

ZOI, BRINKMAN, AND CASTLE NOMINATIONS

HEARING BEFORE THE COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

ON

THE NOMINATIONS OF CATHERINE RADFORD ZOI, TO BE AN ASSISTANT SECRETARY OF ENERGY (ENERGY EFFICIENCY AND RENEWABLE ENERGY), THE NOMINATION OF WILLIAM F. BRINKMAN, TO BE DIRECTOR OF THE OFFICE OF SCIENCE, DEPARTMENT OF ENERGY, AND THE NOMINATION OF ANNE CASTLE, TO BE AN ASSISTANT SECRETARY OF THE INTERIOR (WATER AND SCIENCE)

JUNE 2, 2009



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ZOI, BRINKMAN, AND CASTLE NOMINATIONS

TUESDAY, JUNE 2, 2009

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 2:20 p.m. in room SD-366, Dirksen Senate Office Building, Hon. Jeanne Shaheen presiding.

OPENING STATEMENT OF HON. JEANNE SHAHEEN, U.S. SENATOR FROM NEW HAMPSHIRE

Senator SHAHEEN. Good afternoon everyone. For those of you who follow the Energy Committee, you know that I'm not the person who usually sits here. Senator Bingaman and a number of members of the committee have been called to the White House.

So I am going to be filling in and chairing this hearing. I'm Jeanne Shaheen, a Senator from New Hampshire. Let me just tell you what's going to happen this afternoon.

We're going to introduce the nominees briefly. Then I'm going to ask Senator Murkowski if she would like to make a statement and turn it over to Senator Udall to introduce Anne Castle. Then ask you all to take an oath and answer several standard questions.

Then we will ask each of you to give your testimony and open up for questions. So that's the process this afternoon. I will point out that the committee meets this afternoon to consider three nominations for offices in the Department of Energy and the Department of the Interior.

The 3 nominees are Catherine Radford Zoi, to be an Assistant Secretary of Energy for Energy Efficiency and Renewable Energy.

William F. Brinkman, to be the Director of the Office of Science at the Department of Energy.

Anne Castle, to be an Assistant Secretary of the Interior for Water and Science.

Ms. Zoi has worked on energy issues for the past 20 years. She helped establish the Energy Star program at the Environmental Protection Agency in the early 1990s and was Chief of Staff at the Council on Environmental Quality in the early years of the Clinton administration and served in senior government and private sector positions in Australia promoting renewable and sustainable energy.

Most recently she's been the Chief Executive Officer of the Alliance for Climate Protection which promotes improved energy efficiency and increased use of renewable energy. I have to point out that she's also a Dartmouth grad.

Dr. Brinkman is a distinguished physicist who spent 35 years at Bell Laboratories and has been a Senior Research Physicist at Princeton University for the past 8 years. Welcome.

Ms. Castle is a partner in the law firm of Holland and Hart in Denver, Colorado where she has specialized in the field of water rights and water quality law for over 25 years.

All 3 of the nominees are extremely well qualified and will bring considerable expertise and decades of experience to the positions to which they've been nominated. I would also like to point out that for those of you who have your family here, welcome to all of your family members. We will ask you if you would like to introduce them before your testimony.

[The prepared statement of Senator Bunning follows:]

PREPARED STATEMENT OF HON. JIM BUNNING, U.S. SENATOR FROM KENTUCKY

Thank you Mr. Chairman. I would like to welcome all of the nominees today.

You've all been nominated to important and challenging assignments at the Department of Energy and the Department of the Interior.

We are at crossroads in our nation's energy policy. I have long said that we have resources and innovation to develop our domestic energy industry in a way that is more efficient and environmentally sound.

We must, however, develop all of our resources and not get into a political "name game" of what energy sources to use. We must be careful not to let the government pick the winners and losers in this debate.

Just turn on your TV's and you can see what success we have had in regulating our banking system.

I believe that we should set goals and targets that industries should meet and then let the marketplace decide how we should best meet them.

As my colleagues know, we are in the midst of writing landmark energy legislation. It will impact nearly every part of the energy industry and I hope will encourage the development of cleaner technologies for coal, nuclear energy and renewable.

The nominees before us today will fill positions that are central to implementing these new policies.

I look forward to working with these nominees in their new positions with the DOE and DOI.

Thank you Mr. Chairman.

Now, Senator Murkowski.

**STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR
FROM ALASKA**

Senator MURKOWSKI. Thank you, Senator Shaheen. I'm glad to say and I think our nominees will be glad to hear that all but one of the nominees that have been reported by this committee to date have now been cleared through the Senate calendar. I have always believed and I continue to believe the President deserves to have the people of his choice to fill the key positions in the administration.

We've had some discussion over the past few weeks regarding the need for the administration and its nominees to give clear answers to legitimate questions regarding the policies and actions of the administration. I'm happy to say that, so far, we have resolved our concerns to most everyone's satisfaction. Today we've got a new set of nominees.

I had an opportunity to look at your credentials and I welcome each of you to the committee here this afternoon, obviously new set of questions to be propounded to each of you respectively.

It's probably fair to say that some of the issues that we raise may hit upon some controversial topics, and in some cases we may

ultimately have differences of opinion. Again, it's my position that clear and open communication is the key to Senate confirmation here.

I look forward to the conversation that we will have today. Again, I welcome you very much and appreciate your willingness to go through this process and to serve. Thank you.

Senator SHAHEEN. Thank you.

Senator Udall.

**STATEMENT OF HON. MARK UDALL, U.S. SENATOR
FROM COLORADO**

Senator UDALL. Thank you, Madame Chair. Good afternoon to all of you that have gathered here today. I have the pleasure of introducing an extraordinary Coloradan, Ms. Anne Castle for confirmation to the important post of Assistant Secretary for Water and Science.

Anne has over 25 years of experience in water and natural resources law. The Colorado Bar voted her the best water lawyer in 2004. She's been listed in the best lawyers in America for water law both in 2007 and 2008. Those are the first years that the water category was actually included on that list.

In 2008 she was selected by the Women's Vision Foundation to receive its Women's Woman of Vision award and was featured in Law Practice Management magazine in its leadership profile. She was also appointed by two Colorado Governors, Bill Ritter and Roy Romer, to address numerous questions of water access and water quality on the commissions that were detailed to do so. She has an impressive resume.

I could go on at some length. But what sticks out the most about Anne is her proven capacity to build consensus among a broad range of stakeholders. As a lawyer her clients, and this is an interesting list, have included small and large municipal districts, waste water treatment providers, farmers and ranchers, mining companies, ski areas, real estate developers, water and conservation districts, lenders and operators of industrial and commercial facilities. That pretty well covers the water front, particularly in our State of Colorado.

Madame Chair, if there's one thing I know about water, it takes a special kind of leader to reach consensus with such disparate groups and come back for more. This is the kind of leadership we need at Interior. It's the kind of leadership that our colleague Senator Salazar has provided there at Interior. It's the kind of leadership that Anne Castle offers.

When you grow up in the desert, as I did, and as Anne has, you learn to treasure water. You realize it's really our most precious resource. As we combat the problems of water availability and water quality, the problems will only be exacerbated by climate change.

We'll need someone with her vision, her experience. We need somebody who is capable of finding pragmatic solutions to difficult problems and building broad consensus. Again, Anne has demonstrated this again and again throughout her career.

These challenges of water availability and quality won't be isolated to the West as we move forward. I believe having a Westerner, especially one who is one of the Nation's foremost experts on

water and natural resource law leading the fight offers a unique chance for success. So I'm very proud and pleased to support her confirmation. I encourage the committee to do likewise.

Welcome Anne. I look forward to your testimony.

Senator SHAHEEN. Thank you, Senator Udall. Now the rules of the committee which apply to all nominees require that they be sworn in in connection with their testimonies. So I would ask if you all would please stand and then raise your right hand.

Do you solemnly swear that the testimony you are about to give to the Senate Committee on Energy and Natural Resources be the truth, the whole truth and nothing but the truth?

[All nominees answered in the affirmative.]

Senator SHAHEEN. You may be seated. We also have some standard questions that we ask each of you to answer. So before you begin your statement I will ask three questions addressed to each nominee before this committee.

We'll begin with Ms. Zoi.

Will you be available to appear before this committee and other congressional committees to represent departmental positions and respond to issues of concern to the Congress?

Ms. ZOI. I will.

Senator SHAHEEN. Mr. Brinkman.

Mr. BRINKMAN. I will.

Senator SHAHEEN. Ms. Castle.

Ms. CASTLE. I will.

Senator SHAHEEN. Are you aware of any personal holdings, investments or interests that could constitute a conflict of interest or create the appearance of such a conflict should you be confirmed and assume the office to which you've been nominated by the President?

Ms. ZOI. All of my personal assets have been reviewed both by myself and by appropriate ethics counselors within the Federal Government. I've taken appropriate action to avoid any conflicts of interest.

Senator SHAHEEN. Thank you.

Mr. Brinkman.

Mr. BRINKMAN. All my personal assets have been reviewed both by myself and by appropriate ethics counselors within the Federal Government. I've taken appropriate action to avoid any conflicts of interest.

Senator SHAHEEN. Ms. Castle.

Ms. CASTLE. My investments, personal holdings and other interests have been reviewed both by myself and the appropriate ethics counselors within the Federal Government. I've taken appropriate action to avoid any conflicts of interest. There are no conflicts of interest or appearances thereof to my knowledge.

Senator SHAHEEN. Thank you. The third question. Are you involved or do you have any assets held in a blind trust?

Ms. ZOI. No, I don't.

Mr. BRINKMAN. No, I don't.

Ms. CASTLE. No.

Senator SHAHEEN. Thank you all. We will ask if each of you would begin your statements. Again we will begin with Ms. Zoi.

If you would like to introduce any family members please do that before you begin your statement. Thank you.

Ms. Zoi.

STATEMENT OF CATHERINE R. ZOI, NOMINEE TO BE AN ASSISTANT SECRETARY OF ENERGY, ENERGY EFFICIENCY AND RENEWABLE ENERGY, DEPARTMENT OF ENERGY

Ms. ZOI. Thank you, Chairwoman Shaheen.

I'd like to introduce my husband, Robin Roy, of nearly 22 years. My daughter, Sussha, who is about to graduate from high school next year. Her big brother couldn't be here because he is in exams at Stanford at the moment. But the real young leader of tomorrow, my niece, Haley who is 11 is with us today.

Chairwoman Shaheen, Ranking Member Murkowski and distinguished members of the committee, it's an honor and a privilege to appear before you today as President Obama's nominee for Assistant Secretary of Energy Efficiency and Renewable Energy. I'm grateful to the President and to Secretary Chu for their confidence in entrusting me with this important and challenging assignment.

I've been immersed in the energy field for over 25 years working across energy resources on a range of issues in the private, public and non-profit sectors. As a young geologist I worked for an independent oil company helping the exploration team identify new resource prospects. After studying natural gas markets and completing a graduate degree in engineering I joined what was then the largest investor owned utility in the country, Pacific Gas and Electric. I later moved to Washington where I worked as a consultant helping utilities manage their generating resources and plan for future needs.

This broad experience in the private sector helped to inform the next phase of my career working in the Federal Government. After joining the U.S. EPA I was proud to lead the team that created the Energy Star program. A small team of committed government officials worked closely with the private sector partners to help unlock what I still believe is the single largest untapped and immediate energy opportunity in this country: improved efficiency.

After serving in President Clinton's White House I moved with my family to Australia where I spent time in both the government and private sectors immersed in renewable energy startups, green power programs, sustainable urban planning and most recently smart metering. Returning to the U.S. I made my first foray into the non-private sector 2 years ago when former Vice President Gore asked me to be the founding CEO of his newly formed alliance for Climate Protection. Applying my management and startup experience, I worked with a bipartisan board of directors to prepare a business plan, raise funds, hire staff and build an education campaign that attracted over two million members.

After 25 years of broad professional experience in the energy field, I'm extremely excited about the possibility of joining the Obama administration and bringing that experience to bear on the challenges that we face today. Meeting President Obama's energy and climate goals will require a broad range of energy resources. I support his vision and Secretary Chu's vision for a more diverse,

environmentally sustainable and economically productive energy system.

That system will, of course, continue to rely on nuclear, coal, oil and natural gas for some time. But we also need to rapidly increase our reliance on energy efficiency and renewable energy. If I'm confirmed as Assistant Secretary for Energy Efficiency and Renewable Energy it will be my goal to maximize our Nation's use of these resources.

The potential is enormous. I strongly believe that increased use of both efficiency and renewables will not only improve our energy security and reduce carbon emissions, but it will also spur innovation, restore U.S. leadership in these industries and create jobs.

Federal leadership is essential to creating the conditions for meeting these goals. If confirmed I look forward to joining Secretary Chu and my other DOE colleagues and working closely with the members of this committee. Together we can craft energy solutions that serve the American people well for this generation and for generations to come.

[The prepared statement of Ms. Zoi follows:]

PREPARED STATEMENT OF CATHERINE R. ZOI, NOMINEE TO BE AN ASSISTANT SECRETARY OF ENERGY, ENERGY EFFICIENCY AND RENEWABLE ENERGY, DEPARTMENT OF ENERGY

Chairman Bingaman, Ranking Member Murkowski, and distinguished Members of the Committee, it is an honor and a privilege to appear before you today as President Obama's nominee for Assistant Secretary of Energy for Energy Efficiency and Renewable Energy. I am grateful to the President and to Secretary Chu for their confidence in entrusting me with this important and challenging assignment. If confirmed, I look forward to working with the members of this Committee and the talented leadership team at the Department of Energy to deliver on the President's vision of an energy future that is secure, economically robust and environmentally sound.

I would like to introduce my husband of nearly 22 years, Robin Roy, and my daughter Susha, who will be graduating from high school next week. Susha's big brother, Wyatt, is in exam period at Stanford and couldn't be here today.

I have been immersed in the energy field for over 25 years, working across energy resources on a range of issues in the private, public and non-profit sectors. As a young geologist I worked for an independent oil company, helping the exploration team identify new resource prospects. After studying natural gas markets and completing a graduate degree in engineering, I joined what was then the largest investor-owned utility in the country—Pacific Gas and Electric—and worked on a wide range of planning issues: cogenerating power from the vast enhanced oil recovery operations of California, pricing natural gas in newly deregulated markets, and demand forecasting that takes account of shifting technology and customer behavior. I later moved to Washington, where I worked as a consultant on electricity systems, helping utilities manage their generating resources and plan for future needs.

This broad experience in the private sector helped to inform the next phase of my career, working in the federal government. After joining the U.S. EPA, I was proud to lead the team that created the Energy Star program. A small team of committed government officials worked closely with private sector partners to help unlock what I still believe is the single largest untapped and immediate energy opportunity in this country: improved efficiency. On the strength of this vast potential for energy efficiency, in 1991 our team demonstrated to the White House of President George H. W. Bush that signing the International Climate Convention at the Earth Summit in Rio made sense for the nation—both economically and environmentally.

After serving in President Clinton's White House, I moved with my family to Australia—where I spent time in both the government and private sectors, immersed in renewable energy start-ups, green power programs, sustainable urban planning and most recently, smart metering.

Returning to the United States, I made my first foray into the non-profit sector two years ago when former Vice President Gore asked me to be the founding CEO of his newly-formed Alliance for Climate Protection. Applying my management and

start-up experience, I worked with the bipartisan board of directors to prepare a business plan, raise funds, hire staff, and build an education campaign that attracted over two million members.

After 25 years of broad professional experience in the energy field, I am extremely excited about the possibility of joining the Obama administration and bringing that experience to bear on the challenges we face today.

Meeting President Obama's energy and climate goals will require a broad range of energy resources, and I support his vision and Secretary Chu's vision for a more diverse, environmentally sustainable and economically productive energy system. That system will of course continue to rely on nuclear, coal, oil and natural gas for some time, but we also need to rapidly increase our reliance on energy efficiency and renewable energy. If I am confirmed as Assistant Secretary for Energy Efficiency and Renewable Energy at the Department of Energy, it will be my goal to maximize our nation's use of these resources.

The potential is enormous. I strongly believe that increased use of both efficiency and renewables will not only improve our energy security and reduce carbon emissions—it will also spur innovation, restore U.S. leadership in these industries, and create jobs. The Recovery Act makes a significant down payment in this regard. By continuing to match our goals for clean energy with the need to grow our economy, we can direct investment into energy infrastructure that can be ramped up and deployed quickly and efficiently.

Federal leadership is essential to creating the conditions for meeting these goals. If confirmed, I look forward to joining Secretary Chu and my other DOE colleagues in working closely with the members of this committee. Together, we can craft energy solutions that serve the American people well, for this generation and for generations to come.

Senator SHAHEEN. Thank you.

Mr. Brinkman.

STATEMENT OF WILLIAM F. BRINKMAN, NOMINEE TO BE DIRECTOR OF THE OFFICE OF SCIENCE, DEPARTMENT OF ENERGY

Mr. BRINKMAN. Thank you. I'd like to introduce you to my wife, Sabilla and her daughter, Stephanie and her granddaughter, Becca. They're sitting with us today.

Chairman Shaheen, Senator Murkowski, distinguished members of the committee, it's an honor and privilege to appear before you today as President Obama's nominee for the Director of the Office of Science in the Department of Energy. I want to thank President Obama for asking me to join his administration and Secretary Chu for his confidence in me to become part of the Department of Energy. I look forward to working with you and various parts of the government in advancing United States leadership in science and technology.

I joined Bell Laboratories early in my career. At first I conducted theoretical research in physics and materials, but soon went into research management. There I learned how to recruit and support some of the best researchers in the field and inspire them to greater accomplishments. It was a truly exciting time to be part of what was probably the best research institution in the world. During my time at Bell Laboratories in management there were—the research there led to two Nobel prizes, one of which was Secretary Chu's, and to a Japan Prize.

As AT and T began to split into smaller units, it became imperative to drive research results toward applications. In the 1990s, I led a research organization to develop many of the components and systems used in optical communications today. Besides that we worked on a broad set of applications including semiconductor processing and wireless communications.

We started an internal venture organization that transformed orphaned technologies within the company into new commercial ventures. The experience gained in this work will, I believe, be highly valuable as Director of the Office of Science where it is very important to solve some of the most pressing societal problems while also ensuring that fundamental research is encouraged and supported.

In the mid-1980s I served as Vice President of Research at Sandia National Laboratories. It was an opportunity to get first-hand knowledge of how a national laboratory functions. I am proud of the accomplishments during my time at Sandia including the expansion of the computer science effort, which was just beginning in those days. This assignment and the many national laboratory advisory committees on which I've subsequently served gives me insights into the true strengths of the DOE and its laboratory system.

In conclusion, I look forward to working with you and President Obama's administration in maintaining the United States at the forefront of science and technology and in pursuing the administration's energy agenda both of which are vital to the prosperity and security of our Nation. Thank you.

[The prepared statement of Mr. Brinkman follows:]

PREPARED STATEMENT OF WILLIAM F. BRINKMAN, NOMINEE TO BE DIRECTOR OF THE
OFFICE OF SCIENCE, DEPARTMENT OF ENERGY

Chairman Bingaman, Senator Murkowski and distinguished members of the committee, it is an honor and privilege to appear before you as President Obama's nominee for Director of the Office of Science in the Department of Energy.

I want to thank President Obama for asking me to join his administration and Secretary Chu for his confidence in me to become part of the Department of Energy. I have followed Secretary Chu's career from the beginning and admire his intelligence and accomplishments. If confirmed, I would be proud to join him and the exceptional team that he is assembling to work tirelessly to advance the revolution in energy technologies, to understand nuclear technologies, and to continue basic scientific research in the 21st century.

The Office of Science, with its ten National Laboratories and broadly funded university research program, has been the source of many outstanding discoveries that have defined our current understanding of the most fundamental aspects of nature, have helped define the structure of the cosmos and have led to a deep understanding of many important materials. The National Laboratories have established facilities that have played crucial roles in characterizing both the basic constituents of nature, such as quarks and gluons, but also materials such as the high-temperature superconductors. The new development of an x-ray laser at SLAC National Accelerator Laboratory is just one more example of these accomplishments. The laboratories have also contributed to the technical advances in energy, nuclear security and nonproliferation. There are many more discoveries to be made, and I look forward to being a part of those discoveries.

I would bring to the Department decades of experience in managing scientific research in government, academia and the private sector. After graduating from the University of Missouri and spending a year as a National Science Foundation postdoctoral fellow at Oxford, I joined Bell Laboratories, where I spent most of my career. In the early days I was doing theoretical physics but soon began a career in management. I learned how to hire and support some of the best researchers in the field and to inspire them to greater accomplishments. This was truly an exciting time to be a part of what at that time was perhaps the best research institution in the world. Research at Bell Laboratories during my tenure led to two Nobel prizes, one of which was Secretary Chu's, and to a Japan Prize.

As the company began to split into smaller units it became imperative to drive toward applications, and I led a research organization in the 1990's that developed many of the components and systems used in optical communications today. In addition, we worked on semiconductor processing and wireless communications. We also started an internal venture organization that took orphaned technologies and formed new ventures. I believe that this experience will be highly valuable at the

Office of Science, where I would seek to continue the tradition of strong fundamental research while at the same time working to apply that research to solving our energy problems.

In addition to working at Bell Labs, I have experience with supervising government research and with the national laboratory system. In the middle 1980s I served as vice president of research at Sandia National Laboratories. This was an opportunity to get first-hand knowledge of how our national laboratories function. I am proud of the accomplishments during my time at Sandia, including the expansion of the computer science effort. This assignment, and the many laboratory advisory committees on which I subsequently have served, gives me insights into the true strengths of the DOE and its laboratory system.

Although the DOE has had many research successes and accomplishments, I believe that we can improve management, and the relationship between headquarters and the laboratories. If confirmed, I will strive to make the management as straightforward and effective as possible, recognizing the difficulty inherent in the unique, cutting edge projects that DOE takes on.

We must also improve science education of our youth. The importance of science and engineering education to our Nation's prosperity and security has been emphasized in numerous recent studies, for example, the recent "Rising Above the Gathering Storm" study by the National Academies of Science and Engineering. DOE's Office of Science, through its university and national laboratory programs, provides significant opportunities for students and young people that help attract young people to science, engineering and technology work.

Powerful nations have relied on new technologies to allow them to stay ahead in the world, and the history of the US has been no different. However, we now find a world in which science and technology is being pursued by many nations while the U.S. interest has seemed at times to have waned. I believe that President Obama is determined to change this situation and place a new emphasis on a strong scientific and technical enterprise. We are clearly confronted with difficult challenges whether in energy, nonproliferation or nuclear security. However, we must also advance our basic knowledge to explore the possibilities of new sources of energy such as magnetic fusion and fusion/fission and to discover new approaches to batteries and photocells. We must continue exploring what makes up our universe—what is dark matter and dark energy? Why is the universe expanding more rapidly? In materials we must find out what we can do with nanoengineered materials. They show great promise to change much of our lives, as have many materials advances before them.

In summary, if confirmed, I will bring to the Office of Science a commitment to scientific research and development that is based on many years of experience. My thanks to the chairman and members of the committee for giving me this opportunity to speak with you and, if confirmed, I will do my best to work with you and the rest of Congress to move forward on the issues discussed above.

Senator SHAHEEN. Thank you, Mr. Brinkman.
Ms. Castle.

STATEMENT OF ANNE CASTLE, NOMINEE TO BE AN ASSISTANT SECRETARY OF THE INTERIOR, WATER AND SCIENCE, DEPARTMENT OF THE INTERIOR

Ms. CASTLE. Thank you, Madame Chairwoman. Let me introduce my husband, Frank Davies and our daughter, Beth and my brother Tom Castle. Our son, Chris, is also studying for his finals in California in college, so he couldn't be with us today.

I want to thank Senator Udall for his lovely introduction. I am humbled by the confidence shown in me by President Obama through his nomination of me for Assistant Secretary for Water and Science. I'm very grateful for the support of my family and my friends and my colleagues. That support has allowed me to be here today.

My career in water law started with my graduation from the University of Colorado law school. But my interest in water resources and administration started well before that. I grew up sailing and swimming in a small Colorado lake. My father served on

the board of the water district that provided water to our houses in the community and to the lake itself. Our family skied in the Colorado Mountains where the winter snow pack forms the reservoir that supplies downstream watersheds later in the year.

This committee and the Congress have recognized the challenges confronting western water supplies through the SECURE water provisions of the Omnibus Public Lands Act. That law calls for the development of climate change adaptation strategies for major river basins so that whatever the future brings our water systems can adjust. The two bureaus within the Water and Science Office, the Bureau of Reclamation and the U.S. Geological Survey, are critical players in those efforts. I'm looking forward to being involved in this process that, I believe, is critical to the future of our country.

Water conservation is increasingly part of the national discussion. Conservation of water equals conservation of energy. Conservation of energy also decreases energy related water-use. The Bureau of Reclamation should be leading the way in crafting those conservation strategies.

What a treat to have the opportunity to work with the USGS. My father-in-law started his career as a geologist with the USGS in Alaska. My husband followed in his father's footsteps as a geologist as well. As an agency without regulatory or management responsibilities the USGS is perfectly positioned to provide objective, science-based research that can form the basis for policy decisions.

I've had some management experience that should be valuable in this effort. In 2001 my partners elected me to lead the law firm of Holland and Hart which now has about 420 lawyers and a staff of over 800. I'd like to think I learned a lot about leading people and earning their trust through hard work and honest communication.

A summary of my background wouldn't be complete without mentioning my involvement in legal services. Ever since I became a lawyer I've worked with the programs that provide representation to poor people in Colorado. I've been on the boards of various legal aid organizations for over 25 years. I believe very strongly that lawyers have an ethical responsibility to provide their knowledge and expertise to people who can't afford to pay.

All of these efforts, legal, management and public service, require the reconciling of disparate interests, fostering a willingness to recognize the validity of the claims of others and to compromise to achieve the greater good. The water and science issues facing Interior are difficult, complex and even emotional. I'm hopeful that the experiences that I've had in the past will be useful in addressing them.

So thank you for the opportunity to come before you. I look forward to your questions and to working with the committee in the future.

[The prepared statement of Ms. Castle follows:]

PREPARED STATEMENT OF ANNE CASTLE, NOMINEE TO BE AN ASSISTANT SECRETARY OF THE INTERIOR, WATER AND SCIENCE, DEPARTMENT OF THE INTERIOR

Thank you, Mr. Chairman, Senator Murkowski, and Members of the Committee. I am thrilled and honored to come before you as President Obama's nominee for Assistant Secretary of the Interior for Water and Science. I am truly humbled by the confidence shown by President Obama and Secretary Salazar through their nomina-

tion of me for this position. And I'm very grateful for the support of my family and friends and colleagues that has allowed me to be here today.

My career in water law started with my graduation from the University of Colorado law school in 1981, but my interest in water resources and administration started well before that. Growing up in Colorado, you can't help but be aware of the key role that water plays in our lives: the availability or scarcity of water has shaped the development of our cities and industries as well as the American West's incomparable environment. I grew up sailing and swimming in a small Colorado lake, and my father served on the board of the water district that supplied water to our houses and that lake. Our family skied in the Colorado mountains, where the winter snowpack forms the reservoir that supplies water later in the year to the downstream watersheds.

I learned early on about the relationship between the increasing use of water by development and people and the impact of that water use on the streams and lakes and mountains that are an important reason the development is occurring. The shortages of water in the West over the last decade have caused even more strain on an already stressed resource, and have forced us to reevaluate the operations of our water systems to allow them to fulfill the multiple uses that they have come to serve. As an attorney specializing in water law, I have learned first hand about the level of intensity inherent in any discussions concerning water allocation, and the importance of the involvement of all stakeholders to reach appropriate resolutions. I have also had the opportunity to learn the ground rules set by federal, state, and local governments governing management of this most critical of natural resources.

I know that this Committee has also recognized the challenges confronting western water supplies, and earlier this year Congress enacted the Secure Water Act provisions of HR 146, now Public Law 111-11. This law calls for an intense and thorough process for evaluating the available science and developing climate change adaptation options for major river basins so that whatever the future brings, our water systems can adjust. The two bureaus within the Water and Science office, the Bureau of Reclamation and the US Geological Survey, are critical players in this effort, and I look forward to being involved in that process which I believe is crucial to the future of our country.

Water conservation is increasingly a part of the national discussion. Conservation of water equals conservation of energy, and conservation of energy decreases related water use. With the demand of a growing population on water supplies and the potential for long term diminution of those water supplies, it is incumbent on us to find new ways of conserving water. I believe that the Bureau of Reclamation and the Department of Interior can and should lead the way in that effort.

And what a thrill to have the opportunity to work with USGS. My father-in-law started his career as a geologist with USGS and my husband followed in his father's footsteps and became a geologist as well. As a result, we have always had friends who work with USGS and I have come to recognize the great professionalism and commitment of the scientists in that agency. As an agency without regulatory or resource management responsibilities, USGS is perfectly positioned to provide objective, unbiased, science-based research and analysis to form the basis for policy decisions. We are fortunate to have the world's leading earth scientists as our advisors on crucial climate change issues and how best to deal with them.

During my legal career, I have had the opportunity to work with water users of all types, from farmers and ranchers to coal mines and ski areas, real estate developers to conservation groups, municipalities to water protection districts. I was the lead counsel in the first claim by a Colorado city for what was then a new, statutorily sanctioned, instream flow water right, for a boating course through the city of Pueblo.

Colorado Governor Bill Ritter appointed me to be the legal advisor to a task force he established early on in his administration to attempt to reconcile the water needs of farmers in the South Platte River Basin using junior priority ground water wells with the traditional demands of the senior ditch owners and the prior appropriation system. Part of the task was to identify any legislative fixes for the problems, and several of the suggestions have subsequently been enacted.

I was also appointed to serve on the Colorado Ground Water Commission for two 4-year terms, and was able to learn a tremendous amount about the practical problems faced by farmers who rely on underground water for irrigation of crops, and the legal framework they operate under.

Leading two important agencies like Reclamation and USGS is not a task for the faint-hearted. If confirmed, my previous management experience will be valuable in this effort. In 2001, the partners at my law firm of Holland & Hart elected me as the leader of the firm. Holland & Hart has about 420 lawyers and a total staff of

800, with 13 offices in 6 states and the District of Columbia. During my term as chair of the firm, I learned a lot about leading people, gaining their trust by hard work and honesty, and the importance of clear and honest communication. I also learned to take advantage of the expertise of others, to avoid reinventing the wheel, to get objective background information and make a decision. I consider myself a team player as well as someone who can lead the way but let others shine.

This summary of my background would not be complete without telling you about my involvement with legal services. Since the beginning of my legal career, I have been involved with the federally funded legal aid program that provides representation to poor people in Colorado. I have been on the board of the program for 25 years. I chaired the boards of the private fundraising organization for legal aid, the Colorado Legal Aid Foundation, and I currently serve on the board of the group that administers the Interest on Lawyer Trust Account funds for the state. I believe very strongly that lawyers have an ethical responsibility to provide their knowledge and expertise to people who cannot afford to pay them, and I have tried to carry out that belief both in pro bono legal work and by assisting the organizations that also have that mission.

All of these efforts—legal, management, and public service—required the building of consensus, the reconciling of disparate interests, and fostering a willingness to recognize the validity of other claims and to compromise to achieve a greater good. The water and science issues facing Interior and the country are difficult, complex, and even emotional. I am hopeful that the experiences I have had in the past will be useful in addressing them.

If confirmed, I hope to start working immediately on the very important and cutting edge work of the Bureau of Reclamation and the U.S. Geological Survey.

Thank you for the opportunity to come before you and provide a snapshot of my background. I look forward to your questions and to working with you in the future.

Senator SHAHEEN. Thank you each for your testimony. We'll now go to the question portion of the program.

Ms. Castle, recognizing that you grew up in the West and that the West certainly has water challenges that are unique. Can you talk a little bit about how you see Interior addressing those challenges and how they compare to some of the challenges that we have in the Northeast when it comes to water?

Ms. CASTLE. Certainly. The Bureau of Reclamation's mission has been focused on the Western states under its authorizing authority. But it does have some planning and management authority for use throughout the United States. I think the U.S. Geological Survey is the key agency that provides science-based services in all 50 states and has been working particularly in some of the Eastern states to provide information on water demands and on water resource availability.

For example, I know that the USGS has relatively recently completed a study about the demand for the sea coast area of New Hampshire. That that research can be used for planning for future water supplies. The USGS has also characterized the water resources in various underground aquifers in the Eastern states, again forming the basis for decisions about alternative water supplies.

So those are some of the areas where I think that those two agencies within the Department of the Interior can be useful. I also think that both of those agencies have very important roles to play in assessing climate change and coming up with adaptive management strategies for dealing with a future of reduced water supplies. That effects, as you know, the entire country.

Senator SHAHEEN. Thank you. Mr. Brinkman, I was very impressed when I first met with Secretary Chu because he talked about the number of scientists who are being attracted back to the Department of Energy and to government service. So I think you're

in that category of people that he was talking about. So we're delighted that you're willing to take this on.

One of the things he also talked about was the potential for the Department of Energy to take on, in a public sector, some of the role that Bell Labs, for example, played in looking at applying the research to the actual practice. I wonder if you could talk a little bit about what role you see the Department of Energy playing in doing that and how you see that happening?

Mr. BRINKMAN. Thank you. Of course the Department of Energy has played that role in a number of cases already. I mean it has certainly been involved with the development of photovoltaics. It's also been involved with the development of sequestration.

We both believe that it could do a lot more. In particular we're hoping to take the Office of Science and its programs and meld them better together with the programs from and the more applied parts of the organization. Making that mix work cooperatively is one of our goals.

That's one of the kinds of things that you really have to work quite hard on to get people on both sides of the street so to speak, to talk to each other, work together, and be confident with each other that you are not going to walk away as soon as the problem gets difficult. We both have experience in that. We're looking forward to trying to do that more successfully within the Department.

Senator SHAHEEN. Thank you. Ms. Zoi, I certainly agree with you that energy efficiency is the fastest, cheapest way for us to address our energy needs. But it seems to me that it's more of a challenge than it ought to be as we look at the potential savings there. So, can you talk about how you would address this obstacle to encouraging more energy efficiency?

Ms. ZOI. Thank you, Senator. There's a combination of things. In my 20 years of experience in the efficiency arena it's a combination of regulations like appliance standards, that simply take lousy products off the market so the consumers can save money on good things and education that makes it easy for people to save.

The Energy Star program, 18 years ago, was built on the back of making computers automatically go to sleep after a period of inactivity. Rather than continuing to try to convince people that they should turn their things off, we could just let technology help us out.

Senator SHAHEEN. Thank you.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Madame Chair. I'll go to you, Ms. Zoi. You are still on the hot seat here and I'll begin my questioning for you.

The first question is more clarification of statements that you've made in the past, particularly about oil and coal. It's my understanding that you have asserted that the oil and coal lobbies are blocking the switch to clean power. Then in a letter from last year you went on further to write that "oil and coal companies and interests have spent hundreds of millions of dollars in an effort to convince the American people that they are focused on solving our energy and climate crisis. On its face these assertions by oil and coal defy all reason."

I wanted to ask you about that statement. I do happen to believe that the oil industry and the coal industry have been working very hard to ensure that their emissions are reduced. They are contributing not only to our energy security by providing domestic production, but they're trying to do so in a much more responsible way.

So if I could just have you give me a little more clarity.

Ms. ZOI. Sure.

Senator MURKOWSKI. As to those comments on coal and oil industries, and perhaps what you consider their lobbying efforts to be.

Ms. ZOI. I appreciate the opportunity. There's no doubt that oil and coal are a significant part of the energy landscape and they have been for the last century. They will continue to be, as I said in my opening statement.

I may be even more ambitious about what they can contribute to solving climate change than you. Because I'm looking forward to the possibility of partnering with the oil and coal industries in getting the solutions out into the marketplace very, very quickly. Some of the companies within the sector have been very good at making investments in clean energy and in non carbon-emitting resources.

However, when you look at the amount of investment in those clean energies relative to the investments in the carbon-based technologies, there's not yet. I'm hopeful that if I'm confirmed as Assistant Secretary for Energy Efficiency and Renewable Energy that we can tap into the commercial success and the bigness of the oil and coal industry to help, to have that part of the energy portfolio get involved in managing this transition to an energy economy that is, frankly, less carbon intensive.

Senator MURKOWSKI. Let me make sure that I understand. Are you suggesting that it should be the oil and gas industry that pays for the technologies for all renewables going forward through, say, increased taxes on that industry?

Ms. ZOI. No, not at all. What I'm suggesting is that there's an enormous business opportunity. That a company that is, for example, an oil company is very well positioned to get involved in enhanced geothermal research.

In finding and tapping into the hundred gigawatts of potential power in geothermal that gas companies have has great potential. I'm quite excited about the prospect for carbon capture and sequestration with the coal industry. So there are business opportunities for the fossil fuel sector to lead this transition.

Again, I'm very hopeful that the government can partner with those businesses in crafting a way forward.

Senator MURKOWSKI. Let me ask you another question here. You obviously are closely following the debate. There is discussion here in Congress on both the Senate side and the House side about renewable tax credits, the cap and trade proposal that is advancing on the other side, discussion here in this committee and over in the House on a renewable electricity standard; all those things that are designed to advance those technologies and to reduce our overall emissions.

If a cap and trade system were to be enacted, do you believe that that indirect regulation of greenhouse gases through the Endangered Species Act, through NEPA, through renewable fuel stand-

ards, through RES, through section 526 or the Clean Air Act, are still necessary?

Ms. ZOI. The President and Secretary are very supportive of the cap and trade bill. The cap and trade is designed to create an economy-wide framework and a glide path toward gradual reductions. The renewable electricity standard does something else that's a little bit different. I'm getting short on time, but I actually think that they're complementary policy instruments.

Senator MURKOWSKI. My time is expired too, but I'll just finish the question. You say that an RES is complementary. But we also have other Federal acts, as I mentioned. The ESA is the one that we in Alaska have been quite concerned about. I don't think regulations of emissions through the Endangered Species Act is a good idea.

The nominees that we have had before us, to this point in time, have all concurred that they don't think it's a good idea. But it is one of those tools that is out there. I think it is an appropriate question to ask if we were to move to an industry wide system whether or not there would still be further efforts to regulation of emissions through these multiple Federal acts. I'll go back for a second round.

Senator SHAHEEN. Thank you.

Senator Udall.

Senator UDALL. Thank you, Madame Chairwoman. Again, welcome to the panel. I would ask your indulgence.

I'm scheduled to preside on the floor of the Senate in a few minutes. So I'm not going to be able to use the whole amount of my time. I would like to submit some additional questions for the record.

But starting with Ms. Zoi, I want to thank you for your willingness to serve in the public sector. I look forward to working with you when it comes to the National Renewable Energy Laboratory. In particular I note the upcoming year's budget does not include as much research in the hydrogen technology area and would like to pursue that conversation a little bit further.

I know that there are some significant questions being raised about hydrogen in vehicles in particular. But it may have real application, as you know, in generating facilities 'backup power. But I think we ought to continue to do that research because I think it has a long term potential.

Moving to Mr. Brinkman. I note that at least it's my opinion that the DOE has not done as much as it could in the SBIR world with small businesses. That's a particular area I think you have expertise and a proven track record. So I would urge you to take a look at what more can be done there as we look to incubate all of these exciting new technologies out there, not just in the energy space, but as you know in the IT space, biomedical and so on.

Ms. Castle, thank you again for doing Colorado proud. I know we're going to work together on the Southeastern conduit for the Lower Arkansas Valley. It's of particular interest to Secretary Salazar given that that's his homeland. He knows the challenges there of keeping faith the farmers who want to continue to produce our food.

So again, thank you for, all three of you, being here and your willingness to serve in the public sector. Thanks.

Ms. CASTLE. Thank you, Senator.

Senator SHAHEEN. Thank you, Senator Udall.

Senator BUNNING. Thank you, Madame Chairman. Ms. Zoi, more than half of the electricity consumed in the United States is produced by coal, 51 percent approximately. In my home State of Kentucky, 93 percent of our electricity comes from coal fired generation.

I realize that there are environmental concerns with coal. I have long said that the future of coal is clean coal. In the past I have authored legislation and supported incentives for the development of coal with advanced technologies. Through a combination of commercially available carbon capture technology and blended feedstock of coal and biomass we can substantially reduce our emissions.

While working for the Alliance for Climate Protection you endorsed several anti coal campaigns including one that claimed that there is no such thing as clean coal. Do you still hold this position? Do you support clean coal? Would you support projects that combine carbon capture with a blend of feedstock of biomass and coal?

Ms. ZOI. Thank you, Senator.

Senator BUNNING. There's a bunch of questions there.

Ms. ZOI. I'm sure you'll remind me if I forget.

Senator BUNNING. I will follow the answers.

Ms. ZOI. First of all, the President is fully supportive, as is the Secretary of Energy, of continued use of coal. As a geologist, I have no doubt that we have the capacity to capture the carbon pollution and safely store it underground.

Senator BUNNING. Compared to what is now being used and/or the alternative which is natural oil or oil based or for that matter natural gas?

Ms. ZOI. Fifty percent of our electricity comes from coal plants now. Applying that same sort of basic technology but capturing the carbon pollution, separating it out and storing it underground, I believe that's a possibility. I'm looking forward to working with industry.

It's actually not in my portfolio interestingly, notwithstanding my background. My responsibilities are going to be in energy efficiency and renewable energy. But the President and the Secretary have been very articulate of their support for quickly commercializing carbon capture and sequestration technologies. Because that is what makes coal truly clean. If we can capture the carbon pollution, coal will continue to be able to play a very large role in our electricity mix going forward.

Senator BUNNING. My problem is that the Department of Energy, in its renewable portfolio standards and some things doesn't mention nuclear or coal anywhere, not in any bill, not in a bill that this committee is considering. So how do we get from where we're at now to where we want to get to if we don't use coal and/or nuclear, particularly nuclear? It's not mentioned in any of our things.

Ms. ZOI. While it's not in the portfolio for this particular Assistant Secretary brief, there are other offices. There's an office that

focuses on nuclear energy, and another office that focuses on fossil energy.

There are different Assistant Secretaries that will be coming before this committee sometime in the future whose sole purpose is to continue to make sure that those resources are used and used well in the economy. The President and the Secretary of Energy have made a commitment to an increased use of a diverse set of resources. So I have little doubt that the administration and you are going to be in wild eyed agreement on, continued use of diverse resources.

Senator BUNNING. Wild eyed agreement? That will be the day.
[Laughter.]

Senator BUNNING. Ms. Castle, I'd like to ask you. On December 3, 2008, the Office of Surface Mining Reclamation and Enforcement OSM issued a final rule clarifying the disposal of excess spoil created by coal mining operations. The rule required mine operators avoid disturbing streams to the greatest extent possible and clarify when mine operators must maintain an undisturbed buffer between mines and adjacent streams.

Secretary Salazar has asked the Department of Justice to file a plea with the U.S. District Court requesting that the rule be vacated. Aside from striking a balance between the environmental protections this new rule clarified a long standing dispute over how the surface mining laws should be applied. What is your view on the new law? If vacated would you support implementation of the previous stream buffers zone regulations or initiate a new rule-making process?

Ms. CASTLE. Thank you for your question, Senator. I have to admit, however, that I am not familiar with the new law. It's something that I believe would fall under the purview of a different office within the Department of the Interior.

But it's something that I know is the subject of continuing discussion. I'd be happy to look into the question and get back to you on it.

Senator BUNNING. I'd appreciate that very much.

Ms. CASTLE. Thank you.

Thank you, Madame Chairman.

Senator SHAHEEN. Thank you. I would like to pick up on Senator Udall's comment about the importance of small business. Small business he referenced the SBIR which I think I would agree with him, has been very successful at encouraging new technological development.

One of the challenges that our businesses in New Hampshire have is that most of the businesses we have are small businesses. They have trouble getting access to government programs or to government departments like DOE, for example. I've heard from GT Solar, a company in New Hampshire that makes solar panels that they've had difficulty trying to get a meeting with the Department of Energy.

I appreciate that the Department is not all staffed up. So hopefully that will change as you all get on board. But I would ask if you have thoughts about how we can make programs and expertise at the Department, the ability to collaborate at the Department, more available to small businesses. I would throw that open to ei-

ther one of you who would like to address it, perhaps, Mr. Brinkman.

Mr. BRINKMAN. I would just like to make a couple comments, especially on photovoltaics. It turns out there are, in the United States today, there are 217 startups in photovoltaics. It's an enormous number of startups. So somebody is putting some money into this arena.

The other comment I'd like to make about photovoltaics. I have a good friend who works at reducing the cost through the production techniques, reduction of production costs. Their company now is supplying 15 different manufacturing plants based on the technology they've developed in the United States. Not a single one is in the United States, not a single one.

It's a major problem in my opinion that we somehow or other seem to have all this activity going on. I've talked to various people within the photovoltaic world. They're all doing the same thing. They're all going outside the country to manufacture it.

We have to figure out what is wrong. I don't think it's just labor; I think it's a more complicated story than that. We need to get that situation straightened out so the small businesses have a chance to do things in the United States.

Senator SHAHEEN. So do you have any specific thoughts about what DOE can do to help those companies?

Mr. BRINKMAN. One of the things I think we have to understand is the incentives. This is certainly not my bailiwick, but we definitely need to try to understand the incentives that are driving all of these plants out of this country.

I really don't believe it's labor. I'm going to try to figure out myself. But as I stated earlier I'm not responsible for this kind of thing.

Senator SHAHEEN. Ms. Zoi.

Ms. ZOI. One of the things I hope that I can bring to the job if I'm confirmed is I have experience with small business, in the business sector. I know what it's like to be on the other side never getting a call back, having to fill out endless forms that are hundreds of pages. That's a real cost of doing business.

So, one of the things I'm excited about in this job is the management challenge and creating a culture that's accountable. That moves at a pace that's responsive to the private sector needs. I mean we've got the proverbial valley of death approaching us on this.

You know, we've got some venture capital money. Then we've lost the capital that was available in markets last year. The government has got to fill in and build those bridges and make sure that the companies that are needing a boost, whether it's a set of regulations, whether it's a bit of advice or whether it's a loan or grant. That that happens in a time that makes commercial sense for the companies.

My experience that I'm bringing hopefully will inform that. I'll help create a culture in the Forrestal Building that is, perhaps, a bit more responsive than it's been in the past.

Senator SHAHEEN. I think that would be a welcome change for many small business in New Hampshire and across the country. Thank you.

Senator Murkowski.

Senator MURKOWSKI. I appreciate the discussion about the impact on small business and what we do to push good opportunities overseas and how we need to be working to stem that. One of the concerns that I have raised as we talk about how we move toward this new generation of green renewable energy we're going to be in a situation where our reliance on foreign sources for our minerals, for the raw materials that we need, is absolutely acute. Ms. Zoi, you indicate you're a geologist.

I look at some of what we're facing. The quartz crystal that's needed for the photovoltaics, 100 percent of that comes in from foreign sources. The platinum for fuel cell catalyst, 91 percent imported. Indium for LED lighting technologies, 100 percent imported. The rare herbs for advanced batteries, 100 percent imported.

So I think as we talk about how we create all these wonderful jobs and the opportunities and build out the green technologies, we've got to be very cognizant of this issue. Ms. Zoi, I would hope that you too share this concern and are thinking about how we can, within the Department of Energy, more effectively coordinate with the Department of the Interior, the USGS, to really figure this out.

Because when we talk about energy insecurity which we have right now, we're close to 70 percent reliant on foreign sources for oil; we can just see ourselves going down the same path when it comes to the raw materials that we will need for renewable energy sources. More of a statement than a question to you all, but I hope that you're all kind of thinking about that.

Ms. Castle, I wanted to ask you a question on the science side of your nominated position here, the Assistant Secretary for Water and Science. In Alaska we are currently in a situation where there's dozens of Alaska species that are being considered for review under the Endangered Species Act. We've got walrus. We've got a whole different variety of seals. We've got others. We have established, several years back, a North Slope Science Initiative.

This is a collaborative effort of all of the agencies designed to bring together all of the science that is out there. So that when we're making important policy decisions that we have the science in place already. The North Slope Science Initiative has been embraced by everybody. Everyone believes it's a great idea.

Yet when it comes time to actually fund the NSSI, it's been very limited. It was almost non-existent in the 2009 Omnibus budget. So I guess I would ask if you're familiar with it. If you're not I would ask you to familiarize yourself with it.

If you are, I would hope that we could seek your support. If we don't have the science, we're not doing right by our initiatives. We may disagree with you at the end of the day on the direction it's taken. But if we can all acknowledge that we had the science upon which we could base our decisions, we're going to be having a much better conversation.

Ms. CASTLE. Senator Murkowski, I have been made aware of the North Slope Science Initiative. First let me say that I totally agree that coordination among the various science agencies is critical, not only in the area of endangered species, but in the other areas that we've been talking about, climate change, adaptive management

solutions, energy use. So I think that the President's statement on ensuring that policy decisions are based on sound science is also an indication of the support of the administration for the kind of coordination that you're describing.

If I'm confirmed I'd like to work with the committee to try to find sources of funding for those kinds of coordinated science initiatives.

Senator MURKOWSKI. We'd welcome that opportunity. Quick question for you, Mr. Brinkman. Are the national laboratories collaborating with one another to your satisfaction? Or is there a level of competition that continues?

If so, how can there be greater collaboration?

Mr. BRINKMAN. There's one of the things we would like and another of the things that we would like to address to some extent. However, I think that they are cooperating on many things together. But there is some competition. I want there to be some competition.

You wouldn't want them not to be competing with each other in a fairly aggressive way. But one of the jobs I regard myself as having is to bring these people together on specific programmatic activities. To see that our program makes sense and that the people are doing the right things.

If you look historically at major facilities such as the SNS at Oak Ridge National Laboratory, it was built by having each different laboratory build a component of the facility. It worked quite well in the end. It had a rocky start, but it ended up being a really terrific facility at this stage.

Senator MURKOWSKI. Thank you, Madame Chairman. My time is expired.

Senator SHAHEEN. Senator Sessions.

Senator SESSIONS. Thank you. Dr. Brinkman, you'll have the labs under your supervision. We've had some problems with efficiency and productivity at the labs.

I remember a previous Secretary of Energy, Spence Abraham, eventually completed one of those labs, and I think the government benefited from it. I do think there is a tendency for institutions like that to sort of settle into their own pace and to maybe, be comfortable and not be as energized in helping us meet the challenges of the country.

I'll just ask you generally. Are you prepared to examine the laboratories, the amount of money they're getting and the productivity that they're giving the American taxpayer and try to make sure you get the maximum benefit from it?

Mr. BRINKMAN. I must admit, I don't think I'd take this job if I wasn't going to do that. But in any case it seems to me that what's happened over the years is that this process of renewal of contracts that labs have gone through. I think it's been very beneficial to the laboratories to make them think through what they're doing and their management structure.

I certainly believe we should continue that. I also believe that it's mired in its own bureaucracy and the contracting needs to be done in a much more streamlined fashion.

Senator SESSIONS. What is? That the procedure has its own bureaucratic problems?

Mr. BRINKMAN. Yes. Its procedures, in my opinion have their own problems. Coming from Princeton, the Princeton Plasma Physics Lab just went through that whole process. It took a very long time.

In fact it was signed off on the last days Secretary Bodman was on the job tells you there was something wrong.

Senator SESSIONS. I would just say to you that these are fabulous institutions. They have tremendous potential to benefit America, and are. Whether it's nuclear weapons or research and development and energy and I think all those institutions benefit from strong leadership from the top.

I just would encourage you to assert yourself.

Mr. BRINKMAN. I'll try my best.

Senator SESSIONS. Ms. Zoi, you've got two areas that I'm interested in. Energy efficiency. I really think that that has continued potential for America.

I think in particular a lot of poor people still are in housing and have energy heating and cooling systems that are inefficient and cost them very valuable dollars that they have. So I think that's a very good area for us to work on. I look forward to working with you.

I support anything that works to reduce CO₂, to reduce costs for the taxpayer, to reduce imports and energy from abroad, make us more energy independent. I think all those things are important. I'd like—and I think you do from our conversation that we had.

With regard to the biofuels, we have a situation in which the loan moneys that were supposed to go out to help some of these entities get started. I don't think has moved as fast as it should have. I do believe that there are quite a few companies out there that have technologies that are potentially good, but can't prove it today. So I guess I'm not sure part of the reason that the Department of Energy is slow is they may have felt they were nervous about supporting a new technology.

But don't you think that's what the government is for? It's to take some chances in making these loans so we can accelerate some of these new technologies, maybe by several years—

Ms. ZOI. Yes.

Senator SESSIONS [continuing]. And prove whether or not they are going to be productive.

Ms. ZOI. Absolutely.

Senator SESSIONS. What were your thoughts about the loan program?

Ms. ZOI. Absolutely. The Secretary has made a commitment to streamline the processes so that the money that's been appropriated and authorized by Congress moves out more quickly. The previous money just got stuck and it never sort of came out the other end.

I agree with you. There are a number of places where the Federal Government has a unique role to play. That early stage has higher risk stuff that the business community might not look at. Some of the biomass examples that you're citing that you and I talked about may indeed be in that category.

I look forward to streamlining the processes to ensure that the Federal Government folks have a set of guidelines so that they

know that this is a risk profile that's acceptable for the taxpayers. That's why we're here.

Senator SESSIONS. According to the environmental working groups, 76 percent of Federal renewable energy subsidies went to corn ethanol in 2007. That represents a total of about \$3 billion while wind, solar and other renewable sources received roughly 750 million. Do you think that reflects an appropriate balance? Are there other ideas that you have that we make could be more effective in bringing on renewable sources?

Ms. ZOI. I'm not familiar with the particulars of how the funding has taken place in the past. But what I would pledge is that if confirmed I would love to work with you on the appropriate setting of the priorities and ensuring that the highest value, highest leverage, largest opportunities for the taxpayer investment get made.

Senator SESSIONS. That's a good idea. That's the right approach.

We're not putting enough research and development on this renewable source or that one. Congress passed a law that may have looked good 3 years ago, but not good today. I think you should come forward and give us your best judgment.

We may not agree. But I look forward to you sharing that. Thank you.

Senator SHAHEEN. Thank you.

Senator Bunning.

Senator BUNNING. Thank you, Madame Chairman. Ms. Zoi, you already have answered the question I was about to ask about the administration's proposal for cap and trade. You already answered it.

If the goal of cap and trade is to reduce emissions, do you support making nuclear a component of DOE's Clean Energy bill?

Ms. ZOI. I support the overall thrust of moving the economy in a direction where there's a framework in which investment decisions can get made by the private sector, and they know what the rules of the road are—that we need to, over time, be moving toward a less carbon intensive energy.

Senator BUNNING. Do you think nuclear is part of that?

Ms. ZOI. Yes. However, Nuclear energy is not a part of EERE's portfolio.

Senator BUNNING. But it's in the overall portfolio of DOE?

Ms. ZOI. Yes. The Secretary of Energy has stated on the record that one of his priorities is to restart the nuclear industry in this country.

Senator BUNNING. In 2005 and 2007 we passed laws. We put a bunch of dollars, up front, to restart the nuclear power energy business. We had, I think, presently we have about 17 applications and we had more than that.

None of the money has moved. None. Is there somehow we can get some kind of an assurance that that money and/or additional moneys will be used to jump start the nuclear power energy because that is one great way to get our climate control under control.

Ms. ZOI. The Secretary of Energy has made a commitment, a new found commitment, perhaps different than the previous commitment of the previous administration, to jump start, restart, and invigorate the next generation of nuclear energy.

Senator BUNNING. One thing on cap and trade and I want to follow up on this. Every time I get into a discussion in the Finance Committee or this Committee on Energy on cap and trade I get the argument from a lot of people that the United States must lead. It's up to us to lead.

Now I'm ready to lead. But I also would like some followers. Unless we can get China and India and Russia on the dotted line, as far as a global reduction in emissions we can get to zero emissions in the United States. Twenty years from now we'll have more emissions in the atmosphere if China and India and Russia don't sign on.

Is that pretty accurate?

Ms. ZOI. Climate change is a global problem. It's going to require a global solution. What that means is all of the high emitting nations are going to have to be party to it.

Other folks in the administration, in the State Department and elsewhere, are working very hard on this issue.

Senator BUNNING. I just saw where the Secretary of Treasury was over talking to China about this.

Ms. ZOI. That's right.

Senator BUNNING. So did our prior Secretary of the Treasury go to China. Because when we went there as a Senate, we couldn't even meet with the people that were in charge of climate change in China. They wouldn't meet with six Senators. They thought that only the Secretary of the Treasury could really get it done. Not understanding, obviously how democracies work since it's a little different.

Ms. ZOI. It's a little different.

Senator BUNNING. It's a little top/down over there. Thank you.

Mr. Brinkman, as you know this committee is currently in the process of writing an energy bill. One component of that bill that we have already considered is research and development funding for the Office of Science. Can you discuss the long term funding needs of the Office? Do you believe that this committee's authorization level will meet your and the future needs of that office?

Mr. BRINKMAN. Yes, thank you. The Office of Science had a very constant budget for the last several years. But now you, the Secretary and President Obama are committed to doubling its budget by 2016.

This is at about a 7 percent rate per year. It seems to me that that's a rate at which we could easily handle. I'm just starting to learn about the budget this week.

There are many, many different research projects that I think are worthy of support. I think that it is true that what has happened in the last 8 years is our position in the world of science has waned a bit. I personally have come here because I think we have an opportunity to drive it back to a prominent position in where we were in the past.

Senator BUNNING. Will you answer my question about did we provide enough? Is 7 percent annually, if that, increase enough?

Mr. BRINKMAN. If that increase becomes a reality I'll be very happy.

Senator BUNNING. Alright. Thank you very much.

Senator SHAHEEN. Thank you.

Senator McCain.

Senator McCAIN. Thank you very much. Ms. Zoi, do you believe that nuclear power is a renewable energy source?

Ms. ZOI. I believe that nuclear power is a non carbon emitting energy source that is very important to our economy. It's 20 percent of our electricity, as you know.

Senator McCAIN. I will repeat the question. Do you believe that nuclear power is a renewable energy source? We're accustomed to getting answers that respond to the question.

Ms. ZOI. As a geologist, I would say there's a finite supply of uranium. So technically nuclear power is not a renewable energy source. But it does have other environmental advantages in that it doesn't emit CO₂.

Senator McCAIN. Mr. Brinkman, same question.

Mr. BRINKMAN. If you define a renewable energy source as one in which it is an essentially infinite amount of resource it is not a renewable source. But it is a very good source for not emitting carbon dioxide.

Senator McCAIN. Do you believe that nuclear power that we should have a storage facility for spent nuclear fuel, Mr. Brinkman?

Mr. BRINKMAN. I think what we have to do is try to re-examine this issue after President Obama has decided that we will not do Yucca Mountain. He, as you know, has got a blue ribbon committee that he's putting together to work this issue. I think there are some alternatives we need to explore.

I personally want to see us do more research on reprocessing. I think reprocessing today is a very complex issue.

Senator McCAIN. Reprocessing is a very complex issue, in your view?

Mr. BRINKMAN. The process of reprocessing is very complex.

Senator McCAIN. It is?

Mr. BRINKMAN. Yes.

Senator McCAIN. Why is it that the Japanese and the British and the French are able to do it fairly easily?

Mr. BRINKMAN. That's because we have not done anything in the last 20 years on reprocessing.

Senator McCAIN. Pardon me?

Mr. BRINKMAN. We haven't done anything.

Senator McCAIN. No, but other countries do.

Mr. BRINKMAN. We can do it. But the way they've done it is very expensive. I would hope we can find a better way.

Senator McCAIN. How is it complex if three other countries are doing it routinely, Mr. Brinkman?

Mr. BRINKMAN. Frankly I don't believe they're doing it routinely.

Senator McCAIN. You don't believe they're doing it routinely?

Mr. BRINKMAN. Routinely is a funny set of words. I think they're doing it. But it's, in each case, it's been a very expensive process.

Senator McCAIN. They seem to find it a great way of disposing of spent nuclear fuel. I have been to their facility in Japan, Mr. Brinkman and it's not rocket science.

Mr. BRINKMAN. I'm not against reprocessing. You have to understand that. I want to improve the process.

Senator McCAIN. What's wrong with the existing process?

Mr. BRINKMAN. We can use the existing process. But one of the problems it has is it has a non proliferation issue that needs to be worked for example. It tends to create—one of its products is a highly radioactive plutonium. That's a thing that you can make a bomb out of.

We would like not to have that as one of the process steps. We need to think that through.

Senator MCCAIN. We'll go through this debate some more. The fact is that's a far better problem to face than having spent nuclear fuel in pools at 100 and some nuclear power plants around the country. This administration says it wants nuclear, but yet they're going to shut Yucca Mountain where we've been working on for 14 years.

They're against reprocessing for the—reasons that I don't accept when three major nations in the world are able to do and not pose a threat to this world security. So, I don't have any more questions, Madame Chairman.

Senator SHAHEEN. Senator Bennett.

Senator BENNETT. Thank you very much, Madame Chairman. I want to pick up on what Senator McCain has been talking about because I too have been in one of the reprocessing plants. The one I was in was in France. The French have been dealing with nuclear power now since the days of Charles de Gaulle.

Charles de Gaulle looked around France and realized there wasn't any coal to speak of. There wasn't any natural gas to speak of.

Charles de Gaulle is not my favorite politician. But he made the decision. France is going to be nuclear. In that process France is going to be independent. Roughly 80 percent of France is power. They've solved the proliferation problem, obviously, fairly well.

I join with Senator McCain in urging you to say let's make the policy decision that we're going to do reprocessing. Let's get on with building new nuclear plants as rapidly as we possibly can. They can't be built overnight. In the period of time while they're being built you can deal with the reprocessing issue and have it ready to go.

Now react to that. What is wrong with that?

Mr. BRINKMAN. There's nothing wrong with that.

Senator BENNETT. I walked in on something. I apologize.

Mr. BRINKMAN. What I was trying to say is one of the things I would like to do in the position as the Director of the Office of Science is see if we can do anything to improve the process. It seems to me that's a very legitimate goal in trying to figure out a better reprocessing technology.

Senator BENNETT. Ok. I can agree with that.

Mr. BRINKMAN. It's a perfectly legitimate thing to do.

Senator BENNETT. I think I share with Senator McCain the concern that for all of the rhetoric we have not laid down the marker that this Nation is going to go forward with nuclear power, with reprocessing in a very vigorous fashion. I want to be very clear that that is where I feel we need to be going. Because if you're going to talk about power that does not have greenhouse gas emissions, that is reliable. You come instantly to nuclear.

Wind is fine as long as the wind blows. But it doesn't always blow. There are times when its interruption is dramatically damaging to the grid to which it is connected.

Solar is fine. But the sun doesn't always shine. There's a lot of land that gets covered with these solar panels.

So everybody says, yeah, nuclear is the answer. But I don't see the kind of commitment to it beyond the rhetoric. That's just the point I wanted to make.

Mr. BRINKMAN. The other thing I wanted to add is that one of the programs, as you may know, Secretary Chu has proposed to create a set of hubs. He calls them hubs in our new thrust. One of the thrusts is in lithium batteries for cars—but rather batteries and storage mechanisms for renewables.

I mean, one of the big issues, as you just pointed out is the fact that renewables are intermittent and can you do anything about that? I think that's a very good research area in which for us to try to see if we can find a breakthrough which would change that dynamic.

Senator BENNETT. Ms. Zoi, maybe we should be focusing on you given your portfolio of energy efficiency and renewable energy. If we did have massive amounts of electricity available and we do at night. But if we could add to that the nuclear capability that we're talking about in these kinds of plants, we could have, what, 17 million? No, more than that, 100 million batteries sitting in our garages and plug in hybrids.

If we moved in that direction you wouldn't need any additional battery technology. To get there you could just have the incentive to move in that direction. So are you as committed to nuclear as the rhetoric has been around here?

Ms. ZOI. Nuclear is not in the portfolio of the office for which I've been nominated, Energy Efficiency and Renewable Energy.

Senator BENNETT. By definition nuclear is not under your—

Ms. ZOI. No. There's another office in the Department that deals with nuclear power.

Senator BENNETT. Thank you very much, Madame Chairman.

Senator SHAHEEN. Thank you, Senator Bennett. I wonder if you all could clarify something for me. I'm not sure that you know the answer to this. But given the questions about nuclear power and reprocessing am I to understand that the Energy Department under this new administration has changed the policy relative to nuclear energy?

Mr. BRINKMAN. I don't know what you mean by change.

Senator SHAHEEN. Relative to reprocessing, for example.

Mr. BRINKMAN. I don't think it's changed that process as far as I know.

Senator SHAHEEN. I appreciate, as Senator McCain said there has been a change relative to storage of nuclear waste.

Mr. BRINKMAN. That's for sure.

[Laughter.]

Senator SHAHEEN. Thank you. Senator Murkowski.

Senator MURKOWSKI. Thank you, Madame Chair. It seems the longer we sit, the more interest we get in our nominees. I appreciate your endurance. I've got one last question.

I think you've heard the comments from some of my colleagues here about nuclear energy. Nuclear is absolutely carbon free in terms of its emissions, so why we aren't seeing more support from the administration on it? Also when we're talking about a renewable electricity standard and looking to the definition, another area that has just befuddled me is hydro.

I was born in a rain forest. I was born in the Tongass National Forest in the Ketchikan General Hospital. It rains over 300 days a year there. There's no intermittent in what comes out of the skies there in Ketchikan.

[Laughter.]

Senator MURKOWSKI. 24 percent of our State's total power comes from our hydro plants. In none of them, so far as I know, in none of them are we blocking a free flowing river. We don't harm the fisheries.

I look at that and it's as good as it gets when it comes to hydro. Yet for purposes of a renewable electricity standard, you know, we're putting all kinds of barriers in front of hydro itself. Now hydro is clearly in your portfolio under renewables.

Can you tell me, as you're working to reduce our emissions to move us toward renewable fuels, your view of hydro power's role?

Ms. ZOI. Hydro is a huge and important resource, which we have obviously relied on for many decades. I think the reason that hydro has not been supported by some of the renewable energy advocates in Washington is because there's a bit of a legacy of non-environmentally sustainable hydro.

To the extent that there are opportunities for developing hydro in a way that doesn't damage fisheries, forests, etcetera, it makes total sense. There are opportunities at existing dams where the catchment is well managed both upstream and downstream to upgrade the turbine so that we get more out of them. That's makes total sense.

I'm told that there are variety of opportunities like that. I think probably hydro doesn't get a free pass unless all of the other environmental impacts can be ameliorated.

Senator MURKOWSKI. Let me ask you this though. You're saying, ok, well if there's no environmental damage or degradation. So is that same standard to be applied then with wind and with solar. You want to put big solar panels out in a desert, but it interferes with the jack rabbit or whatever.

The wind turbines do great damage to some of the migratory birds that are coming through. So I mean, how do you differentiate then between what we've said with hydro and any other form of renewable energy that will have environmental impact?

Ms. ZOI. I absolutely agree that there are standards that need to be set so that what we're investing in is economically sensible, environmentally sensible and environmentally sustainable. I think that if we sharpen our pencils we're going to be able to do that with a variety of resources.

Senator MURKOWSKI. So will you work with us on hydro?

Ms. ZOI. Absolutely.

Senator MURKOWSKI. Thank you, Madame Chair.

Senator SHAHEEN. Senator Sessions.

Senator SESSIONS. Thank you. Ms. Zoi, on renewables. The definition—I guess we’re wondering why it’s such an artificial definition. Fundamentally most people, I believe, think that renewable is good because it emits no CO₂. It’s a renewable resource. It helps the environment and the economy.

So in terms of what’s really important for our environment I think that the nuclear meets that test and should be given—whether you call it a renewable or not—should be given the same incentives that we might give to other sources. So Dr. Brinkman, there has been some changes.

The President canceled immediately the storage site at Yucca. He announced a 2-year, blue ribbon study on recycling. Those are major changes, both of which are retrograde direction for most of us. That’s what we think.

So we’re worried about this. I notice every time a witness comes up we’re asking about this because this is troubling to us. The cost of electricity from nuclear power is competitive with coal.

It is base load, 24 hours a day. It does allow the possibility that you could use plug in cars. Set your charger for midnight to 5 am or some such.

When that base load is available and just do great and not use a drop of oil. So that’s what we’re worried about. I think you’re going to continue to hear from the Congress and Democrats as well as Republicans about our view on that.

With regard to renewables, to me, the renewable energy standards, the renewable portfolio, Ms. Zoi, is driving the use of biofuels to electricity. As you and I have discussed and I think you’re aware, there’s great possibilities of converting biofuels to liquid that could be used in automobiles. I would assume you have about the same environmental benefit but economically it’s to me, much more important that we replace that liquid fuel that goes in our vehicles because 60 percent of it is imported.

Our wealth is going out every year to countries who do nothing but sit there and watch it pump out of their soil. Some of these countries are not even friendly to us. So do you see a problem and shouldn’t the incentive be at least as well or the mandate which is a renewable portfolio is a mandate. Shouldn’t we balance that so that we are at least incentivizing biofuels, particularly wood or corn, to be utilized for liquid fuels rather than just electricity?

Ms. ZOI. I share your excitement and enthusiasm for the possibilities of biofuels replacing our imported oil. I recently visited the Joint Bio Energy Institute in Northern California; and the researchers were on fire.

They’re about to turn the corner on a whole bunch of ways to take what had been almost viewed as trash plants and turn them into fuel. The fuel can be put into an engine that burns very, very efficiently. So there’s a huge amount of promise there.

With regard to the particular policy instruments, if confirmed I look forward to working with you, and the other members of the committee, to identify the policy instruments that make the most sense in getting that done.

Senator SESSIONS. I want you to think about this. If you mandate renewable energy for electricity in certain areas of the country like my region, about the only thing that can be used is wood, maybe

switch grass, woody byproducts. I think that product would be better utilized for the Nation's economy as well as the environment for liquid fuels where possible. We could be mandating in a way that's contrary to our highest and best use.

Would you look at that if you go forward?

Ms. ZOI. Absolutely.

Senator SESSIONS. Thank you. Thank you, Madame Chairman.

Senator SHAHEEN. Thank you, Senator.

Senator Bennett.

Senator BENNETT. Thank you very much. Let me just make a quick comment about environmental degradation whether it comes from hydro or whatever. The environment itself is not static.

Mother Nature is constantly changing. So an attempt to say that today's environmental circumstance must be preserved at all costs is to fight against nature. If we decide, for example, as some people have said, well, we must get rid of the Glen Canyon dam so that the Colorado River can revert to its normal pattern.

We've made a decision what the normal pattern is and the ecosystem that now exists below the Glen Canyon dam will be destroyed completely. I don't know where the moral decision is of the plants and the animals and whatever that have grown up as a result of the existence of the Glen Canyon dam are somehow deserve our concern less than the kind of thing that would come back if we destroyed it. Then Mother Nature would bring about an earthquake or some other change and it would all change again.

I had that brought home dramatically to me when I was a businessman and we were looking at an investment circumstance. They said you can't possibly do this because if you do, you'll interfere with the fish in this stream. A little while later they said, well, we're going ahead.

I said, what happened to the fish in the stream. They said, oh, we had a drought and it dried up and the stream went away, so all the fish died anyway. Since nature did it and we didn't why now we can.

This is the kind of thing that frustrates me a little with those who say we must preserve the environment at all costs. I say, preserve which environment because it's constantly changing. Alright, I apologize for that harangue. But that's a comment that I wanted to make in this conversation.

Ms. Zoi, let's talk about algae. I have looked at the plants. I have looked at the statistics. Of all the things that can be grown and turned into oil, I've never seen anything that has the potential that algae has.

I have voted against corn ethanol at every opportunity in my Senate career because I don't think it makes any sense. I think the more we learn about it, the more we discover that it doesn't make much sense. This is something that can produce scale.

Corn ethanol cannot produce any energy at a significant scale without tremendous, contradicting my earlier comment, tremendous environmental degradation, the amount of land that is used, the amount of water that is used. You can get algae and you can grow it in brackish water. We could get energy out of the Great Salt Lake which is incredible because it's not good for anything else.

Now that's not true. You can get salt from Great Salt Lake and some trace minerals. It has wonderful sunsets.

[Laughter.]

Senator BENNETT. Are you familiar with all of the work that's being done with respect to algae?

Ms. ZOI. About 19 years ago I visited the National Renewable Energy Lab. At that time they were doing some very early stage research on trying to harvest algae. I can still remember looking at the big receptacles that they had there.

Senator BENNETT. Yes.

Ms. ZOI. If confirmed I look forward to getting up to speed on where the state of the science is now because it sounds very exciting.

Senator BENNETT. It's way beyond that, way beyond that. I can give you the names of companies that are ready to start producing it on a very significant basis.

Ms. ZOI. Sounds great.

Senator BENNETT. Finally, the question is well, gee, you haven't changed. I would point out that in the supplemental, in my role as the ranking member on the Energy and Water Subcommittee of Appropriations, with the full cooperation of Senator Dorgan, who is the chairman of that. We put in \$100,000,000 for loan guarantees. It got taken out by the House.

I got ads run against me in my home State because they said I was the tool of the nuclear industry because I was willing to put in these loan guarantees. Those loan guarantees would have made a significant contribution to seeing that we move forward. So I'm not blaming the administration. I'm blaming the House. That's easy to do here.

But I would ask you all to look at that from administration policy because the loan guarantees are essential for all kinds of carbon emission energy and the fact that nuclear is one of them that has used those loan guarantees, has been the excuse to cut them back. Ms. Zoi, you will find the loan guarantees valuable for everything that you think and talk about other than nuclear.

It's been the decision of Congress that they are to be used for both, the more traditional renewables and nuclear. That's one place where I think a little bit of leaning on the House would be helpful. Thank you, Madame Chairman.

Senator SHAHEEN. Thank you, Senator Bennett. I can't imagine that anybody suggested you were the tool of any industry.

Senator BENNETT. It's the election cycle.

Senator SHAHEEN. Seeing there are no more questions members will have until 5 p.m. tomorrow to submit any additional questions for the record.

At this time the committee stands adjourned.

[Whereupon, at 3:45 p.m. the hearing was adjourned.]

APPENDIX

RESPONSES TO ADDITIONAL QUESTIONS

RESPONSES OF WILLIAM F. BRINKMAN TO QUESTIONS FROM SENATOR MURKOWSKI

ROLE OF THE DIRECTOR

Question 1. In the last month or so, we have had hearings on the nomination of Steven Koonin for Undersecretary of Science. You have nominated been as the Director of the Office of Science. Would you please explain how you see your role, as compared to that of Mr. Koonin's, at the Department?

Answer. The Director of the DOE Office of Science (SC) has primary responsibility for the scientific and technical strategic direction and line management of the Office of Science. This includes: determining the strategic directions for the discovery science and the mission-relevant science supported by SC; identifying the needs for new scientific user facilities and implementing their design and construction; and implementing the SC role in the Administration's research and energy agendas. The Director also has direct oversight of the 10 SC national laboratories and would work closely with the Under Secretary for Science in coordinating SC basic research with the applied technology programs.

Under Secretary for Science Steven Koonin is the principal advisor to the Secretary of Energy on scientific matters relating to all programmatic elements of the Department of Energy and the National Nuclear Security Administration, not solely the Office of Science. He serves as agent for informing and carrying out the Secretary's initiatives in advancing President Obama's energy agenda; he is responsible for effecting integration among basic and applied DOE programs and the NNSA, for assessing effectiveness, and for long-term strategic planning of the Department's R&D portfolio. If confirmed, I look forward to working with Dr. Koonin to improve the efficiency and effectiveness of the Department's science and technology enterprise.

ITER

Question 2. Over the last several years, U.S. financial support for international science experiments, like the International Thermonuclear Experimental Reactor (ITER) has been limited, placing our involvement in jeopardy. What do you envision as the United States' role in international programs like ITER, both in the immediate future and long-term interaction?

Answer. As Secretary Chu has said, international research collaboration is extremely important to address our most pressing energy challenges. The Office of Science has a long history of working with international partners to advance science and technology. The Large Hadron Collider, which will open new frontiers in our understanding of the fundamental nature of the universe, is the most recent example. ITER is a very complex project that must be managed well in order to succeed; the US role, through the Office of Science, will focus on rigorous project management.

R&D FUNDING AUTHORIZATION

Question 3. The Senate Energy and National Resources Committee is considering legislation that would double the Office of Science's Research and Development funding authorization level over the next four years. Is that the appropriate level and timeframe? How will the Office of Science support Energy Research and Development? Are there issues that the Committee is missing when considering Energy Research and Development?

Answer. I believe that the Office of Science has the capacity to manage effectively a budget doubling profile that extends over the next four years, completing the doubling in FY 2014 rather than FY 2016, as currently authorized under the America

COMPETES Act of 2007. A doubling of funding would allow the Office of Science to support a broad portfolio of grand challenge science and “use-inspired” basic research that touches almost every energy technology supported by the Department of Energy’s technology offices. The research activities supported have the potential to achieve scientific breakthroughs that make fundamental new technologies feasible. These activities include, for example, the DOE Bioenergy Research Centers established in 2007 and the Energy Frontier Research Centers announced in May 2009.

LABS AND UNIVERSITIES

Question 4. How do you see the national laboratories working with universities?

Answer. The Office of Science encourages collaboration between national laboratories and universities through its program planning and management practices. These include activities such as scientific workshops for identifying compelling research opportunities and annual meetings of SC program grantees, which include broad participation from university and laboratory scientists. As you know, nine of the 10 Office of Science national laboratories are managed and operated either by a university or a nonprofit research organization in collaboration with a university consortium. These partnerships are also enabled through the use of Funding Opportunity Announcements that encourage universities, national labs, and the private sector to apply. The three DOE Bioenergy Research Centers (BRCs) are one example of how the Office of Science is now encouraging the scientific community to self-assemble to submit outstanding proposals for research. Both of the laboratory-led BRCs include multiple university partners. Likewise, the university-led BRC includes DOE laboratory partners. If confirmed as Director of the Office of Science, I will look at additional ways to encourage these types of productive partnerships.

NEW RENEWABLES

Question 5a. I’m trying to see where you think we will get the greatest “bang for our bucks” from our research and development dollars.

What do you see as the areas of renewable energy technology that are most likely to be economic and to achieve the greatest penetration into the market of renewable technologies in the future?

Answer. While market penetration for renewables is largely under the purview of EERE, revolutionary breakthroughs in the performance and cost of renewable energy technologies are likely to be built on advances in fundamental science. Secretary Chu is vigorously pursuing new approaches to accelerate market penetration of renewable technologies through integrated research management, including the Energy Innovation Research Hubs (Hubs) proposed in the FY 2010 budget which will focus on specific topics and the 46 new Energy Frontier Research Centers (EFRCs) which are funded in FY 2009 which are largely inter-disciplinary collaborations within universities.

Question 5b. Where should we be concentrating finite research dollars—in geothermal EGS, in ocean hydrokinetics, in hydrogen fuel cells, in cellulosic biomass, in algae biofuel development, or another area?

Answer. I believe that there are no “silver bullet” energy technologies, and if confirmed, I would expect to support a broad spectrum of research and technology development efforts with a view toward marketable results.

COMPETITION BETWEEN LABS

Question 6. Are the national laboratories collaborating with each other to your satisfaction, or do you believe there remains too much competition between the laboratories? How can greater collaboration be achieved?

Answer. While I am not yet at the Department, I have had some experience over the years with the DOE laboratory system, particularly at Sandia and Princeton. If confirmed, I will certainly work to promote an environment not only among the laboratories, but also between the laboratories and the Department that works to the best interest of science and the American people.

RESPONSES OF WILLIAM F. BRINKMAN TO QUESTIONS FROM SENATOR CORKER

Question 1. Dr. Brinkman, would you support a change in current DOE policy to authorize national laboratories to collaborate, on a non-exclusive basis, with private industry on RFP’s from the DOE and other federal agencies?

Answer. The policy you allude to is derived from several statutory and regulatory requirements that preclude the DOE laboratories, as Federally Funded Research and Development Centers (FFRDCs), from competing with the private sector. If con-

firmed, I would consider reviewing the current DOE policy to determine if any changes are appropriate.

Question 2. Over the last four years, the Department of Energy's Leadership Class computing facility at Oak Ridge has reclaimed world leadership in high-performance computing. All labs need computing capabilities, but given the tremendous success at Oak Ridge, do you support the strategy of continuing to fund a leadership class facility for the U.S.?

Answer. Yes. Leadership Class Computing capability and capacity are essential for DOE missions in science, energy, and national security.

RESPONSE OF WILLIAM F. BRINKMAN TO QUESTION FROM SENATOR MARK UDALL

Question 1. DOE has a solid track record of supporting energy sciences and collaborating with universities and industry. However, I have concerns about DOE's ability to collaborate with the small business community. Although the SBIR program within DOE Office of Science is very successful in identifying and funding new innovative technologies, DOE has not taken full advantage of the research capabilities of the small business community. In contrast, NASA and DOD have pursued a dual-use culture in which they actively work to bring technologies coming from small businesses into acquisition. As DOE Office of Science is investing millions of dollars into small businesses through the SBIR program, how does DOE ensure that the critical technologies developed for DOE receive the attention towards development and commercialization that DOE's larger institutional partners enjoy?

Answer. When our SBIR grantees are successful, the sponsoring DOE research programs benefit from the early introduction of mission-related technology into the marketplace. DOE's SBIR program has supported excellent research, resulting in spin-off companies and technologies, and is a model with respect to the commercialization assistance program. I'm told, however, that the commercial impact of the Department's SBIR/STTR program could be strengthened, and if confirmed, I promise you I will examine additional options.

RESPONSES OF ANNE CASTLE TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. Please describe the initiatives that you expect to undertake as Assistant Secretary for Water and Science.

Answer. The major priorities I expect to work on if confirmed as Assistant Secretary of the Interior for Water and Science involve:

- (a) advancing the role of sound science to inform the determination of policy and decision making;
- (b) overseeing research into and analysis of the impacts of climate change on water supplies;
- (c) developing adaptation strategies for dealing with the impacts of climate change; and
- (d) promoting research into and development of better water conservation strategies as one means of conserving both water and energy.

Question 2. Please describe how water resource constraints can become energy constraints.

Answer. Most forms of energy require water at some stage during the process of extraction and/or transformation of raw materials into energy. This can be thought of as the water footprint of various types of energy. This relationship is probably the most direct for hydropower projects, where the water supplies available in a given river system acutely impact the amount of hydropower that can be generated. But water is also necessary for most other forms of energy generation. Extraction and processing of fossil fuels is also water-intensive and dependent on adequate water supplies. The operation of many types of power plants depends upon the availability of water for cooling. The issue of the relationship between energy and water use is important to me and I would be pleased to explore this issue further with the Committee if confirmed.

Question 3. Please describe the impact of energy policies and regulations on water demands and its availability.

Answer. There is a clear nexus between water use and the energy needed to make that water available. Pumping and delivering water and recycling brackish and wastewater are all energy-intensive. Current desalination technologies are energy- and capital-intensive. Conserving water conserves energy. I believe that water conservation is one of the most promising avenues for overall energy conservation, and if confirmed, I will work aggressively in this arena. As I stated in my answer to the previous question, I am also aware that most types of energy require significant

quantities of water during production. Therefore, energy policies favoring one type of energy over another can have a significant impact on water demands. Water that is used to produce energy or during mining processes is not available to meet other needs. I strongly believe that the impact of energy policies on water demands needs to be part of the energy decision making process.

Question 4. As we further address relationships between energy and water, what type of qualitative data do you believe is needed to better understand the linkages to biodiversity and ecological health?

Answer. As you know, the Department of the Interior plays a lead role in several environmental restoration efforts across the country, including in the Sacramento-San Joaquin Bay-Delta in California, and on the Rio Grande in New Mexico. The efforts underway there and elsewhere to protect species rely on sound data on water quality, stream flows, impacts of water flows on species health and mortality, and general ecological health. If confirmed, I would look forward to any opportunities to expand the science available to managers in these areas, and hopefully to improve the body of knowledge that underpins sound resource management decisions.

Question 5a. Based on your experiences working with many water projects in Colorado, and throughout the Western United States, could you please describe the extent of the aging water infrastructure problem?

Answer. I am aware that Reclamation has provided very rough, preliminary-level estimates of at least \$3 billion to rehabilitate, replace, and modify Reclamation assets under major rehabilitation and replacement programs in the future. I am further advised that more than half of Reclamation's facilities are now more than 50 years old. Although Reclamation has lengthened the service lives of many of these facilities through preventive maintenance, a number of these facilities are beginning to show the need for major repair, rehabilitation, and replacement due to age. The management of these repair costs is an ongoing process, and operating entities receive formal reports of facility reviews conducted with identified maintenance or repair recommendations.

Question 5b. How can we best address the growing need to rehabilitate the Bureau's aging infrastructure?

Answer. If confirmed, as part of confronting the aging infrastructure problem, I would work with stakeholders in Reclamation projects and other experts to identify financing needs and develop joint strategies for keeping needed infrastructure operational. I am advised that Reclamation's Asset Management Plan (AMP) sets forth the agency's strategy for managing aging infrastructure. The AMP sets out four principal business objectives: 1) Delivery reliability—Maximize the delivery of water and power to customers; 2) Cost Effectiveness—Deliver products and services to customers at the least cost possible; 3) Safety and Security—Maintain facilities and equipment to the highest standards of safety and security and; 4) Support to the Western Interconnection—Adhere to national standards addressing practices and policies to support the Western high-voltage electric power system.

Question 6a. I recognize that the Stimulus has put more than \$100 million to further fund Title XVI water reuse and reclamation programs at BOR. However, the proposed FY 2010 budget proposes less than \$10 million to further advance the program. What do you see as the future for this program?

Answer. I believe that water recycling has been and will continue to be an important part of Reclamation's suite of tools to help provide water in the West. The original Title XVI statute was designed to put local sponsors in the role of providing the primary funding for constructing, and all funding for operating, water recycling projects. I believe this orientation toward a significant but limited federal role was prudent and should continue. As for the FY 2010 budget request for Title XVI program, I am advised that this request, along with funds already appropriated under the Recovery Act, will make substantial progress on the dozens of Title XVI projects authorized to date.

Question 6b. Will you support making this program a budget priority?

Answer. If confirmed, I will work to advance water recycling projects consistent with the resources and authorities available to the Department. The FY 2010 budget request for Title XVI projects is \$9 million for seven authorized projects, program management, and research activities.

Question 7a. Within Western water, there remain several unresolved issues surrounding Indian water right settlements. Please describe how you intend to address unresolved Indian water rights settlements.

Answer. If confirmed as Assistant Secretary, I would support the efforts of the Department to settle rather than litigate Indian water rights claims wherever possible. Negotiated settlements are usually preferable to litigation for two major reasons. First, litigation does not necessarily get "wet water" to Indian tribes because litigation only defines the respective water rights and priorities of those involved and

does not establish infrastructure often needed to put the quantified water rights to use. Second, settlements not only bring Indian and non-Indian communities together to confront joint water management challenges but also encourage consensus-driven solutions to other problems and build better relationships among tribes and their neighbors.

I understand that the Secretary's Indian Water Rights Office has been established within the Department in order to coordinate the negotiation and subsequent implementation of Indian water rights settlements. This Office oversees the activities of 33 federal teams in the field negotiating or implementing settlements and assuring coordination among the Department's bureaus and agencies. If I am confirmed as Assistant Secretary, all the agencies under my purview will provide support for settlement activities.

Question 7b. How do you intend to fund current and future negotiated settlements?

Answer. This question is a difficult one and I hope to work with Congress as well as other federal agencies to identify solutions to the challenges posed by negotiated settlement costs. It is my understanding that most settlements have been funded through appropriations via the Bureau of Reclamation and the Bureau of Indian Affairs. I am also informed that supporting all the settlements that may be proposed in the next decade could pose an enormous strain on these agencies' budgets. Attempts to avoid the need for continuing appropriations, such as by using the Reclamation Fund as a source of settlement funding, raise difficult PAYGO issues. Confronting these challenges will require the cooperation and effort of the Administration, Congress and settlement stakeholders because part of the answer is going to involve identifying appropriate federal costs of these settlements and negotiating provisions on project sizes, time frames, and federal and non-federal cost sharing so that the settlements can succeed. If confirmed as Assistant Secretary, I will attempt to work with all affected interests towards the goal of achieving settlements that can be adequately funded.

Question 7c. Can you also assure me that you will work to ensure that the Department seeks enough funding to implement these settlements?

Answer. No settlement can succeed if it is not supported and funded by the implementing agencies. I understand that developing a budget involves setting priorities. One of my priorities as Assistant Secretary will be finding a way to achieve settlements that can be implemented while still fulfilling the core missions of the agencies under my purview.

Question 8. Please describe what you think should be the focus of the federal government's strategy to help our nation meet its future water supply challenges, and whether there is sufficient funding to meet these needs.

Answer. I believe that the path forward for water supplies involves a multi-faceted approach that draws upon the best ideas in water conservation, recycling, conveyance, management and data enhancement, and in some cases, new storage capacity. Clearly the federal role in many of these areas will remain critical, but I also believe that local stakeholders, cities, States, tribes and other parties will be indispensable to effectively meet many of these water supply challenges. The funding demands on the federal government will depend in part on the priorities set by, and funding available to, these state and local partners.

Question 9. Please describe the primary institutional, financial, and regulatory impediments to the development of new water supplies, and how can they be overcome.

Answer. Typically, the impediments faced in the development of new water supplies involve identification of economic costs and benefits, limited legal authorities among participating agencies, identification of cost-share partners, environmental concerns, concerns about growth and disruption of historical agricultural activities and values, and State-based water rights. In my experience, a collaborative approach where all stakeholders can participate is essential to address and eventually overcome these impediments.

Question 10. Please describe the role your office could play in furthering water technology research.

Answer. I know that between the USGS and Reclamation, there already exists a robust set of water technology research efforts underway on topics that include desalination, climate change, invasive species mitigation, and linkages between water quality and energy exploration. I believe strongly in the need for cutting-edge scientific information, and I wholeheartedly support the researchers that make it possible. If confirmed, I will be an advocate for water technology research and would look forward to working with the Committee to enhance the Department's already impressive record in this area.

DOYON YUKON FLATS EIS

Question 11. Interior's F&W Service has been finishing an EIS of a potential land exchange in Alaska's Yukon Flats National Wildlife Refuge for two years. The exchange would make it easier for an Alaska Native Corp.—Interior's Doyon Corp.—to drill for natural gas deposits, while actually improving wildlife habitat in the Interior of Alaska. The EIS is probably 95% complete. I would encourage you to see that the EIS is finished, published and submitted for public comment so that an informed decision can be made on this issue soon. Finishing the EIS won't lock the Administration into proceeding with the land exchange, but not finishing it will guarantee that this issue will never be settled one way or the other.

Will you commit to finishing the Doyon Yukon Flats EIS?

Answer. This issue is under the purview of the Assistant Secretary for Fish and Wildlife and Parks. While I am not aware of all of the details related to the land exchange, it is my understanding that the Fish and Wildlife Service is moving forward to finalize the EIS, and that the Service anticipates that it should be completed in FY 2010. If confirmed, I will work with my counterparts here at the Department, as appropriate, on this issue.

NSSI FUNDING

Question 12. The US Fish and Wildlife Service is considering listing dozens of Alaskan species under the Endangered Species Act, such as walruses and differing varieties of seals. The North Slope Science Initiative (NSSI) was established in Alaska to produce sound science upon which to base these important policy decisions, but funding for the NSSI has been very limited and is nonexistent in the FY 2009 Omnibus budget.

What is your view on funding for increasing wildlife science studies as you build future budgets, like the FY 2011 budget?

Answer. Like President Obama, I believe that understanding science, technology, and innovation will be key to strengthening our economy and forming policy that will work for the American people. The President has called for a national strategy to nurture and sustain a culture of scientific innovation. If confirmed as Assistant Secretary at the Department of the Interior, I will commit to a fair and balanced approach to consideration of finding needs, including support for scientific research.

IZEMBEK EIS FUNDING

Question 13. Congress earlier this spring passed the Omnibus lands bill that calls for a land exchange involving the Izembek Wildlife Refuge on the Alaska Peninsula. This legislation provided for a one-lane gravel road, from Cold Bay to the King Cove airport, for medical emergency cases. The law requires DOI to do an environmental impact statement on the impacts of the road and the rest of the land exchange.

Will you support funding for the Department to use to perform the EIS, if confirmed?

Answer. This issue is under the purview of the Assistant Secretary for Fish and Wildlife and Parks, and any decisions related to implementation of that provision in the Omnibus Public Land Management Act would be made by that office. Nevertheless, I know that this issue is important to you. I am informed during his confirmation process, then-nominee for Assistant Secretary for Fish and Wildlife and Parks Tom Strickland noted that that the legislation requires the Department to comply with the National Environmental Policy Act and to prepare an Environmental Impact Statement (EIS) within 60 days of being notified by the State and the King Cove Corporation of their intent to exchange the lands identified in the Act. The purpose of an EIS is to provide an assessment of the environmental impacts of a proposed agency action, so an EIS must be carried out before an agency decision is made. If confirmed, I will work with my counterparts in the Department, as appropriate, on this issue.

WOOD BISON REINTRODUCTION

Question 14. The Alaska Department of Fish and Game is currently working with the United States Fish and Wildlife Service to reintroduce Wood Bison near Fairbanks, Alaska, and obtain a non-essential designation for these Wood Bison.

The 10(j) and 4(d) provisions of the Endangered Species Act will provide a strong and legally defensible set of regulations that will apply to the management of wood bison, and will include exemptions from most of the regulatory requirements that normally apply to endangered species.

If confirmed, will you commit to direct the USFWS to make a determination on using the experimental population designation through the 10(j) and 4(d) provisions for the Woodland Bison within the next 6 months?

Without such a designation in the near future there is little to no chance of this issue being resolved in a satisfactory manner to the people of Alaska.

Answer. Endangered Species Act implementation issues fall under the purview of the Assistant Secretary for Fish and Wildlife and Parks, and decisions that relate to the potential listing of Wood Bison and any accompanying regulation will be made by that office. Nevertheless, I am informed that during his confirmation process, then-nominee for Assistant Secretary for Fish and Wildlife and Parks Toni Strickland noted that, under sections 10(j) and 4(d) of the ESA, the Service has the ability, as appropriate, to provide management flexibility for species that are reintroduced. He also committed to working with the State of Alaska and the Service to ensure that the Department moves forward on this matter in a timely and responsive fashion.

RESPONSES OF ANNE CASTLE TO QUESTIONS FROM SENATOR LANDRIEU

Question 15. The Water Resources Research Act (WRRRA) established a federal-state collaboration with institutions of higher education—I support this Act. Are you familiar with the work of the state water resources research institutes established under the provisions of the Water Resources Research Act? Do you believe that the institutes are effective in working with state and local stakeholders on water resources research issues?

Answer. I am aware of the state water resources research institutes and consider them to be an important component of our Nation's water research and training infrastructure. I understand that the institutes work closely with State and local stakeholders and that for every federal dollar that the institutes receive, they receive several more from non-federal stakeholders to work on important issues.

Question 16. I am pleased to see that the Interior Department has requested funding in the FY 2010 budget of the U.S. Geological Survey to support the WRRRA program. Will you ensure that the Survey and the Department make full use of the research, information transfer, and education and training capabilities of this program?

Answer. The Administration values the role of science to inform decision-making. If confirmed, I will ensure that the USGS and the Department make full use of the research, information transfer, and education and training capabilities of the WRRRA program.

Question 17. President Obama and Secretary Salazar have both spoken forcefully about the need to restore the role of science to the forefront of policy development and decision making in this Administration. How do you foresee the water science agenda developing in the next several years at the USGS and with the scientific community at our universities, particularly our land-grant universities?

Answer. There is no doubt that sound science should serve as a base for policy development and decision making, and I fully intend to do all I can to ensure that this happens. In recent years, we have witnessed an increase in water-resources conflicts around the Nation. There is a need to apply more scientific expertise to solve these problems and narrow the areas of dispute, and if confirmed, I will encourage the USGS to continue to embrace opportunities to partner with universities and work with other partners in this effort.

RESPONSE OF ANNE CASTLE TO QUESTION FROM SENATOR UDALL

Question 18. The Water Resources Research Act created an important program that has significant support within Congress. The program's objectives are water research, information transfer, and education and training. I understand that many water managers in the West and throughout the country have been trained through this program. How can we best utilize the water resources research institutes located at the land grant universities to improve the work of the bureaus under your direction and produce the next generation of water scientists, engineers, and managers?

Answer. I consider the state water resources research institutes to be an important component of our Nation's water research and training infrastructure. I understand that the institutes work closely with State and local stakeholders and that for every federal dollar that the institutes receive, they receive several more from non-federal stakeholders to work on water-related science and policy issues. Both the USGS and the Bureau of Reclamation have utilized the institutes to draw upon the expertise of the university community to assist them in addressing specific problems. The Water Resources Research Act explicitly encourages the Secretary of the

Interior to utilize and take advantage of the expertise and capabilities available through the institutes. If confirmed, I will encourage the USGS and the Bureau to take full advantage of the institutes because they provide us with access to valuable sources of expertise while contributing to the training of the talent we need to address existing and future water problems.

RESPONSES OF CATHERINE R. ZOI TO QUESTIONS FROM SENATOR MURKOWSKI

RESOURCES WITHIN LAND WITHDRAWALS

Question 1. This Committee regularly considers legislation to designate certain federal lands for a particular purpose. Quite often, those designations include lands with significant natural resource potential that could be locked up if the proposal moves forward. I have a standing request that the Interior Department provide very specific information on the natural resources that may be rendered unavailable by bills before this Committee. It is my understanding that the Interior Department may require some assistance from DOE to ascertain what raw materials are used for which alternative energy technologies.

Will you commit to coordinating with the Interior Department on my request so that this Committee has the most accurate information possible related to any legislation that we may consider?

Answer. Yes

BUDGETING

Question 2. As you know, billions of dollars were directed to EERE as a result of the American Reinvestment and Recovery Act. What is the status of the programs that the money was intended for? How do you plan to manage these programs when inevitably, next year and for years to come, the annual budget will provide dramatically lower funding levels?

Answer. I am not familiar with the details, but my understanding is that the Department has worked quickly to get Recovery Act funds obligated, and to establish the accountability and tracking systems that are needed. If confirmed, I will make management of these funds one of my top priorities. In addition, I will work to examine how we can smooth the transition period after the Recovery Act funds are spent.

APPLIANCE STANDARDS

Question 3. Please describe how issues surrounding the Appliance Standards Program have put Congress in a position where it seems necessary to legislate appliance standards. How do you plan to address the backlog of regulations that need to be made in this area? Do you feel that you have or will have the workforce necessary to complete your objectives?

Answer. I strongly believe that doing a better job on appliance standards is one of the most important items on the energy efficiency agenda. Although I have had some initial discussions about the issue, I do not at this time have fully formed views about the causes of past delays, and whether legislation or additional resources are required. If confirmed, I pledge to work hard to improve this critical program, and to work closely with you on it.

ENERGY STAR

Question 4. Please describe EERE's relationship with the Environmental Protection Agency in regards to the Energy Star Program. In your opinion, how can this relationship be improved?

Answer. As I noted in my testimony, I was proud to lead the team at EPA that created the Energy Star program. I have retained a strong interest in the program over the years, but am not completely up to speed on the EPA-EERE relationship. It is my understanding that the two agencies are in productive discussions about how to improve cooperation on this vital program. If confirmed, I will work to strengthen Energy Star and to ensure that EPA and DOE are working together effectively.

DIFFERENTIATING AMONG FOREIGN ENERGY SUPPLIERS

Question 5. You have asserted that failing to wean ourselves off of foreign oil will negatively impact our national security. I agree with you. I also know that it will take a great deal of time to accomplish this task. In the meantime, we must be careful about the policies that we pursue.

Section 526 of the 2007 energy bill prohibits the government from purchasing fuels with a greenhouse gas footprint that exceeds conventional gasoline. Given our reliance upon Canadian tar sands to meet domestic demand for energy, this provision will have an increasingly negative impact on national security.

How important do you believe it is to differentiate among foreign suppliers, to the extent that eliminating our reliance upon them proves a difficult task? Is it better to get fuel from Canada than from the Middle East?

Answer. I think the key goal is to reduce the dependence of our transportation system on oil, regardless of source. The most promising technologies at present are next-generation biofuels and plug-in hybrids. If confirmed, I look forward to working to advance these important technologies.

TIMING OF ENERGY SHIFT

Question 6. In attempting to reduce our dependence on foreign oil, we must be realistic about how long that effort may take. I am very concerned about some of the unintended consequences that may accompany alternative resources, particularly with regard to land use, reliability of supply, and the adequacy of infrastructure.

How long do you believe it will take to eliminate our reliance on foreign oil, and what fuel or fuels do you believe we should rely upon to get to that point?

Answer. As you note, moving away from oil will take time. I don't have a schedule in mind, but I do pledge to work hard to accelerate deployment of the most promising technologies as quickly as possible. As noted above, I believe the most promising technologies at present are next-generation biofuels and plug-in hybrids.

100 PERCENT 'CLEAN' ELECTRICITY IN 10 YEARS?

Question 7. The "Alliance for Climate Protection" marketing campaign, of which you served as the Chief Executive Officer, calls for "repowering America" to use 100% clean electricity within 10 years. I have a series of questions related to this time-frame and whether or not it is your intent to pursue such an agenda if confirmed as the Assistant Secretary for EERE:

a. Existing Electric Fleet: Much of the existing power fleet is not 'clean', under your definition of that term, and yet many of those plants have a useful life that extends far beyond the decade that you have advocated for transitioning entirely away from them.

Do you believe power plants that do not meet the Alliance for Climate Protection's definition of 'clean' should be shut down before the end of their useful life?

In the case of coal-fired power plants, do you believe that retrofitting them to capture and sequester their greenhouse gas emissions should be mandatory in order to meet the Alliance for Climate Protection's definition of clean within 10 years?

Do you believe that carbon capture and sequestration technologies, for retrofit or incorporation into new plants, are commercially ready for deployment and would not have a negative impact on reliability of the grid or affordability of power?

Answer. The goal of the Alliance "Repower America" campaign was to illustrate the technological feasibility of getting to 100% clean electricity within 10 years. The analysis did not include a detailed plan about whether and when power plants should be shut or retrofitted. If I am confirmed, I look forward to working to support Secretary Chu's vision for energy, and will focus my energies on the energy efficiency and renewable energy portfolio at the Department of Energy.

b. Approach to clean energy development: Outside of mandating the use of a particular energy resource, the issue of price parity is one that figures prominently into market-based decisions as to whether alternative energy technologies are deployed or not.

Do you believe that making energy resources that do not meet the Alliance for Climate Protection's definition of 'clean' more expensive is an effective way to achieve greater deployment of alternative energy resources?

Answer. As I mentioned at the hearing, I think there are a variety of policy tools that we can use to encourage greater deployment of clean energy technologies, including a cap-and-trade system, a renewable electricity standard, and appliance efficiency standards.

c. Role for nuclear and hydroelectric electricity: Vice President Gore has asserted that, in attempting to get to '100 by 2018', nuclear and hydroelectric power should stay at their current levels. Analyses of cap-and-trade bills, and the Lieberman-Warner legislation in particular, have shown that as much as 51 percent of new, compliant power built by 2030 will be generated by nuclear. The highest figure is from the Department of Energy's own Energy Information Administration, which found

that 264 Gigawatts of 517 Gigawatts likely to be built through 2030 will come from nuclear.

Do you believe that the Energy Information Administration's analysis is wrong and, if not, how is the Vice President's desire to see nuclear and hydroelectric kept at their current levels realistic? If so, what is the basis for your disagreement with them?

Do you believe that nuclear and hydroelectric power should count towards cap-and-trade compliance?

Answer. I'm not familiar with the EIA study you cite, but as I mentioned in the hearing, nuclear is clearly a low-carbon energy source. Although I will be focusing on energy efficiency and renewable energy, the Secretary has made it clear that he believes nuclear power must continue to play an important role in the coming decades. Under a cap-and-trade system, I think that all forms of low-carbon electricity stand to benefit.

Question 8. Opposition to new nuclear power: In an October 2006 article in *The Australian*, you described nuclear power as "impractical" as a part of the solution to climate change. Nuclear power provides approximately 20 percent of our electricity, and nearly two-thirds of our greenhouse gas-free power. Last year, the production cost of nuclear power was 1.8 cents per kilowatt hour—even lower than coal. A nuclear power plant, in terms of land use, requires as little as one-half an acre for each megawatt of output. Wind farms, on the other hand, require 60 acres per megawatt. The average capacity factor for American plants was 91.5% last year, which compares to an average of 25 to 40% for wind and less than 20% for photovoltaic solar. Nuclear power plants are expensive, but have proven time and again to be good investments for the ratepayer and the utilities. And nuclear waste can be recycled in a way that maximizes efficiency, minimizes environmental impact, and advances non-proliferation—if only we assert the political will that you speak so strongly for in support of some other energy resources.

What about nuclear power then, is "impractical"?

Do you believe nuclear power should be a greater part of our energy mix as we take steps to address global climate change, or do you agree with Vice President Gore that the contribution of nuclear power should be held constant?

Answer. There is strong public opposition to nuclear power in Australia, and I was reflecting that reality in describing nuclear as impractical for that reason in that country. I was not describing nuclear as impractical in any other context or for any technical or other reason. I do think nuclear has an important role to play as we move to lower-carbon energy sources.

PUBLIC SUPPORT FOR CARBON CAPS

Question 9. In an October 2007 interview, you cited polling that found 80 percent of Americans were "aware that the climate is changing". But other polls on climate change have revealed a much less significant level of support for actually doing what many believe is necessary to avert the worst consequences.

Are you concerned about this?

Is there some aspect of climate change that you think the public is failing to understand?

Answer. I think that there is a growing consensus about the need to act, but I do think we can do a better job informing people about solutions. Energy efficiency offers a tremendous opportunity for families to reduce their energy bills, and if I'm confirmed, I will work to better inform people about them.

USE OF THE CLEAN AIR ACT TO REGULATE CARBON EMISSIONS

Question 10. You have called the absence of federal controls on greenhouse gas emissions a 'carbon loophole'. I would consider a loophole to be something that occurs despite the existence of a law meant to prohibit it. I am unaware of a federal law that directly limits greenhouse gas emissions, despite the best efforts of Congress to enact one.

Do you believe it was Congress' intent to regulate greenhouse gas emissions under the Clean Air Act?

Answer. I do not have a view on this issue, though I understand that the Supreme Court has ruled on it. I think the best way to deal with climate change is through new legislation, such as a cap-and-trade bill.

COST CERTAINTY VS. ENVIRONMENTAL CERTAINTY

Question 11. I co-sponsored climate legislation offered by Chairman Bingaman and Senator Specter during the last Congress. The safety valve contained in that

bill, and the cost certainty associated with it, was a very important component of the legislation to me.

Do you think the costs associated with global climate change mitigation should factor into decisions related to undertaking it? Is there a balance to be struck?

Answer. Yes, we do need to strike a balance. One of the reasons that I'm so excited about the EERE portfolio is that there are many energy efficiency opportunities that actually save consumers and businesses money and reduce greenhouse gas emissions. There are a variety of barriers that stand in the way of fully realizing these opportunities, and if I'm confirmed I look forward to working to break them down.

CLIMATE CHANGE RHETORIC

Question 12. A serious effort has been undertaken to 'sell' climate change, as evidenced by the marketing nature of the Alliance for Climate Protection. It is my understanding that Council on Environmental Quality staff has met with communications consultants on a number of occasions. And last year, with regard to messaging, you were quoted in the Washington Post as saying that "We have to mainstream this. It has to become easy and normal." In my opinion, what we really need is an open and honest debate about what the problem is and what Americans are willing to do to try and fix it.

Will you commit to focusing not on a marketing campaign but on a fact-driven and honest discussion with the public about what we can do to address the problem?

Answer. Yes.

CARBON TAX

Question 13. Ralph Nader and Toby Heaps, writing in the Wall Street Journal in December 2008, advocated for a global carbon tax. Their reasoning was interesting. Since each nation's proportionate share of emissions is always changing, it may be difficult to decide what cap any individual country should be subjected to over time. China has surpassed us in greenhouse gas emissions and India may do the same.

In attempting to simplify international negotiations for what is a global problem, do you believe imposing a similar tax in value per ton emitted could be easier than bickering over who is responsible for what share of the cuts?

I know you advocate a cap on emissions, but do you see any upside at all to a carbon tax or is a cap superior in every conceivable way? Should a global cap be based on per-capita emissions?

Answer. In my view, international linkages is actually a reason to favor cap-and-trade over a carbon tax, in that a U.S. cap-and-trade system could be linked to the EU and other systems, creating a truly global market. For this and other reasons, I think a cap-and-trade system is an effective means for us to achieve our climate objectives.

USE OF CAP-AND-TRADE REVENUES

Question 14. A great deal of money is at stake in the form of free allowances or auction revenues under a cap-and-trade program. Politicians have advocated for spending that money on everything from tax cuts, to R&D, to healthcare reform.

If you were advising members of the Congress, and the Administration, what would you suggest cap-and-trade revenues be spent on?

Answer. If confirmed, I would work to help implement the priorities that Secretary Chu and President Obama have outlined in this regard. As I understand it, those priorities include funding for clean energy R & D, as well as assistance for vulnerable businesses, families and communities.

COMMERCIAL VIABILITY OF CLEAN TECHNOLOGIES

Question 15. In 1997, you said that the technologies needed to cut greenhouse gas emissions in Australia for Kyoto Protocol compliance were "tried, tested and off the shelf." There are many different programs at the Department of Energy whose justification for existing is that this is not the case.

Are these programs unnecessary? Are subsidies related to all energy resources unnecessary?

Answer. I believe that we have many technologies—energy efficiency foremost among them—for meeting our near-term goals. However, we will need new and better technologies to meet the steep, long-term reductions that are required to avoid the worst impacts of climate change, and research and subsidies are important to bringing these technologies to market.

COMPARING ACID RAIN PROGRAM TO CARBON CAPS

Question 16. You have cited the Acid Rain program as a model for the achievability of a domestic cap on greenhouse gas emissions. But there are significant differences between that program and the one being considered for carbon—with regard to acid rain, there were only about 3,000 emission points to cover, the technologies were ready, and we had low-sulfur sources of coal in the Powder River Basin. The challenge we face today is much different. For starters, there is no low-carbon coal.

Do you believe current CCS technologies are at the same point that scrubber technologies used for compliance with the acid rain program were in the early 1990s?

Answer. I am confident that we can move swiftly to demonstrate CCS technology at scale and to deploy it. I know that this is a priority for Secretary Chu, and though it will not be within my EERE portfolio, I whole-heartedly support Secretary Chu's vision for coal.

VISION OF THE ELECTRICAL GRID

Question 17. In an article published earlier this year, you envisioned an electrical grid that would “allow early-evening winds off the Delaware coast to help power afternoon air conditioning in California.” You also envisioned “solar power produced in Arizona to support manufacturing centers in Ohio.”

a. Siting/Cost Allocation: As you know, our committee has been working on a transmission title that may ultimately be included in a broader energy bill. Some of the toughest issues to resolve are implicit in your examples—specifically, cost allocation and siting authority.

Can federal and state regulators make progress on a collaborative basis, or do you believe additional federal siting authority needed?

Who do you think should be responsible for paying for new transmission lines, particularly renewable feeder lines? Should regions that do not directly benefit from a line be required to help pay for its costs?

b. Regional Impacts: The manufacturing centers you referred to in Ohio are already there, and that has a lot to do with the availability of affordable coal-fired power in that region. Given the difficulties associated with building transmission lines, under your vision, that manufacturing center would more likely re-locate directly to Arizona for solar power than remain in Ohio. That is why so many of us are concerned about regional impacts.

Do you think a national grid will result in any negative regional impacts, and if so, how can those impacts be mitigated?

Answer. Siting and cost allocation are challenging questions. I do believe that a more interconnected grid would serve an important national purpose. In the process of building that grid, we need to find the right balance between that national interest and the interests of particular states, localities and citizens; we also need to find the right balance in allocating the cost of transmission system upgrades. I do not have a perfect formula at the ready, but if confirmed, I pledge to work closely with you on these critical issues.

SUPPORT FOR INTERNATIONAL TREATY

Question 18. In 1997, during the Clinton Presidency, the Senate voted unanimously, 95-0, in favor of a resolution declaring that the United States should oppose any climate change agreement that would “(A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period, or (B) would result in serious harm to the economy of the United States.” That vote took place on July 25, 1997; our economy grew at a rate of 4.5 percent that year. In the first quarter of this year, by comparison, our economy contracted at a rate of 5.7 percent.

Do you believe anything has changed between 1997 and now, in terms of Americans' desire to not be disadvantaged in terms of economic opportunities, or by a failure of developing nations to participate?

Answer. Global warming is a global problem that requires a global solution, and that means the participation of China, India and other countries. At the same time, I think that the U.S. has an obligation and an opportunity to lead, and I believe that we should move forward with a domestic program to reduce our emissions in a cost-effective way.

BIOFUELS

Question 19. The Department of Energy's Biomass Program, which includes a number of major biofuels projects, is part of EERE.

Can you describe your views on the potential for biofuel production and consumption in the United States, and the role you see them playing in the United States' energy supply in the years ahead?

Answer. I believe that biofuels offer great potential to provide a significant fraction of our transportation fuel. In large part, this will depend on development of next-generation biofuels, something that I look forward to working on if I am confirmed.

ALGAL BIOFUELS

Question 20a. The Office of Biomass recently released a report entitled "Microalgae Feedstocks for Biofuels Production." It states that "these fuels could potentially replace 50 percent or more of the total diesel used in the United States, using marginal land and saline water" and asserts that "algae-based biofuels deserve consideration for research and development in the future." Unfortunately, algal feedstocks are most entirely excluded from the Renewable Fuels Standard, which is our nation's primary mechanism to boost the development of biofuels.

Will you commit to working with the Committee to ensure that algae and other promising feedstocks have equal opportunity to contribute to our nation's future energy supply?

Answer. Yes.

Question 20b. Would you support changes to the current Renewable Fuel Standard that enable algae to benefit from the guaranteed market it provides?

Answer. As I understand it, the RFS is under the EPA's jurisdiction, but I look forward to exploring ways to promote the use of a diversity of biofuels, including algae.

Question 20c. Do you believe that algae should receive financial incentives comparable to those available for other feedstocks, such as corn starch and cellulose?

Answer. I believe that we should support renewable resources that need help getting to market viability, and I plan to take a detailed look at what types of incentives might be appropriate for algae.

Question 20d. In general, should our nation's biofuel policy prioritize the use of feedstocks that cannot be used as food, that do not utilize fresh water or large amounts of land, and that actually consume carbon dioxide during the production process?

Answer. We need to use our resources wisely. We need a diversity of sources for energy, and when it comes to biofuels, broadening the base of feedstocks is part of that solution.

BIOFUEL SUBSIDIES

Question 21a. According to the Environmental Working Group, 76 percent of federal renewable energy subsidies went to corn ethanol in 2007. That represents a total of about \$3 billion, while wind, solar, and other renewable resources received roughly \$750 million.

Do you believe this reflects an appropriate balance, or should federal subsidies be more evenly distributed among renewable resources?

Answer. I appreciate the issue of aligning funding with priorities that can provide significant overall public benefit. If confirmed, I look forward to taking a detailed look at the current distribution of support and working with you to ensure appropriate levels of investment.

Question 21b. Do you believe existing subsidies for corn ethanol production are too high?

Answer. Corn ethanol has played an important role in establishing a domestic biofuels industry. As Secretary Chu has pointed out, corn can only take us so far in terms of scale, and therefore we need to invest in new technologies that will make it possible to use other feedstocks to create transportation fuels. I look forward to working with Secretary Chu on the next generation of biofuels. These fuels, which can be derived from waste streams and crops like sorghum and switchgrass, hold tremendous promise.

LIFECYCLE EMISSIONS OF BIOFUELS

Question 22a. According to the EPA, some biofuels result in only slight reduced emissions, or perhaps even increased emissions, compared to conventional gasoline.

Do you believe it is appropriate to require biofuels to meet minimum environmental performance thresholds, such as the reductions in greenhouse gas emissions established by the 2007 energy bill?

Answer. I think it is important to find ways to reduce greenhouse gas emissions across the board, and the policy tool you cite is an important one for biofuels.

Question 22b. Do you support the inclusion of indirect emissions, including from domestic and international land use changes, in the calculation of lifecycle emissions for biofuels?

Answer. I understand that analysis of indirect emissions, including land use, is required under current law, and I support implementing this provision in a thoughtful way. My understanding is that EPA has made a proposal in this regard, and that it is currently out for peer review and public comment.

Question 22c. Do you believe it is appropriate to subsidize biofuels that have little to no positive impact on the environment and our efforts to reduce greenhouse gas emissions?

Answer. A diversity of feedstocks is important to our energy security, but we should emphasize fuels that can achieve the twin goals of reducing our reliance on foreign sources of energy and reducing greenhouse gas emissions.

INTERMEDIATE FUEL BLENDS

Question 23a. The Department of Energy and several other government agencies are in the process of evaluating the use of intermediate ethanol-gasoline blends (between E10 and E85). However, numerous stories have also indicated that widespread use of fuels with higher ethanol content could damage trillions of dollars worth of vehicles, equipment, and infrastructure.

How do you think our nation's stated desire to increase biofuel production can be reconciled with the difficulties of making sure that production does not have adverse consequences for public health and private property?

Answer. This is an important question that needs to be carefully evaluated. I do not have a view at this time about the impact of increased ethanol blends on vehicles and other equipment.

Question 23b. Do you support a flex-fuel vehicle mandate? Do you believe that additional incentives should be provided to facilitate the deployment of E85 fueling stations?

Answer. I believe that we should invest in the necessary infrastructure and incentives to promote the deployment of vehicles that will accomplish the twin goals of reducing our reliance on foreign sources of energy and reducing greenhouse gas emissions.

BIOFUELS AND BIOELECTRICITY

Question 24. A paper published in Science reports that it is significantly more efficient—in terms of distance traveled and emissions offset—to convert corn and switchgrass into electricity instead of liquid fuel. If this is accurate, then it may be that electric vehicles hold greater potential than internal combustion engines powered with renewable biofuel.

If confirmed, how will you ensure that our policies reflect the best use of renewable resources such as biomass?

Answer. If confirmed, I plan to work with this committee to make sure that we are efficiently using renewable resources and taking a holistic look at our use of renewable energy.

LOW CARBON FUEL STANDARD

Question 25. The State of California has enacted a Low Carbon Fuel Standard to reduce the “carbon intensity” of transportation fuel. A federal mandate has been proposed in both chambers of Congress, but many experts have concluded that it be costly, ineffective, and detrimental to national security.

What are your general views on a federal Low Carbon Fuel Standard?

Answer. I support reducing our carbon output across various sectors of the economy, including transportation. If confirmed, I plan to examine the costs and benefits of a Low Carbon Fuel Standard and other proposals.

CASH FOR CLUNKERS

Question 26a. It is possible that the Department of Energy may be responsible for administering a nationwide “Cash for Clunkers” program, if it is enacted by Congress.

Do you believe such a program is a good use of limited taxpayer dollars?

Answer. To the extent that market barriers exist inhibiting sensible environmental and economic outcomes in the auto purchasing sector, I support the concept of providing an incentive to help consumers get inefficient vehicles off the road.

Question 26b. Do you believe such a program should include stringent requirements in order to ensure not only economic stimulus, but also environmental benefits for those who do not participate?

Answer. I believe that a properly designed “Cash for Clunkers” program could help automakers, consumers, and the environment.

APPROACH TO POLICY

Question 27a. The President has indicated that he intends to place great emphasis on energy policy, and seek to accelerate the transition to a cleaner energy future.

Please list, and provide as much detail as possible for, several of the most important policies that you would have the Office of EERE pursue to improve our nation’s energy policy.

Answer. Management—I know that there is a lot of work to be done to make sure that EERE spends the taxpayers’ money responsibly. I am looking forward to rolling up my sleeves to make sure that we are responsible stewards of those funds, and it starts with being an effective manager. This is especially true for making sure that the Recovery Act money going through EERE is spent quickly but with accountability.

Energy Efficiency—As the Secretary repeatedly points out, 40% of the energy we use in the US is in buildings, and there are big gains to be made in energy efficiency. Making sure that we are taking advantage of opportunities to reduce our energy usage through efficiency will be a top priority.

Commercialization of Technologies—DOE has been and will continue to be excellent at R&D, but I plan to emphasize the work we can do at EERE to go from research to commercialization and market penetration for renewable technologies. The valley of death has been even harder to traverse in the current economy, making our role in investing in these technologies as they look to achieve market penetration and maturity even more important.

Question 27b. Do you believe it is more important to concentrate on policies that will increase renewable energy generation, or policies that will reduce greenhouse gas emissions?

Answer. I believe that these goals can, and should, go hand in hand.

Question 27c. Do you believe the standards, mandates, and other regulations that make up our nation’s energy policy should be technology-neutral, and provide subsidy parity to all qualifying resources?

Answer. In general I believe that government should set goals and allow the private sector to find the best technological solutions. That said, some technologies are further along than others, and treating them all equally could be the death knell for some that have would benefit greatly from government investment to reach market competitiveness.

OCEAN ENERGY

Question 28a. Your writings do not include a lot on your views about the potential for ocean hydrokinetic energy. Coming from Alaska with 34,000 miles of coastlines and EPRI’s estimates that the state could generate 1,250 terrawatts of power from tidal and wave energy, and given that your office will control research and funding for ocean energy, I would like to hear your views on what role hydrokinetic energy should play in the renewable energy mix.

How willing will you be to espouse development aid for the technology?

Answer. I believe there is strong potential for tidal and wave energy. If confirmed, I look forward to working with the committee on funding levels for the water program.

Question 28b. The proposed FY 2010 budget contains only \$30 million for research and demonstration grants. Do you believe that is the right amount, or is more needed?

Answer. As I understand it, the FY10 budget is 10 times what DOE requested for FY09. If confirmed, I look forward to assessing if more is needed for water power R&D.

OCEAN-WIND ENERGY

Question 29a. There is growing talk of trying to site wind and ocean wave devices together on offshore energy platforms.

What is your view of trying to marry the two renewables together to improve frequency of power and to lower transmission costs per kilowatt produced?

Answer. I have not taken a detailed look but am generally supportive of approaches to reduce the cost of renewables and increase electricity reliability.

Question 29b. What should we in government be doing to help such a trend, if you favor it?

Answer. If confirmed, I look forward to evaluating what support DOE could potentially offer for such a trend.

GEO THERMAL

Question 30a. Alaska is a state where about half of the landmass sits over hot mantle that might be conducive to geothermal technology. We don't have a shallow plate boundary like Iceland does, but we do have 60 active volcanoes, 40 of which has erupted over the past 300 years and still produce a lot of heat.

If confirmed, will you target aid only for development of existing hydrovent prospects, only for development of enhanced geothermal technology—the mining of hot rocks—or both?

Answer. I believe that we should invest in both conventional and enhanced geothermal, and I believe the Department is currently putting forth efforts to this end.

Question 30b. What is your view of how DOE should spend its money, and how much it should spend, on geothermal development?

Answer. If confirmed, I will take a close look at the current spending plan for geothermal and examine if adjustments are necessary.

WIND GENERATION

Question 31. I've read a number of your published articles where you support massive increases in wind power. Wind is a great addition in Alaska where rural electricity costs, at present, about 65 cents per kilowatt hour. But even on the Great Plains the wind does not blow all the time, about 40 percent efficiency is considered very good performance for wind turbines.

How will the interstate transmission grid make up for the down times when the wind is not blowing, if not by burning fossil fuels to cover peaking power needs?

Answer. We need to modernize the grid, and I understand the committee has been working to include provisions in their legislation to that end. With a nationally interconnected grid, the capacity to balance and optimize baseload, intermediate and peaking resource types, including renewable, carbon-based, nuclear and conservation, alongside the varying demands across the nation could improve considerably.

ENERGY EFFICIENCY

Question 32a. Energy efficiency is often described as the “low hanging fruit” of energy policy. Some groups refer to it as the “cleanest, cheapest, and fastest” domestic energy resource.

What are the top five steps you intend to advocate from the federal level at EERE to promote energy efficiency?

Answer. Ensure consumers and businesses get access to efficient technologies through standard-setting and promotion programs like Energy Star; ensure new construction takes advantage of efficient technologies and practices through improved building codes; ensure the existing built environment is enhanced and improved through widespread weatherization and retrofit programs; ensure utilities and other service providers are aligned in the aggressive pursuit of efficiency opportunities; ensure there is investment in R&D to continually improve the efficiency of homes, businesses and industry.

Question 32b. What do you believe is achievable, in percentage reduction terms, as far as reducing U.S. energy demand over the next decade?

Answer. We can make significant gains in efficiency. As the Secretary has pointed out, 40% of our energy use comes from buildings, and existing technologies have the potential to reduce our energy consumption in buildings by upwards of 50%. That is a 20% potential reduction just in one sector, and without new technological breakthroughs. Smarter use of our grid and other efficiency gains can increase that percentage even further.

RENEWABLES IN THE PACIFIC ISLANDS

Question 33. In April, the National Renewable Energy Laboratory announced that as part of the Energy Development in Island Nations (EDIN) program, the U.S. would work with the U.S. Virgin Islands to develop a plan to deploy more renewable energy and energy efficient technologies. This is a commendable goal. In addition to the U.S. Virgin Islands, among those who could be most impacted by climate change are the Pacific Islanders, including the U.S. territories of Guam, the Com-

monwealth of the Northern Mariana Islands, and American Samoa, as well as the Freely Associated States of Palau, the Republic of the Marshall Islands, and the Federated States of Micronesia. These populations also feel the impact of high fossil fuel costs much more prominently than other parts of the United States. In an effort to address both issues, the Pacific Islanders are looking more and more to renewable and alternative energy sources like solar, wind, geothermal, and ocean thermal to provide for their power. What role can and will the Office of Energy Efficiency and Renewable Energy play in helping these areas move forward with their efforts?

Answer. As the office with oversight over NREL, EERE will be prominently involved in NREL outreach, including the EDIN program.

Question 34. Comparison to impact of a more modest proposal. The Energy Information Administration has analyzed the so-called “25 by 25” initiative, which combines a requirement that 25% of electricity be produced from renewable sources by 2025 with a requirement that 25% of transportation fuels be derived from renewable sources by 2025. In its report issued in September of 2007, the EIA found that this initiative would result in average retail electricity prices that are 6.2 percent higher in 2030 than they would otherwise have been and average retail prices for gasoline that are 11 percent higher in 2030 than they would otherwise have been. The Energy Information Administration also projected GDP losses through 2030 of \$296 billion as a result of the “25 by 25” initiative.

The Alliance for Climate Protection advocates for a “100 by 2018” shift in the electricity sector, which is far greater than “25 by 25”.

Do you believe that the Energy Information Administration’s analysis of the “25 by 25” initiative is wrong, and if not, are you concerned about what the economic consequences may be if the United States did attempt to fully convert, by 2018, the entire electricity sector to energy resources that the Alliance for Climate Protection defines as “clean”? If so, what is the basis for your disagreement with EIA?

Answer. I am not intimately familiar with the details of the EIA analysis. I believe that converting to clean energy sources can be a win for the environment, the economy, and our national security.

UTILITY OF EXISTING LAWS, IF CARBON CAP IS ENACTED

Question 35. Last Congress, you were an outspoken advocate of renewing tax credits for renewable energy sources. Congress is now considering a cap-and-trade program that will essentially require the purchase of the energy that those tax credits are meant to facilitate the deployment of. Both chambers are also considering a mandate for renewable electricity.

If Congress requires that people buy renewable power, should it still be subsidized? Is it not enough to have a guaranteed market?

Answer. A guaranteed market is very important, but some technologies are further along than others, and treating them all equally could be the death knell for some key technologies that could benefit significantly from tax credits.

Question 36. In light of the facts that natural gas is an abundant domestic fuel and is the lowest carbon fossil fuel, what role do you see natural gas playing in reducing our dependence on foreign energy and in reducing emissions? Do you have plans to expand DOE R&D on natural gas technologies?

Answer. Natural gas falls outside of the jurisdiction of EERE.

RESPONSES OF CATHERINE R. ZOI TO QUESTIONS FROM SENATOR WYDEN

Question 1. Review of renewable energy programs. It is not news that many energy efficiency and renewable energy programs within the Office of Energy Efficiency and Renewable Energy (EE/RE) did not fare well during the previous administration. At various times, the Bush Administration proposed to eliminate the geothermal program, the hydropower program, and the weatherization program. Funding for industrial efficiency was cut to a third of FY2000 levels. Even within better funded programs, such as the wind energy and the biofuels program, funding and program priorities were established that severely curtailed promising research and development activities such as advanced biofuels other than ethanol and offshore wind. And even when Congress stepped in to ensure the survival of endangered technologies, such as hydro and hydrokinetic energy, the programs have fared poorly. The hydro and hydrokinetic programs are not independent activities and are now managed as part of the wind program. Will you commit to undertake a full review of the DOE efficiency and renewable energy programs within your office and report back to this Committee on your plans to ensure that leadership teams, staffing, program structures and budgets support a robust portfolio of energy technologies?

Answer. If confirmed, I plan to review the various program offices in terms of direction, management, and more. I believe that EERE must support a robust port-

folio of energy technologies, and I look forward to working with this Committee to ensure that we are meeting the nation's energy needs.

Question 2. The role of DOE laboratories in EE/RE programs. The DOE's laboratories possess many unique capabilities. However, in some areas of energy R&D, such as marine hydrokinetic energy, those laboratories have limited experience. Yet, program offices continue to rely heavily on DOE laboratories to conduct program activities. For instance, the DOE marine hydrokinetic program has issued a solicitation for laboratory-directed research which is several times larger in total dollar commitment than a simultaneous solicitation for industry supported research. At the same time, funding for the Department's designated Marine Energy Research Centers are below their needs and capabilities. Please explain how you will utilize DOE laboratory capabilities within the EE/RE programs and how you will ensure that program funding is allocated among laboratory, industry, and academic research and development partners.

Answer. I believe that the expertise of DOE labs is an invaluable asset, and we should continue to draw on their capabilities and facilities where appropriate. However, I also believe that competitive solicitations are vital to investing EERE funds fairly and transparently. If confirmed, I plan to work with the labs, academia, and the private sector to ensure that monies are being spent wisely and to the partners that can achieve the goal of moving developing technologies ahead.

RESPONSE OF CATHERINE R. ZOI TO QUESTION FROM SENATOR BURR

Question 1. Awnings and window shades are a very cost efficient way for consumers to realize immediate energy savings. What is your position on supporting research and promotion of these existing energy-saving products?

Answer. I believe that energy efficiency is the low hanging fruit in terms of reducing costs for consumers, our emissions, and our energy use. If confirmed, I look forward to exploring ways to maximize the deployment of energy efficient technologies old and new.