country that we have been working with on a bilateral basis to provide them with assistance. We have actually provided them with personnel. The head of the regulatory agency there is a former NRC staffer, a very senior manager at the agency. So I think they are certainly moving forward in an

aggressive way, but I've seen them be very involved internationally, participating in all the international safety organizations and safety bodies where they can to ramp up quickly and get the expertise that they need. But it's a challenge for any new program to develop the personnel, to train the personnel, to really ultimately be able to do the kind of safety review that's necessary to ensure a safe program or a safe facility. So I'm not that familiar with their schedule and their plans to know really whether it's too aggressive or not, but I certainly have talked to their head regulator, and we do have very good cooperation and we're providing them resources as they request it.

MR. BANKS: In the back.

MR. GRAVE: Spencer Grave from Friedman Billings Ramsey. You talked a bit about regulating another two side-by-side systems, the old facilities operating in the fleet and whatever new facilities will operate under COLs. Could you talk a bit about how you go about re-permitting old facilities in whatever way they'd work under the new system?

MR. JACZKO: Well, the challenge for us is -- I think if you look -- well, maybe I'll answer the second question first, or the second part of your question first. The basic way we look at any facility is it has to meet our minimum -- it has to meet our safety requirements. So every facility in this country, it meets our requirements. If it doesn't, it doesn't operate; I mean that's the basic idea. So when we go to look at new permitting or re-permitting or re-licensing as we call it for an existing facility, we look at a subset of their programs and systems that are important for safety, and we make sure that they have a program in place to ensure as those systems age that they can continue to meet our safety requirements. As the safety requirements change, if we make modifications, enhancements, we expect everybody to comply with those with a few exceptions. We

have a provision that we call a back fit rule that if a safety change doesn't meet a certain threshold in terms of enhancing safety by a certain margin, then we're not allowed to impose it. But if it's a new facility, it would get that change. So that's the only caveat really. The issue here with the new facilities -- they'll all be licensed to the same set of requirements -- the issue really comes about when you talk about changing the facility. And the issue is if a facility is inherently safer to begin with, and right now we have a process where utilities are allowed to make modifications to their facilities if they meet certain requirements, if they're -- from a risk perspective, if they're very low, they don't need to come in for pre-approval to the NRC for instance. They can make that change and then we review it later and verify that it was, in fact, of very low safety significance. So where having these new reactors side by side, where it becomes a bit of a challenge, is if we keep those same thresholds and these newer reactors are much safer, inherently safer, then they may never trigger that threshold that they would have to come to us for an approval for a change. So you have the potential that they could effectively erode all of the safety margins that they've put in by design so that they wind up being basically at the equivalent level of safety of the reactors that are out there. Philosophically, it's probably not really what you want. You don't want to start with something that's inherently safer and let it modify itself so that it's no longer as safe as it was when it started. While still meeting all of our safety requirements, you lose some of that margin. That's really what the issue is about is how we make sure that we preserve that margin and that means we probably need to change some of these processes that we have right now for how a plant's allowed to make changes. And for the newer plants, we probably have to have a tighter control on what's an acceptable change without prior approval and

those kinds of things. So it will be a different threshold, a different level, for those plants because they're inherently safer.

MR. BANKS: We're approaching our time. We'll have one more question.

MR. PAINE: Christopher Paine again from NRDC. I just want to push back a little bit on the nonproliferation role of the Commission. We've been somewhat disappointed on two issues recently: A petition to set a date certain for the phase-out of highly enriched uranium exports and more recently the evaluation of the laser isotope separation techniques. The Commission staff has really offered rationales that I think are just completely unsustainable, almost laughable, in light of the Commission's broad mandate under the Atomic Energy Act to ensure the application of nuclear energy meets the common defense and security needs of the United States and the public safety of the American people. So in light of that very broad mandate, which has been exercised by previous Commissions, why the reluctance on the part of the staff just to do an analysis? I mean, in the case of the LIS, it's just an independent analysis. Wouldn't the country benefit from an independent analysis by the Commission? The Commission is in a more unique situation vis-à-vis the issue than the State Department, for example, which is under all kinds of political and policy pressures? And even if you were just replicating what the State Department did, presumably there would be a public analysis, open to public comment by the scientific community. What's wrong with that? I don't understand the staff's shying away from that.

MR. JACZKO: Well, I would agree. I think the agency has a very broad mandate. The common defense and security mandate is very broad. It's probably the least well defined of all of our mandates, and I think in very specific cases -- as I said, I

think the way the Commission's interpreted kind of it's nonproliferation role right now is in that very specific, or the agency, is in that very specific avenue of we're here to control information and to control material and that that will in effect then accomplish whatever nonproliferation goals are out there. I certainly have an open mind about approaches to look at that from a more broad or generic perspective, which some kind of a nonproliferation assessment might accomplish, but I don't think -- we're probably not at that point yet. I think the Commission needs to do a little bit more thinking about that before we come up with any final answers. As I said, I think probably from the staff's perception of what they believe is that the approach we're taking accomplishes the same goal because it's ultimately the implementation. You can have a nonproliferation assessment that says okay, you need to do the following things in order to assure that you reduce or minimize the nonproliferation risk. I think the staff would say we're already doing those things right now so the broader assessment isn't necessarily going to accomplish anything more. But it's certainly an issue I suspect we'll continue to have some discussion about in the future.

MR. BANKS: Great and with that, we'll close our program today. First, thank you all for coming and for your excellent questions. And join us in thanking Chairman Jaczko for joining us and sharing his thoughts. Thank you very much again. It's a pleasure.

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I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

/s/Carleton J. Anderson, III

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