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HEARING ON THE NOMINATIONS OF GEORGE APOSTOLAKIS, WILLIAM MAGWOOD, AND WILLIAM CHARLES OSTENDORFF TO BE MEMBERS OF THE NUCLEAR REGULATORY COMMISSION

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

FEBRUARY 9, 2010

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ONE HUNDRED ELEVENTH CONGRESS
SECOND SESSION

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C O N T E N T S

HEARING ON THE NOMINATIONS OF GEORGE APOSTOLAKIS, WILLIAM MAGWOOD, AND WILLIAM CHARLES OSTENDORFF TO BE MEMBERS OF THE NUCLEAR REGULATORY COMMISSION

TUESDAY, FEBRUARY 9, 2010

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 10 a.m. in room 406, Dirksen Senate Office Building, Hon. Barbara Boxer (chairman of the committee) presiding.

Present: Senators Boxer, Inhofe, Voinovich, Alexander, Carper, Cardin, Klobuchar, and Merkley.

Also present: Senator Webb.

OPENING STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator BOXER. Good morning, everybody. We all get the star of the day awards, because Senator Inhofe and I decided we are going to come to work, and we are going to do our job. I really want to thank him and his staff. It is nice to see Senator Alexander here, Senator Cardin, Senator Carper. And the EPW Committee moves forward when others fear to tread.

So here is here we are. Senator Webb is coming to introduce Mr. Ostendorff. Senator Cardin has asked to introduce Mr. Magwood. I will introduce Dr. Apostolakis. So I think we are going to do this. We are going to do our little opening statements, and then we will get to Senator Webb and the others. So I will start it.

We are holding a hearing on the nomination of three individuals to be members of the NRC, the Nuclear Regulatory Commission. The NRC is an independent agency created by Congress to regulate commercial nuclear power plants and the use of nuclear materials through licensing, inspection and enforcement. By statute, the NRC is charged with protecting health and safety and minimizing danger to life and property.

The Atomic Energy Commission, which was established in 1946, was the predecessor to the NRC. The AEC was charged with both encouraging the use of nuclear power and regulating its safety. This dual role created conflicts within the agency, and AEC's regulation came under increasing attack for not being rigorous enough.

As a result in 1974 Congress abolished the AEC and created the NRC as an independent regulator of commercial nuclear power.

The promotional work of the AEC was moved to a separate agency, which ultimately became the Department of Energy. The NRC was created to be a strong, independent regulator.

I am going to put my whole statement in the record, but I do believe that when the President talks about transparency and accountability, it is very relevant to regulators like the NRC. And I urge the Commission to become even more transparent. We know the issues are complicated, but public involvement and support in the process is very important.

I applaud the decision that the Administration made; due to the scientific reports, they want to look for another site other than Yucca. So we definitely have a lot of work on our plate. In addition to its work regulating nuclear waste I expect the review of combined construction and operating licenses for new nuclear power plants will occupy a good portion of the NRC's time.

Given that the nuclear industry is increasing interest in building new nuclear plants I expect the NRC will work very hard to ensure that they move forward and that the safety of the new plants and the designs of the new plants will never be questioned.

So you also have the job of looking after existing facilities. We know some of them, many of them are aging. They need license renewals. You have to look at all of those. So I think the American public has a right to expect the very best public servants in your positions. And I really congratulate you on your nominations. I am excited that we can move forward on this front.

With that, I would yield the balance of my time and turn to Senator Inhofe.

[The prepared statement of Senator Boxer was not received at time of print.]

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Madam Chairman, and I had a chance to meet all three of the nominees. I am enthusiastically supporting all three of them.

I was glad to hear that President Obama is now embracing nuclear energy as crucial to our energy security and economic prosperity. I couldn't agree more. Nuclear energy is plentiful, it is cheap, it is safe and it is clean.

We are all very aware of the national economy, how drastically it has changed since the first application for a new reactor was filed. That was September 2007. These changing economic circumstances forced the U.S. utilities to continually assess electricity demand and their options for meeting it. As with any other business they must make these decisions in real time in response to changing market conditions.

The NRC is insulated from the challenges of responding to those dynamic conditions. Regulatory decisionmaking should not be pressured by economic conditions. The NRC's mission to ensure safety, however, does not absolve the agency of responsibility to regulate in an efficient and predictable manner.

The NRC now has 2 years of experience with reviewing new plant applications yet still they have not indicated dates when applicants can expect to receive their license. I think this is one thing

that we will all want to be asking you, is how quickly can we move. Things do tend to go slowly in Government. As we get new nominees in, that will be running things, I hope they will concentrate on getting things done rapidly.

I can remember it was 1997 when I first became chairman of the subcommittee called the Clean Air Subcommittee that had jurisdiction over the then-NRC. At that time, it had been 8 years, 8 years since we had had an oversight hearing. So we started having oversight hearings every other month with expectations, with guidelines as to what should be expected. That is what I think we will do, and that is what I want to get to this morning, to see what we can do to speed these things along with these new applications. The Chairman mentioned the renewals. But we also have new applications which we want to move along rapidly.

So the time is right. I am glad we all weathered the storm to get here and get you guys confirmed.

Thank you, Madam Chairman.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE,
U.S. SENATOR FROM THE STATE OF OKLAHOMA

Thank you, Chairman Boxer, for holding this hearing. All three nominees are of high caliber and will make outstanding contributions to the Nuclear Regulatory Commission.

I was glad to hear that President Obama has finally embraced nuclear energy as crucial to our energy security and economic prosperity. I couldn't agree more. Nuclear energy is a safe, clean source of energy that should play a central role in strengthening America's energy security.

We are all very aware that the national economy has changed drastically since the first application for a new reactor was filed in September 2007. These changing economic circumstances force U.S. utilities to continually assess electricity demand and their options for meeting it. As with any other business they must make these decisions in real time in response to changing market conditions.

The NRC is insulated from the challenges of responding to those dynamic conditions. Regulatory decisionmaking should not be pressured by economic conditions. The NRC's mission to ensure safety, however, does not absolve the agency of the responsibility to regulate in an efficient and predictable manner.

The NRC now has 2 years of experience with reviewing new plant applications, yet it still has not indicated dates when applicants can expect to receive their licenses. How can you budget and allocate resources if you don't know how long application reviews will take? How can you evaluate performance without a schedule to measure against?

Granted, it's been decades since the NRC has licensed new plants. There have been hiccups and will likely be more as everyone gains experience with the process. The agency, however, should not hide behind that excuse in order to avoid taking responsibility for establishing a transparent, predictable schedule and managing accordingly.

My question is simply this: If the agency doesn't have confidence in its own process and ability to manage it, why would stakeholders? As commissioners, each of you will be responsible for the leadership of this agency. I hope you will all strive to make this process more predictable so that the agency is viewed as an effective regulator, not as an obstacle to building new nuclear plants.

I also hope each of you, should you be confirmed, will keep a safety focused mindset in assessing the matters that come before you. The natural inclination of a regulator is to regulate more. That tendency requires increased resources from both the industry, to comply, and from the regulator to develop regulations and monitor compliance. Neither the industry nor the agency has unlimited resources. It is the Commission's responsibility to ensure that the agency remains safety focused and that resources are dedicated to issues of the highest impact to safety.

Congress intended that the Commission function as a collegial body in its mission to protect public health, safety, and the environment. It certainly functions best with the full complement of five commissioners. It is my hope that the committee and then the full Senate will soon complete its consideration of these nominees and

fill the Commission because the Commission has plenty of work to do, and we need to ensure the agency has its full measure of leadership.

Senator BOXER. Senator, thank you. I wanted to mention our other nominees from TVA; they asked to continue this to after the new snowfall. So as I understand it, that will not be happening this week, on their request. They expect big snows, and they asked us to cancel.

Senator ALEXANDER. Well, Madam Chairman, two of them are here. They flew up on the plane with me this morning, and their families are coming, too.

Senator BOXER. I guess we could do those, too, then, if you wish. I am happy to do those, too. But we might want to do that today, because I am very fearful about what is coming tonight and tomorrow. So can you get in touch with them, Senator?

Senator ALEXANDER. I can try. I don't want to substitute my judgment for theirs or yours on this, but I just know they are here.

Senator BOXER. Well, I was told that the nominees had asked that it not go forward. But if there are two here with their families, I think we ought to hear from them.

Why don't we do this. Why don't we go through where we are, I will come and talk with you in the room out there, and we will figure out a way to get in touch with them.

Senator ALEXANDER. Thank you, Madam Chair.

Senator BOXER. They may not ever be able to get home, if they don't get home tonight.

Senator INHOFE. Maybe this afternoon we could hear from them.

Senator BOXER. Yes, I was thinking maybe this afternoon's hearing.

Senator CARPER. Madam Chair, Laura Haines, who is sitting right behind me, says that she believes the two nominees that may have flown up with Senator Alexander may be flying home as we speak.

Senator BOXER. We will check this out. I live six blocks away. So I can get here in any blizzard.

Senator CARPER. Maybe we could do this at the airport.

[Laughter.]

Senator BOXER. We could do this at the airport. Right. That is good.

Well, we will figure this all out. But getting back to our nominees who are here, and our wonderful Senator who has joined us to do an introduction, let's move forward with Senators Cardin, then Alexander, then Carper, then Voinovich.

OPENING STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR FROM THE STATE OF MARYLAND

Senator CARDIN. Madam Chair, let me thank you very much for holding this hearing this morning. I want to thank all the witnesses for being here and for their willingness to serve on the Nuclear Regulatory Commission.

The Nuclear Regulatory Commission was established in 1974 as an independent agency protecting the health and safety and minimizing danger to life or property. We have three of the nominees before us today. Considering it is a five-member commission, the three of you will have a major impact on the future decisions re-

lated to nuclear power in this country. So I think this hearing is particularly important. We depend upon the independent oversight authority that you have to provide accountability that this Nation deserves.

There may be different views among members of the U.S. Senate as to the future use of nuclear power in our energy policy. But regardless of one's view, I think we all agree that we want a strong, independent oversight agency. And we very much depend upon the Commission to provide that.

I am a proponent of nuclear power. I believe that we need to be more aggressive in the use of nuclear power in the United States to lessen our dependence on carbon-based electricity generation. The NRC has a record number of applications in front of it. The President has just announced his plan to increase the guaranteed loan for the industry to a record amount.

So I think we stand on the cusp of a nuclear renaissance. But to make that promise a reality we need a Commission that is fully staffed and hard at work. That is why I am particularly pleased, Madam Chair, that we have this hearing today to deal with the three nominees that are before us. I look forward to their testimony and I look forward to working with the Commission in the best interests of the United States.

Senator BOXER. Thank you.

Senator Alexander.

OPENING STATEMENT OF HON. LAMAR ALEXANDER, U.S. SENATOR FROM THE STATE OF TENNESSEE

Senator ALEXANDER. Thank you, Madam Chair.

The Chair has heard me express over the last year my concern that the United States is pursuing what looks like a national windmill policy, which is the energy equivalent of going to war in sailboats. However, I want to congratulate President Obama for the last couple of weeks of leadership that he has shown on nuclear energy. The President's view is terribly important here because the Government is not going to build these plants. The utilities are going to build them, and the ratepayers are going to pay for them. So it is up to the President and all of us to try and create an environment in which that can happen.

Senator Webb and I have co-sponsored legislation to try and create an environment in which we could double nuclear power production in the United States as well as encourage other forms of clean energy. So the President's statement in the State of the Union address about a new generation of nuclear power, his support for $54 billion of loan guarantees, the quality of the three Commission members who are before us, unless I really completely miss my bet, I think it would be difficult for the President to find three better nominees for this position, people who are experienced, who will make sure the plants are safe, but who see the value of them to our country.

The quality of the appointees of the President's Commission members to the new Commission on what we do with used nuclear fuel is excellent and should be also an encouraging sign. And of course Dr. Chu's advocacy and leadership over the last year all add up to several steps that we are taking to getting us back into the

ball game. We have a way to go. Senator Webb and I in our bill make the loan guarantees technology neutral so that any clean energy can do that. I would like for our subsidies and policies and the renewable energy standards all to be low carbon standards so that we let the marketplace pick and choose among the available forms of energy.

But I am very pleased to be here and to be here with these three nominees. I look forward to asking some questions. At a time when China is starting a new nuclear plant every 3 months, Japan is a third nuclear power, France is 80 percent, even the UAE is building nuclear power plants or making plans to. The United States, who invented the technology, should create an environment in which we take our invention and use it for our own benefit. I can think of nothing more important to job creation than lots of low cost, clean, reliable nuclear energy. I hope these three Commissioners will help create an environment where that happens, and I commend the President for his nominees and his other actions.

Senator BOXER. Thank you.

I understand that Senator Webb has to leave shortly. He is here to introduce Mr. Ostendorff. So if Senator Carper wouldn't mind yielding to Senator Webb, and then we will get right to you. But I understand, Senator Carper, you had a relevant announcement to make.

Senator CARPER. A question first for Senator Webb. Do you recall what you were doing 64 years ago today?

Senator WEBB. Not specifically, but my mother, I think, still has a recollection.

[Laughter.]

Senator CARPER. I just want to thank our witnesses, and our nominees and everybody present for joining us for the celebration of the 64th anniversary of the birth of Senator Webb. Congratulations.

[Applause.]

Senator BOXER. Congratulations, Senator Webb. Happy birthday.

Now that we have thoroughly embarrassed you, the honor of introducing Mr. Ostendorff falls on your shoulders. So go ahead.

OPENING STATEMENT OF HON. JIM WEBB, U.S. SENATOR FROM THE STATE OF VIRGINIA

Senator WEBB. Thank you, Madam Chairman. I will see if I can find my place in my notes here, after that. Also, Ranking Member Inhofe and members of the committee, it is with a great deal of pleasure that I am introducing William Charles Ostendorff and also giving him my strongest recommendation here to become a Commissioner of the Nuclear Regulatory Commission.

As Senator Alexander so aptly stated, I am one of those who believe it is critical that the United States accelerate its deployment of nuclear energy. And doing so will require effective leadership and cooperation at the Nuclear Regulatory Commission. I am very pleased to have discussed this proposition with a number of members of this committee. I believe the bill that Senator Alexander and I introduced at the end of last year is achievable, measurable and good for the country.

In that respect, Mr. Ostendorff has clearly demonstrated the skills and experience necessary for this position. He has had an exceptional career in the Navy, in the Department of Energy, the Congress and at the National Academies. I would say again, Madam Chair, given the fact that it is my birthday, it is merely a coincidence that Mr. Ostendorff and I both went to the Naval Academy and both went to Georgetown Law School. We probably didn't go to the same Naval Academy. The disparity in the academic areas of the Naval Academy while we were there were pretty dramatic between the people who went into the Marine Corps and the people who went into the nuclear power program. We all were required to obtain an engineering degree. But those of us who were on the Marine Corps side, we used to carve into our desks, "Entropy is alive and living in Argentina." But the people who were on Mr. Ostendorff's side actually understood what entropy was.

He also served on six different submarines. I could say I had a pretty hard infantry tour in Vietnam, but you could not have put a gun to my head and made me go in a submarine. Six different times, including command of the USS *Norfolk* attack submarine. Among other accomplishments in the Navy, he commanded 1,200 men and women of Submarine Squadron Six based in Norfolk, Virginia. Then after retiring from the Navy, Mr. Ostendorff joined the Strategic Forces Subcommittee of the House Armed Services Committee, serving as counsel and staff director with oversight responsibilities of various Department of Energy activities. And after Senate confirmation in 2007 he became Principal Deputy Administrator of the National Nuclear Security Agency where he served until 2009, at which time he became Director of the Committee of Science, Engineering and Public Policy at the National Academies.

The range and breadth of this experience I think make him superbly qualified to serve as Commissioner of the Nuclear Regulatory Commission. He and his wife, Chris, who is a special education teacher, are now residents of Oakton, Virginia. She is here today, as are two of your three children, if they would like to stand. Daughter Becky is an attorney in New York City, one son, Chuck is an Army captain, who deployed to Iraq with the Second Stryker Cavalry Regiment and is now stationed at Fort Sill, Oklahoma, and son Jeff is a student at Marymount here in Arlington, Virginia.

With that, Madam Chair, members of the committee, I look forward to his confirmation and to working with him and others as we move into a new era of nuclear energy development in our country. Thank you very much.

Senator BOXER. Senator, thank you. I know that you have to leave us, but we do wish you a happy birthday.

Senator Carper.

OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Thanks, Madam Chair. Let me say to our witnesses, welcome. It is nice to see each of you again. Thank you not just for showing up today, but showing up all those years of your lives and preparing yourselves for this potential assignment.

Dr. Apostolakis, Mr. Magwood, Captain Ostendorff, when you are introduced to speak, you may want to, if you have family members

who are here, you may want to introduce them and let us say hello to them as well as you begin your remarks.

Like Senator Alexander, I am impressed by the technical breadth and the depth of these three nominees. Really, the complementary set of skills that they would each bring to the Commission if confirmed. The word synergy is oftentimes used. I think we have some real synergy here in terms of the potential that each of you bring collectively to the Commission.

As Chairman of the Senate Clean Air and Nuclear Safety Subcommittee ensuring that the nuclear power industry functions safely is a top priority of mine. I expect and the public expects that the NRC must be a strong, independent and effective regulator, a regulator that acts firmly, a regulator that acts decisively, a regulator that acts openly and transparently, a regulatory that produces results and is worthy of the public's confidence. In sum, the NRC must ensure our Nation's health, our safety and security and the protection of the environment.

I am tempted to say we cannot afford any mistakes. Actually, we all make mistakes. I think it was Richard Nixon who used to say the only people who don't make mistakes are the people who don't do anything. We make mistakes in the work that we do here in the Senate, and I am sure mistakes are made at the NRC and at the nuclear power plants that they regulate. What we can't afford are mistakes that will derail this renaissance in nuclear power. What we can't afford are mistakes that are made and covered up at nuclear power plants. What we can't afford are mistakes that are made again and again and again, because no one has reported them and actions haven't been taken to correct those mistakes.

But as you note, we have many challenges before us, including ensuring that our current fleet continues to operate safely while reviewing applications to build new reactors. And I might add also we have a bunch of nearly 40-year-old power plants that are already in the queue for being reviewed and hopefully have their lives extended for another 20 years, if they merit that.

But if you all are confirmed, and I hope you will be, each of you will be in a role of the utmost importance, requiring the highest level of public trust. I want to thank you for being here, not just for your willingness to serve your country, but I think each of you have already served your country in a wide range of ways. And we are happy that you are willing to serve your country again. I want to express our thanks to your families, some of whom are here, some of whom are not, for their willingness to share you with the rest of us in this country in the years to come.

What I hope to hear from each of you is a strong statement of your commitment to making the NRC, which is already a great place to work, best in the Federal Government, not only making the NRC a great place to work, but a strong and impartial regulator.

I will close with this. Sometimes I think of your roles as, just imaging driving a car, something most of us do. We have two feet and a we move to a renaissance in nuclear energy, we need one foot on the accelerator, to make sure that we move forward expeditiously to realize this dream, this vision. And we need another foot tapping that brake when it is appropriate. There are plenty of people with

their foot on the accelerator, including some of us. We need to make sure we have somebody there responsibly tapping that brake when it needs to be tapped. Thank you very much for your willingness to play that role.

Thank you.

Senator BOXER. Thank you very much, Senator.

Senator Voinovich.

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator VOINOVICH. Thank you, Madam Chairman and Ranking Member Inhofe, for holding this hearing today. I would like to welcome the nominees today and their families.

Madam Chair, as you know I have spent the better part of the last 10 years in the Senate involved in shaping nuclear energy policy for this country, mainly as Chairman and the Ranking Member on the Senate's Clean Air and Nuclear Safety Subcommittee. We focused a great deal of time and effort on the committee Chair on the oversight of the Nuclear Regulatory Commission to make sure it was doing its job of ensuring the safety and security of our Nation's nuclear power plants.

I take pride in the fact that this committee has transformed the Nuclear Regulatory Commission into one of the best and most respected regulatory agencies in the world. We worked very hard placing the right people on the Commission, providing the Commission with the resources and tools necessary to do its job, and holding them accountable for results. We held over 20 productive hearings involving the NRC over the last 8 years. So it is no accident that we have seen a dramatic improvement in both the safety records and reliabilities of the 104 operating reactors today compared to a decade ago.

I would like to take this opportunity to thank and recognize each of the existing members of the Commission, Chairman Jaczko, Commissioner Svinicki and soon-departing Commissioner Klein, and all the other Commission members that have served with great distinction. Being a regulator often is a thankless job, whether it is the NRC, FAA, FDA. It seems as though the only time people care about what you do is when something goes wrong, and it almost always easy to criticize what you did.

Indeed, a regulator's job is a complex and difficult one. NRC has to be vigilant at all times, keeping its regulatory threshold just right. It should be rigorous enough to prevent complacency from setting in both within the agency and the industry it regulates, and we have seen that several years ago, but not overly restrictive to a point of stifling the growth of nuclear power in this country at a time when we need it most. And our country does need nuclear power and the jobs, the energy security, and the environmental benefits it provides. I tell people that nuclear power is a three-fer: it provides base-load electricity, it is emission-less, and offers environmental benefits, jobs and reliable energy.

With President Obama's recent call for increased use of nuclear power in his State of the Union Address and the DOE's Energy's fiscal year 2011 budget request for an additional $36 billion for nuclear loan guarantees I think that the momentum is building, and

the policy environment in the United States is shifting itself for the long awaited growth in nuclear power. Senator Carper and I have been talking about the nuclear renaissance for some time, haven't we, Senator? You guys are coming in at the right time.

But I think this is important; having a fully staffed NRC Commission is paramount to maintaining our safety goals. And is not just our large, existing light water fleet, but the new light water reactors, modular reactors, and even Generation-IV reactors. Upon their successful confirmation these new Commissioners will become part of what I believe will be the busiest Commission in decades. They will likely oversee real movement in the U.S. nuclear renaissance. I believe these nominees are exceptional individuals, all leaders on nuclear technology issues, and they have the depth and breadth of experience necessary to successfully lead the Nation's commercial nuclear industry. Their dedication and professionalism will be needed now more than ever. I wish you all very, very well. I am not going to be around after the end of this year; well, I will be around, but I am not going to have this job.

[Laughter.]

Senator VOINOVICH. I will tell you that I am going to be watching the Commission and doing everything on the outside to promote the nuclear industry in this country.

Thank you, Madam Chair.

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF HON. GEORGE V. VOINOVICH,
U.S. SENATOR FROM THE STATE OF OHIO

Thank you, Madam Chairman.

Chairman Boxer, Ranking Member Inhofe, thank you for holding this hearing. I would like to welcome the nominees, and I look forward to hearing their testimony.

Madam Chairwoman, as you know I have spent the better part of the last 10 years in the Senate involved in shaping nuclear energy policy for this country, mainly as Chairman or Ranking Member on the Senate's Clean Air and Nuclear Safety Subcommittee. I focused a great deal of time and effort as the committee Chair on oversight of the Nuclear Regulatory Commission (NRC) to make sure it was doing its job of ensuring the safety and security of our Nation's nuclear power plants.

Mrs. Chairman, I take great pride in the fact that this committee has transformed the Nuclear Regulatory Commission into one of the best and most respected regulatory agencies in the world. We have worked very hard placing the right people on the Commission, providing the Commission with the resources and tools necessary to do its job, and holding them accountable for results. We held more than 20 productive hearings involving the NRC over the past 8 years.

So it is no accident that we have seen dramatic improvements in both the safety records and reliability of the 104 operating reactors today compared to a decade ago. And I would like to take this opportunity to thank and recognize each of the existing members of the Commission—Chairman Jaczko, Commissioner Svinicki, and the soon departing Commissioner Klein—for doing a great job day in and day out. Being a regulator often is a thankless job whether it is the NRC, FAA, FDA, or the Federal Reserve Board. It seems as though the only time people care about what you do is when something goes wrong—and it almost always is to criticize what you did or didn't do.

Indeed, a regulator's job is a complex and difficult one. NRC has to be vigilant at all times to keep its regulatory threshold just right—it should be rigorous enough to prevent complacency from setting in both within the agency and the industry it regulates but not overly restrictive to a point of stifling the growth of nuclear power in this country at a time when we need it the most. And our country does need nuclear power—and the jobs, the energy security, and the environmental benefits it provides. I like to tell people nuclear is a three-fer: without it we will not be able to provide the reliable, base-load electricity our country demands. Without it we will not be able to reach our goal of reducing carbon emissions. And without it we will not be able to strengthen our manufacturing bases and create good paying jobs.

With President Obama's recent call for increased use of nuclear power in his State of the Union Address and the DOE's fiscal year 2011 budget request for an additional $36 billion for nuclear loan guarantees I think that momentum is building and the policy environment in the United States is shifting itself for the long awaited growth in nuclear power.

Which is why I think today's nomination hearing is so important. Having a fully staffed NRC Commission is paramount to maintaining our safety goals—and not just with our large existing light water fleet but with new light water reactors, modular reactors, and even Generation-IV reactors. Upon their successful confirmation these three new Commissioners will become part of what I believe will be the busiest Commission in decades—as they will likely oversee real movement in the U.S. nuclear renaissance. I believe these nominees are exceptional individuals, all leaders on nuclear technology issues, and they have the depth and breadth of experience necessary to successfully lead the oversight of our Nation's commercial nuclear industry. Their dedication and professionalism will be needed now more than ever. I wish them well and look forward to working with them in my time remaining here in the Senate.

Thank you, Madam Chairman, and I look forward to hearing from our distinguished nominees.

Senator BOXER. Thank you so much.

Senator Klobuchar, and then we are going to get right to our panel.

OPENING STATEMENT OF HON. AMY KLOBUCHAR, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator KLOBUCHAR. Thank you very much, Madam Chair, and thank you for holding this hearing. My other hearings today were canceled, except for Environmental Protection. My staff remarked it was only the Senator from California who would decide to hold this hearing.

Senator BOXER. And the Senator from Oklahoma.

Senator KLOBUCHAR. And the Senator from Oklahoma. I finally decided, I once was snowed in in Yosemite Park, so I know you are used to snow. And Oklahoma is used to its share of bad weather. So I thank you, from the State of Minnesota, for doing this, where things would have been working a little more easily in our State with this storm. But it is what it is.

I am pleased you have convened this hearing, as my colleagues have said, and congratulate the three of you. You certainly, as Senator Voinovich noted, are coming in at an exciting time for nuclear energy. There is just so much interest all over this country. As was noted the President called for a tripling of the Department of Energy's loan guarantee program for nuclear energy, from $18 billion to $54 billion. We have Senators Gary, Graham and Lieberman working on our bipartisan energy bill, which sees nuclear as a major focus. We know that the rest of the world is moving to a low carbon economy, and nuclear energy will be a major part of that.

This nuclear renaissance means America has an opportunity to lead the world in developing new technologies to deal with the problems at hand, which include plant safety and waste storage and disposal and issues regarding security in the proliferation of nuclear material. This last April, I was in Japan with Senator McCain and Senator Graham. We visited one of the nuclear facilities there. I was able to see first-hand a lot of the advancements that have been made in other countries. So I am looking forward to us doing the same, and in fact taking more of a leadership role.

I am excited about what you are doing. I am looking forward to hearing from you today. We know this is not an easy road. But you are coming in at a time where for the first time you see much more unity behind this idea of moving forward with nuclear. Congratulations on your nominations, and I look forward to hearing from you. Thank you.

Senator BOXER. Thank you so much.

An update on TVA. Senator Alexander and I are going to work together on this; Senator Inhofe has stated whatever we decide is good. Right now what we are going to do is, if anyone is remaining in Washington, our goal would be to hold a hearing around 5 o'clock at the latest, if they are here. If they have gone home, obviously they have gone home. But if they are stuck here, we will accommodate them.

I do not want to do it tomorrow because our understanding is it is going to be very difficult to get here. So it will either be 5 o'clock tonight, or we will put it off until the week after recess.

I am going to introduce Dr. George Apostolakis. Then Senator Cardin is going to introduce Mr. Magwood, and we are going to get started.

Dr. Apostolakis is a professor of nuclear science and engineering and a professor of engineering systems at MIT. He is also a member of the Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards, which advises the Commission on technical matters related to the safety of nuclear reactors. Prior to becoming a professor at MIT he was a professor at the University of California Los Angeles, in my home State. He received his Ph.D. in engineering science and applied mathematics from the California Institute of Technology. Dr. Apostolakis' research and his teaching interests are focused on risk assessment and risk management in the nuclear industry.

And Doctor, you are joined today, I understand, by your wife, Victoria. Victoria, would you like to stand? We welcome you very much. Thank you for making the trip. We want to welcome you, sir, and I look forward to a speedy confirmation of all our panel.

We will go next to Senator Cardin.

Senator CARDIN. Madam Chair, thank you very much. It is my honor to introduce Bill Magwood. But first let me thank all three of the nominees. Each of you shares an extraordinary background and a commitment to public service. We thank you. We know it is a sacrifice not only for you but for your families. We thank your family members for sharing in the sacrifice of public service. We welcome all three of you to our committee.

I am really honored to introduce a fellow Marylander, Bill Magwood. Mr. Magwood lives in Colesville, Maryland. He has lived there since 1989. He has been a resident of Montgomery County for more than 20 years, coinciding with his service to the Federal Government and several industry organizations devoted to nuclear energy policy. He was the longest serving head of the United States Civilian Nuclear Technology program, serving two Presidents and five Secretaries of Energy, from May 1998 until he stepped down on May 24th, 2005. Since then, he has been in the private sector. So he gives us both the governmental experience and the private sector experience in nuclear energy.

As the Director of Nuclear Energy with the U.S. Department of Energy, Mr. Magwood was the senior nuclear technology official in the U.S. Government and the senior nuclear technology policy advisor to the Secretary of Energy. From 1984 to 1994 he managed electric utility research and nuclear policy programs at the Edison Electric Institute in Washington, DC. He was a scientist at the Westinghouse Electric Corporation in Pittsburgh.

Mr. Magwood holds a B.S. degree in physics and a B.A. degree in English from Carnegie Mellon University. He also holds an MFA degree from the University of Pittsburgh, my alma mater. Mr. Magwood has been a staunch proponent of nuclear power technology in the United States. Among other efforts he led the creation of the Nuclear Power 2010 initiative, which remains the cornerstone of this Nation's new nuclear power plant efforts.

I think it is critical to have Mr. Magwood's type of experience at the Regulatory Commission. I know that he will take that experience and use it in the best interests of the United States, providing the type of oversight that is needed. During today's hearing we will hear from Mr. Magwood about his intents to change his role from that of an expert industry proponent to that of an expert industry overseer.

Mr. Magwood, welcome, and we thank you very much for your public service.

Senator BOXER. Thank you all, and we will start with Dr. Apostolakis.

STATEMENT OF GEORGE APOSTOLAKIS, NOMINATED TO BE A COMMISSIONER OF THE U.S. NUCLEAR REGULATORY COMMISSION

Mr. APOSTOLAKIS. Chairman Boxer, Ranking Member Inhofe and committee members, it is an honor to appear before you today as President Obama's nominee for the Nuclear Regulatory Commission. I will first tell you a few things about myself, and then I will offer a few thoughts about my role as a Commissioner, if confirmed.

Before I start, I would like to acknowledge the presence of my wife, Victoria.

I came to the United States from Greece in 1969 to get my Ph.D. at the California Institute of Technology in Pasadena, California. In 1973 I was granted the degree and joined the UCLA School of Engineering, where I went through the ranks of assistant, associate and full professor. I became an American citizen in 1979. In 1995, I moved to the Massachusetts Institute of Technology in Cambridge, Massachusetts, where I am currently Professor of Nuclear Science and Engineering and Professor of Engineering Systems.

My broad research area is the development of models for risk assessment of large technology systems, primarily nuclear power plants. I have served on numerous peer review committees for risk assessment performed for the NRC, NASA and national laboratories.

I have received several awards from the American Nuclear Society and the Society for Risk Analysis. I was elected to the National Academy of Engineering in 2007.

An important development in my career that is relevant to my nomination is my appointment to the NRC's Advisory Committee on Reactor Safeguards, ACRS, in 1995. This statutory committee advises the Commissioners on technical matters related primarily to the safety of nuclear reactors. I chaired the ACRS in the period 2001–2002. I have been chairman of the subcommittee on Reliability and Probabilistic Risk Assessment continuously since 1995. At various times, I have also chaired the subcommittees on Human Factors and on Digital Instrumentation and Control.

This experience has been very valuable to me. I have appreciated the dedication and professionalism of the NRC staff. I have also appreciated the value of conducting all ACRS meetings in public and interacting with all stakeholders.

I have seen the diverse technical issues that the agency must deal with on a routine basis. I have also been afforded the opportunity to influence the staff's technical work. I am particularly proud of the contributions I made to the agency's efforts to risk inform its regulations that led to the landmark regulatory guide 1.174 and to successfully risk inform initiatives such as the risk informed in-service inspection program.

If confirmed I look forward to applying my academic expertise as well as the experience from the ACRS to regulatory and policy matters before the Commission. However, I fully realize that the Commission's role is different from that of the ACRS. If confirmed I intend to commit myself to help the Commission fulfill its mission to license and regulate the Nation's civilian use of byproduct, source and special nuclear materials, to ensure adequate protection of public health and safety, promote the common defense and security and protect the environment.

I believe that the increased use of risk information serves the agency in several respects. It improves safety and makes the regulatory process more transparent, thus enhancing public confidence in the Commission. It also promotes regulatory predictability and stability, which are very important to all stakeholders.

I believe that the NRC is the premiere nuclear regulatory agency in the world. If confirmed I will make every effort to make sure it remains so.

Thank you for the opportunity to appear before you today. If confirmed I look forward to working with this committee and to dealing with the challenges that the NRC will face across all areas of its responsibilities.

[The prepared statement of Mr. Apostolakis follows:]

STATEMENT OF GEORGE APOSTOLAKIS
Committee on Environment and Public Works
United States Senate
February 9, 2010

Chairman Boxer, Ranking Member Inhofe and Committee Members, it is an honor to appear before you today as President Obama's nominee for the Nuclear Regulatory Commission (NRC). I will first tell you a few things about myself and, then, I will offer a few thoughts about my role as a commissioner, if confirmed.

Before I start, I'd like to acknowledge the presence of my wife, Victoria.

I came to the United States from Greece in 1969 to get my PhD at the California Institute of Technology in Pasadena, California. In 1973, I was granted the degree and joined the UCLA School of Engineering where I went through the ranks of assistant, associate and full professor. I became an American citizen in 1979. In 1995, I moved to the Massachusetts Institute of Technology in Cambridge, Massachusetts, where I am currently professor of Nuclear Science and Engineering and professor of Engineering Systems. My broad research area is the development of models for risk assessment of large technological systems, primarily nuclear power plants. I have served on numerous peer review committees for risk assessments performed for the NRC, NASA, and national laboratories. I have received several awards from the American Nuclear Society

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that of the ACRS. If confirmed, I intend to commit myself to help the commission fulfill its mission to "license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment." I believe that the increased use of risk information serves the agency in several respects. It improves safety and makes the regulatory process more transparent thus enhancing public confidence in the commission. It also promotes regulatory predictability and stability which is very important to all stakeholders.

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Environment and Public Works Committee
Confirmation Hearing for Dr. George Apostolakis
February 9, 2010
Responses to Follow-Up Questions From
Senator Barbara Boxer

1. **I understand you have focused much of your academic research on risk assessment and nuclear power plants. How do you think your research and experience will benefit the NRC?**

Answer The most important result of a risk assessment for a nuclear power plant is the identification of systems, components, and human actions that are important to safety. This information helps decision makers to focus resources on making sure that these critical items perform their intended functions reliably. However, because such assessments include significant uncertainties, they cannot be the sole basis for decisions and sufficient defense in depth must be maintained to ensure that these uncertainties do not compromise safety. The NRC has started using risk information in some regulatory decisions. My extensive experience with risk assessment will allow me, if confirmed, to promote the expanded use of risk-informed decision making within the agency thus improving the effectiveness and efficiency of regulatory decisions. However, my experience also provides me with a strong sense of the limitations of risk assessment. A nuclear power plant is a complex facility and performing a risk assessment requires many judgments and assumptions that are often buried in the details of engineering models. I know where these judgments are and I can view the results of risk assessments with the right dose of skepticism. I believe that being cautious in using risk results contributes significantly to better technical decisions.

2. **Have you been following the tritium leaks at Vermont Yankee? Do you think the public should know when tritium leaks are discovered, even if the NRC staff concludes that the leaks are below public health concern?**

   Should the state be allowed to set standards not just for protection of drinking water sources but also protecting the environment and public health? If not, why not?

Answer I have been following the reports in the trade press on the tritium leaks at Vermont Yankee. My long experience with nuclear safety matters has taught me that the best way to deal with the public when an incident occurs is to be completely frank and open. It

does not matter how insignificant from a technical perspective the incident may be. To do so other than openly results in loss of credibility that lasts a long time.

I am not a lawyer so it is difficult for me to address the exact nature of what states are allowed to do in the setting of standards. If confirmed, I will work with my legal counsel and the Commission's Office of the General Counsel to better understand this matter.

Environment and Public Works Committee
Confirmation Hearing for Dr. George Apostolakis
February 9, 2010
Responses to Follow-Up Questions From
Senator James M. Inhofe

1. **In your role as a commissioner, will you commit to treating requests from majority and minority Committee members equally?**

Answer Yes, I will, if confirmed.

2. **In the late 1990s, the NRC began working with its stakeholders to develop and implement an improved regulatory structure, focusing its regulatory work on issues truly significant to safety while reducing activity on issues with little or no actual benefit to safety. With so many new commissioners and staff entering the agency, I believe the agency must actively work to preserve this crucial objective and incorporate technology innovations and safety insights as they arise. As leaders of the agency, please explain how you anticipate maintaining and refining these gains in safety focus.**

Answer The analytical tool that has allowed the NRC to focus its regulatory work on issues truly significant to safety is risk assessment, which happens to be my area of expertise. If confirmed, I intend to promote the expanded use of risk information in regulatory decision making. Such information will be critical in my own decision making as a Commissioner. However, it is important that such considerations also inform the thinking of the working staff of the Commission. Demanding that the risk dimension be included in the NRC staff's work, as appropriate, will certainly have staff prioritize acquiring and maintaining the necessary expertise. It is important to provide the new staff the opportunities to learn how to produce and use risk information. This can be achieved by having the appropriate training courses and providing resources that allow them to attend short courses outside the agency, as well as to attend relevant conferences organized by technical societies.

3. **There are a number of reasons for which the NRC reviews and subsequently grants exemptions from regulatory requirements. Do you agree that exemptions that assure safe operation of the plants should not be confused with operations outside the bounds of safety? Do you agree that it would be counterproductive to initiate enforcement actions against approved exemptions that maintain or enhance safety?**

Answer I don't know of cases where such issues have arisen and, therefore, I don't have intimate knowledge of the issues involved.

4. **The NRC is reviewing new plant license applications for the first time in over 30 years. Everyone can understand the challenges of developing precise schedules and the need for decision-making to remain safety focused. We can all recognize good reasons why some milestones might be missed, but that should not be used as an excuse to avoid management responsibilities. Without complete schedules, there is no way to establish goals, manage staff, prepare sound budgets, or assess progress on applications. The NRC has demonstrated success in licensing enrichment facilities by setting complete, detailed schedules at the start of the review process. As commissioners, would you build on that success and work to establish complete review schedules for new reactor applications and supervise the agency accordingly?**

Answer If confirmed, I will study the licensing of enrichment facilities that you mention and learn what worked well and what impeded the process. License renewal is another example of a successful and efficient regulatory process. Both examples show that licensing processes can be managed efficiently. Building on these successes is an excellent idea, as is the setting of complete and detailed schedules at the start of the review process.

5. **In developing 10 CFR Part 52 for the licensing of new nuclear plants, the Commission envisioned applicants following an orderly sequence beginning with an Early Site Permit and then a combined Construction and Operating License for a previously certified design. Clearly, business circumstances have prompted applicants to diverge from this sequence. Do you agree that the Commission must be flexible in addressing the business realities of current and future applicants? Do you also agree that it is unreasonable to expect perfect implementation of a new, untested process either by staff or applicants?**

Answer I do agree that the Commission must be flexible and that it is unreasonable to expect perfection from an untested process.

6. **For new reactor licensing, the NRC urged the industry to standardize its applications as much as possible and for agency staff to follow a "one design, one review, one position" approach to streamline the review process. With so many staff new to the agency, how will you work to ensure that they understand and implement the design-centered approach, minimizing the occurrence of duplicative Requests for Additional Information (RAI's)?**

Answer Taking the "design-centered" approach is the current direction of the Commission. If confirmed, I will maintain that direction. The maintenance of this direction will be an important consideration in assessing the performance of executives within the Commission. I will work to ensure that new staff members are getting appropriate training in interpreting review guidance to avoid the problems you mention and I will consult with senior and experienced staff to identify the difficulties that the new staff members appear to have. If necessary, I will propose appropriate remedial actions such as establishing mentoring programs and additional training courses.

Environment and Public Works Committee
Confirmation Hearing for Dr. George Apostolakis
February 9, 2010
Responses to Follow-Up Questions From
Senator David Vitter

1. **Has anyone in the Administration discussed with you your position on the disposal of spent fuel and high-level waste, and specifically the viability of Yucca Mountain, either before or after your nomination?**

Answer The Administration has not discussed such matters with me either before or after the nomination.

2. **Are you aware of any technical or scientific reasons regarding Yucca Mountain that would render the site unsuitable in your opinion?**

Answer I am not currently familiar enough with the technical evaluations of the proposed Yucca Mountain repository to be able to answer this question.

3. **In your opinion, do you believe that spent fuel can be indefinitely stored in currently designed and licensed dry cask storage systems?**

Answer The current technical consensus seems to be that spent fuel can be stored in dry cask storage systems for at least several decades. I don't have any reason to disagree with this view.

4. **Are you aware of any technical issues or concerns with respect to degradation of welds or other materials involved in dry cask storage systems?**

Answer Material degradation is not my area of expertise. Therefore, I am not aware of any such issues. However, consideration of the potential for such degradation should be important in the regulation of dry cask storage systems.

5. **Are you aware of the reaction of implications internationally regarding the Administration's decision to terminate Yucca Mountain prior to a technical safety determination is rendered by the NRC.**

Answer I have followed the relevant reports in the American media. I am not aware of the international reaction.

6. **If confirmed, will you be able to maintain an independent perspective on spent fuel and high level waste issues that may come before the Commission?**

Answer Yes, I will make every effort to maintain an independent perspective on such matters.

7. **What do you believe the Lessons Learned from the Yucca Mountain project?**

Answer I am certain that these lessons will be debated by experts in the years to come. These lessons will refer to the political and societal decision-making processes that occur at a higher level than the Commission's. At this time, I believe it would be premature for me to identify specific lessons learned. It is clear, however, that developing public confidence in matters related to a waste repository is critical. How to gain such confidence is a challenging problem.

8. **Would a schedule/established timeline for dealing with appeals of ASLB and other decisions in licensing process - including new plant licensing reviews - be beneficial to all parties? If so, what is a reasonable amount of time for action? 60 to 90-days, with provisions for extensions?**

Answer I believe strongly that the Commission and its staff should make decisions in a timely manner. At this time, I am not familiar with ASLB and other adjudicatory decisions that are made during the licensing process and I cannot be specific in my answer. If confirmed, I will certainly learn more about the process and will promote timely decision making.

Senator BOXER. Thank you very much, sir.
Mr. Magwood.

STATEMENT OF WILLIAM D. MAGWOOD, IV, NOMINATED TO BE A COMMISSIONER OF THE U.S. NUCLEAR REGULATORY COMMISSION

Mr. MAGWOOD. Thank you, Chairman Boxer. It is a pleasure to be here today to speak with you about my nomination. It is an honor to appear before this panel. I have worked with some of you and some of your staffs over the years on other matters. I look forward to working with you regarding the Nuclear Regulatory Commission.

Before I begin I would like to recognize the service of Edward McGaffigan, whose term I have been nominated to complete. Commissioner McGaffigan was a strong, independent voice on the Nuclear Regulatory Commission for more than 11 years. His commitment, passion and intellect have set a very high standard for all public servants, and if confirmed I will always view his example as one to emulate.

I would also like to thank Senator Cardin for his introduction. He did such a wonderful job of talking about my background, I think I will give you a little bit different perspective about my background. Rather than talk about my academic background and work background, I wanted to let you know I appear you today as a grandson of a man who worked in the coal mines of West Virginia and the steel mills at Pittsburgh. My father worked for the Postal Service, and for many years he also held a night job to make sure he could provide for our family. My mother was what they call now a stay at home mom. She was the lady in the neighborhood other kids came to when they needed help and their own mothers weren't close by. From her I learned to do the right thing even when the right thing wasn't easy. And from my father I learned hard work and personal responsibility.

More than anything else I say today you should know that these are the values I offer to the position to which I have been nominated.

While my parents have passed away and can't be here today I am very pleased that my uncle, Clarence Magwood, is here today with his wife, Willa Mae. I thank them for coming across the treacherous roads to join me today. I am also joined by my lifelong friend, Kevin Burrell, who is employed at the State Government of Pennsylvania. He drove all the way from Harrisburg to be here today, and I appreciate that. By the way our mothers insist that we first met in baby carriages.

And last, but certainly not least, I am very pleased that my spousal unit is also here. I thank her for not taking a swing at me when I told her I was going back into Government service.

After I stepped down from the Department of Energy in May 2005 I looked back and was very proud of the accomplishments my organization had. We showed innovation, integrity and many accomplishments. We had launched and conducted advanced energy research in many areas. We created an enduring international framework for multilateral research cooperation. We established a new civilian nuclear technology focused national laboratory in

Idaho, and we spurred a quadrupling of the number of students pursuing nuclear technology disciplines in U.S. colleges and universities, including programs at historically black colleges.

But perhaps the most important aspect of my responsibilities at DOE was the management and safety oversight of the expansive nuclear infrastructure that included two large research reactors and thousands of workers. I saw it as my personal responsibility to set a very high standard for safety. No matter the cost or impact on programs, I would and did order stand-downs at DOE sites when I was not satisfied with the level of safety. In one case safety considerations led me to terminate a longstanding DOE program. This was a very controversial, expensive and disruptive decision. But I felt then and I feel now that nothing is more important than taking clear and responsible action in the face of any question of worker and public safety.

My past experience provides me with a deep understanding of the management and operation of nuclear power plants, nuclear fuel facilities, medical and educational facilities, waste treatment and disposal facilities and may other areas for which NRC must provide effective regulation. Because of my experience I firmly believe that maintaining uncompromisingly high levels of safety is the first and most important job of any organization that handles nuclear materials. I look forward to bringing these high expectations to the work of the Nuclear Regulatory Commission.

Chairman Boxer, I believe that public service is a very great honor and a great responsibility. If confirmed it will be my purpose to work closely with my colleagues here at the table today and the other Commissioners to fulfill my new mission with a singular focus on the interest of the American people, doing business in a manner that earns the public's trust, and always doing the right thing, even when the right thing isn't easy.

With that I thank you for your attention and look forward to answering your questions.

[The prepared statement of Mr. Magwood follows:]

Statement of William D. Magwood, IV
Committee on Environment and Public Works
United States Senate

February 9, 2010

Chairman Boxer, Ranking Member Inhofe, and Members of the Committee, it is an honor to appear before you today as you consider my nomination to serve as a member of the U.S. Nuclear Regulatory Commission (NRC). I appreciate the time the members of this committee and your staffs have provided me in recent weeks as we have discussed my nomination and the very important issues that will face the Commission in the coming years.

Before I begin, I would like to recognize the impressive service of Edward McGaffigan, whose term I have been nominated to complete. Commissioner McGaffigan was a strong, independent voice on the NRC for more than 11 years. His commitment, passion, and intellect have set a very high standard for all public servants and, if confirmed, I will always view his example as one to which we should all aspire.

I appear before you today as the grandson of men who worked in the coal mines of West Virginia and the steel mills of Pittsburgh. My father worked for the Postal Service and, for many years, also held a night job to provide for our family. My mother was what they now call a "stay-at-home mom." She was the lady in the neighborhood other kids came to when they needed help and their own mothers were not nearby. From her, I learned to do the right thing even when the right thing wasn't easy. From my father I learned hard work and personal responsibility. More than anything else I say today, you should know that these are the values I offer to the position to which I've been nominated.

I am a product of the Pittsburgh Public School System, where I found the encouragement and support to graduate a year early to attend Carnegie-Mellon University. There, I earned my degree in Physics, and because I needed to feed the other side of my brain, I also earned a degree in English. I later earned a Master of Fine Arts degree from the University of Pittsburgh before going to work for Westinghouse Electric Corporation as a scientist in the area of nuclear and hazardous waste treatment and disposal. After several years with Westinghouse and later as a program manager at the Edison Electric Institute, I was honored to join the Department of Energy (DOE) as an appointee of President Bill Clinton's White House. I was eventually appointed to lead the Department's Office of Nuclear Energy, Science, and Technology, a position I held through President Clinton's second term and President Bush's first term.

I have spent about half of my professional career in public service. When I stepped down in May 2005, I was very proud of my organization's record of innovation, integrity, and accomplishment. We launched and conducted advanced technology research in many important areas; established an enduring international framework for multilateral research cooperation; established a new, civilian nuclear technology-focused national laboratory; and spurred a quadrupling of the number of students pursuing nuclear technology disciplines in universities and colleges across the country—including breakthrough programs at small, historically black institutions.

Perhaps the most important aspect of my responsibilities at DOE was the management and safety oversight of a large nuclear infrastructure that conducted advanced energy research, produced vital medical isotopes, and built advanced power systems for space exploration and national security applications. This infrastructure included two large research reactors, many hot cells, radioactive waste storage and disposal areas, and thousands of workers.

I was, in effect, the nuclear safety regulator for this infrastructure. As such, I saw it as my personal responsibility to set a very high standard for safety. No matter the cost or impact on programs, I would and did order "stand-downs" at DOE sites when I was not satisfied with levels of safety. In one case, safety considerations led me to terminate a long-standing program at one of DOE's sites. This decision was controversial, expensive, and disruptive, but I felt then and I feel today that nothing is more important than taking clear and responsible action in the face of any question of worker and public safety.

My past experience provides me a deep understanding of the management and operation of nuclear power plants, nuclear fuel facilities, medical and educational facilities, waste treatment and disposal facilities and many other areas for which the NRC must provide effective regulation. Because of my experience, I firmly believe that maintaining uncompromisingly high levels of safety is the first and most important job of any organization that handles nuclear materials. I look forward to bringing these high expectations to the work of the NRC.

Members of the Committee, I believe that public service is both a great honor and a great responsibility. If confirmed, it will be my purpose to fulfill my new mission with a singular focus on the interests of the American people, doing business in a manner that earns the public's trust, and always doing the right thing even when the right thing isn't easy.

Thank you for your time and attention. I look forward to answering any questions you may have.

RESPONSES TO QUESTIONS FROM THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS FOLLOWING THE FEBRUARY 9, 2010 NOMINATION HEARING FOR W. D. MAGWOOD, IV

Questions from Senator Barbara Boxer

1. **Please describe in detail how you will ensure that meetings you hold with stakeholders, including industry, will be open and transparent. By what criteria would you decide not to share information on your meetings with the public?**

   Response: If I am confirmed, I expect to operate under the principle that all of my activities as an NRC commissioner can, should, and will be open to public scrutiny and I commit to find the best way to assure that this standard is met. Among the limited exceptions I anticipate to this principle would be those associated with the protection of classified national security or safeguards information that may be used in agency decision-making. Until I have the opportunity to work with NRC staff to discuss this matter, I am unable to anticipate a specific methodology to assure openness and transparency regarding my interactions with stakeholders, but if confirmed, I will make this matter one of my first priorities.

2. **Have you been following the tritium leaks at Vermont Yankee? Do you think the public should know when tritium leaks are discovered, even if the NRC staff concludes that the leaks are below public health concern? Should the state be allowed to set standards not just for protection of drinking water sources but also protecting the environment and public health? If not, why not?**

   Response: I have read many media accounts about the tritium leaks associated with the Vermont Yankee plant and have been very concerned about the damage this issue has created with regard to public confidence in the safety of the plant's operations. I believe that all operators of nuclear facilities in the United States should adopt the practice of making complete public disclosure of unplanned leaks, emissions, or other incidents, even when such incidents are believed to be minor. I believe nuclear facility operators should view these incidents as opportunities for public education and should develop programs to provide full information and place them in appropriate context.

Regarding the role of the states vis-à-vis Federal agencies, I believe the most important issue is to assure that appropriate elements of government at all levels are working together closely and effectively to assure the protection of the environment and public health. While I am very conscious of the problems and gaps in protection that can be created by dual regulation or in unclear regulatory responsibilities, I believe in a very strong role for the states and believe Federal agencies should defer to them when it is practical and Federal law has not preempted state actions.

3. **In a memo you wrote entitled, "Memo to the Next President", which was published by the Progressive Policy Institute, you said, "The key to making nuclear energy a more viable alternative is the adoption of advanced spent-fuel recycling techniques to deal with one of nuclear power's most vexing problems-the presence of radioactive waste material." What is your opinion of nuclear reprocessing? Do you agree with the Department of Energy's decision last year to cancel the domestic portion of the Global Nuclear Energy Partnership?**

Response: Much of my time at the Department of Energy was spent in trying to find new technologies to address the disposition of spent nuclear fuel. During my tenure we examined a wide range of technological approaches to this problem including accelerator transmutation, deep-burn nuclear fuel technologies, and various types of spent fuel recycling. After years of exploration and collaboration with experts in the U.S. and many other countries, I have come to believe that it is in the Nation's long-term interest for us to develop technologies that can recycle spent nuclear fuel in a manner that is environmentally responsible, proliferation-resistant, and economically viable. If we can develop technologies that meet these tests, I believe recycling can be an important strategy to extend the world's nuclear fuel resources while simultaneously mitigating the need for geologic disposal of commercial nuclear waste. To the extent that the domestic portion of the Global Nuclear Energy Partnership (which was launched about a year after I left DOE) was designed to deploy reprocessing in the United States before technologies meeting the standards I've mentioned are developed, I fully support the decision to cancel that effort and, instead, focus the Federal government's attention on conducting advanced research.

4. **While you were the Director of the Department of Energy's Office of Nuclear Energy you had responsibility for Argonne National Lab West. According to the Project on Government Oversight (POGO), you did not provide extra funds that were necessary to boost security at the lab in order to protect highly enriched uranium and plutonium. Do you have a response to POGO's charge that you underfunded security at Argonne?**

   Response: Yes, I was Director of Nuclear Energy at that time. As I recall, we reviewed the situation at Argonne-West very carefully and I traveled to that site on several occasions to see the facilities first-hand and to receive classified briefings on the security situation. There was a debate between some who believed that more guards were needed, which required an extra $1 million, and many site, security, and program staff who believed the best approach was to apply various classified technologies and other strategies to protect nuclear material at the site.

   After careful deliberation and considerable analysis, I concluded that application of the classified facility protection technologies available to us, in combination with strategic deployment of the existing guard force, was sufficient to assure the protection of highly enriched uranium and plutonium at the lab. We spent tens of millions to enhance security at Argonne and our other facilities and I believe it was one of our very highest responsibilities to devote the resources necessary to assure the protection of the nuclear materials at our sites.

5. **Are you aware of any impending NRC action that could affect the financial interests of the companies you have worked for or advised? If so, please describe.**

   Response: I advised the Japanese government's program to develop fast reactor technology. In that context, I accepted a small contract from Mitsubishi Heavy Industries of Japan (MHI), which was selected as the Japanese government's fast reactor deployment contractor. The purpose of the contract was to provide occasional advice regarding MHI's desire to cooperate with fast reactor development programs in the U.S.

   A unit of MHI is seeking NRC certification of the Advanced Pressurized Water Reactor technology for use in this country. While I had no involvement with MHI's commercial nuclear business, under the terms of the agreement that I entered into with the NRC's designated ethics official and the ethics pledge that I will sign if confirmed, I will not participate personally and substantially in any particular matter in which MHI is a party for a period of two years after I last advised the company. I have worked with no other companies that would be affected by impending NRC actions.

6. **What actions are you taking, or will you take if confirmed, to divest yourself of assets and investments that may appear to represent a conflict of interest?**

Response: I have signed an agreement with NRC's Office of the General Counsel that commits me to divest my investment in Secure Energy North America Corporation (SENA) if confirmed. In addition, I decided to take the additional action of suspending my external activities on behalf of SENA since my nomination was made public. I have notified the Board of Directors of SENA that if I am confirmed, I will formally step down from all SENA posts and divest all SENA investments. I have no other assets or investments that may appear to represent a conflict of interest.

Questions from Senator Thomas R. Carper

1. **In your questionnaire to the Committee, you wrote that "nuclear safety was [your] highest priority and [you] never hesitated to suspend or terminate operations at a nuclear facility..."II Were you ever in a position to make such a decision? If so, please briefly describe the circumstances and how you arrived at the decision to suspend/terminate operations?**

   Response: I believe my efforts to improve safety at sites for which I was responsible were sufficient such that this type of action was rarely necessary. However, in one case, I became concerned by a series of minor incidents at a particular site. After reviewing options with my senior staff, I decided to send a clear message and ordered a day-long safety stand-down. The day was used to reinforce staff training and awareness in safety. I also insisted in an organizational change that resulted in the creation of a new senior position at the site focused on operational excellence.

   In a separate case at another site, I reviewed measures underway to assure site security and safety of the public in the face of post-September 11, 2001 design-basis threats. While site officials were confident that they could protect nuclear materials at the site, the nature of the radiological materials in question and the site's proximity to the public convinced me that it would be irresponsible to gamble with public safety. I decided to terminate the program at this site, where it had been for decades, and relocated the material to a more remote and secure site. Doing so was both expensive and quite unpopular with many, but I firmly believed that taking this action was in the best interest of public safety.

2. **How do you perceive the differences in the role that you were asked to fulfill at DOE versus the role you have been nominated to fulfill at the NRC? And how is the DOE experience of relevance to the NRC?**

   Response: I view my former role at DOE as very different from the mission of NRC. At DOE, I supported the development of energy policies needed to serve the Nation's long-term future and led an organization that conducted advanced research and development. As such, it is DOE's role to pave the way for the private sector to apply advanced technologies such as renewable energy, clean coal, and advanced nuclear power plants. With the door opened, DOE's role ends. In the case of nuclear power, once the private sector decides to step through that door, it becomes the responsibility of NRC to assure that industry's use of nuclear technologies is carried out in a manner that fully protects the safety of workers, the public, and environment.

While the roles of NRC and DOE are quite different, both require a deep appreciation for the nature of and risks associated with nuclear materials, nuclear facilities, and nuclear processes and the challenges facing any who must assure their safe and responsible application. My work at DOE has provided this background and if I am confirmed, I believe this experience will enable to serve the American people very well in the role of a regulator.

Questions from Senator James M. Inhofe

1. **In your role as a commissioner, will you commit to treating requests from majority and minority Committee members equally?**

   Response: Absolutely. If confirmed I will, in fact, seek to meet regularly with both majority and minority Committee members and staff to assure good and open communications.

2. **In the late 1990s, the NRC began working with its stakeholders to develop and implement an improved regulatory structure, focusing its regulatory work on issues truly significant to safety while reducing activity on issues with little or no actual benefit to safety. With so many new commissioners and staff entering the agency, I believe the agency must actively work to preserve this crucial objective and incorporate technology innovations and safety insights as they arise. As leaders of the agency, please explain how you anticipate maintaining and refining these gains in safety focus.**

   Response: I think that the improvements you mentioned have proven to be very successful in enabling NRC to carry out its mission successfully while focusing on the issues that truly impact safety. I believe that the agency's leadership over the last 15 years has done a tremendous job of crafting an approach to nuclear regulation that has enabled U.S. nuclear power plants to achieve both very high levels of safety and world-leading capacity factors. If confirmed, I will seek to work with other commissioners to continue and extent this success. That said, I also believe that we must also fully understand where NRC's regulatory approach needs to improve and not hesitate to make any change that can enhance public safety.

3. **There are a number of reasons for which the NRC reviews and subsequently grants exemptions from regulatory requirements. Do you agree that exemptions that assure safe operation of the plants should not be confused with operations outside the bounds of safety? Do you agree that it would be counterproductive to initiate enforcement actions against approved exemptions that maintain or enhance safety?**

   Response: I believe that it is important for all Federal agencies to understand and accept that no matter how carefully rules and guidelines are crafted, circumstances will always arise that require a responsible agency to make appropriate exceptions. NRC provides, as you noted, for exemptions from specific regulatory requirements in cases where "special circumstances" are present.

It is my understanding that NRC grants exemption only after it has determined that doing so is appropriate under the law and is consistent with the agency's mission to protect the health and safety and security of the American people. As such, I see no reason why the agency should undertake any enforcement actions regarding any exemptions previously granted by NRC if the licensee has fully complied with the terms of that exemption.

4. **The NRC is reviewing new plant license applications for the first time in over 30 years. Everyone can understand the challenges of developing precise schedules and the need for decision-making to remain safety focused. We can all recognize good reasons why some milestones might be missed, but that should not be used as an excuse to avoid management responsibilities. Without complete schedules, there is no way to establish goals, manage staff, prepare sound budgets, or assess progress on applications. The NRC has demonstrated success in licensing enrichment facilities by setting complete, detailed schedules at the start of the review process. As commissioners, would you build on that success and work to establish complete review schedules for new reactor applications and supervise the agency accordingly?**

   Response: I believe NRC should strive toward providing applicants with predictable schedules. The fact that the agency was able to accomplish this in the case of enrichment facilities is very encouraging and I hope to learn from this example. Nevertheless, I expect that licensing the "first wave" of new nuclear power plants will be a learning experience for the NRC, states, utilities, and vendors and precise schedules will be difficult to realize. Fortunately, the agency's record in learning quickly as it applies new processes is excellent. If confirmed, I will do all I can to assure that the agency, consistent with its primary obligation of assuring safety, is meeting its schedule obligations. However, I will also focus on assuring that NRC learns from its "first wave" plant experiences and makes adjustments to assure greater predictably for subsequent licensing actions.

5. **In developing 10 CFR Part 52 for the licensing of new nuclear plants, the Commission envisioned applicants following an orderly sequence beginning with an Early Site Permit and then a combined Construction and Operating License for a previously certified design. Clearly, business circumstances have prompted applicants to diverge from this sequence. Do you agree that the Commission must be flexible in addressing the business realities of current and future applicants? Do you also agree that it is unreasonable to expect perfect implementation of a new, untested process either by staff or applicants?**

   Response: Ideally, design certifications would be completed before combined Construction and Operating License applications (COLAs) are submitted by industry to build new plants. However, as you've indicated, it is not reasonable to expect perfect implementation of regulatory approaches laid out in the 1990s if a flexible approach can be implemented that does not reduce safety. NRC is currently reviewing certifications in parallel with COLAs and it is my understanding that the staff is confident that this approach can be completed successfully. I believe this flexibility is appropriate.

   Without this flexibility, utilities might be obligated to submit applications to build outdated technologies that would not reflect improvements made in recent years. Therefore, if confirmed, I will support the agency's current flexible approach while encouraging future applicants to follow a sequence in which design certifications are completed before COLAs are submitted.

6. **For new reactor licensing, the NRC urged the industry to standardize its applications as much as possible and for agency staff to follow a "one design, one review, one position" approach to streamline the review process. With so many staff new to the agency, how will you work to ensure that they understand and implement the design-centered approach, minimizing the occurrence of duplicative Requests for Additional Information (RAI's)?**

   Response: In my view, the design-centered approach is at the core of U.S. aspirations to strive toward a high degree of plant standardization. Such standardization can support improvements in all aspects of nuclear operations, including worker training and maintenance, and by extension nuclear safety. If confirmed, I will highlight the importance of this approach to the staff and assure that its goals are fully understood.

Questions from Senator David Vitter

1. **Has anyone in the Administration discussed with you your position on the disposal of spent fuel and high-level waste, and specifically the viability of Yucca Mountain, either before or after your nomination?**

   Response: Various individuals asked for my general opinion on a wide range of issues, including my views on high-level waste disposal. However, I was never asked to anticipate how I might rule on any issue as an NRC commissioner, including on the viability of Yucca Mountain.

2. **Are you aware of any technical of scientific reasons regarding Yucca Mountain that would render the site unsuitable in your opinion?**

   Response: I have read publicly available papers by scientists who have raised issues regarding the prospect that water intrusion into the underground facility could lead to the transport of radionuclides. I have also seen articles that indicate future seismic or volcanic activity could compromise the site. I have also read articles that challenge these concerns.

   While I am aware of these issues, I have not examined them in any detail and have formed no opinion about the suitability of the Yucca Mountain site as a high-level waste repository.

3. **In your opinion, do you believe that spent fuel can be indefinitely stored in currently designed and licensed dry cask storage systems?**

   Response: Current dry cask storage systems have been in use in the U.S. for about 20 years and have an excellent safety record. I believe that these systems will be able to safely maintain spent fuel for many years. However, I believe that the prospect that dry cask storage systems may now be expected to remain in operation for fifty or more years obligates NRC to review cask designs and the agency's oversight of their safety.

4. **Are you aware of any technical issues or concerns with respect to degradation of welds or other materials involved in dry cask storage systems?**

   Response: No. I believe the dry cask storage systems are performing very well and should be expected to continue to do so for many years.

5. **Are you aware of the reaction of implications internationally regarding the Administration's decision to terminate Yucca Mountain prior to a technical safety determination is rendered by the NRC.**

   Response: Yes. I am aware that several countries looked to the U.S. repository programs as a model and example. However, from discussions I have had with overseas officials, I believe the international community understands that decisions made in the U.S. with regard to Yucca Mountain do not reflect a general judgment on the use of deep geologic repositories as a component of a high-level radioactive waste disposition program.

6. **If confirmed, will you be able to maintain an independent perspective on spent fuel and high level waste issues that may come before the Commission?**

   Response: Yes.

7. **What do you believe the Lessons Learned from the Yucca Mountain project?**

   Response: I think the most important lesson that the U.S. has learned when it comes to all nuclear facilities is to site nuclear operations in locations where states and local communities embrace the mission. I believe this lesson learned applies to the Yucca Mountain project.

8. **Would a schedule/established timeline for dealing with appeals of ASLB and other decisions in licensing process - including new plant licensing reviews - be beneficial to all parties? If so, what is a reasonable amount of time for action? 60 to 90-days, with provisions for extensions?**

   Response: I believe it is important that the Commission act within a reasonable time frame on adjudicatory matters pending before it. Applicants, licensees, and the public in general deserve to have these decisions made in a quick and predictable manner. However, I must learn much more about the processes at NRC before I can make a reasoned judgment regarding whether it is practical to set a general time frame. If confirmed, I will explore this subject in detail.

Senator BOXER. Thank you so much, Mr. Magwood.
Mr. Ostendorff.

STATEMENT OF WILLIAM C. OSTENDORFF, NOMINATED TO BE A COMMISSIONER OF THE U.S. NUCLEAR REGULATORY COMMISSION

Mr. OSTENDORFF. Chairman Boxer, Senator Inhofe, members of the committee, I want to thank you for this opportunity to appear before you today.

I am honored to have been nominated by President Obama to serve on the Nuclear Regulatory Commission. I am also privileged to be in the company of my fellow NRC nominees, George Apostolakis and Bill Magwood, and look forward to the possibility of working with both if confirmed.

I would like to thank Senator Webb for his kind introduction. Also I want to thank my family, especially my wife, Chris, for their encouragement and support over many years.

If confirmed I look forward to working closely with members of this committee and their respective staffs to carry out the duties of a Commissioner. The Commission's mission—to license and regulate the Nation's civilian use of nuclear materials, ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment—is critical to our country. The Nation is currently fortunate to have a highly talented and dedicated staff at the Nuclear Regulatory Commission to carry out its strategic goals of ensuring safety and security of commercial nuclear facilities.

I will tell the members of the committee that I am committed to the NRC's principles of good regulation. Those are independence, openness, efficiency, clarity and reliability. Furthermore I appreciate the need for regulatory predictability and stability. I am humbled by the importance of the task ahead and if confirmed commit to work tirelessly to professionally execute the Commission's vitally important mission.

I have been privileged to serve our country for many years as a career nuclear submarine officer, as a counsel on Committee Staff Director for the House Armed Services Committee and as Principal Deputy Administrator of the National Security Administration. While I will have much to learn I am confident this prior management and leadership experience will serve me well if I am confirmed. I will add my experience as a senior congressional staff member and as a senior leader at the Department of Energy has given me a deep appreciation for the role of congressional oversight and the importance of your committee.

If confirmed I commit to communications with you founded on integrity and responsiveness. Again, I appreciate the opportunity to appear here today, and I look forward to your questions.

Thank you.

[The prepared statement of Mr. Ostendorff follows:]

STATEMENT OF WILLIAM C. OSTENDORFF
Committee on Environment and Public Works
United States Senate
February 9, 2010

Chairman Boxer, Senator Inhofe, and Members of the Committee, I want to thank you for this opportunity to appear today before the Environment and Public Works Committee. I am honored to have been nominated by President Obama to serve on the Nuclear Regulatory Commission. I am also privileged to be in the company of fellow NRC nominees George Apostolakis and Bill Magwood and look forward to the possibility of working with both. I would like to thank my family, and especially my wife Chris, for their encouragement and support. If confirmed, I look forward to working closely with the members of the committee and your respective staffs to carry out the duties and responsibilities of a Commissioner with the Nuclear Regulatory Commission.

The Commission's mission, to license and regulate the Nation's civilian use of nuclear materials, to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment, is critical to our country. The nation is fortunate to have a highly talented and dedicated staff at the Commission to carry out its strategic goals of ensuring the safety and security of commercial nuclear

facilities. I am committed to the NRC's Principles of Good Regulation: independence, openness, efficiency, clarity, and reliability. Furthermore, I appreciate the need for regulatory predictability and stability. I am humbled by the importance of the task ahead and if confirmed, commit to work tirelessly to professionally execute the Commission's vitally important mission.

I have been privileged to serve our country for many years - as a career nuclear submarine officer, as a counsel and subcommittee staff director for the House Armed Services Committee, and as Principal Deputy Administrator at the National Nuclear Security Administration. While I will have much to learn, I am confident that this prior leadership and management experience in national security positions will serve me well if confirmed. I will add that my experience as both senior congressional committee staff and as a senior leader in the Department of Energy has given me a deep appreciation for the role of congressional oversight.

If confirmed, I commit to communications with you founded on integrity and responsiveness. Again, I appreciate the opportunity to appear before you today and look forward to your questions. Thank you.

Responses to Questions for the Record from William C. Ostendorff
Senate Committee on Environment and Public Works
February 9, 2010 Confirmation Hearing

Questions from Senator Barbara Boxer

1. How do you think your experiences in the military, the Department of Energy and the House of Representatives will benefit the NRC? Will you support strong regulations aimed at protecting public health and safety, while minimizing danger to life or property?

Answer

I have significant experience as a nuclear trained submarine officer relevant to potential service as a Commissioner on the Nuclear Regulatory Commission. In 1975, I was personally selected by Admiral Rickover to serve in the naval nuclear power program and did so for over twenty years as a career submarine officer. I have served on six nuclear powered submarines, including tours as Engineer Officer and Commanding Officer, with significant responsibility for supervising the operation and maintenance of naval nuclear reactor plants. As a submarine squadron commander, I was accountable to Naval Reactors for the safe reactor plant operation of the eight nuclear submarines under my command. I have years of experience in training nuclear propulsion plant operators and in instilling the core principles of technical competence, safety and accountability.

As Principal Deputy Administrator at the National Nuclear Security Administration, I managed the day-to-day operations of the organization overseeing the nation's nuclear weapons complex and served as the Central Technical Authority for nuclear safety issues within the agency. I also had significant management responsibility for security, including safeguarding special nuclear materials, counter-intelligence and cyber-security protection for the Department of Energy's national security laboratories. This senior level management experience in the areas of nuclear safety and security (both physical security and cyber-security) of the nuclear weapons complex will provide a solid foundation for addressing similar issues with the nation's commercial nuclear facilities if I am confirmed as a Commissioner.

As a counsel and Strategic Forces Subcommittee staff director of the House Armed Services Committee, I have significant experience in national security issues relevant to the regulation of the nations' nuclear commercial industry. This experience includes defense nuclear environmental management, cyber-security, counter-terrorism and intelligence related matters. I have significant experience as a senior congressional staff member drafting legislation and supporting Congressional committee/subcommittee chairs in running congressional oversight hearings, providing a working level knowledge of the role the Senate Environment and Public Works Committee and other relevant congressional committees fulfill in overseeing the Nuclear Regulatory Commission. I will also note that this congressional staff experience provides a solid grounding in approaching issues in a bipartisan manner, a key prerequisite to serving effectively as a member of a collegial body such as the Nuclear Regulatory Commission.

I do support strong regulations aimed at protecting public health and safety, while minimizing danger to life or property. It is my understanding that the existing Nuclear Regulatory Commission regulatory framework is strong.

2. Have you been following the tritium leaks at Vermont Yankee? Do you think the public should know when tritium leaks are discovered, even if the NRC staff concludes that the leaks are below public health concern? Should the state be allowed to set standards not just for protection of drinking water sources but also protecting the environment and public health? If not, why not?

Answer

I have received preliminary briefings by Nuclear Regulatory Commission staff on the tritium leaks at Vermont Yankee and have read recent press clippings on this topic.

I do think that the NRC should be open and transparent with the public on the status of tritium leaks at all commercial nuclear facilities. I am not familiar with the existing threshold limits and practices for notifications to the public of leaks that may be below a public health standard but will look into this if confirmed.

With respect to whether the state should be allowed to set standards not just for protection of drinking water sources but also for protecting the environment and public health, it is my understanding that the Supreme Court has determined that the Atomic Energy Act preempts state laws dealing with radiological health and safety. However, states may in certain circumstances enact legislation pertaining to nuclear facilities based on considerations other than the Atomic Energy Act. Other federal environmental laws allow states that meet specified criteria to set standards that may deviate from federal requirements. Congress has the authority to enact legislation that affects the balance of power between federal and state authority over environmental regulation. If confirmed, I will place a priority on receiving briefs from the Office of the General Counsel on the relative role of the legal authority of the federal and state governments to regulate in this area.

Questions from Senator James M. Inhofe

1. In your role as a commissioner, will you commit to treating requests from majority and minority Committee members equally?

Answer

Yes.

2. In the late 1990s, the NRC began working with its stakeholders to develop and implement an improved regulatory structure, focusing its regulatory work on issues truly significant to safety while reducing activity on issues with little or no actual benefit to safety. With so many new commissioners and staff entering the agency, I believe the agency must actively work to preserve this crucial objective and incorporate technology innovations and safety insights as they arise. As leaders of the agency, please explain how you anticipate maintaining and refining these gains in safety focus.

Answer

While I generally agree with the philosophy that the NRC's regulatory work should focus on those issues significant to safety, I have not been briefed on how that focus has been actually implemented in the Commission's regulatory work and daily operations. As Principal Deputy Administrator at the National Nuclear Security Administration, I had direct responsibility for nuclear safety as the organization's Central Technical Authority. In that capacity, the Chief of Defense Nuclear Safety reported directly to me. That experience, which included research and development into new technologies and the development and application of nuclear safety modeling and simulation tools, will help inform me in effectively prioritizing safety issues if confirmed as a Commissioner.

3. There are a number of reasons for which the NRC reviews and subsequently grants exemptions from regulatory requirements. Do you agree that exemptions that assure safe operation of the plants should not be confused with operations outside the bounds of safety? Do you agree that it would be counterproductive to initiate enforcement actions against approved exemptions that maintain or enhance safety?

Answer

It is my understanding that the Commission's regulations governing the issuance of exemptions for nuclear reactor applicants and licensees are set forth in 10 CFR 50.12. These regulations provide that the Commission may, upon application by an interested person or on its own initiative, grant exemptions from the regulations governing those facilities. The Commission uses criteria to determine if an exemption should be granted. The Commission will issue an exemption only after determining that it is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. I believe that the NRC would not take enforcement action if the licensee is in compliance with the terms of the exemption. Thus, I agree that

a reactor plant licensee operating under an NRC approved exemption should not be confused with operations outside the bounds of safety.

4. The NRC is reviewing new plant license applications for the first time in over 30 years. Everyone can understand the challenges of developing precise schedules and the need for decision-making to remain safety focused. We can all recognize good reasons why some milestones might be missed, but that should not be used as an excuse to avoid management responsibilities. Without complete schedules, there is no way to establish goals, manage staff: prepare sound budgets, or assess progress on applications. The NRC has demonstrated success in licensing enrichment facilities by setting complete, detailed schedules at the start of the review process. As commissioners, would you build on that success and work to establish complete review schedules for new reactor applications and supervise the agency accordingly?

Answer

The predictability and stability of the regulatory process is vital. Commission adherence to transparent scheduling milestones for the various steps of the licensing process would help reinforce the predictability and stability for industry. If confirmed, I will look into the state of existing review schedules for new reactor applications and seek improvements if my review finds they are needed.

5. In developing 10 CFR Part 52 for the licensing of new nuclear plants, the Commission envisioned applicants following an orderly sequence beginning with an Early Site Permit and then a combined Construction and Operating License for a previously certified design. Clearly, business circumstances have prompted applicants to diverge from this sequence. Do you agree that the Commission must be flexible in addressing the business realities of current and future applicants? Do you also agree that it is unreasonable to expect perfect implementation of a new, untested process either by staff or applicants?

Answer

I have not been fully briefed on the specific steps of the 10 CR Part 52 licensing process. I am aware, however, that industry from time to time may request changes to already approved design certifications that may result in delays in the licensing process. If confirmed, I will look into the existing flexibility of the licensing process to better understand the impact of business realities on current and future applicants. I also believe that given the fact that it has been many years since the NRC has processed new reactor license applications and that the implementation of the COL process is still relatively new, that it will be important for both the NRC and industry to thoughtfully analyze the lessons learned as the new reactor license applications are processed and determine if any changes to that process may be warranted.

6. For new reactor licensing, the NRC urged the industry to standardize its applications as much as possible and for agency staff to follow a "one design, one review, one position" approach to streamline the review process. With so many staff new to the agency, how will you work to ensure that they understand and implement the design-centered

approach, minimizing the occurrence of duplicative Requests for Additional Information (RAI's)?

Answer

I think that continuing training and mentoring programs for the NRC staff are essential to effectively implement the design-centered approach to minimize the occurrence of duplicative Requests for Additional information. If confirmed, I commit to looking further into this matter.

Questions from Senator David Vitter

1. Has anyone in the Administration discussed with you your position on the disposal of spent fuel and high-level waste, and specifically the viability of Yucca Mountain, either before or after your nomination?

Answer

No.

2. Are you aware of any technical of scientific reasons regarding Yucca Mountain that would render the site unsuitable in your opinion?

Answer

I have not received any technical or scientific briefings on Yucca Mountain's suitability as a repository. I would have to closely examine the matter should the issue come before the Commission.

3. In your opinion, do you believe that spent fuel can be indefinitely stored in currently designed and licensed dry cask storage systems?

Answer

In the course of preparations for my confirmation hearing, I received briefings from NRC staff on the current dry cask storage systems and Independent Spent Fuel Storage Installations (ISFI's). Based on those briefings, it was my understanding that spent fuel can be safely stored at existing ISFI's for many decades. I am not familiar with any existing technical analysis or studies addressing indefinite storage periods in the currently designed and licensed dry cask storage systems.

4. Are you aware of any technical issues or concerns with respect to degradation of welds or other materials involved in dry cask storage systems?

Answer

No. I have not been briefed on any issues with degradation of welds or other technical problems with the dry cask storage systems.

5. Are you aware of the reaction of implications internationally regarding the Administration's decision to terminate Yucca Mountain prior to a technical safety determination is rendered by the NRC.

Answer

No. I have not received any briefings nor read any reports on this matter.

6. If confirmed, will you be able to maintain an independent perspective on spent fuel and high level waste issues that may come before the Commission?

Answer

Yes.

7. What do you believe the Lessons Learned from the Yucca Mountain project?

Answer

I toured the Yucca Mountain site while serving as a counsel for the House Armed Services Committee a few years ago. Based on what I read in the publicly available media, I am aware of differing opinions of the suitability of this site, some based on technical concerns and others based on political or policy issues. I have not, however, had any detailed briefings on technical concerns with Yucca Mountain or on alternative options for a high level waste repository. If confirmed, I would expect to closely follow this issue.

8. Would a schedule/established timeline for dealing with appeals of ASLB and other decisions in licensing process - including new plant licensing reviews - be beneficial to all parties? If so, what is a reasonable amount of time for action? 60 to 90-days, with provisions for extensions?

Answer

I believe it is important that the Commission act within a reasonable time frame on adjudicatory matters pending before it. However, having not yet served as an adjudicator, I am not prepared at this time to recommend a model schedule for Commission adjudicatory decision-making.

Senator BOXER. Thank you very much.

Dr. Apostolakis, you mentioned your work with the NRC's Advisory Committee on Reactor Safeguards, and you appreciated conducting all the committee's meetings in public. Do you believe the NRC would benefit from conducting its meetings, deliberations and votes in public?

Mr. APOSTOLAKIS. Senator, I am aware of the fact that Chairman Jaczko is promoting this idea. I am very pleased with the way the ACRS has conducted its business. I think we write letters to the Commission in public, we argue about individual words and commas and periods. I think that has been very, very beneficial both to us and the stakeholders. Now, with respect to the Commission itself, in principle I think it is a good idea. I would like to understand a little better what the downside might be, because I haven't really studied the matter. But in principle I am for it.

Senator BOXER. How about you, Mr. Magwood? Open and transparent meetings?

Mr. MAGWOOD. I agree with my colleague. In principle I agree with that direction. The one concern I would have is how it affects the quality of decisions that are made. The current process at NRC involves an iteration of documents between the various parts of the Commission staffs. That is an opportunity to really delve into issues in a great deal of detail. I would hate to lose that in the process of having open meetings.

But if there is a way of getting both benefits, I would certainly be in favor of it.

Senator BOXER. So let me understand that. You are saying that you think it might not be as productive if you were looking at an analysis, and it was in public? Why would that be?

Mr. MAGWOOD. No, my point is that I think it is important to do the analysis, even if it takes a long time, on a textual basis. And if there is a way of actually arriving at decisions in public I am all in favor of that. I think that is a good thing to do. I want to make sure that we don't lose the detail.

Senator BOXER. Let me just make sure that everyone understands my question. I am not talking about doing the analysis in public. I am talking about the meetings in public and your deliberations and your votes in public, once you have gotten the analysis.

Mr. MAGWOOD. In principle I don't have a problem with that.

Senator BOXER. Mr. Ostendorff.

Mr. OSTENDORFF. Chairman Boxer, I support the NRC's openness and transparency. I am aware that there are some discussions currently underway with existing Commissioners to look at some changes in the voting procedures specifically. In principle, I support openness and those activities. I would like to have an opportunity once I am confirmed to more fully discuss that and better understand the exact issues.

Senator BOXER. I appreciate that, all of you using the words, in principle. But to me either it is open or it is shut. So I am going to say to you, just from you to me and me to you, I don't speak for anybody else, I am going to be watching this. Because I think that, yes, analysis and all the hard work have to go on between the folks who you rely on, and you should be able to probe that. But

once it gets to the meetings and all the information is out there I believe this needs to be shared with the public. I think it is important not just to agree with it in principle but in practice. So I will be following that myself.

Now, I have a question here for all three of you from Senator Reid. You can just answer it yes or no. If confirmed, would you second guess the Department of Energy's decision to withdraw the license application for Yucca Mountain from NRC's review?

Mr. MAGWOOD. No.

Senator BOXER. OK.

Anybody else?

Mr. APOSTOLAKIS. No.

Mr. OSTENDORFF. No.

Senator BOXER. Thank you. I think he will be very pleased with that.

And the last question I have is on re-processing. I went to France, La Hague; I don't know how many of you have been to La Hauge at all. When I went there, I was very open to seeing how this new technology could work. When I left there I realized that it is far more controversial than it might appear, because—and I am sure, Mr. Magwood, you saw that—this material is so hot, so hot that even though it is contained in a small container, it needs this huge burial site. In La Hague they are going to have to ship back this waste to the countries that sent it in the first place after 20 years.

So I guess my question is to all of you—you can do it in writing, I don't want to take a lot of time—but do you think there needs to be more work on perfecting this type of a technology? Or do you think it is just ready to roll?

Mr. APOSTOLAKIS. Senator, I really don't know much about the recycling, so I cannot give you an answer.

Senator BOXER. That is fair.

Mr. Magwood.

Mr. MAGWOOD. Well, the work I did at DOE was predicated on the idea that we did need to do a lot more research to develop better technologies and more efficient and less proliferation prone. So my personal thinking is that more work needs to be done.

Senator BOXER. How about you, Mr. Ostendorff?

Mr. OSTENDORFF. Chairman Boxer, I am not familiar with this particular technology. I would like to have a chance to look at it and get back to you.

Senator BOXER. OK. At some point I think it would be interesting to visit that site. It has more armed guards than most of our military bases there. It is very—it is enlightening, I would say, to go see it.

Let me just say to all of you how much I appreciate your service. Not only the service currently, but your prior service in other capacities for the Government, whether it was in the military or DOE or on a special commission.

Mr. Magwood, I have a few letters here from people who don't support your nomination. The reason they say that is that when you were over at DOE, they felt that you were pushing nuclear power. Well, as I read in the opening statement, there is a very big difference between the DOE and the NRC. In one job, if you are

working to promote a certain type of power, whether it is wind, which I know Senator Alexander doesn't prefer, whether it is solar, whether it is nuclear, whether it is clean coal, whether it is offshore oil drilling, whatever it might be, the DOE's job is different from the NRC.

So I guess just from my own sensibility, you could state your sense of the difference between being at DOE and being on the NRC. If you could put it in your own words for me.

Mr. MAGWOOD. The role we had at DOE was clearly to remove the barriers that made it very difficult to build new nuclear power plants in the United States. I think we accomplished a lot in that direction. The role of NRC is to respond to the public need for safety now that that door has been opened and others are walking through it.

So I think it is an appropriate role for Government to remove the barriers, and I think it is an appropriate role for Government to make sure that once the barriers are removed that things are done responsibly. It is my firm opinion that the best service to the country and to the nuclear industry is to set a very, very high standard for safety and to do so in a way that the public has a great deal of confidence.

Senator BOXER. Well, Mr. Magwood, I think you were very eloquent on that point. Thank you very much.

Senator Inhofe.

Senator INHOFE. Thank you, Madam Chairman.

Captain Ostendorff, during the introduction, is that your son seated behind you?

Mr. OSTENDORFF. I have two sons. This is my son Jeff right here.

Senator INHOFE. Which one was at Fort Sill?

Mr. OSTENDORFF. My son Chuck. He is not here today.

Senator INHOFE. When he deployed, he probably deployed, my guess is from Fort Hood with the Lava Thunders. Would you happen to know that?

Mr. OSTENDORFF. He actually deployed with the Second Stryker Cavalry Regiment out of Vilseck, Germany, deployed to Iraq in the summer of 2007.

Senator INHOFE. Good. I think this is significant, and several people have said, this is the first time in 30 years that we have new plant applications. I think now, as I had shared originally, there were 18, 5 have been suspended. So you are talking about 13 applications. Have you had time to think through how you are going to handle these different classes, so that you can expedite these? My concern, as I said in my opening statement, of course, we want all safety complied with and all that. We want to get these things done.

Have you given any thought—any of the three of you—as to how you are going to handle that many and their different classes? And any kind of prediction as to when you might get 1 or 2 or 13 of them completed?

Anybody.

Mr. OSTENDORFF. Senator, I will speak for myself and ask my colleagues to chime in. I think we have received several briefings by Commission staff in preparation for this hearing and in prepara-

tion for potential service in the Commission about the licensing process, the time schedules, the milestones and some expectations.

I would say that I think it is important for a Commissioner to take a hard look at ensuring that progress is being made toward providing rapid but thorough response to the applications, ensuring the applications themselves are completely technically vetted while bringing some pressure on the system to move forward appropriately.

So I think there is kind of a balance. It goes to Senator Carper's statement earlier about one foot on the accelerator and one foot on the brake pedal, making sure that we are pushing forward to get the system to work but also ensuring that that does not result in any shortcuts that might lessen safety.

Senator INHOFE. That's good. Any other comments? That pretty much may speak for the three of you.

Mr. APOSTOLAKIS. I have seen what the Commission has been doing the last several years in the area of new reactors. I think the process that is in place is good, design certification, early site permits, and finally the combined license. As with anything new, as you said, Senator, for 30 years we have not licensed a new reactor; there will be some glitches here and there that we will have to fix.

But I think that the process in place is good. And I have seen the stuff accelerating other licensing actions, like power upgrades, and license extensions. So I am confident they will do their best also to grant to accelerate the licensing process for new reactors. But I agree with my colleague.

Senator INHOFE. And the other thing I was thinking about is that the three of you constitute a majority of this Commission. That can be good or bad. You don't come in with preconceived notions. Those three out of five are new people, all qualified.

What I would suggest, I will be suggesting to Senator Carper, that he do something like I did back in 19 whatever it was, 1997, I guess, when I chaired this subcommittee, that is schedule some meetings with some goals. Decide about how far along you want to be at different times so that we will be brought into the loop on this. I am sure that you would agree that is a good idea. If not, I can get this in writing from them.

So that is what you might be anticipating that we will be wanting to know as you move along, how you are coming, how many applications you are looking at, what your progress is.

Thank you, Madam Chair.

Senator BOXER. OK, I am going give you the gavel, because I have a meeting.

Senator CARPER [presiding]. Thank you, Madam Chair.

Let me just again welcome you and thank you for your participation today. I know a number of my colleagues have expressed reservations to me over the last year that the new Administration was not really serious or embracing nuclear power as one aspect of reducing our dependence on fossil fuel, reducing our dependence on foreign oil, cleaning up the air. I think Senator Alexander has already said this in so many words, but just in the last several weeks to have heard what the President said on the floor of the House of Representatives in the State of the Union address, the importance of nuclear energy and embracing it, what we have seen in his

budget proposal, it puts our country's money where his mouth was that night.

And to again see the strength of these nominees, it is very encouraging for those of us who believe that nuclear power is an important component of our power generation and energy generation in this country. But it needs to be an even more important one. So this is a good, very strong team here.

I am going to ask if each of our nominees would each take a minute or so and just talk with us in your own words, from your hearts, what do you see as some of the biggest challenges that the NRC is facing this year and in the next several years? What are some of the biggest challenges that you see the NRC facing this year and in the next several years? How would you strengthen the NRC as it prepares to take on those challenges?

Mr. APOSTOLAKIS. I believe it has been mentioned several times that the role of a regulator is not always pleasant. I think a challenge is to be perceived as fair by all stakeholders, the industry and maybe the public interest groups. And I think that is a challenge that the Commission should continually try to achieve. I believe the number of applications for new reactors will be a challenge. The numbers we hear now are on the high side, I believe. And if they all come together the agency will need to—will be challenged to meet its obligations. I believe those two are probably the two in my mind right now.

Senator CARPER. And the second half of my question is, if confirmed, how would your membership on the Commission better prepare the Commission to meet those challenges?

Mr. APOSTOLAKIS. I intend to be actively involved in meeting both of these challenges. I do believe the agency is very open and transparent. We may want to become more transparent by deliberating in public. I believe making sure that licensing actions are taken in a timely fashion is a very important function. So I will also try to contribute to that.

Senator CARPER. Thank you, sir.

Mr. Magwood.

Mr. MAGWOOD. Senator Carper, I think that it is worth noting that the last U.S. nuclear power plant to get started and actually reach completion was started in 1973. As a result we have a situation in the United States where millions of people who have the expertise to build these plants are at or near or will pass retirement age. The expertise that exists in this country is spread very, very thin between the industry, the vendors, the Government and the Nuclear Regulatory Commission.

So I think one of the big challenges we have over the next 5 to 10 years is going to be sharing that talent with the ever expanding requirement and finding a way to transfer the knowledge and experience so that people who are at or near or beyond retirement age to these younger people who are just coming into the work force.

One of the things I did at DOE that I am very proud of is I worked very hard to expand the academic opportunities for students to get into nuclear engineering. There is now a significant number of students coming into the work force. But now we have to train those people. I fully intend to spend a lot of my time working with the NRC staff to try to transfer the knowledge and experi-

ence of these people to the younger people and that we are able to carry out our mission effectively.

Senator CARPER. Thank you.

Captain Ostendorff.

Mr. OSTENDORFF. Senator, I would agree with the comments of my colleagues. I would like to focus on just maybe two challenges and then talk about my background. The challenges I think that are most critical would be to simultaneously ensure the safe operation of our existing plants, many of which have some aging issues. There are some buried piping concerns, some license extensions to go from 40 to 60 years. Our existing fleet has some technical issues that have to be decided upon by the Commissioners after receiving proper technical support from the staff.

At the same time, looking at new plants. Balancing attention and making sure we have our eye on the ball for both sides of the equation, existing plants and new licenses, will be a big challenge.

As far as my own background, what I think I might bring, I have had significant technical experience working with nuclear reactors in the submarine force. I have been around, working as a staff member for Congress, I think in a bipartisan fashion, to get to solutions, to get to decisionmaking. The Defense Authorization Bill process for a number of years. And I have had significant management experience. I am looking forward to bringing those three experiences in my background to bear.

Senator CARPER. Good. Thank you, Captain.

Senator Alexander, I believe you might be next.

Senator ALEXANDER. Thanks, Senator Carper.

Let me ask each of the three of you a question about used nuclear fuel. I am tempted to ask you if you believe nuclear reactors can be operated safely but I think I would insult each of you if I did that. Mr. Ostendorff lived on top of one for a lot of his life. I assume you wouldn't be taking these positions if you didn't think they could be operated safely.

But let me ask you about used nuclear fuel, which is a concern that many people have. Mr. Apostolakis, how many years do you think that used nuclear fuel can be safely stored onsite while research determines the best way to perhaps recycle it or what its ultimate use could be?

Mr. APOSTOLAKIS. Senator, the prevailing thinking, and I don't have any reason to disagree with it, is that it is several decades. Some people are talking about even 100 years.

Senator ALEXANDER. Mr. Magwood, what is your opinion?

Mr. MAGWOOD. In principle certainly I think you can store spent fuel safely onsite for 50 or 100 years. But one thing I highlight is that when we first started storing spent fuel on reactor sites, no one was thinking it was going to be there 100 years. So I think we have to go back and take a look at what we have in place now and assure ourselves that it is able to stay in place for another 50 years if necessary.

Senator ALEXANDER. Mr. Ostendorff.

Mr. OSTENDORFF. Senator, the briefings I have had from NRC technical staff have indicated a range of 50 to 100 years.

Senator ALEXANDER. Two of you said that you didn't have an opinion really about recycling, and I understand that, because,

well, let me—I do, and Dr. Chu does, which is that during that time we should accelerate research and development for recycling of used nuclear fuel and find a better way of reducing its mass and its life than now exists, for example, in France, and that we have ample time to do that.

Let me ask this question. One of the elements of a decision that the Commission makes when it issues a license is whether it has confidence that the Federal Government is willing to live up to its responsibilities that it will take responsibility for the used nuclear fuel. Recently, we have all commented on the President's call for a new generation of reactors, his appointment of a commission to take whatever steps are appropriate on used fuel, your appointment, the loan guarantees, all those things. Mr. Magwood, are you comfortable that the Federal Government—or do you have confidence the Federal Government will ultimately accept its responsibility for dealing with used nuclear fuel?

Mr. MAGWOOD. The Federal Government signs contracts with utilities to take spent fuel eventually. It doesn't specify where it is going to take the fuel or how it is going to dispose of it. It just makes a commitment to take the spent fuel. And I think those commitments are solid enough to proceed, yes. I do have faith in the Government's commitment.

Senator ALEXANDER. To proceed with an otherwise appropriate new license?

Mr. MAGWOOD. With some appropriate disposition. And we have time, as you pointed out, to decide exactly what that is going to be.

Senator ALEXANDER. Mr. Apostolakis, what is your thought about that?

Mr. APOSTOLAKIS. I thought the issue of confidence was that eventually there will be a solution, a permanent solution. And I do have confidence in that.

Senator ALEXANDER. Thank you.

Mr. Ostendorff.

Mr. OSTENDORFF. I concur with my colleagues here.

Senator ALEXANDER. Thank you very much.

Now let me ask you just an overall question. All of you have broad experience with the nuclear industry. Why is it that the United States, which has invented nuclear power plants and gets 70 percent of its carbon-free electricity from them, at a time when we want lots of low cost electricity and are concerned about climate change, how is it, why is it that China is starting a plant every 3 months and the UAE and India and Great Britain and everybody else in the world seems to do it, and we haven't started a new plant in 30 years? What could you do as a Commissioner of the NRC appropriately to create an environment in which the United States could catch up with its own invention?

Mr. Apostolakis.

Mr. APOSTOLAKIS. I think a combination of factors contributed to this slowing down of the industry in the United States. First of all, we do have, at least in the last 30 years, alternative sources of energy. So the pressure of using nuclear power was not that great. I think Three Mile Island and Chernobyl did not help. Three Mile Island not only because of its consequences, which were really next to nothing, but there was a tremendous regulatory activity that fol-

lowed Three Mile Island that created regulatory instability and imposed tremendous costs on the industry.

This was a natural reaction, I think. I don't think there are any bad guys here.

And the other thing is of course that maybe our processes here are a bit more open than in other places, where they can make decisions much faster.

Senator ALEXANDER. Mr. Magwood.

Mr. MAGWOOD. I think that the biggest reason was because we simply didn't need to build much of anything in the last 30 years. We weren't just not building nuclear plants, we weren't building coal plants, we weren't building lots of things for many years. That is because we had a large over-supply of electric capacity left over from the 1970s that really has just gone away in the last couple of years.

I think that what we can do as NRC Commissioners, if we are confirmed, is to do our job well, to build the public confidence that the Government is doing its job to oversee safety, to provide a framework by which the industry can implement new nuclear power plants. That is what we can do. If we do what we are supposed to do, that is the best thing for the construction of new plants in this country.

Senator ALEXANDER. Mr. Ostendorff.

Mr. OSTENDORFF. Senator, I would say that the predictability and stability of the regulatory process is critical. That is part of our jobs if we are confirmed. In order for industry to be able to make some sound business decisions, strategic planning decisions, so to speak, we need to have an understanding of what the framework is, not just next month, but next year, 10 years, 20 years down the pike. To the extent that we can advance the stability and predictability issues, as Commissioners, I think that will be a significant achievement.

Senator ALEXANDER. Thank you, Mr. Chairman.

Senator CARPER. You are welcome. Thanks for your leadership on these issues.

Senator Cardin, thanks for yours as well.

Senator CARDIN. Mr. Chairman, thank you very much.

Again, let me thank our three nominees. I was impressed by your backgrounds and your careers before you appeared here today. It has only been reinforced by your responses to the questions. So once again, thank you.

I am going to follow up on Senator Alexander's and I think Senator Inhofe's point, and Mr. Ostendorff, your last point about predictability—I had a chance to question Dr. Chu when he was before the committee as to whether it is reasonable for us to expect that we can expedite the process for new nuclear power plants, that to have to wait 10 years to try to get a plan done is unrealistic. Investors aren't going to invest in that. You need predictability, as Mr. Ostendorff said. You need a process that does not compromise public safety. We understand that. We want to make sure that all of the procedures are followed.

But you need to have a process in place that leads to a conclusion. And it has been so long, there is not a confidence that that is in place in our country. We developed the technologies to have

safe nuclear power, and we obviously can get it done. But it requires a Nuclear Regulatory Commission that is committed for the process to work.

I questioned Dr. Chu as to what is a reasonable length of time. He said he would like to answer that question, but the NRC is an independent commission. So he doesn't have that type of authority. But you all will have that type of authority once you are confirmed. I just urge you to use that carefully so that we can move forward with nuclear capacity in this country and do it in a safe way.

Mr. Magwood, the other point that you mentioned, I think it is important, I think the commission can play a role here, we have to develop the underpinnings of a nuclear industry in this country that we sort of lost over the last 30 years, whether it is in the development of technology on our college campuses or whether it is the manufacturing capacity to be able to manufacture here in America the component parts for a nuclear facility, or whether it is how we deal with waste. You are correct, the thought was that it was going to be a relatively temporary storage. Well, now we are looking at it being a little bit longer term. So we need to make sure that we have the technologies and productions in place to be able to deal with waste.

And then last, the point that has been raised, Mr. Magwood, you had the most experience of any of the three, is on the re-processing issue. There is a lot of concern that re-processing could lead to proliferation. And we need to be able to have confidence if we are going to be doing re-processing that it can be done in a way consistent with what President Obama has said, and I think all of us agree that we want to prevent the proliferation of nuclear weapons in this world. So I really do think that you all are entering this public service at a critical point in our Nation's history as to whether we will get it right, whether we can put in place in a realistic time period, so investors and utilities can plan and invest, and our Nation can have an energy policy that not only makes us self-sufficient from the point of view of producing electricity but also does it in an environmentally friendly way, keeping jobs here in America.

So I just would urge you as you move forward in this, that your job is more than just looking at an application that comes down the road, but to develop a predictable system, where investors feel confident in, and develop a nuclear industry in America that will keep jobs here, keep technology here, and make sure we do it in a safe way, obviously first and foremost is public safety. But do it in a way that we can have a nuclear industry in America.

You all nodded as I was speaking.

[Laughter.]

Senator CARDIN. I just want the record to reflect, I got a lot of nods.

I do have another 47 seconds, if anyone wants to just—Mr. Magwood, since you are from Maryland, tell me what I want to hear here.

Mr. MAGWOOD. I think that there is a need, as you pointed out, for investors to have some confidence about how long it would take to deploy these plants. But I think that everyone should understand that we haven't done this in a long time. It is not just the

Government side that needs to figure out how to get this right; it is also the industry side. The two sides working together are going to take a little bit longer in this first go-around than maybe everyone would like. But I think that we will learn a lot from doing it.

So the next time that we get to applications, perhaps at some point in the future, I think it will be a lot more efficient process, a lot more predictable.

Senator CARDIN. I think that is the right answer. I think the industry expects that we are sort of doing this almost for the first time again. But I hope that the path that we follow will provide the predictability that Mr. Ostendorff mentioned, the confidence in safety that the public will demand so that we can in fact have nuclear power as part of our energy for the future of this Nation.

Thank you.

Thank you, Mr. Chairman.

Senator CARPER. Senator Boxer, I will report that we are down to Senator Klobuchar over here, and the gavel is yours. Thanks.

Senator KLOBUCHAR. Thank you very much.

My first question actually is about a bill that a number of us, a bipartisan group of Senators, are supporting, offered by Senator Mark Udall, to increase support for R&D of small, modular nuclear reactors. They could be manufactured on assembly line and therefore could be much cheaper than the large scale reactors that we are used to. Any thoughts on the prospect of these types of nuclear reactors becoming more mainstream?

Anyone can take it.

Mr. OSTENDORFF. Senator, I understand that the small, modular reactors are being looked at by industry. There are several different designs being considered. I also understand that the existing Commission has already taken a look to ensure that its licensing procedures are set up and ready to receive any licenses that they may receive for a small reactor. And I think it is something we will be watching very closely over the next few years as industry comes forward with some ideas. Hopefully there will be some R&D efforts that will help advance those initiatives.

Senator KLOBUCHAR. Thank you. One of the things that has happened because of the lack of new nuclear plant construction over the past decades is that there is also a lack of domestic nuclear engineers. That was one of the reasons that I co-sponsored the America Competes Act of 2007, which supports nuclear science programs. Anyone want to comment on what the status is of our domestic nuclear work force and what can we do to improve our work force expertise in this area?

Mr. Apostolakis.

Mr. APOSTOLAKIS. Thank you. Well, what we have seen at MIT the last 5, 6 years is the number of domestic applicants to the department has increased, and the quality also of the applicants has increased. From what I heard, the same thing is happening at other universities around the country.

Now, is the number adequate? I don't know. But it takes some time to reach that level.

Senator KLOBUCHAR. Mr. Magwood.

Mr. MAGWOOD. As I mentioned earlier one of the things that we were very proud of at DOE was helping to sort of spur the reju-

venation of some of the nuclear engineering programs. When I came into the Office of Nuclear Energy in 1998 there were about 480—I remember this number, because it was so startling—480 students in the entire country taking nuclear engineering. Today, I understand it is about 2,200. So there is a huge upsurge. I think that we are actually in pretty good shape when it comes to that aspect of it.

But the question is how do you get these people trained in practical ways to really carry out the various missions.

Senator KLOBUCHAR. When there has been this not actual construction going on, to the extent. Right. Like many nuclear power plants, we have two in Minnesota, actually, but one of them, Prairie Island Nuclear Power Plant, is the closest plant to an Indian reservation in the country. It is literally right next to it, adjacent. And it has had to store its radioactive waste onsite in dry casks above the ground, potentially creating environmental and security risks. What do you see as the short and long term solutions to the problem of nuclear waste storage?

Anyone want to take that one?

Mr. OSTENDORFF. Senator, I think just recently, and Senator Alexander mentioned this in his remarks, the Administration has stood up a blue ribbon commission. It was announced, I believe, the week before last, as far as its membership, that will be looking at alternatives for high level waste storage on a permanent basis. So it looks like there will be an effort to look at alternatives to prior plans. I think we are optimistic that there are technical solutions here. I don't think any one of us believes that there is a technical problem for which there is no solution. But I think we are optimistic that this commission will highlight potential options in a very constructive way and hopefully in a short time period.

Senator KLOBUCHAR. One last question. As part of NRC's efforts to streamline nuclear power plant construction, one change has been to certify standard plant designs, which will be effective for 15 years, and will be acceptable, independent of the specific site. Is there any concern that certain designs would not be effective in various regions? To me this sounds like a smart idea of how to expedite things. But just any comments that you have about this. Because as you know, the majority of new designs approved by the NRC have never been built or operated.

Mr. Magwood.

Mr. MAGWOOD. Well, I think what I would say is that even though there is a truly, I think, important effort to standardize the designs there are still lots of designs. So utilities have a pretty wide choice of different designs to choose from. I know that some have chosen plants because of the size and the impact on the thermal output that they would have on local lakes. There are different characteristics of all the plants. I think there is enough of a variety out there for the utilities to choose technologies that best suit their circumstances.

Senator KLOBUCHAR. OK. Thank you very much, all of you.

Senator BOXER [presiding]. Senator Merkley.

Senator MERKLEY. Thank you very much, Madam Chair. If this question has been asked then please let me know, and I will simply refer to the record and gain that information. We have in Oregon

a plant that was retired a few years ago. But it still has a tremendous amount of fuel rods stored onsite in dry casks. As my colleague from Minnesota was noting, these storage locations are across the country. What kind of security risks do they pose, and to what degree is the Nuclear Regulatory Commission a body that can help address that challenge?

Mr. APOSTOLAKIS. Senator, I know that the safety and security of these pools has been a matter of intense attention both by the Commission and various stakeholders. I have seen various studies that show that the pools are safe; other studies that dispute those. I don't know the details of all these to tell you to what degree these things are safe. But as long as the Commission allows them to be there the presumption is that they are safe.

Senator MERKLEY. Let me just comment that this shouldn't be an issue of presumption. It should be an issue of intense analysis and changing the policy if these comprise a risk to our Nation to have these dry casks spread around the country with very diverse security measures protecting them and the possibility of explosions, conventional explosions spreading nuclear materials through the Nation. I am very disturbed by a notion that we should just presume that they are safe.

Mr. APOSTOLAKIS. No, no, no, that's not what I meant. All these analyses are being done, and I am sure they will continue to be done. My only point is that an outsider, I would say that if they are allowed to be there, the Commission has approved them. So as a citizen, I have to presume they are safe.

Now, as a Commissioner, if confirmed, I may not take that attitude. I may look more carefully at the various studies, maybe ask for more studies, until I convince myself that they are indeed safe enough and secure enough.

Senator MERKLEY. Thank you.

Mr. Magwood, you have been a proponent of nuclear power. Do these storage sites pose a significant risk, and what can the Commission do to address the challenge?

Mr. MAGWOOD. The challenge of the spent fuel storage?

Senator MERKLEY. Yes.

Mr. MAGWOOD. I think that I mentioned a few minutes ago, I think that with the Administration's move toward a new decision-making progress regarding the disposition of spent fuel it is quite possible that some of the spent fuel storage facilities may have to be around for decades. As I mentioned a few minutes ago the United States wasn't thinking that spent fuel would stay on utility sites for 50 or 100 years. Now that that may be the case we have to go back and look and make sure that everything that is in place today is satisfactory for long term storage, and if it is not to take corrective actions as soon as possible.

Senator MERKLEY. Let me turn to another question. A few years ago, in 2002, a hole was discovered in a reactor head at the Davis-Besse Plant in Ohio. It surprised a lot of folks that that was able to happen. Does that provide any insights on the type of oversight that is needed in terms of reactor operations?

Mr. OSTENDORFF. Senator, my understanding is you are referring to the reactor vessel head corrosion problem, the leaks.

Senator MERKLEY. Yes.

Mr. OSTENDORFF. It was my understanding, and I have not been involved in the commercial nuclear industry, but that was a big wake-up call that indicated that there had been a sense of complacency with respect to investigating and taking care of action to stop leaks that the source. That is a very serious material issue, but it also has broader safety implications. I think there has been a lot of lessons learned and actions taken subsequent to the Davis-Besse incident that have been positive. At the same time the nature of these operations for existing plants is such that you can never take your eye off the ball. You have to every day continue to enforce that safety culture and have high expectations for technical competence and accountability.

Senator MERKLEY. Thank you all very much.

Senator BOXER. Thank you, Senator.

Now, everyone has had one round. I understand Senator Carper would like to ask a couple more questions. Senator Alexander, do you have any more questions?

Senator ALEXANDER. I think I will just listen. Thank you.

Senator BOXER. OK.

Senator Carper.

Senator CARPER. Dr. Apostolakis, here is a question for you. Let's go way back in time, Three Mile Island and think of the lessons learned that flowed from Three Mile Island that were relevant then but are still relevant today.

Mr. APOSTOLAKIS. I think that was a major milestone in nuclear power development in history. It showed that some of the hypothetical accidents that analysts were talking about in fact could happen to some extent. The core could be damaged. The containment system, though, worked very well. It contained the amounts of radioactivity that were released from the core. The psychological impact of the accident on the public and the professionals in nuclear engineering was tremendous.

I believe both the industry and the Commission learned a lot from the accident there. A lot of new regulations were established. And I believe we learned from it, and the industry is safer as a result of it.

Senator CARPER. Any other nominees want to respond to that? Lessons that are still relevant today.

Mr. MAGWOOD. I would just make a brief comment. One of the major lessons learned, not just from Three Mile Island, but through a lot of the problems and operations utilities had during the 1970s and early 1980s was that—the lesson learned was that management counts. Excellence in management at utility sites makes up for any—I should say, makes it possible to operate nuclear power plants. Whereas if you simply rely on technology you will find that mistakes will always be made.

I think the most important thing we learned over the last several decades is good management, good people, well trained people. It always comes back to people. I guess I would rather have an excellent staff of great managers operating a so-so technology as opposed to a great technology operated by people that didn't know what they were doing. That is, I think, one of the big lessons we learned.

Senator CARPER. Thank you.

Captain Ostendorff.

Mr. OSTENDORFF. Senator, one specific component I would mention is that of operator training. I think one of the lessons learned out of Three Mile Island is that the operators at the plant did not really understand what really was the root cause of the phenomenon they were observing, what were the indications, what caused those physical conditions. As a result, at least I saw it in the naval nuclear propulsion program, in the 5-year period after that accident, I saw an increased emphasis on operator understanding of the physical principles of heat transfer, fluid flow, reactor kinetics, to ensure that everybody really understood what was the theoretical basis and engineering basis behind the procedures.

Senator CARPER. All right, thanks.

Let's talk a little bit about tritium. From time to time we have reports of leakage, and tritium being found in the water that surrounds some of our nuclear power plants. Most recently we have heard some reports out of Vermont Yankee that have raised some concerns there. Would you take a moment, I don't care who answers this, but take a moment to talk to us about tritium, what kind of threat does it pose to us as human beings? If it is in our groundwater, should it be in our groundwater? As I understand it trace elements are already in groundwater in a number of places. Just talk to us about the kind of threats it poses to human health in low quantities or high quantities. What should the NRC be thinking and doing with respect to these leakages?

Mr. APOSTOLAKIS. I think the NRC should make sure that the buried pipes from which the tritium was leaking remain intact, that there should be programs of some sort or something in the regulations that will make sure that these pipes do not leak. I don't think that any leaks are acceptable.

Senator CARPER. Mr. Magwood. Captain Ostendorff.

Mr. MAGWOOD. One example I draw from my past experience when I think about this issue is a case in New York. We had a reactor in New York at the Department of Energy called Brookhaven National Laboratory that developed a tritium leak. All the analysis from all the scientists said the tritium leak posed no threat to human health, no threat to anything offsite. But what I learned from that experience was that that wasn't really the point. The point was that the public lost confidence in the ability of the Department of Energy to operate the facility safely. And as a result the facility was shut down, a very, very valuable piece of research equipment was lost to the country.

When I think about these other cases we hear about around the country I think that people need to understand that the public views these kinds of problems as an indication of a deeper management problem at the plants. So one of the things that I will certainly do if I am confirmed is to make that point very clearly to people operating nuclear power plants that it isn't the point that it is not hurting anyone. The point is showing that you don't have your act together. That is the most important thing.

Senator CARPER. Thank you.

Captain.

Mr. OSTENDORFF. Senator, I would agree with my colleagues' comments and just add that the radiation hazard here is not exter-

nal radiation to the body. It is an issue from a health perspective if tritium is ingested. So it is a real concern if it is present in the drinking water. But if tritium were just in my glass on the desk and I never drank that it would not be a radiation health hazard to me.

That said, I completely agree with Bill Magwood about his comments on the public confidence and the public education aspects of ensuring that this is dealt with in a serious, concerted manner to resolve the issue.

Senator CARPER. Thank you all.

Senator BOXER. Any other Senators? Well, I have just one, a couple of questions I have to ask you, for all nominees. And I will ask you each to say yes or no.

Do you agree, if confirmed by the Senate, to appear before this committee or designated members of this committee and other appropriate committees of the Congress, and provide information subject to appropriate and necessary security protection with respect to your responsibilities?

Mr. APOSTOLAKIS. Yes, I do.

Mr. MAGWOOD. Yes.

Mr. OSTENDORFF. Yes.

Senator BOXER. Do you agree to ensure that testimony, briefings, documents, and electronic and other forms of communication are provided to this committee and its staff and other appropriate committees in a timely fashion?

Mr. APOSTOLAKIS. I do.

Mr. MAGWOOD. Yes.

Mr. OSTENDORFF. Yes.

Senator BOXER. Do you know of any matters which you may or may not have disclosed that might place you in any conflict of interest if you are confirmed?

Mr. APOSTOLAKIS. I do not.

Mr. MAGWOOD. No.

Mr. OSTENDORFF. No.

Senator BOXER. OK. And I understand Senator Merkley has one more question.

Senator MERKLEY. Thank you very much, Madam Chair.

I wanted to ask about the exploration of different designs that might inherently increase the safety of nuclear power and therefore also might reduce its cost. There is a group of engineers in Oregon working under the title New Scale Power. It is a complete redesign of a nuclear reactor, it creates essentially a silo in the ground. The reactor core is hung in a manner that reduces its vulnerability to earthquakes. It is all gravity-fed water systems, so there is no pump failure. It has the ability to remove the copper tubing design, if you will, a major issue that shut down Trojan, and replace it as a complete tubing replacement, almost like an element that is pulled out and inserted. Because it is below ground it may provide greater ability to provide protection from terrorist threats.

Such designs, I am sure there are other groups around the country that have been looking at significantly different approaches. But to what degree does the Nuclear Regulatory Commission, in each of your visions should they be promoting or exploring designs

that may differ substantially from commercial reactors of today but might hold promise for far greater security in the future?

Mr. MAGWOOD. I think this type of work is very important. As a matter of fact, New Scale began as part of a research program that I started back when I was at DOE. It is the type of research that really can set the stage for the longer term future. Today, there is a lot of work to do. But 10 years from now, 20 years from now, who knows. That may become the standard for nuclear power in the future. I think we have to encourage this, and I look forward to seeing these types of activities move into the commercial sphere.

Mr. APOSTOLAKIS. I believe the Commission and its staff should be informed at all times on the activities that you mentioned, in Oregon and other places, and be prepared, make sure that the Commission and the staff are prepared to do a good review of an application when it comes to the Commission for a design certification or for maybe a combined license application.

So as a Commissioner, if confirmed I will make sure that this happens.

Mr. OSTENDORFF. Senator, I am no familiar with the New Scale design. But I will look into that if I am confirmed. I certainly think it is the Commission's job, writ large, to make sure that they are up to speed on the current thinking of industry and design engineers as to what might be in the realm of the possible and to be actively engaged in understanding technically what is being worked on so they are prepared to deal with a licensing application.

Senator MERKLEY. Thank you.

Madam Chair, do we have time for one more question?

Senator BOXER. Yes.

Senator MERKLEY. Mr. Magwood, I thought it would be useful to follow up on the Chair's statement on conflict of interest. Just for the record, has your consulting work with Secure Energy North America Corporation or Advanced Energy Strategies, any of those companies that you have worked for, are they in any, is there any possible projects underway that would come before the NRC that would pose any form of conflict of interest?

Mr. MAGWOOD. No.

Senator MERKLEY. Thank you.

Senator BOXER. Gentlemen, you have been very forthcoming. We are very appreciative. You have until next Tuesday, February 16th, to submit the answers to our written questions. There may not be any; I may have one or two. As soon as we get those back it is my intention to work with colleagues to move your appointments very quickly. Again, we really want to thank you. I am sorry, we have until the 16th, you have until the 23rd. Thank you for the correction, Laura.

And I want to just revisit a couple of things with colleagues here. Just a reminder, we do have a hearing this afternoon on two appointees. One is the Inspector General, EPA, and the other is the Appalachian Regional Commission and Northern Border Regional Commission. If Senator Alexander ascertains that the TVA nominees are in town, he had now asked if we could do the hearing at 4. So stand by for that.

I also wanted to inform colleagues, and this is very good news for us, that AASHTO, which is the group that represents the State highway and transportation folks that we work with so closely at home, they have released a new report today, Senators. They are basically saying that the stimulus bill was very successful, that it created hundreds of thousands of jobs. They have it actually summarized here. And all the various projects, they say that they are asking for another jobs bill, and they are making the point that the infrastructure, although it was only about 6 percent of our bill, created about 25 percent of the jobs. That is what they are saying.

So it is a very good report. I won't put it in this record because this is a different subject. But anybody who wants to see this report, it is called Projects and Paychecks: a One Year Report on State Transportation Successes under the American Recovery and Reinvestment Act. I feel, since there has been so much controversy about whether we have—I don't understand how people could say you don't create jobs when you rebuild your infrastructure. It is counter-intuitive, and it turns out it is absolutely wrong to say that. They are looking at over 10,000 projects that were completed, they are looking at who the people are that got the jobs. I have this study here if you want to get your hands on it.

I think that concludes everything. Remember, we are not going to have our hearings that we originally were going to have on Thursday and Wednesday. So we are going to do everything today and put off the others until we get back.

Does anybody else have any questions, comments? If not, thank you so much. We stand adjourned. And to our friends at the table, thank you very much.

[Whereupon, at 11:50 a.m., the committee was recessed, to reconvene later the same day.]

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